

**DI-n-BUTYLBIS(2,4-PENTANEDIONATE)TIN, tech-95****Safety Data Sheet SND2950**

Issue date: 14/04/2016

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Version: 2.3

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form	: Substance
Physical state	: Liquid
Substance name	: DI-n-BUTYLBIS(2,4-PENTANEDIONATE)TIN, tech-95
Product code	: SND2950
Formula	: C ₁₈ H ₃₂ O ₄ Sn
Synonyms	: DIBUTYLTIN ACETYLACETONATE; DIBUTYLTIN BIS(2,4-PENTANEDIONATE)
Chemical family	: ORGANOTIN

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet**GELEST, INC.**11 East Steel Road
Morrisville, PA 19067**USA**

T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST

info@gelest.com - www.gelest.com**GELEST INC.**Fritz-Klatte-Strasse 8
65933 Frankfurt**Germany**

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info@gelestde.com - www.gelest.com**1.4. Emergency telephone number**

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Acute toxicity (oral), Category 1	H300
Acute toxicity (dermal), Category 4	H312
Serious eye damage/eye irritation, Category 2	H319
Specific target organ toxicity – Repeated exposure, Category 1	H372
Hazardous to the aquatic environment – Acute Hazard, Category 1	H400
Hazardous to the aquatic environment – Chronic Hazard, Category 1	H410
Full text of H- and EUH-statements: see section 16	

Adverse physicochemical, human health and environmental effects

No additional information available

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2.2. Label elements

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

Hazard pictograms (CLP)



Signal word (CLP)

Hazard statements (CLP)

Precautionary statements (CLP)

- : Danger
- : H300 - Fatal if swallowed.
H312 - Harmful in contact with skin.
H319 - Causes serious eye irritation.
H372 - Causes damage to organs through prolonged or repeated exposure.
H410 - Very toxic to aquatic life with long lasting effects.
- : P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.

2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type

Name

CAS-No.

EC-No.

- : Multi-constituent
- : DI-n-BUTYLBIS(2,4-PENTANEDIONATE)TIN, tech-95
- : 22673-19-4
- : 245-152-0

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Di-n-butylbis(2,4-pentanedionate)tin substance listed as REACH Candidate (Dibutylbis(pentane-2,4-dionato-O,O')tin)	(CAS-No.) 22673-19-4 (EC-No.) 245-152-0	95 – 100	Acute Tox. 1 (Oral), H300 Acute Tox. 4 (Dermal), H312 Eye Irrit. 2, H319 STOT RE 1, H372 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410
Other Organotins		0 – 5	Not classified

Full text of H- and EUH-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general

First-aid measures after inhalation

- : Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.
- : Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

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First-aid measures after skin contact	: Wash with plenty of water/.... Get medical advice/attention.
First-aid measures after eye contact	: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: May cause skin irritation. Organotins may be absorbed through the skin.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: No information available.

4.3. Indication of any immediate medical attention and special treatment needed

Note to physician: Application of corticosteroid creams has been effective in treating severe skin irritation. If blisters develop, they may require abrasion to promote healing.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Water spray. Foam. Carbon dioxide. Dry chemical.
Unsuitable extinguishing media	: Do not use straight streams.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Combustible liquid. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
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5.3. Advice for firefighters

Firefighting instructions	: Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Remove ignition sources. Use special care to avoid static electric charges.
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6.1.1. For non-emergency personnel

Protective equipment	: Wear protective equipment as described in Section 8.
Emergency procedures	: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
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6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment	: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up	: Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

6.4. Reference to other sections

See Section 8. Exposure controls and personal protection.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Precautions for safe handling	: Avoid all eye and skin contact and do not breathe vapour and mist. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent formation of vapour. Use only non-sparking tools.
Hygiene measures	: Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Keep container tightly closed. Keep in a cool place.
Incompatible materials	: Bases. Direct sunlight. Reducing agents.
Storage area	: Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

Other Organotins

USA - ACGIH - Occupational Exposure Limits

ACGIH OEL TWA	0.1 mg/m ³ as tin
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Di-n-butylbis(2,4-pentanedionate)tin (22673-19-4)

USA - ACGIH - Occupational Exposure Limits

ACGIH OEL TWA	0.1 mg/m ³ as tin
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8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

8.2.2. Personal protection equipment

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

8.2.2.1. Eye and face protection

Eye protection:

Chemical goggles. Contact lenses should not be worn

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8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Neoprene or nitrile rubber gloves

8.2.2.3. Respiratory protection

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified organic vapor (black cartridge) respirator.

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 431.13 g/mol
Colour	: Pale yellow to amber.
Odour	: characteristic.
Odour threshold	: No data available
Refractive index	: 1.5195
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: 25 – 26 °C
Boiling point	: 132 °C @ 0.4 mm Hg
Flash point	: 91 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Combustible liquid
Vapour pressure	: < 0.1 mm Hg @ 25°C
Relative vapour density at 20°C	: No data available
Relative density	: 1.21
Solubility	: Insoluble in water. Reacts slowly with water.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (Log Kow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable.

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10.3. Possibility of hazardous reactions

Reacts with moisture in air and water, slowly releasing butanol and dibutyltin oxide. Direct sunlight causes slow degradation to an inorganic tin salt.

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Bases. Direct sunlight. Reducing agents.

10.6. Hazardous decomposition products

Organic acid vapors. Tin oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Fatal if swallowed. Harmful in contact with skin.

DI-n-BUTYLBIS(2,4-PENTANEDIONATE)TIN, tech-95 (22673-19-4)

ATE CLP (oral)	1.864 mg/kg bodyweight
ATE CLP (dermal)	2000 mg/kg bodyweight

Di-n-butylbis(2,4-pentanedionate)tin (22673-19-4)

LD50 oral rat	1.864 mg/kg bodyweight
LD50 dermal rat	2000 mg/kg bodyweight
ATE CLP (oral)	1.864 mg/kg bodyweight
ATE CLP (dermal)	2000 mg/kg bodyweight

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

Di-n-butylbis(2,4-pentanedionate)tin (22673-19-4)

NOAEL (chronic, oral, animal/female, 2 years)	0.025 mg/kg bodyweight
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Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Causes damage to organs through prolonged or repeated exposure.

Di-n-butylbis(2,4-pentanedionate)tin (22673-19-4)

NOAEL (oral, rat, 90 days)	0.3 mg/kg bodyweight/day
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Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: May cause skin irritation. Organotins may be absorbed through the skin.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: No information available.
Reason for classification	: Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute) : Very toxic to aquatic life.

Hazardous to the aquatic environment, long-term (chronic) : Very toxic to aquatic life with long lasting effects.

Di-n-butylbis(2,4-pentanedionate)tin (22673-19-4)

LC50 - Fish [1]	> 2 mg/l
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Di-n-butylbis(2,4-pentanedionate)tin (22673-19-4)

EC50 - Other aquatic organisms [1]	0.004 mg/l
NOEC chronic fish	2 mg/l 48 hrs
NOEC chronic crustacea	0.0056 mg/l

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

DI-n-BUTYLBIS(2,4-PENTANEDIONATE)TIN, tech-95 (22673-19-4)

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

Component

Di-n-butylbis(2,4-pentanedionate)tin (22673-19-4)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
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12.6. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility..
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

14.1 UN number

UN-No. (ADR) : 1760
UN-No. (IMDG) : 3082
UN-No. (IATA) : 3082
UN-No. (ADN) : Not regulated
UN-No. (RID) : Not regulated

14.2. UN proper shipping name

Proper Shipping Name (ADR) : CORROSIVE LIQUID, N.O.S.
Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Proper Shipping Name (IATA) : Environmentally hazardous substance, liquid, n.o.s.
Proper Shipping Name (ADN) : Not regulated
Proper Shipping Name (RID) : Not regulated
Transport document description (ADR) : UN 1760 CORROSIVE LIQUID, N.O.S., 8, II, (E), ENVIRONMENTALLY HAZARDOUS
Transport document description (IMDG) : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III, MARINE POLLUTANT

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Transport document description (IATA) : UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 8
Danger labels (ADR) :



IMDG

Transport hazard class(es) (IMDG) : 9
Danger labels (IMDG) :



IATA

Transport hazard class(es) (IATA) : 9
Danger labels (IATA) :



ADN

Transport hazard class(es) (ADN) : Not regulated

RID

Transport hazard class(es) (RID) : Not regulated

14.4. Packing group

Packing group (ADR) : II
Packing group (IMDG) : III
Packing group (IATA) : III
Packing group (ADN) : Not regulated
Packing group (RID) : Not regulated

14.5. Environmental hazards

Dangerous for the environment : Yes
Marine pollutant : Yes
Other information : This product is Combustible as defined by the US Department of Transportation (DOT). It is regulated for transport in the US in container > 119 gallons (450 liters). The product is not regulated for transport by the IATA, ADR/RID, ADNR or the IMDG regulations. Therefore, no UN# is applicable to this product.

14.6. Special precautions for user

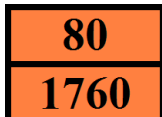
Overland transport

Classification code (ADR) : C9
Special provisions (ADR) : 274
Limited quantities (ADR) : 1I
Excepted quantities (ADR) : E2
Packing instructions (ADR) : P001, IBC02
Mixed packing provisions (ADR) : MP15
Portable tank and bulk container instructions (ADR) : T11

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Portable tank and bulk container special provisions (ADR) : TP2, TP27
Tank code (ADR) : L4BN
Vehicle for tank carriage : AT
Transport category (ADR) : 2
Hazard identification number (Kemler No.) : 80
Orange plates :



Tunnel restriction code (ADR) : E
EAC code : 2X
APP code : B

Transport by sea

Special provisions (IMDG) : 274, 335, 969
Limited quantities (IMDG) : 5 L
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : LP01, P001
Special packing provisions (IMDG) : PP1
IBC packing instructions (IMDG) : IBC03
Tank instructions (IMDG) : T4
Tank special provisions (IMDG) : TP2, TP29
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-F
Stowage category (IMDG) : A

Air transport

PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y964
PCA limited quantity max net quantity (IATA) : 30kgG
PCA packing instructions (IATA) : 964
PCA max net quantity (IATA) : 450L
CAO packing instructions (IATA) : 964
CAO max net quantity (IATA) : 450L
Special provisions (IATA) : A97, A158, A197
ERG code (IATA) : 9L

Inland waterway transport

Not regulated

Rail transport

Not regulated

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)

20. Organostannic compounds

Di-n-butylbis(2,4-pentanedionate)tin ; Other Organotins

POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

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REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Listed on the REACH Candidate List: Dibutylbis(pentane-2,4-dionato-O,O')tin

Contains substance(s) listed on the REACH Candidate List in concentrations $\geq 0.1\%$ or SCL: Dibutylbis(pentane-2,4-dionato-O,O')tin (EC 245-152-0, CAS 22673-19-4)

PIC Regulation (Prior Informed Consent)

Listed on the PIC list (Regulation EU 649/2012): dibutylbis(pentane-2,4-dionato-O,O')tin

Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

VOC Directive (2004/42)

VOC content : No additional information available

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Germany

- Water hazard class (WGK) : WGK 3, Highly hazardous to water (KBwS-Beschluss; ID No. 7696).
- Chemicals Prohibition Ordinance (ChemVerbotsV) : This product is subject to ChemVerbotsV Annex 2 Entry 1. The following requirements must be observed: authorization requirement (according to § 6 paragraph 1 sentence 1), basic requirements for carrying out the delivery (according to § 8 paragraph 1, 3 and 4), identification and documentation (according to § 9 paragraph 1 to 3) and exclusion of the shipping route (according to § 10).
- Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

- SZW-lijst van kankerverwekkende stoffen : The substance is not listed
- SZW-lijst van mutagene stoffen : The substance is not listed
- SZW-lijst van reprotoxische stoffen – Borstvoeding : The substance is not listed
- SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : DI-n-BUTYLBIS(2,4-PENTANEDIONATE)TIN, tech-95 is listed
- SZW-lijst van reprotoxische stoffen – Ontwikkeling : DI-n-BUTYLBIS(2,4-PENTANEDIONATE)TIN, tech-95 is listed

Denmark

- Class for fire hazard : Class III-1
- Store unit : 50 liter
- Classification remarks : Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed
- Danish National Regulations : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

Switzerland

- Storage class (LK) : LK 6.1 - Toxic materials

15.2. Chemical safety assessment

No additional information available

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SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information

: Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Acute Tox. 1 (Oral)	Acute toxicity (oral), Category 1
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H300	Fatal if swallowed.
H312	Harmful in contact with skin.
H319	Causes serious eye irritation.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1

SDS EU (REACH Annex II) - Custom v22 Test

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

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