

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



Vulkanox BHT

Version 4.1 Revision Date: 30.11.2022 SDS Number: 203000002158 Date of last issue: 18.10.2022
Country / Language: DE / 6N (EN)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : Vulkanox BHT
Product code : 000000000005490154
REACH Registration Number : 01-2119555270-46-0000; 01-2119565113-46-0013
Substance name : 2,6-di-tert-butyl-p-cresol
EC-No. : 204-881-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub-stance/Mixture : Antioxidant agent
A tabular overview of all uses for which an exposure scenario is provided can be found at the beginning of the annex to this safety data sheet.

1.3 Details of the supplier of the safety data sheet

Company : LANXESS Deutschland GmbH
Production, Technology,
Safety & Environment
51369 Leverkusen, Germany

Responsible Department : +49 221 8885 2288
infosds@lanxess.com

1.4 Emergency telephone number

Emergency telephone number : For 24/7 multilingual emergency please call
CHEMTREC EMEA: +44 20 3885 0382 and mention CCN
1001748.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Short-term (acute) aquatic hazard, Category 1 H400: Very toxic to aquatic life.

Long-term (chronic) aquatic hazard, Category 1 H410: Very toxic to aquatic life with long lasting effects.

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2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Warning

Hazard statements : H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P273 Avoid release to the environment.

Response:
P391 Collect spillage.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Fine dust clouds may form explosive mixtures with air.

SECTION 3: Composition/information on ingredients

3.1 Substances

Components

Chemical name	CAS-No.EC-No.	Classification	Concentration (% w/w)
2,6-di-tert-butyl-p-cresol	128-37-0 204-881-4	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor Aquatic Acute: 1 M-Factor Aquatic Chronic: 1	>= 90 - <= 100

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methanol	67-56-1 200-659-6	Flam. Liq. 2; H225 Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 STOT SE 1; H370 Acute toxicity estimate Acute oral toxicity: 100 mg/kg Acute inhalation toxicity: 0,501 mg/l Acute dermal toxicity: 300 mg/kg	$\geq 0,1 - < 1$
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For explanation of abbreviations see section 16.

Specific Concentration limits (Regulation EC) No 1272/2008)

Chemical name	CAS-No. EC-No.	Classification	Concentration (%)
methanol	67-56-1 200-659-6	STOT SE1; H370 STOT SE2; H371	$\geq 10 \%$ 3 - < 10 %

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Move out of dangerous area.
Do not leave the victim unattended.
Show this safety data sheet to the doctor in attendance.
- If inhaled : Move the victim to fresh air.
Keep patient warm and at rest.
If breathing is labored, administer oxygen.
If symptoms persist, call a physician.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off immediately with soap and plenty of water.
Wash affected areas, including hair, beneath nails and other concealed areas with Polyethylene Glycol 400. Repeat the washing with soap and water.

If Polyethylene Glycol 400 is not available, wash immediately with soap and plenty of cold water.
Get medical attention if symptoms appear.
- In case of eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.

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Keep eye wide open while rinsing.
Continue to rinse for at least 10 minutes.
Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.

If swallowed : Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
Rinse mouth with water.
Give small amounts of water to drink.
Ingest activated charcoal.
Keep patient warm and at rest.
If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Do not allow run-off from fire fighting to enter drains or water courses.
Very toxic to aquatic life with long lasting effects.
Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
Toxic and irritating gases/fumes may be given off during burning or thermal decomposition.

Hazardous combustion products : Carbon dioxide (CO₂)
Carbon monoxide

5.3 Advice for firefighters

Special protective equipment for firefighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Further information : Promptly isolate the scene by removing all persons from the

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vicinity of the incident if there is a fire.
No action shall be taken involving any personal risk or without suitable training.
Cool containers/tanks with water spray.
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : No action shall be taken involving any personal risk or without suitable training.
Keep unnecessary and unprotected personnel from entering.
Do not touch or walk through spilt material.
Avoid dust formation.
Ensure adequate ventilation.
In case of inadequate ventilation wear respiratory protection.
Use personal protective equipment.

6.2 Environmental precautions

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Move containers from spill area.
Pick up and arrange disposal without creating dust.
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).
Keep in suitable, closed containers for disposal.
Dispose of wastes in an approved waste disposal facility.
Non-sparking tools should be used.
Keep people away from and upwind of spill/leak.

6.4 Reference to other sections

For personal protection see section 8., For disposal considerations see section 13.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Annex should be consulted for any available use-specific information provided in the Exposure Scenario(s).

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7.1 Precautions for safe handling

- Advice on safe handling : For personal protection see section 8.
Protect from moisture.
Do not get in eyes or mouth or on skin.
Do not breathe vapours/dust.
Smoking, eating and drinking should be prohibited in the application area.
Avoid release to the environment.
Dispose of rinse water in accordance with local and national regulations.
Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use.
Provide for appropriate exhaust ventilation and dust collection at machinery.
Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame).
In case of insufficient ventilation, wear suitable respiratory equipment.
- Advice on protection against fire and explosion : Provide appropriate exhaust ventilation at places where dust is formed.
- Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Dust explosion class : St2

7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep containers sealed until ready for use. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards. Take precautionary measures against electrostatic discharges. Avoid dust formation.
- Storage class (TRGS 510) : 11, Combustible Solids
- Recommended storage temperature : < 50 °C
- Further information on storage stability : No decomposition if stored and applied as directed.

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7.3 Specific end use(s)

Specific use(s) : Adhesives, sealants
Lubricants, greases, release products
Use of tyres, general rubber goods and plastic goods.
plastics additive

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Annex should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
2,6-di-tert-butyl-p-cresol	128-37-0	AGW (Vapour and aerosols, inhalable fraction)	10 mg/m ³	DE TRGS 900
	Peak-limit: excursion factor (category): 4;(II)			
	Further information: When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
methanol	67-56-1	TWA	200 ppm 260 mg/m ³	2006/15/EC
	Further information: Indicative, Identifies the possibility of significant uptake through the skin			
		AGW	100 ppm 130 mg/m ³	DE TRGS 900
	Peak-limit: excursion factor (category): 2;(II)			
	Further information: Skin absorption, When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
methanol	67-56-1	Methanol: 15 mg/l (Urine)	In case of long-term exposure: after more than one shift, Immediately after exposure or after working hours	TRGS 903

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
2,6-di-tert-butyl-p-cresol	Workers	Inhalation	Long-term exposure, Systemic effects	1,76 mg/m ³

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	Workers	Dermal	Long-term exposure, Systemic effects	0,5 mg/kg bw/day
	Consumers	Inhalation	Long-term exposure, Systemic effects	0,435 mg/m ³
	Consumers	Dermal	Systemic effects, Long-term exposure	0,25 mg/kg bw/day
	Consumers	Oral	Long-term exposure, Systemic effects	0,25 mg/kg bw/day
methanol	Workers	Inhalation	Long-term exposure, Systemic effects	130 mg/m ³
	Workers	Inhalation	Short-term exposure, Systemic effects	130 mg/m ³
	Workers	Inhalation	Long-term exposure, Local effects	130 mg/m ³
	Workers	Inhalation	Short-term exposure, Local effects	130 mg/m ³
	Workers	Dermal	Systemic effects, Long-term exposure	20 mg/kg bw/day
	Workers	Dermal	Short-term exposure, Systemic effects	20 mg/kg bw/day
	Consumers	Inhalation	Long-term exposure, Systemic effects	26 mg/m ³
	Consumers	Inhalation	Short-term exposure, Systemic effects	26 mg/m ³
	Consumers	Inhalation	Long-term exposure, Local effects	26 mg/m ³
	Consumers	Inhalation	Short-term exposure, Local effects	26 mg/m ³
	Consumers	Dermal	Systemic effects, Long-term exposure	4 mg/kg bw/day
	Consumers	Dermal	Short-term exposure, Systemic effects	4 mg/kg bw/day
	Consumers	Oral	Long-term exposure, Systemic effects	4 mg/kg bw/day
	Consumers	Oral	Short-term exposure, Systemic effects	4 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
2,6-di-tert-butyl-p-cresol	Fresh water	0,199 µg/l
	Freshwater - intermittent	1,99 µg/l
	Marine water	0,0199 µg/l
	Sewage treatment plant	17 µg/l
	Fresh water sediment	0,45819 mg/kg dry weight (d.w.)
	Marine sediment	0,04582 mg/kg dry weight (d.w.)
	Soil	0,0539 mg/kg dry weight (d.w.)
	Secondary Poisoning	16,67 mg/kg food
	methanol	Fresh water
Freshwater - intermittent		1540 mg/l

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	Marine water	2,08 mg/l
	Sewage treatment plant	100 mg/l
	Fresh water sediment	77 mg/kg dry weight (d.w.)
	Marine sediment	7,77 mg/kg dry weight (d.w.)
	Soil	100 mg/kg dry weight (d.w.)

8.2 Exposure controls

Engineering measures

Use only in an area equipped with explosion proof exhaust ventilation.
If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal protective equipment

Eye protection : Safety glasses with side-shields

Hand protection

Material : Butyl rubber - IIR
Break through time : ≥ 8 h
Glove thickness : $\geq 0,5$ mm
Wearing time : < 60 min

Material : Fluorinated rubber - FKM
Break through time : ≥ 8 h
Glove thickness : $\geq 0,4$ mm
Wearing time : < 60 min

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations

Skin and body protection : Dust impervious protective suit
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Filter type : P1 filter

Protective measures : For further information, please consult the following hazardous substance information system: "GESTIS Substance Database" (German Social Accident Insurance).

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

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Appearance	:	Crystalline solid
Physical state	:	solid
Colour	:	white
Odour	:	odourless
Odour Threshold	:	No data available
Melting point/range	:	69,8 °C
Boiling point/boiling range	:	265 °C (1.013 hPa)
Flammability	:	May form combustible dust concentrations in air.
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	127 °C Method: closed cup
Ignition temperature	:	> 400 °C
Decomposition temperature	:	> 265 °C
pH	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Solubility(ies)		
Water solubility	:	0,76 mg/l (20 °C)
Solubility in other solvents	:	Solvent: Aliphatic hydrocarbons Solvent: Aromatic hydrocarbons Solvent: Acetone Solvent: Ethanol Solvent: ethyl acetate Solvent: Dichloromethane.
Partition coefficient: n-	:	No data available

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octanol/water

Vapour pressure : 0,01 hPa (20 °C)
Relative density : No data available
Density : 1,03 g/cm³ (20 °C)
Bulk density : 650 kg/m³
Relative vapour density : No data available
Particle characteristics
Assessment : No data available
Particle size : No data available

9.2 Other information

Explosives : No data available
Oxidizing properties : No data available
Flammable solids
Burning number : No data available
Self-ignition : No data available
Dust explosion class : St2
Evaporation rate : No data available
Molecular weight : No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Dust can form an explosive mixture in air.
Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

Conditions to avoid : Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame).
Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources

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of ignition. They may explode and cause injury and/or death.
Avoid dust accumulation in enclosed space.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Components:

2,6-di-tert-butyl-p-cresol:

Acute oral toxicity : LD50 (Rat, male and female): > 2.930 mg/kg
Method: OECD Test Guideline 401
GLP: yes
Assessment: The substance or mixture has no acute oral toxicity
Remarks: Dosage caused no mortality

Acute dermal toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Dosage caused no mortality

methanol:

Acute oral toxicity : LD50 (Rat): > 2.528 mg/kg
Method: OECD Test Guideline 401
GLP: no

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Assessment: The substance or mixture has no acute oral toxicity

Remarks: Dosage caused no mortality

Acute toxicity estimate: 100 mg/kg

Method: Expert judgement

Acute inhalation toxicity : LC50 (Rat, male and female): 128,2 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute toxicity estimate: 0,501 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: Expert judgement

Acute dermal toxicity : LD50 (Rabbit): 15.800 mg/kg

Acute toxicity estimate: 300 mg/kg

Method: Expert judgement

Skin corrosion/irritation

Not classified based on available information.

Components:

2,6-di-tert-butyl-p-cresol:

Species : Rabbit
Exposure time : 24 h
Remarks : Mild skin irritation
(not subject to classification)

methanol:

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:

2,6-di-tert-butyl-p-cresol:

Species : Rabbit
Exposure time : 24 h
Remarks : Mild eye irritation
(not subject to classification)

methanol:

Species : Rabbit
Result : No eye irritation

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Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

2,6-di-tert-butyl-p-cresol:

Exposure routes : Skin contact
Species : Human
Result : Does not cause skin sensitisation.

methanol:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Did not cause sensitisation on laboratory animals.
GLP : no

Germ cell mutagenicity

Not classified based on available information.

Components:

2,6-di-tert-butyl-p-cresol:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: rat hepatocytes
Metabolic activation: with metabolic activation
Result: negative

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: negative

Genotoxicity in vivo : Test Type: Cytogenetic assay
Species: Rat (male)
Cell type: Bone marrow
Application Route: Oral
Result: negative

Test Type: Micronucleus test
Species: Mouse (male and female)

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Cell type: Bone marrow
Application Route: Intraperitoneal
Result: negative

methanol:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: No information available.

Test Type: HPRT test
Test system: Chinese hamster fibroblasts
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: No information available.

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative
GLP: No information available.

Carcinogenicity

Not classified based on available information.

Components:

2,6-di-tert-butyl-p-cresol:

Species : Rat, male and female
Application Route : Oral
NOAEL : 247 mg/kg bw/day
Target Organs : Liver
GLP : yes

methanol:

Species : Rat, male and female
Application Route : Inhalation
Exposure time : 24 month(s)
Dose : 0,013 - 0,13 - 1,3 mg/l
Frequency of Treatment : 20 h daily
NOAEC : $\geq 1,3$ mg/l
Method : OECD Test Guideline 453
Result : negative
GLP : No information available.

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Reproductive toxicity

Not classified based on available information.

Components:

2,6-di-tert-butyl-p-cresol:

Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Fertility: NOAEL: 500 mg/kg body weight
GLP: yes

Effects on foetal development : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: NOAEL: 100 mg/kg body weight
Developmental Toxicity: NOAEL: 100 mg/kg body weight
GLP: yes

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Repeated dose toxicity

Components:

2,6-di-tert-butyl-p-cresol:

Species : Rat, male
NOAEL : 25 mg/kg
Application Route : Oral
Number of exposures : daily
GLP : yes
Target Organs : Liver
Symptoms : alteration in liver enzymes

Aspiration toxicity

Not classified based on available information.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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Further information

Product:

Remarks : No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

2,6-di-tert-butyl-p-cresol:

- Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 0,57 mg/l
Exposure time: 96 h
Method: Regulation (EC) No. 440/2008, Annex, C.1
GLP: yes
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,48 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
GLP: yes
- Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 0,4 mg/l
End point: Growth rate
Exposure time: 72 h
Method: Regulation (EC) No. 440/2008, Annex, C.3
GLP: yes
- NOEC (Desmodesmus subspicatus (green algae)): 0,4 mg/l
End point: Growth rate
Exposure time: 72 h
Method: Regulation (EC) No. 440/2008, Annex, C.3
GLP: yes
- M-Factor (Acute aquatic toxicity) : 1
- Toxicity to microorganisms : EC50 (activated sludge): > 10.000 mg/l
End point: Respiration inhibition
Exposure time: 3 h
Method: OECD Test Guideline 209
GLP: yes
- Toxicity to fish (Chronic toxicity) : NOEC: 0,053 mg/l
Exposure time: 42 d
Species: Oryzias latipes (Orange-red killifish)
Method: OECD Test Guideline 210
GLP: yes
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,023 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

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Method: OECD Test Guideline 202
GLP: yes

M-Factor (Chronic aquatic toxicity) : 1

methanol:

Toxicity to fish : LC50 (*Lepomis macrochirus* (Bluegill sunfish)): 15.400 mg/l
Exposure time: 96 h
Analytical monitoring: yes
Method: EPA-660/3-75-009
GLP: No information available.
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): > 10.000 mg/l
Exposure time: 48 h
Analytical monitoring: no
Method: DIN 38412
GLP: no
Remarks: Fresh water

Toxicity to algae/aquatic plants : EC50 (*Pseudokirchneriella subcapitata* (microalgae)): ca. 22.000 mg/l
End point: Growth rate
Exposure time: 96 h
Analytical monitoring: No information available.
Method: OECD Test Guideline 201
GLP: No information available.
Remarks: Fresh water

Toxicity to microorganisms : EC50 (activated sludge): > 1.000 mg/l
Exposure time: 3 h
Analytical monitoring: yes
Method: OECD Test Guideline 209
GLP: No information available.
Remarks: Fresh water

12.2 Persistence and degradability

Components:

2,6-di-tert-butyl-p-cresol:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 4,5 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

methanol:

Biodegradability : Test Type: aerobic
Concentration: 3 mg/l
Result: Readily biodegradable.
Biodegradation: 76 %

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Exposure time: 5 d
Method: Closed Bottle test
GLP: no

Photodegradation : Degradation (indirect photolysis): 50 %

12.3 Bioaccumulative potential

Components:

2,6-di-tert-butyl-p-cresol:

Bioaccumulation : Bioconcentration factor (BCF): > 2.000

Partition coefficient: n-octanol/water : log Pow: 5,1
Method: measured

methanol:

Partition coefficient: n-octanol/water : log Pow: -0,77
Method: Calculated value

12.4 Mobility in soil

Components:

2,6-di-tert-butyl-p-cresol:

Distribution among environmental compartments : Koc: 14750, log Koc: 3,9 - 4,2
Method: estimated

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:

2,6-di-tert-butyl-p-cresol:

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).. This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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12.7 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Annex should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product : The generation of waste should be avoided or minimised wherever possible.
Where possible recycling is preferred to disposal or incineration.
Dispose of as hazardous waste in compliance with local and national regulations.
May only be transported to suitable incinerator with reduced non-air emissions observing local official regulations.
The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number or ID number

ADN : UN 3077
ADR : UN 3077
RID : UN 3077
IMDG : UN 3077
IATA : UN 3077

14.2 UN proper shipping name

ADN : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(2,6-DI-TERT-BUTYL-P-CRESOL)

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ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(2,6-DI-TERT-BUTYL-P-CRESOL)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(2,6-DI-TERT-BUTYL-P-CRESOL)

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(2,6-DI-TERT-BUTYL-P-CRESOL)

IATA : Environmentally hazardous substance, solid, n.o.s.
(2,6-DI-TERT-BUTYL-P-CRESOL)

14.3 Transport hazard class(es)

ADN : 9

ADR : 9

RID : 9

IMDG : 9

IATA : 9

14.4 Packing group

ADN

Packing group : III

Classification Code : M7

Hazard Identification Number : 90

Labels : 9



ADR

Packing group : III

Classification Code : M7

Hazard Identification Number : 90

Labels : 9



Tunnel restriction code : (-)

RID

Packing group : III

Classification Code : M7

Hazard Identification Number : 90

Labels : 9

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IMDG

Packing group : III
Labels : 9



EmS Code : F-A, S-F

IATA (Cargo)

Packing instruction (cargo aircraft) : 956 : 400,00 KG
Packing group : III
Labels : 9



IATA (Passenger)

Packing instruction (passenger aircraft) : 956 : 400,00 KG
Packing group : III
Labels : 9



14.5 Environmental hazards

ADN

Environmentally hazardous : yes



ADR

Environmentally hazardous : yes



RID

Environmentally hazardous : yes

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IMDG

Marine pollutant : yes



IATA (Passenger)

Environmentally hazardous : yes



IATA (Cargo)

Environmentally hazardous : yes



14.6 Special precautions for user

Hazard and Handling Notes. : Environmentally hazardous substance.
Keep dry.
Keep separated from foodstuffs.

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Not applicable

International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors : Not applicable

REACH - Candidate List of Substances of Very High : This product does not contain sub-

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Concern for Authorisation (Article 59). stances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

Council Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors. : Neither banned nor restricted

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

		Quantity 1	Quantity 2
E1	ENVIRONMENTAL HAZARDS	100 t	200 t

Water hazard class (Germany) : WGK 2 obviously hazardous to water
Code Number: 724
Remarks: Classification according to AwSV § 6 (4)

Other regulations:

Leaflets of the German "Berufsgenossenschaft Rohstoffe und chemische Industrie (BG RCI)":
M 050 "Tätigkeiten mit Gefahrstoffen"
M 053 "Arbeitsschutzmaßnahmen für den Umgang mit Gefahrstoffen"

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements

H225 : Highly flammable liquid and vapour.
H301 : Toxic if swallowed.
H311 : Toxic in contact with skin.
H331 : Toxic if inhaled.
H370 : Causes damage to organs.
H371 : May cause damage to organs.
H400 : Very toxic to aquatic life.

Full text of other abbreviations

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Acute Tox. : Acute toxicity
Aquatic Acute : Short-term (acute) aquatic hazard
Aquatic Chronic : Long-term (chronic) aquatic hazard
Flam. Liq. : Flammable liquids
STOT SE : Specific target organ toxicity - single exposure
2006/15/EC : Europe. Indicative occupational exposure limit values
DE TRGS 900 : Germany. TRGS 900 - Occupational exposure limit values.
TRGS 903 : TRGS 903 - Biological limit values
2006/15/EC / TWA : Limit Value - eight hours
DE TRGS 900 / AGW : Time Weighted Average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECL - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

The data contained in this Safety Data Sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered to be a guidance for processing and does not contain any warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is the responsibility of the recipient of the product to ensure that any proprietary rights and existing laws and legislation are observed.

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Annex

Exposure Scenario (ES)

Number	Title
ES1	Formulation into mixture, Industrial (ERC2; PROC1; PROC2; PROC3; PROC4; PROC5; PROC8a; PROC8b; PROC9; PROC19) <u>Structured Short Title:</u> Formulation or re-packing; Various products (PC1, PC3, PC8, PC9a, PC9c, PC12, PC13, PC14, PC15, PC17, PC18, PC24, PC25, PC27, PC28, PC29, PC31, PC32, PC35, PC39).
ES2	Formulation in materials, Industrial (ERC3; PROC2; PROC3; PROC4; PROC5; PROC8a; PROC8b; PROC9; PROC14; PROC19) <u>Structured Short Title:</u> Formulation or re-packing; Various products (PC1, PC32).
ES3	Use in rubber products (including tyres)., Industrial (ERC5; PROC21; PROC14; PROC10; PROC9; PROC8b; PROC8a; PROC5) <u>Structured Short Title:</u> Use at industrial sites; Various sectors (SU11, SU12).
ES4	Anti-freeze and de-icing products, Washing and cleaning products, Industrial (ERC4; PROC1; PROC2; PROC3; PROC5; PROC7; PROC8a; PROC8b; PROC9; PROC10; PROC13; PROC19) <u>Structured Short Title:</u> Use at industrial sites
ES5	Industrial, Use in adhesives, coatings, dyes, inks, printing dyes. (ERC5; PROC5; PROC7; PROC8b; PROC9; PROC10; PROC13; PROC14; PROC21) <u>Structured Short Title:</u> Use at industrial sites; Printing and reproduction of recorded media (SU7).
ES6	Use as lubricant in machineries, Industrial (ERC4; PROC1; PROC2; PROC8b; PROC9) <u>Structured Short Title:</u> Use at industrial sites; ATIEL ATC B [i]; Closed systems.
ES7	Use of lubricants in open system, Industrial (ERC4; PROC13; PROC10; PROC9; PROC8b; PROC8a; PROC7; PROC2; PROC1) <u>Structured Short Title:</u> Use at industrial sites; ATIEL ATC C [i].
ES8	Use of lubricants in open high temperature processes, Industrial (ERC4; PROC1; PROC2; PROC8b; PROC13) <u>Structured Short Title:</u> Use at industrial sites; ATIEL ATC D [i].
ES9	Use as lubricant in metal working fluid concentrates, Industrial (ERC4; PROC1; PROC2;

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	PROC5; PROC8b) <u>Structured Short Title:</u> Use at industrial sites; ATIEL ATC E [i].
ES10	Use of lubricants in high energy open processes, Industrial (ERC4; PROC1; PROC2; PROC8b; PROC17) <u>Structured Short Title:</u> Use at industrial sites; ATIEL ATC F [i].
ES11	Use as laboratory reagent, Industrial (ERC7; PROC15) <u>Structured Short Title:</u> Use at industrial sites; Scientific research and development (SU24).
ES12	Use in rubber products (including tyres)., Professional (ERC8f; ERC8c; PROC5; PROC8a; PROC8b; PROC9; PROC10; PROC14; PROC21) <u>Structured Short Title:</u> Widespread use by professional workers; Polymer preparations and compounds (PC32); Various sectors (SU11, SU12).
ES13	Anti-freeze and de-icing products, Washing and cleaning products, Plant protection products, Water-based process, Professional (ERC8d; ERC8a; PROC5; PROC8a; PROC8b; PROC9; PROC10; PROC11; PROC13; PROC19) <u>Structured Short Title:</u> Widespread use by professional workers; Various products (PC1, PC4, PC8, PC23, PC27, PC28, PC31, PC34, PC35, PC39); Various sectors (SU5, SU7, SU18, SU19).
ES14	Anti-freeze and de-icing products, Washing and cleaning products, Plant protection products, water-free process, Professional (ERC8d; ERC8a; PROC5; PROC8a; PROC8b; PROC9; PROC10; PROC11; PROC13; PROC19) <u>Structured Short Title:</u> Widespread use by professional workers; Various products (PC1, PC4, PC8, PC23, PC27, PC28, PC31, PC34, PC35, PC39); Various sectors (SU5, SU7, SU18, SU19).
ES15	Use in adhesives, coatings, dyes, inks, printing dyes., Professional (ERC8f; ERC8c; PROC5; PROC8b; PROC9; PROC10; PROC11; PROC13; PROC14; PROC21) <u>Structured Short Title:</u> Widespread use by professional workers; Various products (PC1, PC9a, PC18); Various sectors (SU5, SU7, SU18, SU19).
ES16	Use as lubricant in machineries, Professional (ERC9a; PROC1; PROC2; PROC8a; PROC8b; PROC20) <u>Structured Short Title:</u> Widespread use by professional workers; Various products (PC16, PC17, PC24); ATIEL ATC B [p]; Closed systems.
ES17	Use of lubricants in open system, Professional (ERC8d; ERC8a; PROC1; PROC2; PROC8a; PROC10; PROC11; PROC13) <u>Structured Short Title:</u>

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	Widespread use by professional workers; Lubricants, greases, release products (PC24); ATIEL ATC C [p].
ES18	Use of lubricants in high energy open processes, Professional (ERC8a; PROC1; PROC2; PROC8a; PROC17; PROC18) <u>Structured Short Title:</u> Widespread use by professional workers; Various products (PC24, PC25); ATIEL ATC F [p].
ES19	Use as laboratory reagent, Professional (ERC9a; PROC15) <u>Structured Short Title:</u> Widespread use by professional workers; Laboratory chemicals (PC21); Scientific research and development (SU24).
ES20	Anti-freeze and de-icing products, Washing and cleaning products, Plant protection products, Consumer (ERC8d; ERC8a; PC4; PC8; PC23; PC27; PC31; PC35) <u>Structured Short Title:</u> Consumer use; Various products (PC4, PC8, PC23, PC27, PC31, PC35).
ES21	Use in adhesives, coatings, dyes, inks, printing dyes., Consumer (ERC8f; ERC8c; PC18; PC9a; PC1) <u>Structured Short Title:</u> Consumer use; Various products (PC1, PC9a, PC18).
ES22	Use as lubricant in machineries, Consumer (ERC9a; PC24) <u>Structured Short Title:</u> Consumer use; Lubricants, greases, release products (PC24); ATIEL ATC B [c]; Closed systems.
ES23	Use of lubricants in open system, Consumer (ERC8d; ERC8a; PC24) <u>Structured Short Title:</u> Consumer use; Lubricants, greases, release products (PC24); ATIEL ATC C [c].
ES24	Use in plastics, Rubber products, Consumer (ERC10a; ERC11a; AC10; AC13) <u>Structured Short Title:</u> Service life - consumers; Various articles (AC10, AC13).
ES25	Use as lubricant in machineries, Consumer (ERC10a; ERC11a; AC1; AC2) <u>Structured Short Title:</u> Service life - consumers; Various articles (AC1, AC2).

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ES1: Formulation into mixture, Industrial

1.1. Title section

Structured Short Title	: Formulation or re-packing; Various products (PC1, PC3, PC8, PC9a, PC9c, PC12, PC13, PC14, PC15, PC17, PC18, PC24, PC25, PC27, PC28, PC29, PC31, PC32, PC35, PC39).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC2: Formulation into mixture
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Chemical production where opportunity for exposure arises PROC5: Mixing or blending in batch processes PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC19: Manual activities involving hand contact

Contributing Scenario (CS) Environment		
CS1	Formulation into mixture	ERC2

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Closed systems	PROC2

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CS4	Batch process; Closed systems	PROC3
CS5	Use in semi-closed process with opportunity for exposure	PROC4
CS6	Mixing operations; Small package filling; Small scale weighing	PROC5, PROC9
CS7	Calendering operations	PROC6
CS8	Material transfers; Non-dedicated facility	PROC8a
CS9	Material transfers; Dedicated facility	PROC8b
CS10	Manual activities involving hand contact	PROC19

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Formulation into mixture (ERC2)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Annual amount per site	: 4000 t
Daily amount per site	: 18,2 t
Emission days per year	: 220

Technical and organisational conditions and measures	
Process with efficient use of raw materials.	
Suitable technique(s) to limit releases to water: Dry process (no water used in process) Equipment cleaning with minimised emissions to wastewater	
Suitable technique(s) to limit releases to air: Vapour recovery (e.g. adsorption) or other technique for reducing volatiles emissions (incineration, thermal oxidation) Air - minimum efficiency of 80 %	
Suitable technique(s) to limit releases to soil: Floor should be impervious and resistant to liquid.	

Conditions and measures related to sewage treatment plant	
STP type	: Onsite Sewage Treatment Plant Water - minimum efficiency of 63,06 %

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Additional information on STP	:	Biological elimination
STP effluent	:	10.000 m3/d

Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	No specific measures identified.
Waste disposal methods	:	For general information on waste disposal see section 13.

Other conditions affecting environmental exposure		
Receiving surface water flow	:	400.000 m3/d

1.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics		
Concentration of substance in product	:	Covers concentrations up to 100 %
Physical form of product	:	Solid, low dustiness

Amount used, frequency and duration of use (or from service life)		
Duration	:	Covers exposure up to 8 h

Technical and organisational conditions and measures		
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.		
Level of containment	:	Closed systems

Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable protective clothing.		
For further specification, refer to section 8 of the SDS.		

Other conditions affecting workers exposure		
Indoor or outdoor use	:	Indoor use
Temperature	:	Covers use at ambient temperatures.
Ventilation rate	:	Provide a basic standard of general ventilation (1 to 3 air

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	changes per hour).
Body parts exposed	: Palm of one hand

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

1.2.3. Control of worker exposure: Continuous process; Closed systems (PROC2)

Product (article) characteristics

Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)

Duration	: Covers exposure up to 8 h
----------	-----------------------------

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Level of containment	: Use in closed, continuous process with occasional controlled exposure
----------------------	---

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

1.2.4. Control of worker exposure: Batch process; Closed systems (PROC3)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Level of containment : Closed batch process with occasional controlled exposure

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Palm of one hand

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective cloth-

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ing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

1.2.5. Control of worker exposure: Use in semi-closed process with opportunity for exposure (PROC4)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Level of containment : Semi-closed process with occasional controlled exposure

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective cloth-

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ing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

1.2.6. Control of worker exposure: Mixing operations; Small package filling; Small scale weighing (PROC5, PROC9)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Level of containment : Semi-closed process with occasional controlled exposure

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective cloth-

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ing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

1.2.7. Control of worker exposure: Calendering operations (PROC6)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

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1.2.8. Control of worker exposure: Material transfers; Non-dedicated facility (PROC8a)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h
Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

1.2.9. Control of worker exposure: Material transfers; Dedicated facility (PROC8b)

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Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Level of containment : Semi-closed process with occasional controlled exposure

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Assumes that potential dermal contact is limited to hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

1.2.10. Control of worker exposure: Manual activities involving hand contact (PROC19)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 4 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and strictly supervised.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Dermal - minimum efficiency of 95 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to hands and forearms.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Formulation into mixture (ERC2)

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Release route	Release	Release estimation method
Water	0 %	FEICA SPERC 2.1b.v2
Air	0,12 %	FEICA SPERC 2.1b.v2
Soil	0 %	FEICA SPERC 2.1b.v2

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

1.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

1.3.3. Worker exposure: Continuous process; Closed systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

1.3.4. Worker exposure: Batch process; Closed systems (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

1.3.5. Worker exposure: Use in semi-closed process with opportunity for exposure (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
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combined routes	-	-	(ECETOC TRA 3.0)	< 1
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1.3.6. Worker exposure: Mixing operations; Small package filling; Small scale weighing (PROC5, PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

1.3.7. Worker exposure: Calendering operations (PROC6)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

1.3.8. Worker exposure: Material transfers; Non-dedicated facility (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

1.3.9. Worker exposure: Material transfers; Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

1.3.10. Worker exposure: Manual activities involving hand contact (PROC19)

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Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.

Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES2: Formulation in materials, Industrial

2.1. Title section

Structured Short Title	: Formulation or re-packing; Various products (PC1, PC32).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC3: Formulation into solid matrix
Process category(ies)	: PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Chemical production where opportunity for exposure arises PROC5: Mixing or blending in batch processes PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14: Tableting, compression, extrusion, pelettisation, granulation PROC19: Manual activities involving hand contact

Contributing Scenario (CS) Environment		
CS1	Formulation into solid matrix	ERC3

Contributing Scenario (CS) Worker		
CS2	Continuous process; Closed systems	PROC2
CS3	Batch process; Closed systems	PROC3
CS4	Use in semi-closed process with opportunity for exposure	PROC4
CS5	Mixing operations; Small package filling; Small scale weighing	PROC5, PROC9

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CS6	Material transfers; Non-dedicated facility	PROC8a
CS7	Material transfers; Dedicated facility	PROC8b
CS8	Tabletting, compression, extrusion or pelletisation	PROC14
CS9	Manual activities involving hand contact	PROC19

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Formulation into solid matrix (ERC3)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Annual amount per site	: 4000 t
Daily amount per site	: 18,2 t
Emission days per year	: 220

Technical and organisational conditions and measures	
Suitable technique(s) to limit releases to soil: Floor should be impervious and resistant to liquid.	

Conditions and measures related to sewage treatment plant	
STP type	: Onsite Sewage Treatment Plant Water - minimum efficiency of 63,06 %
Additional information on STP	: Biological elimination
STP effluent	: 10.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 400.000 m3/d

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2.2.2. Control of worker exposure: Continuous process; Closed systems (PROC2)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h
Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Level of containment	: Use in closed, continuous process with occasional controlled exposure
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

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2.2.3. Control of worker exposure: Batch process; Closed systems (PROC3)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h
Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Level of containment	: Closed batch process with occasional controlled exposure
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Palm of one hand
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

2.2.4. Control of worker exposure: Use in semi-closed process with opportunity for exposure (PROC4)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Level of containment	: Semi-closed process with occasional controlled exposure

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

2.2.5. Control of worker exposure: Mixing operations; Small package filling; Small scale weighing (PROC5, PROC9)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Level of containment	: Semi-closed process with occasional controlled exposure

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

2.2.6. Control of worker exposure: Material transfers; Non-dedicated facility (PROC8a)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

2.2.7. Control of worker exposure: Material transfers; Dedicated facility (PROC8b)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %

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Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Level of containment	: Semi-closed process with occasional controlled exposure

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

2.2.8. Control of worker exposure: Tableting, compression, extrusion or pelletisation (PROC14)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %

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Physical form of product	: Solid, low dustiness
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Amount used, frequency and duration of use (or from service life)

Duration	: Covers exposure up to 8 h
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Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use	: Indoor use
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Temperature	: Covers use at ambient temperatures.
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Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
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Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

2.2.9. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteristics

Concentration of substance in product	: Covers concentrations up to 100 %
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Physical form of product	: Solid, low dustiness
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Amount used, frequency and duration of use (or from service life)

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Duration : Covers exposure up to 4 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and strictly supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Dermal - minimum efficiency of 95 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Assumes that potential dermal contact is limited to hands and forearms.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Formulation into solid matrix (ERC3)

Release route	Release	Release estimation method
Water	0 %	FEICA SPERC 2.1c.v2
Air	0,12 %	FEICA SPERC 2.1c.v2
Soil	0 %	FEICA SPERC 2.1c.v2

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
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All routes	(EUSES 2.1.2)	< 1
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2.3.2. Worker exposure: Continuous process; Closed systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

2.3.3. Worker exposure: Batch process; Closed systems (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

2.3.4. Worker exposure: Use in semi-closed process with opportunity for exposure (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

2.3.5. Worker exposure: Mixing operations; Small package filling; Small scale weighing (PROC5, PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

2.3.6. Worker exposure: Material transfers; Non-dedicated facility (PROC8a)

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Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

2.3.7. Worker exposure: Material transfers; Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

2.3.8. Worker exposure: Tableting, compression, extrusion or pelletisation (PROC14)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

2.3.9. Worker exposure: Manual activities involving hand contact (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users
Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario. Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES3: Use in rubber products (including tyres)., Industrial

3.1. Title section

Structured Short Title	: Use at industrial sites; Various sectors (SU11, SU12).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC5: Use at industrial site leading to inclusion into/onto article
Process category(ies)	: PROC21: Low energy manipulation and handling of substances bound in/on materials and/or articles PROC14: Tableting, compression, extrusion, pelettisation, granulation PROC10: Roller application or brushing PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities PROC5: Mixing or blending in batch processes

Contributing Scenario (CS) Environment		
CS1	Use at industrial site leading to inclusion into/onto article	ERC5

Contributing Scenario (CS) Worker		
CS2	Mixing operations	PROC5
CS3	Material transfers; Non-dedicated facility	PROC8a
CS4	Material transfers; Dedicated facility	PROC8b
CS5	Small package filling; Small scale weighing	PROC9
CS6	Rolling, Brushing	PROC10
CS7	Tableting, compression, extrusion or pelletisation	PROC14
CS8	Low energy manipulation and handling of substances bound in/on materials and/or articles	PROC21

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3.2. Conditions of use affecting exposure

3.2.1. Control of environmental exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Annual amount per site	: 1500 t
Daily amount per site	: 5 t
Emission days per year	: 300

Technical and organisational conditions and measures	
Suitable technique(s) to limit releases to soil: Floor should be impervious and resistant to liquid.	

Conditions and measures related to sewage treatment plant	
STP type	: Onsite Sewage Treatment Plant Water - minimum efficiency of 63,06 %
Additional information on STP	: Biological elimination
STP effluent	: 10.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 400.000 m3/d

3.2.2. Control of worker exposure: Mixing operations (PROC5)

Product (article) characteristics	
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Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.

3.2.3. Control of worker exposure: Material transfers; Non-dedicated facility (PROC8a)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

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Physical form of product	: Solid, low dustiness
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Amount used, frequency and duration of use (or from service life)

Duration	: Covers exposure up to 8 h
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Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use	: Indoor use
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Temperature	: Covers use at ambient temperatures.
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Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
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Body parts exposed	: Assumes that potential dermal contact is limited to hands.
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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

3.2.4. Control of worker exposure: Material transfers; Dedicated facility (PROC8b)

Product (article) characteristics

Concentration of substance in product	: Covers concentrations up to 100 %
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Physical form of product	: Solid, low dustiness
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Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Level of containment	: Semi-closed process with occasional controlled exposure

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

3.2.5. Control of worker exposure: Small package filling; Small scale weighing (PROC9)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness Liquid

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Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

3.2.6. Control of worker exposure: Rolling, Brushing (PROC10)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

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Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spreading of liquid products
Open surface	: <= 3 m ²

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

3.2.7. Control of worker exposure: Tableting, compression, extrusion or pelletisation (PROC14)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness Solid mixture

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Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

3.2.8. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Solid mixture

Amount used, frequency and duration of use (or from service life)

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Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Assumes that potential dermal contact is limited to hands and forearms.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

3.3. Exposure estimation and reference to its source

3.3.1. Environmental release and exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

Release route	Release	Release estimation method
Water	0,005 %	OECD ESD, No. 3 (OECD, 2004/2009)
Air	0,005 %	OECD ESD, No. 3 (OECD, 2004/2009)
Soil	0 %	Expert judgement

Protection Target	Exposure estimate	Risk Characterisation Ratio
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		(RCR)
All routes	(EUSES 2.1.2)	< 1

3.3.2. Worker exposure: Mixing operations (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

3.3.3. Worker exposure: Material transfers; Non-dedicated facility (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

3.3.4. Worker exposure: Material transfers; Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

3.3.5. Worker exposure: Small package filling; Small scale weighing (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

3.3.6. Worker exposure: Rolling, Brushing (PROC10)

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Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

3.3.7. Worker exposure: Tableting, compression, extrusion or pelletisation (PROC14)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

3.3.8. Worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES4: Anti-freeze and de-icing products, Washing and cleaning products, Industrial

4.1. Title section

Structured Short Title	: Use at industrial sites
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC5: Mixing or blending in batch processes PROC7: Industrial spraying PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC19: Manual activities involving hand contact

Contributing Scenario (CS) Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)	ERC4

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Closed systems	PROC2
CS4	Batch process; Closed systems	PROC3

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CS5	Mixing operations; Small package filling; Small scale weighing	PROC5, PROC9
CS6	Spraying	PROC7
CS7	Material transfers	PROC8a, PROC8b
CS8	Rolling, Brushing	PROC10
CS9	Dipping, immersion and pouring	PROC13
CS10	Manual activities involving hand contact	PROC19

4.2. Conditions of use affecting exposure

4.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Annual amount per site	: 5 t
Daily amount per site	: 0,25 t
Emission days per year	: 20

Technical and organisational conditions and measures	
Suitable technique(s) to limit releases to soil: Floor should be impervious and resistant to liquid.	

Conditions and measures related to sewage treatment plant	
STP type	: Onsite Sewage Treatment Plant Water - minimum efficiency of 63,06 %
Additional information on STP	: Biological elimination
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.

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Waste disposal methods : For general information on waste disposal see section 13.

Other conditions affecting environmental exposure

Receiving surface water flow : 18.000 m³/d

Local freshwater dilution factor : 10

Local marine water dilution factor : 100

4.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

4.2.3. Control of worker exposure: Continuous process; Closed systems (PROC2)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %
Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

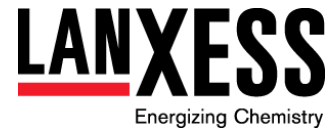
Indoor or outdoor use : Indoor use
Temperature : Assumes process temperature up to 40 °C
Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective cloth-

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ing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

4.2.4. Control of worker exposure: Batch process; Closed systems (PROC3)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Level of containment : Closed batch process with occasional controlled exposure

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Palm of one hand

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

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4.2.5. Control of worker exposure: Mixing operations; Small package filling; Small scale weighing (PROC5, PROC9)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation	Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

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4.2.6. Control of worker exposure: Spraying (PROC7)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spraying of liquids
Spray technique	: Spraying with no or low compressed air use
Spray direction	: Ensure that direction of application is only horizontal or downward.
Application rate	: Moderate application rate (0.3 - 3 l/minute)

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

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On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

4.2.7. Control of worker exposure: Material transfers (PROC8a, PROC8b)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.

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For further specification, refer to section 8 of the SDS.

4.2.8. Control of worker exposure: Rolling, Brushing (PROC10)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h
Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spreading of liquid products
Open surface	: $\leq 3 \text{ m}^2$
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective cloth-	

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ing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

4.2.9. Control of worker exposure: Dipping, immersion and pouring (PROC13)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Activities with open liquid surfaces or open reservoirs - activity with agitated surfaces
Open surface	: $\leq 3 \text{ m}^2$

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

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On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

4.2.10. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and strictly supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Dermal - minimum efficiency of 95 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Assumes that potential dermal contact is limited to hands and forearms.

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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

4.3. Exposure estimation and reference to its source

4.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Release route	Release	Release estimation method
Water	0,003 %	Calculated value
Air	0 %	AISE SPERC 4.1.v1
Soil	0 %	AISE SPERC 4.1.v1

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

4.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

4.3.3. Worker exposure: Continuous process; Closed systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

4.3.4. Worker exposure: Batch process; Closed systems (PROC3)

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Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

4.3.5. Worker exposure: Mixing operations; Small package filling; Small scale weighing (PROC5, PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

4.3.6. Worker exposure: Spraying (PROC7)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

4.3.7. Worker exposure: Material transfers (PROC8a, PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

4.3.8. Worker exposure: Rolling, Brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

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4.3.9. Worker exposure: Dipping, immersion and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

4.3.10. Worker exposure: Manual activities involving hand contact (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users
Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario. Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES5: Industrial, Use in adhesives, coatings, dyes, inks, printing dyes.

5.1. Title section

Structured Short Title	: Use at industrial sites; Printing and reproduction of recorded media (SU7).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC5: Use at industrial site leading to inclusion into/onto article
Process category(ies)	: PROC5: Mixing or blending in batch processes PROC7: Industrial spraying PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Tableting, compression, extrusion, pelettisation, granulation PROC21: Low energy manipulation and handling of substances bound in/on materials and/or articles

Contributing Scenario (CS) Environment		
CS1	Use at industrial site leading to inclusion into/onto article	ERC5

Contributing Scenario (CS) Worker		
CS2	Mixing operations; Small package filling; Small scale weighing	PROC5, PROC9
CS3	Spraying	PROC7
CS4	Material transfers; Dedicated facility	PROC8b
CS5	Rolling, Brushing	PROC10
CS6	Dipping, immersion and pouring	PROC13
CS7	Tableting, compression, extrusion or pelletisation	PROC14
CS8	Low energy manipulation and handling of substances bound in/on materials and/or articles	PROC21

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5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Annual amount per site	: 600 t
Daily amount per site	: 2,7 t
Emission days per year	: 220

Technical and organisational conditions and measures	
Suitable technique(s) to limit releases to soil: Floor should be impervious and resistant to liquid.	

Conditions and measures related to sewage treatment plant	
STP type	: Onsite Sewage Treatment Plant Water - minimum efficiency of 63,06 %
Additional information on STP	: Biological elimination
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

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5.2.2. Control of worker exposure: Mixing operations; Small package filling; Small scale weighing (PROC5, PROC9)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness Liquid
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h
Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

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5.2.3. Control of worker exposure: Spraying (PROC7)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spraying of liquids
Spray technique	: Spraying with no or low compressed air use
Spray direction	: Ensure that direction of application is only horizontal or downward.
Application rate	: Moderate application rate (0.3 - 3 l/minute)

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

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On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

5.2.4. Control of worker exposure: Material transfers; Dedicated facility (PROC8b)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.

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For further specification, refer to section 8 of the SDS.

5.2.5. Control of worker exposure: Rolling, Brushing (PROC10)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spreading of liquid products
Activity	: Spreading of liquids at surfaces or work pieces < 3 m ² /h

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective cloth-	

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ing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

5.2.6. Control of worker exposure: Dipping, immersion and pouring (PROC13)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Activities with open liquid surfaces or open reservoirs - activity with agitated surfaces
Open surface	: $\leq 3 \text{ m}^2$

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

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On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

5.2.7. Control of worker exposure: Tableting, compression, extrusion or pelletisation (PROC14)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Solid mixture

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

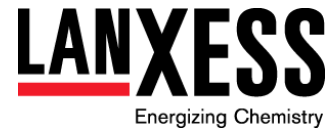
Body parts exposed : Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

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5.2.8. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness Solid mixture
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h
Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to hands and forearms.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

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5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

Release route	Release	Release estimation method
Water	0 %	FEICA SPERC 5.1b.v1
Air	0,17 %	FEICA SPERC 5.1b.v1
Soil	0 %	FEICA SPERC 5.1b.v1

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

5.3.2. Worker exposure: Mixing operations; Small package filling; Small scale weighing (PROC5, PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

5.3.3. Worker exposure: Spraying (PROC7)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

5.3.4. Worker exposure: Material transfers; Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

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5.3.5. Worker exposure: Rolling, Brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

5.3.6. Worker exposure: Dipping, immersion and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

5.3.7. Worker exposure: Tableting, compression, extrusion or pelletisation (PROC14)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

5.3.8. Worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.

Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES6: Use as lubricant in machineries, Industrial

6.1. Title section

Structured Short Title	: Use at industrial sites; ATIEL ATC B [i]; Closed systems.
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Contributing Scenario (CS) Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)	ERC4

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Closed systems	PROC2
CS4	Material transfers; Dedicated facility	PROC8b
CS5	Small package filling; Small scale weighing	PROC9

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

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Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Annual amount per site	: 100 t
Daily amount per site	: 5 t
Emission days per year	: 20

Technical and organisational conditions and measures	
Process with efficient use of raw materials.	
Suitable technique(s) to limit releases to water: Provide onsite wastewater treatment. Acclimated biological treatment Water - minimum efficiency of 70 %	
Suitable technique(s) to limit releases to air: Air filtration – particle removal Air - minimum efficiency of 70 %	
Suitable technique(s) to limit releases to soil: Floor should be impervious and resistant to liquid.	

Conditions and measures related to sewage treatment plant	
STP type	: Onsite Sewage Treatment Plant Water - minimum efficiency of 70 %
Additional information on STP	: Biological elimination
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

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6.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

6.2.3. Control of worker exposure: Continuous process; Closed systems (PROC2)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %

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uct	
Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

6.2.4. Control of worker exposure: Material transfers; Dedicated facility (PROC8b)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness Liquid

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Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

6.2.5. Control of worker exposure: Small package filling; Small scale weighing (PROC9)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness
Liquid

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Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

6.3. Exposure estimation and reference to its source

6.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Release route	Release	Release estimation method
Water	1 E-04 %	ESVOC SPERC 4.6a.v1

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Air	0,015 %	ESVOC SPERC 4.6a.v1
Soil	0,1 %	ESVOC SPERC 4.6a.v1

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

6.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

6.3.3. Worker exposure: Continuous process; Closed systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

6.3.4. Worker exposure: Material transfers; Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

6.3.5. Worker exposure: Small package filling; Small scale weighing (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

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6.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.

Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES7: Use of lubricants in open system, Industrial

7.1. Title section

Structured Short Title	: Use at industrial sites; ATIEL ATC C [i].
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Process category(ies)	: PROC13: Treatment of articles by dipping and pouring PROC10: Roller application or brushing PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities PROC7: Industrial spraying PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Contributing Scenario (CS) Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)	ERC4

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Closed systems	PROC2
CS4	Spraying	PROC7
CS5	Material transfers	PROC8a, PROC8b
CS6	Small package filling; Small scale weighing	PROC9
CS7	Rolling, Brushing	PROC10

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CS8	Dipping, immersion and pouring	PROC13
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7.2. Conditions of use affecting exposure

7.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Annual amount per site	: 150 t
Daily amount per site	: 7,5 t
Emission days per year	: 20

Technical and organisational conditions and measures
Process with efficient use of raw materials.
Suitable technique(s) to limit releases to water: Provide onsite wastewater treatment. Acclimated biological treatment Water - minimum efficiency of 70 %
Suitable technique(s) to limit releases to air: Air filtration – particle removal Air - minimum efficiency of 70 %
Suitable technique(s) to limit releases to soil: Floor should be impervious and resistant to liquid.

Conditions and measures related to sewage treatment plant	
STP type	: Onsite Sewage Treatment Plant Water - minimum efficiency of 70 %
Additional information on STP	: Biological elimination
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.

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Waste disposal methods : For general information on waste disposal see section 13.

Other conditions affecting environmental exposure

Receiving surface water flow : 18.000 m³/d

Local freshwater dilution factor : 10

Local marine water dilution factor : 100

7.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

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On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

7.2.3. Control of worker exposure: Continuous process; Closed systems (PROC2)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

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7.2.4. Control of worker exposure: Spraying (PROC7)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spraying of liquids
Spray technique	: Spraying with no or low compressed air use
Spray direction	: Ensure that direction of application is only horizontal or downward.
Application rate	: Moderate application rate (0.3 - 3 l/minute)

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

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On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

7.2.5. Control of worker exposure: Material transfers (PROC8a, PROC8b)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.

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For further specification, refer to section 8 of the SDS.

7.2.6. Control of worker exposure: Small package filling; Small scale weighing (PROC9)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective cloth-

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ing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

7.2.7. Control of worker exposure: Rolling, Brushing (PROC10)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Liquid
low viscosity

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.
Demonstrable and effective housekeeping practices are in place.

Activity class : Spreading of liquid products

Activity : Spreading of liquids at surfaces or work pieces < 3 m²/h

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear suitable gloves tested to EN374.
Dermal - minimum efficiency of 80 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Room size : 300 m³

Temperature : Covers use at ambient temperatures.

Ventilation rate : ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

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On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

7.2.8. Control of worker exposure: Dipping, immersion and pouring (PROC13)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Activities with open liquid surfaces or open reservoirs - activity with agitated surfaces
Open surface	: $\leq 3 \text{ m}^2$

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

7.3. Exposure estimation and reference to its source

7.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Release route	Release	Release estimation method
Water	1 E-04 %	ESVOC SPERC 4.6a.v1
Air	0,015 %	ESVOC SPERC 4.6a.v1
Soil	0,1 %	ESVOC SPERC 4.6a.v1

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

7.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

7.3.3. Worker exposure: Continuous process; Closed systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

7.3.4. Worker exposure: Spraying (PROC7)

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Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

7.3.5. Worker exposure: Material transfers (PROC8a, PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

7.3.6. Worker exposure: Small package filling; Small scale weighing (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

7.3.7. Worker exposure: Rolling, Brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

7.3.8. Worker exposure: Dipping, immersion and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

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7.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users
Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario. Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES8: Use of lubricants in open high temperature processes, Industrial

8.1. Title section

Structured Short Title	: Use at industrial sites; ATIEL ATC D [i].
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC13: Treatment of articles by dipping and pouring

Contributing Scenario (CS) Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)	ERC4

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Closed systems	PROC2
CS4	Material transfers; Dedicated facility	PROC8b
CS5	Dipping, immersion and pouring	PROC13

8.2. Conditions of use affecting exposure

8.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Product (article) characteristics
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Country / Language: DE / 6N (EN)

Physical form of product	: Solid, low dustiness
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Amount used, frequency and duration of use (or from service life)

Annual amount per site	: 20 t
Daily amount per site	: 1 t
Emission days per year	: 20

Technical and organisational conditions and measures

Process with efficient use of raw materials.

Suitable technique(s) to limit releases to water:
Provide onsite wastewater treatment.
Acclimated biological treatment
Water - minimum efficiency of 70 %

Suitable technique(s) to limit releases to air:
Air filtration – particle removal
Air - minimum efficiency of 70 %

Suitable technique(s) to limit releases to soil:
Floor should be impervious and resistant to liquid.

Conditions and measures related to sewage treatment plant

STP type	: Onsite Sewage Treatment Plant Water - minimum efficiency of 70 %
Additional information on STP	: Biological elimination
STP effluent	: 2.000 m ³ /d

Conditions and measures related to treatment of waste (including article waste)

Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure

Receiving surface water flow	: 18.000 m ³ /d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

8.2.2. Control of worker exposure: Use in closed process (PROC1)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

8.2.3. Control of worker exposure: Continuous process; Closed systems (PROC2)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %

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Physical form of product	:	Solid, low dustiness Liquid
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Amount used, frequency and duration of use (or from service life)

Duration	:	Covers exposure up to 8 h
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Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
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Temperature	:	Assumes process temperature up to 40 °C
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Ventilation rate	:	Provide a basic standard of general ventilation (1 to 3 air changes per hour).
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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

8.2.4. Control of worker exposure: Material transfers; Dedicated facility (PROC8b)

Product (article) characteristics

Concentration of substance in product	:	Covers concentrations up to 100 %
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Physical form of product	:	Solid, low dustiness Liquid
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Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

8.2.5. Control of worker exposure: Dipping, immersion and pouring (PROC13)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

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Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Activities with open liquid surfaces or open reservoirs - activity with agitated surfaces
Open surface	: $\leq 3 \text{ m}^2$

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

8.3. Exposure estimation and reference to its source

8.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Release route	Release	Release estimation method
Water	1 E-04 %	ESVOC SPERC 4.6a.v1

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Air	0,05 %	ESVOC SPERC 4.6a.v1
Soil	0,1 %	ESVOC SPERC 4.6a.v1

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

8.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

8.3.3. Worker exposure: Continuous process; Closed systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

8.3.4. Worker exposure: Material transfers; Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

8.3.5. Worker exposure: Dipping, immersion and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

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8.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.

Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES9: Use as lubricant in metal working fluid concentrates, Industrial

9.1. Title section

Structured Short Title	: Use at industrial sites; ATIEL ATC E [i].
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC5: Mixing or blending in batch processes PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities

Contributing Scenario (CS) Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)	ERC4

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Closed systems	PROC2
CS4	Mixing operations	PROC5
CS5	Material transfers; Dedicated facility	PROC8b

9.2. Conditions of use affecting exposure

9.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Product (article) characteristics
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Country / Language: DE / 6N (EN)

Physical form of product	: Solid, low dustiness
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Amount used, frequency and duration of use (or from service life)	
Annual amount per site	: 150 t
Daily amount per site	: 7,5 t
Emission days per year	: 20

Technical and organisational conditions and measures
Process with efficient use of raw materials.
Suitable technique(s) to limit releases to water: Provide onsite wastewater treatment. Acclimated biological treatment Water - minimum efficiency of 70 %
Suitable technique(s) to limit releases to air: Upgrade of the system in place or additional air treatment measures, such as wet scrubber and/or air filtration and/or thermal oxidation and/or vapour recovery systems, in order to achieve a reduction of the air emissions. Air - minimum efficiency of 50 %
Suitable technique(s) to limit releases to soil: Floor should be impervious and resistant to liquid.

Conditions and measures related to sewage treatment plant	
STP type	: Onsite Sewage Treatment Plant Water - minimum efficiency of 70 %
Additional information on STP	: Biological elimination
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

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9.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

9.2.3. Control of worker exposure: Continuous process; Closed systems (PROC2)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %

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Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

9.2.4. Control of worker exposure: Mixing operations (PROC5)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness Liquid

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Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

9.2.5. Control of worker exposure: Material transfers; Dedicated facility (PROC8b)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Liquid

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Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.
Local exhaust ventilation Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable protective clothing.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %
For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.

9.3. Exposure estimation and reference to its source

9.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Release route	Release	Release estimation method
Water	1 E-04 %	ESVOC SPERC 4.7a.v1
Air	2 %	ESVOC SPERC 4.7a.v1
Soil	0 %	ESVOC SPERC 4.7a.v1

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Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

9.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

9.3.3. Worker exposure: Continuous process; Closed systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

9.3.4. Worker exposure: Mixing operations (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

9.3.5. Worker exposure: Material transfers; Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

9.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.

Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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Country / Language: DE / 6N (EN)

ES10: Use of lubricants in high energy open processes, Industrial

10.1. Title section

Structured Short Title	: Use at industrial sites; ATIEL ATC F [i].
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC17: Lubrication at high energy conditions in metal working operations

Contributing Scenario (CS) Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)	ERC4

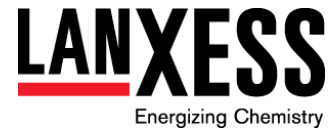
Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Closed systems	PROC2
CS4	Material transfers; Dedicated facility	PROC8b
CS5	Lubrication at high energy conditions in metal working operations	PROC17

10.2. Conditions of use affecting exposure

10.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

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Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Annual amount per site	: 110 t
Daily amount per site	: 5,5 t
Emission days per year	: 20

Technical and organisational conditions and measures	
Process with efficient use of raw materials.	
Suitable technique(s) to limit releases to water: Provide onsite wastewater treatment. Acclimated biological treatment Water - minimum efficiency of 70 %	
Suitable technique(s) to limit releases to air: Upgrade of the system in place or additional air treatment measures, such as wet scrubber and/or air filtration and/or thermal oxidation and/or vapour recovery systems, in order to achieve a reduction of the air emissions. Air - minimum efficiency of 50 %	
Suitable technique(s) to limit releases to soil: Floor should be impervious and resistant to liquid.	

Conditions and measures related to sewage treatment plant	
STP type	: Onsite Sewage Treatment Plant Water - minimum efficiency of 70 %
Additional information on STP	: Biological elimination
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10

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Local marine water dilution factor	:	100
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10.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

10.2.3. Control of worker exposure: Continuous process; Closed systems (PROC2)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation	Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

10.2.4. Control of worker exposure: Material transfers; Dedicated facility (PROC8b)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %

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Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

10.2.5. Control of worker exposure: Lubrication at high energy conditions in metal working operations (PROC17)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %

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Physical form of product	: Solid, low dustiness Liquid
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Amount used, frequency and duration of use (or from service life)

Duration	: Covers exposure up to 8 h
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Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use	: Indoor use
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Temperature	: Assumes process temperature up to 40 °C
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Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

10.3. Exposure estimation and reference to its source

10.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Release route	Release	Release estimation method
Water	1 E-04 %	ESVOC SPERC 4.6a.v1
Air	0,05 %	ESVOC SPERC 4.6a.v1

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Soil	0,1 %	ESVOC SPERC 4.6a.v1
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Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

10.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

10.3.3. Worker exposure: Continuous process; Closed systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

10.3.4. Worker exposure: Material transfers; Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

10.3.5. Worker exposure: Lubrication at high energy conditions in metal working operations (PROC17)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

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10.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES11: Use as laboratory reagent, Industrial

11.1. Title section

Structured Short Title	: Use at industrial sites; Scientific research and development (SU24).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC7 : Use of functional fluid at industrial site
Process category(ies)	: PROC15 : Use as laboratory reagent

Contributing Scenario (CS) Environment		
CS1	Use of functional fluid at industrial site	ERC7

Contributing Scenario (CS) Worker		
CS2	Laboratory activities	PROC15

11.2. Conditions of use affecting exposure

11.2.1. Control of environmental exposure: Use of functional fluid at industrial site (ERC7)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Annual amount per site	: 1 t
Daily amount per site	: 0,05 t
Emission days per year	: 20

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Technical and organisational conditions and measures
Process with efficient use of raw materials.
Suitable technique(s) to limit releases to water: Provide onsite wastewater treatment. Acclimated biological treatment Water - minimum efficiency of 70 %
Suitable technique(s) to limit releases to air: Upgrade of the system in place or additional air treatment measures, such as wet scrubber and/or air filtration and/or thermal oxidation and/or vapour recovery systems, in order to achieve a reduction of the air emissions. Air - minimum efficiency of 50 %
Suitable technique(s) to limit releases to soil: Floor should be impervious and resistant to liquid.

Conditions and measures related to sewage treatment plant
STP type : Onsite Sewage Treatment Plant Water - minimum efficiency of 70 %
Additional information on STP : Biological elimination
STP effluent : 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)
Waste treatment : No specific measures identified.
Waste disposal methods : For general information on waste disposal see section 13.

Other conditions affecting environmental exposure
Receiving surface water flow : 18.000 m3/d
Local freshwater dilution factor : 10
Local marine water dilution factor : 100

11.2.2. Control of worker exposure: Laboratory activities (PROC15)

Product (article) characteristics
Concentration of substance in product : Covers concentrations up to 100 %
Physical form of product : Solid, low dustiness

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Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable protective clothing.
For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Palm of one hand

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.

11.3. Exposure estimation and reference to its source

11.3.1. Environmental release and exposure: Use of functional fluid at industrial site (ERC7)

Release route	Release	Release estimation method
Water	1 E-04 %	ESVOC SPERC 7.13a.v1
Air	0,05 %	ESVOC SPERC 7.13a.v1
Soil	0,1 %	ESVOC SPERC 7.13a.v1

Remarks:

Initial release prior to RMM

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Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

11.3.2. Worker exposure: Laboratory activities (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

11.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users
Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario. Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES12: Use in rubber products (including tyres)., Professional

12.1. Title section

Structured Short Title	: Widespread use by professional workers; Polymer preparations and compounds (PC32); Various sectors (SU11, SU12).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC8f: Widespread use leading to inclusion into/onto article (outdoor) ERC8c: Widespread use leading to inclusion into/onto article (indoor)
Process category(ies)	: PROC5: Mixing or blending in batch processes PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC14: Tableting, compression, extrusion, pelettisation, granulation PROC21: Low energy manipulation and handling of substances bound in/on materials and/or articles

Contributing Scenario (CS) Environment		
CS1	Widespread use leading to inclusion into/onto article (outdoor); Widespread use leading to inclusion into/onto article (indoor)	ERC8f, ERC8c

Contributing Scenario (CS) Worker		
CS2	Mixing operations; Small package filling; Small scale weighing	PROC5, PROC9
CS3	Material transfers	PROC8a, PROC8b
CS4	Rolling, Brushing	PROC10
CS5	Tableting, compression, extrusion or pelletisation	PROC14
CS6	Low energy manipulation and handling of substances bound in/on	PROC21

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	materials and/or articles	
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12.2. Conditions of use affecting exposure

12.2.1. Control of environmental exposure: Widespread use leading to inclusion into/onto article (outdoor); Widespread use leading to inclusion into/onto article (indoor) (ERC8f, ERC8c)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 0,33 kg
Release type	: Continuous release
Emission days per year	: 365

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

12.2.2. Control of worker exposure: Mixing operations; Small package filling; Small scale weighing (PROC5, PROC9)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Level of containment	: Semi-closed process with occasional controlled exposure

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

12.2.3. Control of worker exposure: Material transfers (PROC8a, PROC8b)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 100 %
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

12.2.4. Control of worker exposure: Rolling, Brushing (PROC10)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %

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uct	
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spreading of liquid products
Activity	: Spreading of liquids at surfaces or work pieces < 3 m ² /h

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

12.2.5. Control of worker exposure: Tableting, compression, extrusion or pelletisation (PROC14)

Product (article) characteristics
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Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness Solid mixture

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

12.2.6. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %

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Physical form of product	:	Solid, low dustiness Solid mixture
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Amount used, frequency and duration of use (or from service life)

Duration	:	Covers exposure up to 8 h
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Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
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Temperature	:	Covers use at ambient temperatures.
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Ventilation rate	:	Provide a basic standard of general ventilation (1 to 3 air changes per hour).
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Body parts exposed	:	Assumes that potential dermal contact is limited to hands and forearms.
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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

12.3. Exposure estimation and reference to its source

12.3.1. Environmental release and exposure: Widespread use leading to inclusion into/onto article (outdoor); Widespread use leading to inclusion into/onto article (indoor) (ERC8f, ERC8c)

Release route	Release	Release estimation method
Water	1 %	ERC based
Air	15 %	ERC based

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Soil	0,5 %	ERC based
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Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

12.3.2. Worker exposure: Mixing operations; Small package filling; Small scale weighing (PROC5, PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

12.3.3. Worker exposure: Material transfers (PROC8a, PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

12.3.4. Worker exposure: Rolling, Brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

12.3.5. Worker exposure: Tableting, compression, extrusion or pelletisation (PROC14)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

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12.3.6. Worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

12.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users
Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario. Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES13: Anti-freeze and de-icing products, Washing and cleaning products, Plant protection products, Water-based process, Professional

13.1. Title section

Structured Short Title	: Widespread use by professional workers; Various products (PC1, PC4, PC8, PC23, PC27, PC28, PC31, PC34, PC35, PC39); Various sectors (SU5, SU7, SU18, SU19).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC8d : Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8a : Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Process category(ies)	: PROC5 : Mixing or blending in batch processes PROC8a : Transfer of substance or mixture (charging/discharging) at non dedicated-facilities PROC8b : Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC9 : Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 : Roller application or brushing PROC11 : Non-industrial spraying PROC13 : Treatment of articles by dipping and pouring PROC19 : Manual activities involving hand contact

Contributing Scenario (CS) Environment		
CS1	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)	ERC8d, ERC8a

Contributing Scenario (CS) Worker		
CS2	Mixing operations; Material transfers; Small package filling; Small scale weighing	PROC5, PROC8a, PROC8b, PROC9
CS3	Rolling, Brushing	PROC10
CS4	Spraying	PROC11
CS5	Dipping, immersion and pouring	PROC13

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CS6	Manual activities involving hand contact	PROC19
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13.2. Conditions of use affecting exposure

13.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8d, ERC8a)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 4,1 g
Release type	: Continuous release
Emission days per year	: 365

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

13.2.2. Control of worker exposure: Mixing operations; Material transfers; Small package filling; Small scale weighing (PROC5, PROC8a, PROC8b, PROC9)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation	Inhalation - minimum efficiency of 80 %

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

13.2.3. Control of worker exposure: Rolling, Brushing (PROC10)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spreading of liquid products
Activity	: Spreading of liquids at surfaces or work pieces < 3 m ² /h

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

13.2.4. Control of worker exposure: Spraying (PROC11)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spraying of liquids
Spray technique	: Spraying with no or low compressed air use
Spray direction	: Ensure that direction of application is only horizontal or downward.
Application rate	: Moderate application rate (0.3 - 3 l/minute)

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

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13.2.5. Control of worker exposure: Dipping, immersion and pouring (PROC13)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h
Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Activities with open liquid surfaces or open reservoirs - activity with agitated surfaces
Open surface	: $\leq 3 \text{ m}^2$
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

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13.2.6. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness Liquid
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h
Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to hands and forearms.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

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13.3. Exposure estimation and reference to its source

13.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8d, ERC8a)

Release route	Release	Release estimation method
Water	100 %	ERC based
Air	100 %	ERC based
Soil	20 %	ERC based

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

13.3.2. Worker exposure: Mixing operations; Material transfers; Small package filling; Small scale weighing (PROC5, PROC8a, PROC8b, PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

13.3.3. Worker exposure: Rolling, Brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

13.3.4. Worker exposure: Spraying (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
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Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

13.3.5. Worker exposure: Dipping, immersion and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

13.3.6. Worker exposure: Manual activities involving hand contact (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

13.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES14: Anti-freeze and de-icing products, Washing and cleaning products, Plant protection products, water-free process, Professional

14.1. Title section

Structured Short Title	: Widespread use by professional workers; Various products (PC1, PC4, PC8, PC23, PC27, PC28, PC31, PC34, PC35, PC39); Various sectors (SU5, SU7, SU18, SU19).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC8d : Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8a : Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Process category(ies)	: PROC5 : Mixing or blending in batch processes PROC8a : Transfer of substance or mixture (charging/discharging) at non dedicated-facilities PROC8b : Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC9 : Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 : Roller application or brushing PROC11 : Non-industrial spraying PROC13 : Treatment of articles by dipping and pouring PROC19 : Manual activities involving hand contact

Contributing Scenario (CS) Environment		
CS1	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)	ERC8d, ERC8a

Contributing Scenario (CS) Worker		
CS2	Mixing operations; Material transfers; Small package filling; Small scale weighing	PROC5, PROC8a, PROC8b, PROC9
CS3	Rolling, Brushing	PROC10
CS4	Spraying	PROC11
CS5	Dipping, immersion and pouring	PROC13

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CS6	Manual activities involving hand contact	PROC19
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14.2. Conditions of use affecting exposure

14.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8d, ERC8a)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 0,1 t
Release type	: Continuous release
Emission days per year	: 365

Technical and organisational conditions and measures	
Suitable technique(s) to limit releases to water: Dry process (no water used in process) Spent process fluid discharged to wastewater for subsequent treatment. Water - minimum efficiency of 100 %	
Suitable technique(s) to limit releases to soil: Floor should be impervious and resistant to liquid.	

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

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14.2.2. Control of worker exposure: Mixing operations; Material transfers; Small package filling; Small scale weighing (PROC5, PROC8a, PROC8b, PROC9)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness Liquid
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h
Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation Inhalation - minimum efficiency of 80 %	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

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14.2.3. Control of worker exposure: Rolling, Brushing (PROC10)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spreading of liquid products
Activity	: Spreading of liquids at surfaces or work pieces < 3 m ² /h

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

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14.2.4. Control of worker exposure: Spraying (PROC11)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spraying of liquids
Spray technique	: Spraying with no or low compressed air use
Spray direction	: Ensure that direction of application is only horizontal or downward.
Application rate	: Moderate application rate (0.3 - 3 l/minute)

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

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On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

14.2.5. Control of worker exposure: Dipping, immersion and pouring (PROC13)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Liquid
low viscosity

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.
Demonstrable and effective housekeeping practices are in place.

Activity class : Activities with open liquid surfaces or open reservoirs -
activity with agitated surfaces

Open surface : $\leq 3 \text{ m}^2$

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear suitable gloves tested to EN374.
Dermal - minimum efficiency of 80 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Room size : 300 m³

Temperature : Covers use at ambient temperatures.

Ventilation rate : ach (air changes per hour) 3

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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

14.2.6. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %
Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.
Local exhaust ventilation
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.
Wear suitable gloves tested to EN374.
Dermal - minimum efficiency of 80 %
For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use
Temperature : Assumes process temperature up to 40 °C
Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed : Assumes that potential dermal contact is limited to hands and forearms.

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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

14.3. Exposure estimation and reference to its source

14.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8d, ERC8a)

Release route	Release	Release estimation method
Water	0 %	Expert judgement
Air	0 %	AISE SPERC 8a.1.a.v1
Soil	0 %	AISE SPERC 8a.1.a.v1

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

14.3.2. Worker exposure: Mixing operations; Material transfers; Small package filling; Small scale weighing (PROC5, PROC8a, PROC8b, PROC9)

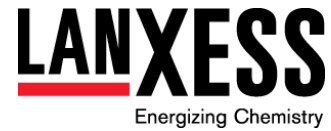
Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

14.3.3. Worker exposure: Rolling, Brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

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14.3.4. Worker exposure: Spraying (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

14.3.5. Worker exposure: Dipping, immersion and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

14.3.6. Worker exposure: Manual activities involving hand contact (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

14.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.

Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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Country / Language: DE / 6N (EN)

ES15: Use in adhesives, coatings, dyes, inks, printing dyes., Professional

15.1. Title section

Structured Short Title	: Widespread use by professional workers; Various products (PC1, PC9a, PC18); Various sectors (SU5, SU7, SU18, SU19).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC8f: Widespread use leading to inclusion into/onto article (outdoor) ERC8c: Widespread use leading to inclusion into/onto article (indoor)
Process category(ies)	: PROC5: Mixing or blending in batch processes PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non-industrial spraying PROC13: Treatment of articles by dipping and pouring PROC14: Tableting, compression, extrusion, pelettisation, granulation PROC21: Low energy manipulation and handling of substances bound in/on materials and/or articles

Contributing Scenario (CS) Environment		
CS1	Widespread use leading to inclusion into/onto article (outdoor); Widespread use leading to inclusion into/onto article (indoor)	ERC8f, ERC8c

Contributing Scenario (CS) Worker		
CS2	Mixing operations; Material transfers; Dedicated facility; Small package filling; Small scale weighing	PROC5, PROC8b, PROC9
CS3	Rolling, Brushing	PROC10
CS4	Spraying	PROC11
CS5	Dipping, immersion and pouring	PROC13
CS6	Tableting, compression, extrusion or pelletisation	PROC14

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CS7	Low energy manipulation and handling of substances bound in/on materials and/or articles	PROC21
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15.2. Conditions of use affecting exposure

15.2.1. Control of environmental exposure: Widespread use leading to inclusion into/onto article (outdoor); Widespread use leading to inclusion into/onto article (indoor) (ERC8f, ERC8c)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 0,16 kg
Release type	: Continuous release
Emission days per year	: 365

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

15.2.2. Control of worker exposure: Mixing operations; Material transfers; Dedicated facility; Small package filling; Small scale weighing (PROC5, PROC8b, PROC9)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	
Local exhaust ventilation	Inhalation - minimum efficiency of 80 %

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

15.2.3. Control of worker exposure: Rolling, Brushing (PROC10)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spreading of liquid products
Activity	: Spreading of liquids at surfaces or work pieces < 3 m ² /h

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

15.2.4. Control of worker exposure: Spraying (PROC11)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spraying of liquids
Spray technique	: Spraying with no or low compressed air use
Spray direction	: Ensure that direction of application is only horizontal or downward.
Application rate	: Moderate application rate (0.3 - 3 l/minute)

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

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15.2.5. Control of worker exposure: Dipping, immersion and pouring (PROC13)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h
Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Activities with open liquid surfaces or open reservoirs - activity with agitated surfaces
Open surface	: $\leq 3 \text{ m}^2$
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

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15.2.6. Control of worker exposure: Tableting, compression, extrusion or pelletisation (PROC14)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness Solid mixture

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

15.2.7. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness Solid mixture

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.	

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Body parts exposed	: Assumes that potential dermal contact is limited to hands and forearms.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

15.3. Exposure estimation and reference to its source

15.3.1. Environmental release and exposure: Widespread use leading to inclusion into/onto article (outdoor); Widespread use leading to inclusion into/onto article (indoor) (ERC8f, ERC8c)

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Release route	Release	Release estimation method
Water	1 %	ERC based
Air	15 %	ERC based
Soil	0,5 %	ERC based

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

15.3.2. Worker exposure: Mixing operations; Material transfers; Dedicated facility; Small package filling; Small scale weighing (PROC5, PROC8b, PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

15.3.3. Worker exposure: Rolling, Brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

15.3.4. Worker exposure: Spraying (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

15.3.5. Worker exposure: Dipping, immersion and pouring (PROC13)

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Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

15.3.6. Worker exposure: Tableting, compression, extrusion or pelletisation (PROC14)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

15.3.7. Worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

15.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES16: Use as lubricant in machineries, Professional

16.1. Title section

Structured Short Title	: Widespread use by professional workers; Various products (PC16, PC17, PC24); ATIEL ATC B [p]; Closed systems.
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC9a: Widespread use of functional fluid (indoor)
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities PROC8b: Transfer of substance or mixture (charging/discharging) at dedicated facilities PROC20: Use of functional fluids in small devices

Contributing Scenario (CS) Environment		
CS1	Widespread use of functional fluid (indoor)	ERC9a

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Closed systems	PROC2
CS4	Material transfers	PROC8a, PROC8b
CS5	Use of functional fluids in small devices	PROC20

16.2. Conditions of use affecting exposure

16.2.1. Control of environmental exposure: Widespread use of functional fluid (indoor) (ERC9a)

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Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 0,47 kg
Release type	: Continuous release
Emission days per year	: 365

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

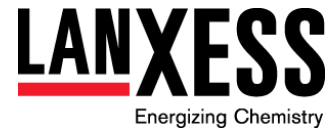
16.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness Liquid

Amount used, frequency and duration of use (or from service life)	
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Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

16.2.3. Control of worker exposure: Continuous process; Closed systems (PROC2)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.

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Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

16.2.4. Control of worker exposure: Material transfers (PROC8a, PROC8b)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 80 %

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Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

16.2.5. Control of worker exposure: Use of functional fluids in small devices (PROC20)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 80 %

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Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable protective clothing.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %
For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure
Indoor or outdoor use : Indoor use
Temperature : Assumes process temperature up to 40 °C
Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.

16.3. Exposure estimation and reference to its source

16.3.1. Environmental release and exposure: Widespread use of functional fluid (indoor) (ERC9a)

Release route	Release	Release estimation method
Water	5 E-04 %	ATIEL-ATC SPERC 9.Bp.v1
Air	5 E-04 %	ATIEL-ATC SPERC 9.Bp.v1
Soil	1 E-03 %	ATIEL-ATC SPERC 9.Bp.v1

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

16.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
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combined routes	-	-	(ECETOC TRA 3.1)	< 1
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16.3.3. Worker exposure: Continuous process; Closed systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

16.3.4. Worker exposure: Material transfers (PROC8a, PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

16.3.5. Worker exposure: Use of functional fluids in small devices (PROC20)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

16.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES17: Use of lubricants in open system, Professional

17.1. Title section

Structured Short Title	: Widespread use by professional workers; Lubricants, greases, release products (PC24); ATIEL ATC C [p].
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC8d : Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8a : Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Process category(ies)	: PROC1 : Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 : Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8a : Transfer of substance or mixture (charging/discharging) at non dedicated-facilities PROC10 : Roller application or brushing PROC11 : Non-industrial spraying PROC13 : Treatment of articles by dipping and pouring
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Contributing Scenario (CS) Environment		
CS1	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)	ERC8d, ERC8a

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Closed systems	PROC2
CS4	Material transfers; Non-dedicated facility	PROC8a
CS5	Rolling, Brushing	PROC10
CS6	Spraying	PROC11
CS7	Dipping, immersion and pouring	PROC13

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17.2. Conditions of use affecting exposure

17.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8d, ERC8a)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 82 g
Release type	: Continuous release
Emission days per year	: 365

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

17.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %

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Physical form of product	: Solid, low dustiness Liquid
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Amount used, frequency and duration of use (or from service life)

Duration	: Covers exposure up to 8 h
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Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use	: Indoor use
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Temperature	: Assumes process temperature up to 40 °C
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Ventilation rate	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

17.2.3. Control of worker exposure: Continuous process; Closed systems (PROC2)

Product (article) characteristics

Concentration of substance in product	: Covers concentrations up to 5 %
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Physical form of product	: Solid, low dustiness Liquid
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Amount used, frequency and duration of use (or from service life)

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Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

17.2.4. Control of worker exposure: Material transfers; Non-dedicated facility (PROC8a)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

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Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

17.2.5. Control of worker exposure: Rolling, Brushing (PROC10)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Liquid
low viscosity

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

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Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spreading of liquid products
Activity	: Spreading of liquids at surfaces or work pieces < 3 m ² /h

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

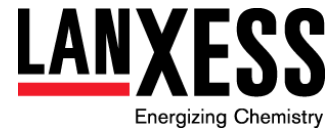
17.2.6. Control of worker exposure: Spraying (PROC11)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

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Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Spraying of liquids
Spray technique	: Spraying with no or low compressed air use
Spray direction	: Ensure that direction of application is only horizontal or downward.
Application rate	: Moderate application rate (0.3 - 3 l/minute)

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

17.2.7. Control of worker exposure: Dipping, immersion and pouring (PROC13)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Liquid low viscosity

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Amount used, frequency and duration of use (or from service life)	
Duration	: Covers exposure up to 8 h

Technical and organisational conditions and measures	
Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised. Demonstrable and effective housekeeping practices are in place.	
Activity class	: Activities with open liquid surfaces or open reservoirs - activity with agitated surfaces
Open surface	: $\leq 3 \text{ m}^2$

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable protective clothing.	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %	
For further specification, refer to section 8 of the SDS.	

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 300 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 3

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.	

17.3. Exposure estimation and reference to its source

17.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8d, ERC8a)

Release route	Release	Release estimation method
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Water	5 E-04 %	ATIEL-ATC SPERC 8.Cp.v1
Air	5 E-04 %	ATIEL-ATC SPERC 8.Cp.v1
Soil	1 E-03 %	ATIEL-ATC SPERC 8.Cp.v1

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

17.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

17.3.3. Worker exposure: Continuous process; Closed systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

17.3.4. Worker exposure: Material transfers; Non-dedicated facility (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

17.3.5. Worker exposure: Rolling, Brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA	< 1

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17.3.6. Worker exposure: Spraying (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

17.3.7. Worker exposure: Dipping, immersion and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
Inhalation	-	-	(ART v1.5)	< 1
dermal	-	-	(ECETOC TRA 3.1)	< 1

17.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users
Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario. Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES18: Use of lubricants in high energy open processes, Professional

18.1. Title section

Structured Short Title	: Widespread use by professional workers; Various products (PC24, PC25); ATIEL ATC F [p].
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Process category(ies)	: PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8a: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities PROC17: Lubrication at high energy conditions in metal working operations PROC18: General greasing/lubrication at high kinetic energy conditions

Contributing Scenario (CS) Environment		
CS1	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)	ERC8a

Contributing Scenario (CS) Worker		
CS2	Use in closed process	PROC1
CS3	Continuous process; Closed systems	PROC2
CS4	Material transfers; Non-dedicated facility	PROC8a
CS5	Lubrication at high energy conditions in metal working operations	PROC17
CS6	General greasing/lubrication at high kinetic energy conditions	PROC18

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18.2. Conditions of use affecting exposure

18.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 82 g
Release type	: Continuous release
Emission days per year	: 365

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

18.2.2. Control of worker exposure: Use in closed process (PROC1)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 5 %
Physical form of product	: Solid, low dustiness

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Country / Language: DE / 6N (EN)

Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

18.2.3. Control of worker exposure: Continuous process; Closed systems (PROC2)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

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Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance. Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection. For further specification, refer to section 8 of the SDS.

18.2.4. Control of worker exposure: Material transfers; Non-dedicated facility (PROC8a)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 5 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.

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Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation
Inhalation - minimum efficiency of 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

18.2.5. Control of worker exposure: Lubrication at high energy conditions in metal working operations (PROC17)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 2 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

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Local exhaust ventilation
Inhalation - minimum efficiency of 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Dermal - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

18.2.6. Control of worker exposure: General greasing/lubrication at high kinetic energy conditions (PROC18)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 2 %

Physical form of product : Solid, low dustiness
Liquid

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

Local exhaust ventilation

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Inhalation - minimum efficiency of 80 %

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

18.3. Exposure estimation and reference to its source

18.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)

Release route	Release	Release estimation method
Water	1 E-03 %	ATIEL-ATC SPERC 8.Fp.v1
Air	5 E-04 %	ATIEL-ATC SPERC 8.Fp.v1
Soil	1 E-03 %	ATIEL-ATC SPERC 8.Fp.v1

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

18.3.2. Worker exposure: Use in closed process (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
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combined routes	-	-	(ECETOC TRA 3.1)	< 1
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18.3.3. Worker exposure: Continuous process; Closed systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

18.3.4. Worker exposure: Material transfers; Non-dedicated facility (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

18.3.5. Worker exposure: Lubrication at high energy conditions in metal working operations (PROC17)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

18.3.6. Worker exposure: General greasing/lubrication at high kinetic energy conditions (PROC18)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.1)	< 1

18.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.

Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES19: Use as laboratory reagent, Professional

19.1. Title section

Structured Short Title	: Widespread use by professional workers; Laboratory chemicals (PC21); Scientific research and development (SU24).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC9a: Widespread use of functional fluid (indoor)
Process category(ies)	: PROC15: Use as laboratory reagent

Contributing Scenario (CS) Environment		
CS1	Widespread use of functional fluid (indoor)	ERC9a

Contributing Scenario (CS) Worker		
CS2	Laboratory activities	PROC15

19.2. Conditions of use affecting exposure

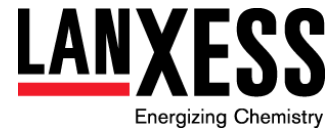
19.2.1. Control of environmental exposure: Widespread use of functional fluid (indoor) (ERC9a)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 1 kg
Release type	: Continuous release
Emission days per year	: 365

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Technical and organisational conditions and measures

Suitable technique(s) to limit releases to water:
Dry process (no water used in process)
Water - minimum efficiency of 100 %

Conditions and measures related to sewage treatment plant

STP type : Municipal Sewage Treatment Plant
Water - minimum efficiency of 63,06 %
STP effluent : 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)

Waste treatment : Incineration
Waste disposal methods : For general information on waste disposal see section 13.

Other conditions affecting environmental exposure

Receiving surface water flow : 18.000 m3/d
Local freshwater dilution factor : 10
Local marine water dilution factor : 100

19.2.2. Control of worker exposure: Laboratory activities (PROC15)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 100 %
Physical form of product : Solid, low dustiness

Amount used, frequency and duration of use (or from service life)

Duration : Covers exposure up to 8 h

Technical and organisational conditions and measures

Only trained and authorised personnel is allowed to handle the substance.
Substance-handling procedures shall be well documented and supervised.

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Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable protective clothing.

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Ventilation rate : Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Body parts exposed : Palm of one hand

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

On possible contact with the product (sampling, spillage, leakage, cleaning): Wear protective clothing, wear protective gloves, wear eye protection and respiratory protection.
For further specification, refer to section 8 of the SDS.

19.3. Exposure estimation and reference to its source

19.3.1. Environmental release and exposure: Widespread use of functional fluid (indoor) (ERC9a)

Release route	Release	Release estimation method
Water	5 %	ERC based
Air	5 %	ERC based
Soil	0 %	ERC based

Remarks:

Initial release prior to RMM

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

19.3.2. Worker exposure: Laboratory activities (PROC15)

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Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA 3.0)	< 1

19.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Fulfilling the above conditions the downstream user is deemed to work safely inside the boundaries set by this exposure scenario.
Other conditions should only be considered if the downstream user implements or recommends an exposure scenario which includes as a minimum the conditions described in this exposure scenario.

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ES20: Anti-freeze and de-icing products, Washing and cleaning products, Plant protection products, Consumer

20.1. Title section

Structured Short Title	: Consumer use; Various products (PC4, PC8, PC23, PC27, PC31, PC35).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC8d : Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8a : Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Product (sub) category(ies)	: PC4 : Anti-freeze and de-icing products PC8 : Biocidal products PC23 : Leather treatment products PC27 : Plant protection products PC31 : Polishes and wax blends PC35 : Washing and cleaning products

Contributing Scenario (CS) Environment		
CS1	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)	ERC8d, ERC8a

Contributing Scenario (CS) Consumer		
CS2	Anti-freeze and de-icing products	PC4
CS3	Biocidal products; Plant protection products	PC8, PC27
CS4	Leather treatment products; Laundry and dish washing products	PC23, PC35
CS5	Polishes, wax / cream (floor, furniture, shoes)	PC31
CS6	Polishes, spray (furniture, shoes)	PC31
CS7	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	PC35

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20.2. Conditions of use affecting exposure

20.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8d, ERC8a)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 4,1 g
Release type	: Continuous release
Emission days per year	: 365

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

20.2.2. Control of consumer exposure: Anti-freeze and de-icing products (PC4)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 2 mg/cm ³
Physical form of product	: Aerosol

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Amount used, frequency and duration of use (or from service life)	
Amounts used (Inhalation exposure)	: 50 g
Amounts used (Dermal exposure)	: 19 g
Duration	: Covers exposure up to: 1 h

Other conditions affecting consumers exposure	
Temperature	: Covers use at ambient temperatures.
Body weight	: 65 kg
Population potentially exposed	: adult

20.2.3. Control of consumer exposure: Biocidal products; Plant protection products (PC8, PC27)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 2 mg/cm ³
Physical form of product	: Aerosol

Amount used, frequency and duration of use (or from service life)	
Amounts used (Dermal exposure)	: 50 g
Duration	: Covers exposure up to: 4 h
Duration	: Spray duration: 10 min

Other conditions affecting consumers exposure	
Temperature	: Covers use at ambient temperatures.
Body weight	: 65 kg
Population potentially exposed	: adult

20.2.4. Control of consumer exposure: Leather treatment products; Laundry and dish washing products (PC23, PC35)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 0,2 %

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Amount used, frequency and duration of use (or from service life)	
Amount per use	: 50 g
Duration	: Covers exposure up to: 1 h
Use frequency	: Covers use up to 1 events per day

Other conditions affecting consumers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.

20.2.5. Control of consumer exposure: Polishes, wax / cream (floor, furniture, shoes) (PC31)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 0,2 %
Physical form of product	: Liquid

Amount used, frequency and duration of use (or from service life)	
Amount per use	: 200 g
Duration	: Covers exposure up to: 4 h
Use frequency	: Covers use up to 1 events per day

Other conditions affecting consumers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.

20.2.6. Control of consumer exposure: Polishes, spray (furniture, shoes) (PC31)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 0,2 %
Physical form of product	: Aerosol

Amount used, frequency and duration of use (or from service life)	
Amount per use	: 20 g
Duration	: Covers exposure up to: 4 h

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Use frequency	: Covers use up to 1 events per day
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Other conditions affecting consumers exposure

Body parts exposed	: Assumes that potential dermal contact is limited to hands.
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20.2.7. Control of consumer exposure: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) (PC35)

Product (article) characteristics

Concentration of substance in product	: Covers concentrations up to 0,2 %
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Physical form of product	: Liquid
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Amount used, frequency and duration of use (or from service life)

Amount per use	: 50 g
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Duration	: Covers exposure up to: 20 min
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Use frequency	: Covers use up to 1 events per day
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Other conditions affecting consumers exposure

Body parts exposed	: Assumes that potential dermal contact is limited to hands.
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20.3. Exposure estimation and reference to its source

20.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8d, ERC8a)

Release route	Release	Release estimation method
Water	100 %	AISE SPERC 8a.1.a.v2
Air	0 %	AISE SPERC 8a.1.a.v2
Soil	0 %	AISE SPERC 8a.1.a.v2

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

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20.3.2. Consumer exposure: Anti-freeze and de-icing products (PC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(Consexpo v4.1)	< 1

Additional information on exposure estimation

Default values: CLEANING and WASHING >> All-purpose cleaners >> Spray cleaner >> Application: cleaning
Inhalation model: evaporation model - instantaneous release
Dermal model: instant application
Oral exposure is considered to be not relevant.

20.3.3. Consumer exposure: Biocidal products; Plant protection products (PC8, PC27)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(Consexpo v4.1)	< 1

Additional information on exposure estimation

Default values: PEST CONTROL PRODUCTS >> Sprays >> General surface >> Application (trigger spray)
Inhalation model: evaporation model - instantaneous release
Dermal model: instant application
Oral exposure is considered to be not relevant.

20.3.4. Consumer exposure: Leather treatment products; Laundry and dish washing products (PC23, PC35)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA consumer v3)	< 1

Additional information on exposure estimation

Oral exposure is considered to be not relevant.

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20.3.5. Consumer exposure: Polishes, wax / cream (floor, furniture, shoes) (PC31)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA consumer v3)	< 1

Additional information on exposure estimation

Oral exposure is considered to be not relevant.

20.3.6. Consumer exposure: Polishes, spray (furniture, shoes) (PC31)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA consumer v3)	< 1

Additional information on exposure estimation

Oral exposure is considered to be not relevant.

20.3.7. Consumer exposure: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) (PC35)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA consumer v3)	< 1

Additional information on exposure estimation

Oral exposure is considered to be not relevant.

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Guidance to Downstream Users

Not applicable

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ES21: Use in adhesives, coatings, dyes, inks, printing dyes., Consumer

21.1. Title section

Structured Short Title	: Consumer use; Various products (PC1, PC9a, PC18).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0
Environmental release category(ies)	: ERC8f : Widespread use leading to inclusion into/onto article (outdoor) ERC8c : Widespread use leading to inclusion into/onto article (indoor)
Product (sub) category(ies)	: PC18 : Ink and toners PC9a : Coatings and paints, thinners, paint removers PC1 : Adhesives, sealants

Contributing Scenario (CS) Environment		
CS1	Widespread use leading to inclusion into/onto article (outdoor); Widespread use leading to inclusion into/onto article (indoor)	ERC8f, ERC8c

Contributing Scenario (CS) Consumer		
CS2	Glues, hobby use	PC1
CS3	Glue from spray	PC1
CS4	Sealants	PC1
CS5	Coatings and paints, thinners, paint removers; Spraying	PC9a
CS6	Coatings and paints, thinners, paint removers; Removers (paint-, glue-, wall paper-, sealant-remover)	PC9a
CS7	Ink and toners	PC18

21.2. Conditions of use affecting exposure

21.2.1. Control of environmental exposure: Widespread use leading to inclusion into/onto article (outdoor); Widespread use leading to inclusion into/onto article (indoor) (ERC8f, ERC8c)

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Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 0,11 kg
Release type	: Continuous release
Emission days per year	: 365

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

21.2.2. Control of consumer exposure: Glues, hobby use (PC1)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 0,2 %
Physical form of product	: Liquid

Amount used, frequency and duration of use (or from service life)	
Amount per use	: 9 g
Duration	: Covers exposure up to: 4 h

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Use frequency	: Covers use up to 1 events per day
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Other conditions affecting consumers exposure

Body parts exposed	: Assumes that potential dermal contact is limited to fingertips.
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21.2.3. Control of consumer exposure: Glue from spray (PC1)

Product (article) characteristics

Concentration of substance in product	: Covers concentrations up to 0,2 %
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Physical form of product	: Aerosol
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Amount used, frequency and duration of use (or from service life)

Amount per use	: 25 g
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Duration	: Covers exposure up to: 4 h
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Use frequency	: Covers use up to 1 events per day
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Other conditions affecting consumers exposure

Body parts exposed	: Assumes that potential dermal contact is limited to fingertips.
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21.2.4. Control of consumer exposure: Sealants (PC1)

Product (article) characteristics

Concentration of substance in product	: Covers concentrations up to 0,2 %
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Physical form of product	: Liquid
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Amount used, frequency and duration of use (or from service life)

Amount per use	: 200 g
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Duration	: Covers exposure up to: 4 h
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Use frequency	: Covers use up to 1 events per day
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Other conditions affecting consumers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to fingertips.

21.2.5. Control of consumer exposure: Coatings and paints, thinners, paint removers; Spraying (PC9a)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 2 mg/cm ³
Physical form of product	: Aerosol

Amount used, frequency and duration of use (or from service life)	
Amounts used (Dermal exposure)	: 9 g
Duration	: Covers exposure up to: 20 min
Duration	: Spray duration: 15 min

Other conditions affecting consumers exposure	
Temperature	: Covers use at ambient temperatures.
Body weight	: 65 kg
Population potentially exposed	: adult

21.2.6. Control of consumer exposure: Coatings and paints, thinners, paint removers; Removers (paint-, glue-, wall paper-, sealant-remover) (PC9a)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 0,2 %
Physical form of product	: Liquid

Amount used, frequency and duration of use (or from service life)	
Amounts used (Dermal exposure)	: 200 g
Duration	: Covers exposure up to: 4 h
Use frequency	: Covers use up to 1 events per day

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Other conditions affecting consumers exposure

Body parts exposed : Assumes that potential dermal contact is limited to hands.

21.2.7. Control of consumer exposure: Ink and toners (PC18)

Product (article) characteristics

Concentration of substance in product : Covers concentrations up to 0,2 %

Physical form of product : Liquid

Amount used, frequency and duration of use (or from service life)

Amounts used (Dermal exposure) : 50 g

Duration : Covers exposure up to: 20 min

Use frequency : Covers use up to 1 events per day

Other conditions affecting consumers exposure

Body parts exposed : Assumes that potential dermal contact is limited to hands.

21.3. Exposure estimation and reference to its source

21.3.1. Environmental release and exposure: Widespread use leading to inclusion into/onto article (outdoor); Widespread use leading to inclusion into/onto article (indoor) (ERC8f, ERC8c)

Release route	Release	Release estimation method
Water	1 %	OECD ESD, No. 22 (OECD, 2009)
Air	0 %	OECD ESD, No. 22 (OECD, 2009)
Soil	0 %	OECD ESD, No. 22 (OECD, 2009)

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

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21.3.2. Consumer exposure: Glues, hobby use (PC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA consumer v3)	< 1

Additional information on exposure estimation

Oral exposure is considered to be not relevant.

21.3.3. Consumer exposure: Glue from spray (PC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA consumer v3)	< 1

Additional information on exposure estimation

Oral exposure is considered to be not relevant.

21.3.4. Consumer exposure: Sealants (PC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA consumer v3)	< 1

Additional information on exposure estimation

Oral exposure is considered to be not relevant.

21.3.5. Consumer exposure: Coatings and paints, thinners, paint removers; Spraying (PC9a)

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Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(Consexpo v4.1)	< 1

Additional information on exposure estimation

Default values: PAINTING PRODUCTS >> Spray painting >> Spray can >> Application
Inhalation model: evaporation model - instantaneous release
Dermal model: instant application
Oral exposure is considered to be not relevant.

21.3.6. Consumer exposure: Coatings and paints, thinners, paint removers; Removers (paint-, glue-, wall paper-, sealant-remover) (PC9a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA consumer v3)	< 1

Additional information on exposure estimation

Oral exposure is considered to be not relevant.

21.3.7. Consumer exposure: Ink and toners (PC18)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(ECETOC TRA consumer v3)	< 1

Additional information on exposure estimation

Oral exposure is considered to be not relevant.

21.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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Guidance to Downstream Users

Not applicable

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ES22: Use as lubricant in machineries, Consumer

22.1. Title section

Structured Short Title	: Consumer use; Lubricants, greases, release products (PC24); ATIEL ATC B [c]; Closed systems.
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0

Environmental release category(ies)	: ERC9a: Widespread use of functional fluid (indoor)
Product (sub) category(ies)	: PC24: Lubricants, greases, release products

Contributing Scenario (CS) Environment		
CS1	Widespread use of functional fluid (indoor)	ERC9a

Contributing Scenario (CS) Consumer		
CS2	Lubricants, greases, release products; Sprays	PC24
CS3	Lubricants, greases, release products; Liquid	PC24

22.2. Conditions of use affecting exposure

22.2.1. Control of environmental exposure: Widespread use of functional fluid (indoor) (ERC9a)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 0,11 kg
Release type	: Continuous release
Emission days per year	: 365

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Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

22.2.2. Control of consumer exposure: Lubricants, greases, release products; Sprays (PC24)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 20 mg/cm ³
Physical form of product	: Aerosol

Amount used, frequency and duration of use (or from service life)	
Amounts used (Dermal exposure)	: 9 g
Duration	: Covers exposure up to: 6 min
Duration	: Spray duration: 3 min

Other conditions affecting consumers exposure	
Temperature	: Covers use at ambient temperatures.
Body weight	: 65 kg
Population potentially exposed	: adult

22.2.3. Control of consumer exposure: Lubricants, greases, release products; Liquid (PC24)

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Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 20 mg/cm ³
Physical form of product	: Liquid

Amount used, frequency and duration of use (or from service life)	
Amounts used (Dermal exposure)	: 50 g
Duration	: Covers exposure up to: 132 min

Other conditions affecting consumers exposure	
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 0,6
Body weight	: 65 kg
Population potentially exposed	: adult

22.3. Exposure estimation and reference to its source

22.3.1. Environmental release and exposure: Widespread use of functional fluid (indoor) (ERC9a)

Release route	Release	Release estimation method
Water	5 E-04 %	ATIEL-ATC SPERC 9.Bc.v1
Air	5 E-03 %	ATIEL-ATC SPERC 9.Bc.v1
Soil	1 E-04 %	ATIEL-ATC SPERC 9.Bc.v1

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

22.3.2. Consumer exposure: Lubricants, greases, release products; Sprays (PC24)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(Consexpo v4.1)	< 1

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Additional information on exposure estimation

Default values: PEST CONTROL PRODUCTS >> Sprays >> Targeted spot >> Application (trigger spray)
Inhalation model: evaporation model - instantaneous release
Dermal model: instant application
Oral exposure is considered to be not relevant.

22.3.3. Consumer exposure: Lubricants, greases, release products; Liquid (PC24)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(Consexpo v4.1)	< 1

Additional information on exposure estimation

Default values: PAINTING PRODUCTS >> Brush and roller painting >> Solvent rich paint >> Application
Inhalation model: evaporation model - instantaneous release
Dermal model: instant application
Oral model: direct product contact: direct intake

22.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Not applicable

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ES23: Use of lubricants in open system, Consumer

23.1. Title section

Structured Short Title	: Consumer use; Lubricants, greases, release products (PC24); ATIEL ATC C [c].
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0
Environmental release category(ies)	: ERC8d : Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8a : Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Product (sub) category(ies)	: PC24 : Lubricants, greases, release products

Contributing Scenario (CS) Environment		
CS1	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)	ERC8d, ERC8a

Contributing Scenario (CS) Consumer		
CS2	Lubricants, greases, release products; Liquid	PC24

23.2. Conditions of use affecting exposure

23.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8d, ERC8a)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
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Daily amount for wide dispersive uses	:	82 g
Release type	:	Continuous release
Emission days per year	:	365

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

23.2.2. Control of consumer exposure: Lubricants, greases, release products; Liquid (PC24)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 20 mg/cm ³
Physical form of product	: Liquid

Amount used, frequency and duration of use (or from service life)	
Amounts used (Dermal exposure)	: 50 g
Duration	: Covers exposure up to: 132 min

Other conditions affecting consumers exposure	
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 0,6
Body weight	: 65 kg

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Population potentially exposed : adult

23.3. Exposure estimation and reference to its source

23.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor); Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8d, ERC8a)

Release route	Release	Release estimation method
Water	5 E-04 %	ATIEL-ATC SPERC 8.Cc.v1
Air	5 E-03 %	ATIEL-ATC SPERC 8.Cc.v1
Soil	1 E-04 %	ATIEL-ATC SPERC 8.Cc.v1

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

23.3.2. Consumer exposure: Lubricants, greases, release products; Liquid (PC24)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(Consexpo v4.1)	< 1

Additional information on exposure estimation

Default values: PAINTING PRODUCTS >> Brush and roller painting >> Solvent rich paint >> Application
Inhalation model: evaporation model - instantaneous release
Dermal model: instant application
Oral model: direct product contact: direct intake

23.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Not applicable

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Country / Language: DE / 6N (EN)

ES24: Use in plastics, Rubber products, Consumer

24.1. Title section

Structured Short Title	: Service life - consumers; Various articles (AC10, AC13).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0
Environmental release category(ies)	: ERC10a : Widespread use of articles with low release (outdoor) ERC11a : Widespread use of articles with low release (indoor)
Article (sub) category(ies)	: AC10 : Rubber articles AC13 : Plastic articles

Contributing Scenario (CS) Environment		
CS1	Widespread use of articles with low release (outdoor); Widespread use of articles with low release (indoor)	ERC10a, ERC11a

Contributing Scenario (CS) Consumer		
CS2	Rubber articles; Plastic articles	AC10, AC13

24.2. Conditions of use affecting exposure

24.2.1. Control of environmental exposure: Widespread use of articles with low release (outdoor); Widespread use of articles with low release (indoor) (ERC10a, ERC11a)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
Daily amount for wide dispersive uses	: 0,33 kg

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Release type	: Continuous release
Emission days per year	: 365

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m3/d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

24.2.2. Control of consumer exposure: Rubber articles; Plastic articles (AC10, AC13)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 20 mg/cm ³
Physical form of product	: Liquid

Amount used, frequency and duration of use (or from service life)	
Amount per use	: 825 g
Use frequency	: Covers use up to 365 days per year

Other conditions affecting consumers exposure	
Room size	: 34 m3
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 1,5
Body weight	: 65 kg
Population potentially exposed	: adult

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24.3. Exposure estimation and reference to its source

24.3.1. Environmental release and exposure: Widespread use of articles with low release (outdoor); Widespread use of articles with low release (indoor) (ERC10a, ERC11a)

Release route	Release	Release estimation method
Water	3,2 %	ERC based
Air	0,05 %	ERC based
Soil	3,2 %	ERC based

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

24.3.2. Consumer exposure: Rubber articles; Plastic articles (AC10, AC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(Consexpo v4.1)	< 1

Additional information on exposure estimation

Default values: DO IT YOURSELF PRODUCTS >> Coatings >> General coating >> Application
Inhalation model: evaporation model - instantaneous release
Dermal model: instant application
Oral exposure is considered to be not relevant.

24.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users

Not applicable

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Country / Language: DE / 6N (EN)

ES25: Use as lubricant in machineries, Consumer

25.1. Title section

Structured Short Title	: Service life - consumers; Various articles (AC1, AC2).
Substance	: 2,6-di-tert-butyl-p-cresol REACH No.: 01-2119555270-46 EC-No.: 204-881-4 CAS-No.: 128-37-0
Environmental release category(ies)	: ERC10a : Widespread use of articles with low release (outdoor) ERC11a : Widespread use of articles with low release (indoor)
Article (sub) category(ies)	: AC1 : Vehicles AC2 : Machinery, mechanical appliances, electrical/electronic articles

Contributing Scenario (CS) Environment		
CS1	Widespread use of articles with low release (outdoor); Widespread use of articles with low release (indoor)	ERC10a, ERC11a

Contributing Scenario (CS) Consumer		
CS2	Vehicles; Machinery, mechanical appliances, electrical/electronic articles	AC1, AC2

25.2. Conditions of use affecting exposure

25.2.1. Control of environmental exposure: Widespread use of articles with low release (outdoor); Widespread use of articles with low release (indoor) (ERC10a, ERC11a)

Product (article) characteristics	
Physical form of product	: Solid, low dustiness

Amount used, frequency and duration of use (or from service life)	
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Daily amount for wide dispersive uses	: 82 g
Release type	: Continuous release
Emission days per year	: 365

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant Water - minimum efficiency of 63,06 %
STP effluent	: 2.000 m ³ /d

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: No specific measures identified.
Waste disposal methods	: For general information on waste disposal see section 13.

Other conditions affecting environmental exposure	
Receiving surface water flow	: 18.000 m ³ /d
Local freshwater dilution factor	: 10
Local marine water dilution factor	: 100

25.2.2. Control of consumer exposure: Vehicles; Machinery, mechanical appliances, electrical/electronic articles (AC1, AC2)

Product (article) characteristics	
Concentration of substance in product	: Covers concentrations up to 20 mg/cm ³
Physical form of product	: Aerosol

Amount used, frequency and duration of use (or from service life)	
Amount per use	: 3 kg
Use frequency	: Covers use up to 365 days per year

Other conditions affecting consumers exposure	
Room size	: 57,5 m ³
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: ach (air changes per hour) 1,5

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Body weight	:	65 kg
Population potentially exposed	:	adult

25.3. Exposure estimation and reference to its source

25.3.1. Environmental release and exposure: Widespread use of articles with low release (outdoor); Widespread use of articles with low release (indoor) (ERC10a, ERC11a)

Release route	Release	Release estimation method
Water	3,2 %	ERC based
Air	0,05 %	ERC based
Soil	3,2 %	ERC based

Protection Target	Exposure estimate	Risk Characterisation Ratio (RCR)
All routes	(EUSES 2.1.2)	< 1

25.3.2. Consumer exposure: Vehicles; Machinery, mechanical appliances, electrical/electronic articles (AC1, AC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	Risk Characterisation Ratio (RCR)
combined routes	-	-	(Consexpo v4.1)	< 1

Additional information on exposure estimation
Default values: DO IT YOURSELF PRODUCTS >> Miscellaneous do it yourself products >> Isolation foam >> Application Inhalation model: exposure to vapor - Evaporation from constant area Dermal model: instant application Oral model: direct product contact: direct intake

25.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance to Downstream Users
Not applicable

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