Octocure ZDE-100

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

1.1 Product identifier

Trade name

Octocure ZDE-100

ZDEC-powder

Substance name	zinc bis(diethyldithiocarbamate)
REACH registration no.	01-2119683928-16

Identification numbers

CAS no.	14324-55-1
EC no.	238-270-9
Index no.	006-082-00-4

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

Relevant identified uses of the substance or mixture
Industrial raw material
Use in rubber production and processing.

Uses advised against
No data available.

1.3 Details of the supplier of the safety data sheet

Address
Tiarco Chemical Europe GmbH
Am Gut Baarking 12
46395 Bocholt

Telephone no.	+49 2871 23476-0
Fax no.	+49 2871 23476-44
e-mail	europeansales@trcc.com

Advice on Safety Data Sheet
sdb_info@umco.de

1.4 Emergency telephone number

For medical advice (in German and English):
+49 (0)551 192 40 (Giftinformationszentrum Nord)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification in accordance with Regulation (EC) No 1272/2008 (CLP)
Acute Tox. 4; H302
Aquatic Acute 1; H400
Aquatic Chronic 1; H410
Eye Irrit. 2; H319
Skin Irrit. 2; H315
Skin Sens. 1; H317
STOT RE 2; H373
STOT SE 3; H335

Classification information
This product is assessed and classified using the methods and criteria below referred to in Article 9 of Regulation (EC) n° 1272/2008:
Physical hazards: determined through assessment data based on the methods or standards referred to in part 2 of Annex I to CLP
Health hazards and environmental hazards: determined through toxicological and ecotoxicological assessment data based on the methods or standards referred to in Part 3 and 4 of Annex I to CLP.
According to the latest state of knowledge and applying the criteria set out in annex I to Regulation (EC) No 1272/2008 , the aforementioned classification is required. This classification goes beyond the classification set out in table 3, Annex VI to Regulation (CE) No 1272/2008.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP Regulation)

Product identifier
14324-55-1 (zinc bis(diethyldithiocarbamate))

Hazard pictograms


GHS07


GHS08


GHS09

Signal word
Warning

Hazard statement(s)

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H373	May cause damage to liver and spleen through prologned or repeated exsposure if swallowed.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P260	Do not breathe dust.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER/doctor if you feel unwell.
P391	Collect spillage.

2.3 Other hazards

PBT assessment
The product is not considered to be a PBT.

vPvB assessment
The product is not considered to be a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical characterization

Substance name	zinc bis(diethyldithiocarbamate)
Formula	C10H20N2S4Zn

Identification numbers

CAS no.	14324-55-1
EC no.	238-270-9
Index no.	006-082-00-4

Other information

Note	Specific concentration limits	M-factor (acute)	M-factor (chronic)
-	-	M = 10	M = 10

Acute toxicity estimate (ATE) values

oral	dermal	inhalative
1960 mg/kg bodyweight		

3.2 Mixtures

Not applicable. The product is not a mixture.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information
In case of persisting adverse effects, consult a physician. Change contaminated, saturated clothing. Poisonous symptoms can first be observed after several hours, therefore medical observation for at least 48 hours is necessary.

After inhalation
Remove affected person from the immediate area. Ensure supply of fresh air. In case of breathing difficulties give oxygen. In case of persisting adverse effects consult a physician.

After skin contact
Wash off immediately with soap and water. Consult a doctor if skin irritation persists. Change contaminated, saturated clothing.

After eye contact
Remove contact lenses. Rinse eye thoroughly under running water keeping eyelids wide open and protecting the unaffected eye (at least 10 to 15 minutes). In case of irritation consult an ophthalmologist.

After ingestion
Rinse the mouth thoroughly with water. Never give anything by mouth to an unconscious person. Do not induce vomiting. Seek medical advice immediately.

4.2 Most important symptoms and effects, both acute and delayed

Effects
Dust can irritate the respiratory tract.
Skin contact: May be absorbed through skin and cause effects similar to those of inhalation and/or ingestion.
Ingestion: May cause alcohol intolerance (antabuse effect). May cause headache, dizziness, nausea, vomiting or gastrointestinal irritation.
Inhalation may cause alcohol intolerance. Risk of aggravation by alcohol consumption.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. General information for dithiocarbamates
- Biomonitoring for possible chronic exposure: Determination of TTCA in urine at the end of the Working days / week.
- Blood tests for delayed effects: liver values, kidney function, thyroid function

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Foam; Extinguishing powder; Water spray jet; Carbon dioxide

Unsuitable extinguishing media
High power water jet

5.2 Special hazards arising from the substance or mixture

The product is not flammable. In the event of fire, the following can be released: Carbon dioxide (CO2); Carbon monoxide (CO); Hydrogen cyanide (HCN); Sulphur oxides (SxOy); Nitrogen oxides (NOx); Zinc oxides

5.3 Advice for firefighters

Fire-fighting operations, rescue and clearing work under effect of combustion and smoulder gases just may be done with breathing apparatus. Wear full protective suit. Run-off water from fire fighting must not be discharged into drains or enter surface water. Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Refer to protective measures listed in sections 7 and 8. Ensure adequate ventilation. Avoid dust formation. Keep away from ignition sources.

For emergency responders
No data available. Personal protective equipment (PPE) - see Section 8.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater. Do not discharge into the subsoil/soil. In case of entry into waterways, soil or drains, inform the responsible authorities.

6.3 Methods and material for containment and cleaning up

Collect mechanically. When collected, handle material as described under the section heading "Disposal considerations".

6.4 Reference to other sections

Information regarding safe handling, see section 7. Information regarding personal protective measures, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
No special measures necessary if stored and handled as prescribed. Avoid the formation and deposition of dust. Provide good ventilation at the work area (local exhaust ventilation, if necessary).

General protective and hygiene measures
Do not eat, drink or smoke during work time. Keep away from foodstuffs and beverages. Wash hands before breaks and after work. Provide eye wash fountain in work area. Do not inhale dust. Avoid skin and eye contact. Have emergency shower available.

Advice on protection against fire and explosion
Dust can form an explosive mixture with air. Take precautionary measures against static charges. Keep away from sources of heat and ignition.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions
Keep container tightly closed and dry in a cool, well-ventilated place.

Recommended storage temperature
Value max. 30 °C

Requirements for storage rooms and vessels
Store product in closed containers. Keep only in the original container.

Incompatible products
Do not store together with: Acids; oxidizing agents; Do not store together with foodstuffs.

7.3 Specific end use(s)
No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values

No	Substance name	CAS no.	EC no.
1	**Dust**		
	List of approved workplace exposure limits (WELs) / EH40		
	Dust respirable		
	WEL long-term (8-hr TWA reference period)	4 mg/m³	
	Comments	see Definition 44 "Dust"	
	List of approved workplace exposure limits (WELs) / EH40		
	Dust inhalable		
	WEL long-term (8-hr TWA reference period)	10 mg/m³	
	Comments	see Definition 44 "Dust"	

DNEL, DMEL and PNEC values

DNEL values (worker)

No	Substance name			CAS / EC no	
	Route of exposure	Exposure time	Effect	Value	
1	**zinc bis(diethyldithiocarbamate)**			**14324-55-1 238-270-9**	
	dermal	Long term (chronic)	systemic	0.7	mg/kg/day
	inhalative	Long term (chronic)	systemic	0.49	mg/m³

DNEL value (consumer)

No	Substance name			CAS / EC no	
	Route of exposure	Exposure time	Effect	Value	
1	**zinc bis(diethyldithiocarbamate)**			**14324-55-1 238-270-9**	
	oral	Long term (chronic)	systemic	0.05	mg/kg/day
	dermal	Long term (chronic)	systemic	0.25	mg/kg/day
	inhalative	Long term (chronic)	systemic	0.087	mg/m³

PNEC values

No	Substance name		CAS / EC no	
	ecological compartment	Type	Value	
1	**zinc bis(diethyldithiocarbamate)**		**14324-55-1** **238-270-9**	
	water	fresh water	0.064	µg/L
	water	Aqua intermittent	0.475	µg/L
	water	marine water	0.006	µg/L
	water	fresh water sediment	0.095	mg/kg dry weight
	water	marine water sediment	0.009	mg/kg dry weight
	soil	-	0.32	mg/kg dry weight
	sewage treatment plant	-	0.56	mg/L
	secondary poisoning	-	12	mg/kg food

8.2 Exposure controls

Appropriate engineering controls
Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and solvent vapour below the OEL (=Occupational Exposure Limit), suitable respiratory protection must be worn.

Personal protective equipment

Respiratory protection
If workplace exposure limits are exceeded, a respiration protection approved for this particular job must be worn. In case of dust formation, take appropriate measures for breathing protection in the event that workplace threshold values are not specified. Short term: filter apparatus, Filter A/P2

Eye / face protection
Tightly fitting safety glasses (EN 166).

Hand protection
In case of intensive contact, wear protective gloves (EN 374). Sufficient protection is given wearing suitable protective gloves checked according to i.e. EN 374, in the event of risk of skin contact with the product. Before use, the protective gloves should be tested in any case for its specific work-station suitability (i.e. mechanical resistance, product compatibility and antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves. Protective gloves shall be replaced immediately when physically damaged or worn. Design operations thus to avoid permanent use of protective gloves.
Appropriate Material nitrile rubber

Other
Normal chemical work clothing.

Environmental exposure controls
Do not allow to enter drains or water courses.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

State of aggregation
solid

Form
Powder

Colour
white to cream colour

Odour
No data available

pH value		
Value	5.91 - 6.39	
Source	supplier	

Boiling point / boiling range		
Value	301	°C
Source	supplier	

Melting point/freezing point

Value	172	-	183	°C
Source	supplier			

Decomposition temperature
No data available

Flash point	
Not applicable	
Source	supplier

Ignition temperature
No data available

Explosive properties
Dust explosive.

Flammability	
The substance is not flammable.	
Source	supplier

Lower explosion limit		
Value	20	g/m³
Source	supplier	

Upper explosion limit	
not determined	
Source	supplier

Vapour pressure
No data available

Relative vapour density
No data available

Relative density
No data available

Density		
Value	1.48	g/cm³
Reference temperature	20	°C
Source	supplier	

Bulk density				
Value	330	-	370	kg/m³
Source	supplier			

Solubility in water		
Value	0.001	g/l
Reference temperature	20	°C
Source	supplier	

Solubility
No data available

Partition coefficient n-octanol/water (log value)			
No	**Substance name**	**CAS no.**	**EC no.**
1	**zinc bis(diethyldithiocarbamate)**	**14324-55-1**	**238-270-9**
log Pow	3.11		
Method	QSAR		
Source	ECHA		

Kinematic viscosity
No data available

Particle characteristics
No data available

9.2 Other information

Other information
minimum ignition energy: 1 - 3 mJ

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available.

10.2 Chemical stability
Stable if stored and handled properly.

10.3 Possibility of hazardous reactions
Dust can form an explosive mixture with air. Reacts with acids to form toxic and highly flammable carbon disulphide.

10.4 Conditions to avoid
Temperatures > 30 °C; Heat, naked flames and other ignition sources. Avoid formation of dust. Do not overheat to avoid thermal decomposition.

10.5 Incompatible materials
Oxidizing agents; Acids

10.6 Hazardous decomposition products
Possible in traces: n-nitrosamines under the effect of nitrosating agents.

SECTION 11: Toxicological information

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

Acute oral toxicity					
No	**Substance name**		**CAS no.**		**EC no.**
1	**zinc bis(diethyldithiocarbamate)**		**14324-55-1**		**238-270-9**
LD50	1960	-	2280		mg/kg bodyweight
Species	rat				
Source	ECHA				

Acute dermal toxicity					
No	**Substance name**		**CAS no.**		**EC no.**
1	**zinc bis(diethyldithiocarbamate)**		**14324-55-1**		**238-270-9**
LD50	>		2000		mg/kg bodyweight
Species	rabbit				
Source	ECHA				

Acute inhalational toxicity
No data available

Skin corrosion/irritation
No data available

Serious eye damage/irritation			
No	**Substance name**	**CAS no.**	**EC no.**
1	**zinc bis(diethyldithiocarbamate)**	**14324-55-1**	**238-270-9**
Source	ECHA		
Evaluation	low-irritant		

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity			
No	**Substance name**	**CAS no.**	**EC no.**
1	**zinc bis(diethyldithiocarbamate)**	**14324-55-1**	**238-270-9**
Type of examination	In vitro mammalian cell gene mutation test		
Species	Mouse lymphoma cells		
Method	OECD 476		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Reproduction toxicity			
No	**Substance name**	**CAS no.**	**EC no.**
1	**zinc bis(diethyldithiocarbamate)**	**14324-55-1**	**238-270-9**
Type of examination	Prenatal Developmental Toxicity Study		
Species	rabbit		
Method	OECD 414		
Source	ECHA		

Evaluation/classification	Based on available data, the classification criteria are not met.

Carcinogenicity			
No	**Substance name**	**CAS no.**	**EC no.**
1	**zinc bis(diethyldithiocarbamate)**	**14324-55-1**	**238-270-9**

Route of exposure	oral
Type of examination	Toxicity study
Species	rat
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.

STOT - single exposure
No data available

STOT - repeated exposure			
No	**Substance name**	**CAS no.**	**EC no.**
1	**zinc bis(diethyldithiocarbamate)**	**14324-55-1**	**238-270-9**

Route of exposure	oral
Species	rat
Method	OECD 408
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are met.

Aspiration hazard
No data available

Delayed and immediate effects as well as chronic effects from short and long-term exposure
Irritates respiratory tract. Irritates the eyes and the skin. Possibility of sensitisation through skin contact.

11.2 Information on other hazards

Endocrine disrupting properties
No data available.

Other information
No data available.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish (acute)				
No	**Substance name**	**CAS no.**		**EC no.**
1	**zinc bis(diethyldithiocarbamate)**	**14324-55-1**		**238-270-9**
LC50		0.23		mg/l
Duration of exposure		96		h
Species	Oncorhynchus mykiss			
Method	EPA-660 / 3-75-009			
Source	ECHA			

Toxicity to fish (chronic)
No data available

Toxicity to Daphnia (acute)				
No	**Substance name**	**CAS no.**		**EC no.**
1	**zinc bis(diethyldithiocarbamate)**	**14324-55-1**		**238-270-9**
EC50		0.24		mg/l
Duration of exposure		48		h
Species	Daphnia magna			
Method	OECD 202			
Source	ECHA			

Toxicity to Daphnia (chronic)
No data available

Toxicity to algae (acute)				
No	**Substance name**	**CAS no.**		**EC no.**
1	**zinc bis(diethyldithiocarbamate)**	**14324-55-1**		**238-270-9**
EC50		47.4		µg/l
Duration of exposure		72		h
Species	Pseudokirchneriella subcapitata			

Method	OECD 201

Toxicity to algae (chronic)
No data available

Bacteria toxicity
No data available

12.2 Persistence and degradability

Biodegradability			
No	Substance name	CAS no.	EC no.
1	zinc bis(diethyldithiocarbamate)	14324-55-1	238-270-9

Type	aerobic biodegradation	
Value	2	%
Duration	28	day(s)
with reference to	CAS 136-23-2	
Method	OECD 301 F	
Source	ECHA	
Evaluation	not readily biodegradable	

12.3 Bioaccumulative potential

Partition coefficient n-octanol/water (log value)			
No	Substance name	CAS no.	EC no.
1	zinc bis(diethyldithiocarbamate)	14324-55-1	238-270-9

log Pow	3.11	
Method	QSAR	
Source	ECHA	

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	
PBT assessment	The product is not considered to be a PBT.
vPvB assessment	The product is not considered to be a vPvB.

12.6 Endocrine disrupting properties

No data available.

12.7 Other adverse effects

No data available.

12.8 Other information

Other information
Do not allow to enter soil, waterways or waste water canal.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.

Packaging

Residues must be removed from packaging and when emptied completely disposed of in accordance with the regulations for waste removal. Incompletely emptied packaging must be disposed of in the form of disposal specified by the regional disposer.

SECTION 14: Transport information

14.1 Transport ADR/RID/ADN

Class	9
Classification code	M7
Packing group	III
Hazard identification no.	90
UN number	UN3077
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Technical name	zinc bis(diethyldithiocarbamate)

Tunnel restriction code	-
Label	9
Environmentally hazardous substance mark	Symbol "fish and tree"

14.2 Transport IMDG

Class	9
Packing group	III
UN number	UN3077
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Technical name	zinc bis(diethyldithiocarbamate)
EmS	F-A, S-F
Label	9
Marine pollutant mark	Symbol "fish and tree"

14.3 Transport ICAO-TI / IATA

Class	9
Packing group	III
UN number	UN3077
Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Technical name	zinc bis(diethyldithiocarbamate)
Label	9
Environmentally hazardous substance mark	Symbol "fish and tree"

14.4 Other information

No data available.

14.5 Environmental hazards

Information on environmental hazards, if relevant, please see 14.1 - 14.3.

14.6 Special precautions for user

To be transported always in closed, upright and safe containers. Make sure that persons handling these containers are aware of the rules of conduct in case of incident or spillage.

14.7 Maritime transport in bulk according to IMO instruments

Not relevant

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)
In accordance with the REACH regulation (EC) 1907/2006, the product does not contain any substances that are considered as subject to listing in annex XIV, inventory of substances requiring authorisation.

REACH candidate list of substances of very high concern (SVHC) for authorisation
In accordance with article 57 and article 59 of the Reach regulation (EC) 1907/2006, this substance is not considered as subject to listing in annex XIV, inventory of substances requiring authorisation ("Authorization list").

Regulation (EC) No 1907/2006 (REACH) Annex XVII: RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES				
The substance is considered being subject to REACH regulation (EC) 1907/2006 annex XVII.				
No	**Substance name**	**CAS no.**	**EC no.**	**No**
1	**zinc bis(diethyldithiocarbamate)**	**14324-55-1**	**238-270-9**	**75**

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances	
This product is subject to Part I of Annex I, risk category:	E1

15.2 Chemical safety assessment

A chemical safety assessment has been carried out for this substance.

SECTION 16: Other information

Sources of key data used to compile the data sheet:
Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case.
Directives 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164.
National Threshold Limit Values of the corresponding countries as amended in each case.

Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.
The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding section.

Full text of the H- and EUH- phrases drawn up in sections 2 and 3 (provided not already drawn up in these sections)

H400	Very toxic to aquatic life.

Creation of the safety data sheet

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Tel.: +49 40 / 555 546 300 Fax: +49 40 / 555 546 357 e-mail: umco@umco.de

This information is based on our present knowledge and experience.
The safety data sheet describes products with a view to safety requirements.
It does not however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

Prod-ID 613857