



SAFETY DATA SHEET
ZEREX™ DEX-COOL® Antifreeze Coolant

Version: 3.2

Revision Date: 12/19/2024

Print Date:
04/12/2025

SECTION 1. IDENTIFICATION

Product name : ZEREX™ DEX-COOL®
Antifreeze Coolant

Product code : ZXEL1

Manufacturer or supplier's details

Company name of supplier : Valvoline Global Operations

Address : 100 Valvoline Way
Lexington, KY 40509
United States of America (USA)

Telephone : 1-800-TEAMVAL (1-800-832-6825)

E-mail address : SDS@valvolineglobal.com

Emergency telephone number : +1-800-VALVOLUME (+1-800-825-8654)

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity (Oral) : Category 4

Reproductive toxicity : Category 2

Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Kidney, Liver)

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H302 Harmful if swallowed.
H361d Suspected of damaging the unborn child.
H373 May cause damage to organs (Kidney, Liver) through prolonged or repeated exposure if swallowed.



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Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:
P405 Store locked up.

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

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
ethanediol	107-21-1	>= 90 - <= 100
2-ethylhexanoic acid and its salts	3164-85-0	>= 1.5 - < 5

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : If skin irritation persists, call a physician.



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In case of eye contact	: If on skin, rinse well with water. If on clothes, remove clothes. Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	: Clean mouth with water and drink afterwards plenty of water. Keep respiratory tract clear. Do NOT induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed	: Harmful if swallowed. Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure if swallowed. No symptoms known or expected.
Notes to physician	: No hazards which require special first aid measures. Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	: High volume water jet
Hazardous combustion products	: No hazardous combustion products are known
Further information	: Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Special protective equipment for firefighters	: Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Use personal protective equipment.
Environmental precautions	: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.



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Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
 Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Advice on safe handling : Do not breathe vapours/dust.
 Avoid contact with skin and eyes.
 For personal protection see section 8.
 Smoking, eating and drinking should be prohibited in the application area.
 Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
 Observe label precautions.
 Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability : No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
ethanediol	107-21-1	TWA (Vapour)	25 ppm	ACGIH
		STEL (Vapour)	50 ppm	ACGIH
		STEL (Inhalable fraction, Aerosol only)	10 mg/m3	ACGIH
		C	50 ppm 125 mg/m3	OSHA P0

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.



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Hand protection

- Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
- Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Colour : orange
- Odour : No data available
- Odour Threshold : No data available
- pH : Average 8.4
- Melting point/freezing point : -34.6 °F / -37.0 °C
- Boiling point/boiling range : 330 °F / 166 °C
(1013 hPa)
- Flash point : 212 - < 392 °F / 100 - < 200 °C
Method: closed cup
- Evaporation rate : No data available
- Flammability (solid, gas) : No data available
- Self-ignition : No data available
- Upper explosion limit / Upper flammability limit : 15.3 %(V)
- Lower explosion limit / Lower flammability limit : 3.2 %(V)
- Vapour pressure : 17.5 mmHg
- Relative vapour density : No data available



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Relative density	:	No data available
Density	:	1.1149 g/cm ³ (60.01 °F / 15.56 °C)
Solubility(ies)	:	
Water solubility	:	soluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Oxidizing properties	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	excessive heat
Incompatible materials	:	Aldehydes Alkali metals Alkaline earth metals Strong acids strong alkalis Strong bases Strong oxidizing agents Sulphur compounds

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed.

Product:

Acute oral toxicity : Acute toxicity estimate: 531.52 mg/kg
Method: Calculation method



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Components:

ethanediol:

- Acute oral toxicity : LD0 (Human): estimated 1.56 g/kg
Assessment: The component/mixture is moderately toxic after single ingestion.
- Acute inhalation toxicity : LC50 (Rat): 10.9 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Rabbit): 9,530 mg/kg
- Acute toxicity (other routes of administration) : LD50 (Rat): 5,010 mg/kg
Application Route: Intraperitoneal
LD50 (Rat): 3,260 mg/kg
Application Route: Intravenous

2-ethylhexanoic acid and its salts:

- Acute oral toxicity : LD50 (Rat): 3,640 mg/kg
Remarks: The toxicological data has been taken from products of similar composition.
- Acute inhalation toxicity : LC50 (Rat): > 0.11 mg/l
Exposure time: 8 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: No mortality observed at this dose.
The toxicological data has been taken from products of similar composition.
- Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: The toxicological data has been taken from products of similar composition.

Skin corrosion/irritation

Not classified based on available information.

Product:

- Remarks : May cause skin irritation and/or dermatitis.



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Components:

ethanediol:

Species : Rabbit
Result : No skin irritation

2-ethylhexanoic acid and its salts:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Irritating to skin.
GLP : yes

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Remarks : Vapours may cause irritation to the eyes, respiratory system and the skin.

Components:

ethanediol:

Result : Slight, transient irritation

2-ethylhexanoic acid and its salts:

Result : Slight, transient irritation

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

ethanediol:

Test Type : Maximisation Test
Species : Guinea pig
Assessment : Does not cause skin sensitisation.

Germ cell mutagenicity

Not classified based on available information.



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Components:

ethanediol:

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

Carcinogenicity

Not classified based on available information.

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Suspected of damaging the unborn child.

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

May cause damage to organs (Kidney, Liver) through prolonged or repeated exposure if swallowed.

Components:

ethanediol:

Exposure routes : Ingestion
Target Organs : Kidney
Assessment : May cause damage to organs through prolonged or repeated exposure.

Aspiration toxicity

Not classified based on available information.

Experience with human exposure

Components:

ethanediol:

Ingestion : Target Organs: Kidney



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Further information

Product:

Remarks : No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Ecotoxicology Assessment

Acute aquatic toxicity : Not classified based on available information.

Chronic aquatic toxicity : Not classified based on available information.

Components:

ethanediol:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 27,540 mg/l
Exposure time: 96 h
Test Type: static test

LC50 (Pimephales promelas (fathead minnow)): 8,050 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): > 10,000 mg/l
Exposure time: 48 h
Test Type: static test

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 6,500 - 13,000 mg/l
End point: Growth inhibition
Exposure time: 7 Days

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 32,000 mg/l
Exposure time: 7 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 24,000 mg/l
Exposure time: 7 d

Ecotoxicology Assessment

Acute aquatic toxicity : Not classified based on available information.

Chronic aquatic toxicity : Not classified based on available information.



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2-ethylhexanoic acid and its salts:

- Toxicity to fish : LC50 (Fish): > 100 mg/l
Exposure time: 96 h
Remarks: The toxicological data has been taken from products of similar composition.
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 106 mg/l
Exposure time: 48 h
Test Type: static test
Remarks: The toxicological data has been taken from products of similar composition.
- Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 49.3 mg/l
End point: Growth inhibition
Exposure time: 72 h
Test Type: static test
Remarks: The toxicological data has been taken from products of similar composition.
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 25 mg/l
Exposure time: 21 d
Test Type: static test
Remarks: The toxicological data has been taken from products of similar composition.

Ecotoxicology Assessment

- Acute aquatic toxicity : Harmful to aquatic life.
- Chronic aquatic toxicity : Not classified based on available information.

Persistence and degradability

Components:

ethanediol:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 90 - 100 %
Exposure time: 10 d
Method: OECD Test Guideline 301

2-ethylhexanoic acid and its salts:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 99 %
Exposure time: 28 d
Remarks: The toxicological data has been taken from



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products of similar composition.

Bioaccumulative potential

Components:

ethanediol:

Bioaccumulation : Species: Crayfish (Procambarus)
Bioconcentration factor (BCF): 0.27
Exposure time: 61 d
Concentration: 1000 mg/l
Method: Flow through

Partition coefficient: n-octanol/water : log Pow: -1.36

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82
Protection of Stratospheric Ozone - CAA Section 602 Class I
Substances
Remarks: This product neither contains, nor was
manufactured with a Class I or Class II ODS as defined by the
U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A +
B).

Additional ecological information : No data available

Global warming potential

**Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) of the
United Nations Framework Convention on Climate Change (UNFCCC)**

Components:

octamethylcyclotetrasiloxane [D4]:

20-year global warming potential: 2.66
100-year global warming potential: 0.739
500-year global warming potential: 0.211
Atmospheric lifetime: 0.027 yr
Radiative efficiency: 0.12 Wm²ppb
Further information: Miscellaneous compounds



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SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : Do not dispose of waste into sewer.
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

International Regulations

UNRTDG

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

49 CFR

Not regulated as a dangerous good

Special precautions for user

Not applicable

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
toluene	108-88-3	100	100 (F005)

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.



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SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

ethanediol 107-21-1 >= 90 - <= 100 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

ethanediol 107-21-1 >= 90 - <= 100 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489):

ethanediol 107-21-1 >= 90 - <= 100 %

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

toluene 108-88-3 >= 0 - < 0.1 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

toluene 108-88-3 >= 0 - < 0.1 %

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

ethanediol 107-21-1
water 7732-18-5

Pennsylvania Right To Know

ethanediol 107-21-1
2-ethylhexanoic acid and its salts 3164-85-0

Maine Chemicals of High Concern

water 7732-18-5
toluene 108-88-3
octamethylcyclotetrasiloxane [D4] 556-67-2



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Vermont Chemicals of High Concern

ethanediol	107-21-1
water	7732-18-5
disodium molybdate	7631-95-0
toluene	108-88-3
octamethylcyclotetrasiloxane [D4]	556-67-2

Washington Chemicals of High Concern

ethanediol	107-21-1
water	7732-18-5
toluene	108-88-3

California Prop. 65

WARNING: This product can expose you to chemicals including ethanediol, toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

ethanediol	107-21-1
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California Permissible Exposure Limits for Chemical Contaminants

ethanediol	107-21-1
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The components of this product are reported in the following inventories:

TCSI	: Not in compliance with the inventory
TSCA	: All substances listed as active on the TSCA inventory
AIIC	: On the inventory, or in compliance with the inventory
DSL	: Low volume exemption, All components of this product are on the Canadian DSL D92071 CHROMATINT ORANGE 3271 LIQUID
ENCS	: Not in compliance with the inventory
ISHL	: Not in compliance with the inventory
KECI	: Not in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
NZIoC	: Not in compliance with the inventory
TECI	: Not in compliance with the inventory



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TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

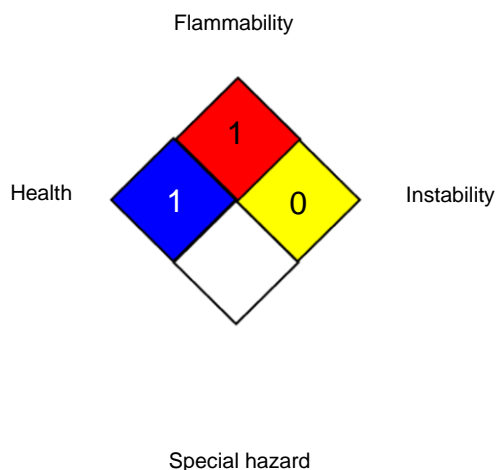
Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH	*	2
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

- ACGIH : USA. ACGIH Threshold Limit Values (TLV)
- OSHA P0 : USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
- ACGIH / TWA : 8-hour, time-weighted average
- ACGIH / STEL : Short-term exposure limit
- OSHA P0 / C : Ceiling limit

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN -



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Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. 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 a 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.

US / EN

Internal information : R0318755