GRACE

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/24/2022 Version: 22.2 Reviewed on 06/24/2022

1 Identification

· **Product identifier**

· **Trade name:** **LUDOX® TMA**

· **Application of the substance / the preparation:**
Intermediate product of varied applicability in industry and trade.

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**
GRACE
W. R. Grace & Co.-Conn
7500 Grace Drive
Columbia MD 21044
U. S. A.

· **Information department:**
Health and Safety (9 AM to 5 PM-EST) 1-410-531-4000
MSDS.Davison@grace.com

· **Emergency telephone number:**
Chemtrec North America: +1-800-424-9300
Chemtrec International: +1-703-527-3887
Other Emergencies (24hr): +1-410-531-4000

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

· **Label elements**

· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

GHS07

· **Signal word** Warning

· **Hazard-determining components of labeling:**
Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate

· **Hazard statements**
H317 May cause an allergic skin reaction.

· **Precautionary statements**

P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves.
P302+P352	If on skin: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P401	Store in accordance with local/regional/national/international regulations.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

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Trade name: LUDOX® TMA

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3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Aqueous colloidal suspension of surface treated silica.

· **CAS No. and description:**		
7732-18-5	water, distilled, or of similar purity	65-70%
7631-86-9	amorphous silicon dioxide, chemically prepared	30-35%

· **List of Dangerous Components**		
55965-84-9	Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate Acute Tox. 3, H301; Acute Tox. 2, H310; Acute Tox. 2, H330; Skin Corr. 1C, H314; Eye Dam. 1, H318; Skin Sens. 1A, H317	≤0.01%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

· **Description of first aid measures**

· **General information:**
Immediately remove contaminated clothing if necessary to prevent direct skin contact.
Take note of the following instructions

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:**
Immediately flush skin with water for at least 15 minutes.
Remove contaminated clothing immediately.
If skin irritation occur, consult a doctor.

· **After eye contact:**
Flush opened eye with large quantities of running water for at least 30 minutes. If symptoms occur, consult a doctor.

· **After swallowing:** Seek medical attention. Do not induce vomiting.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** Allergic reactions

· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**
Use fire fighting measures that suit the environment.
The product is not flammable.

· **Hazardous combustion products** No further relevant information available.

· **Advice for firefighters**

· **Protective equipment:** Wear personal protective equipment.

· **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective clothing.
· **Environmental precautions:** Do not allow product to reach sewage system or any water course.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
7631-86-9	amorphous silicon dioxide, chemically prepared	18 mg/m³

· **PAC-2:**		
7631-86-9	amorphous silicon dioxide, chemically prepared	740 mg/m³

· **PAC-3:**		
7631-86-9	amorphous silicon dioxide, chemically prepared	4,500 mg/m³

7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Avoid formation of respirable particles.

· **Information about protection against explosions and fires:** The product is not flammable.
· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Colloidal silica should be stored above 2 °C. Freezing temperatures can cause irreversible precipitation of the silica, therefore the product should be located in heated buildings. Avoid routine storage temperatures above 43 °C.

· **Information about storage in one common storage facility:** Store away from foodstuffs.

· **Further information about storage conditions:** Protect from frost.
· **Minimum storage temperature:** > 2 °C

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.
· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
7732-18-5 water, distilled, or of similar purity	
PEL	Long-term value: - OSHA TWA: NONE ESTABLISHED
TLV	Long-term value: - ACGIH TWA: NONE ESTABLISHED
7631-86-9 amorphous silicon dioxide, chemically prepared	
IDLH	Short-term value: 3000 mg/m³ IDLH: Immediately Dangerous to Life or Health
PEL	Long-term value: 80/%SiO2 mg/m³ OSHA TWA for amorphous silica

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REL	Long-term value: 6 mg/m³ NIOSH TWA
TLV	Long-term value: 10* 5** mg/m³ OSHA TWA *Total dust **Respirable fraction
55965-84-9 Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate	
TWA	Short-term value: 0.23 mg/m³ Long-term value: 0.076 mg/m³ Manufacturer suggested

· **DNELs**		
7631-86-9 amorphous silicon dioxide, chemically prepared		
Inhalative	DNEL(acute-local)	4 mg/m³ (Worker) with reference to the German OEL of 4 mg/m³ for synthetic amorphous silica
	DNEL(long-local)	4 mg/m³ (Worker) with reference to the German OEL of 4 mg/m³ for synthetic amorphous silica

· **Additional information:** Valid lists at time of creation were used as basis.
· **Exposure controls**
· **Personal protective equipment:**

· **General protective and hygienic measures:**
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Do not breathe dust or spray mist.
The usual precautionary measures for handling chemicals should be followed.
Do not eat, drink, smoke or sniff while working.

· **Protection of hands:**

Protective gloves

Check protective gloves prior to each use for their proper condition.
Check the permeability prior to each new use of the glove.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Use gloves of stable material
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**
Nitrile rubber, NBR
Butyl rubber, BR
Recommended thickness of the material: ≥ 0.35 mm

· **For the permanent contact in work areas without heightened risk of injury (e.g. Laboratory) gloves made of the following material are suitable:**
Butyl rubber, BR
Nitrile rubber, NBR

· **For the permanent contact gloves made of the following materials are suitable:**
Butyl rubber, BR
Nitrile rubber, NBR

· **Not suitable are gloves made of the following materials:**
Leather gloves
Strong fabric gloves

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· **Eye protection:**

Safety glasses

· **Body protection:** Protective work clothing

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Fluid
Color:	Clear
· **Odor:**	Odorless
· **Odor threshold:**	Not applicable.
· **pH-value at 25 °C (77 °F):**	3.5-7.0
· **Change in condition**	
Melting point/Melting range:	0 °C (32 °F) (water)
Boiling point/Boiling range:	100 °C (212 °F) (water)
· **Flash point:**	Not determined.
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Ignition temperature:**	Not applicable.
· **Decomposition temperature:**	Not applicable.
· **Auto ignition temperature:**	Product is not self-igniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 25 °C (77 °F):**	32 hPa (24 mm Hg) (water)
· **Density at 20 °C (68 °F):**	~1.2 g/cm³ (~10.014 lbs/gal)
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Coefficient of water/oil distribution:**	Not determined.
· **Viscosity:**	
Dynamic at 25 °C (77 °F):	7-10 mPas
Kinematic:	Not determined.
· **Other information**	No further relevant information available.

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10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability** No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:**
Protect from contamination.
No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
7631-86-9 amorphous silicon dioxide, chemically prepared		
Oral	LD50	>5,000 mg/kg (rat) (OECD 401)
Dermal	LD50	>5,000 mg/kg (rabbit) (no guidance available)
Inhalative	LC0	>140->2,000 mg/m³/4h (rat) (OCED 403) Maximum attainable concentration, mortality does not appear.
55965-84-9 Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate		
Oral	LD50	64 mg/kg (rat) ECHA 2018
Dermal	LD50 (24 h)	87 mg/kg (rabbit) ECHA 2018
Inhalative	LC50 (4 h)	0.33 mg/l (rat) ECHA 2018

· **Primary irritant effect:**

· **on the skin:**		
7631-86-9 amorphous silicon dioxide, chemically prepared		
Irritation of skin	IS	0 (rabbit) (OECD 404)

· **on the eye:**		
7631-86-9 amorphous silicon dioxide, chemically prepared		
Irritation of eyes	IS	0 (rabbit) (OECD 405)

· **Sensitization:** Sensitization possible through skin contact.
· **Skin sensitization** Sensitization possible through skin contact.

· **Additional toxicological information:**

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
7631-86-9	amorphous silicon dioxide, chemically prepared	3

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

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· **Repeated dose toxicity**

7631-86-9 amorphous silicon dioxide, chemically prepared		
Oral	NOAEL (90 d)	9,000 mg/kg bw/day (rat) (OECD 408)
Inhalative	NOAEL (90d)	31 mg/m³ (rat) (acc. to OECD 413)

· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**

· **Carcinogenicity**

7631-86-9 amorphous silicon dioxide, chemically prepared		
Oral	NOAEL (carcinogenicity)	3,950-5,530 mg/kg bw (mouse) Literature 1,830 mg/kg bw (rat) Literature

· **Mutagenicity**

7631-86-9 amorphous silicon dioxide, chemically prepared	
AMES Test	>5 mg/plate (in-vitro) (OECD 471) negative, with and without metabolic activation ECHA 2012

· **Reproductive toxicity**

7631-86-9 amorphous silicon dioxide, chemically prepared		
Oral	NOAEL (maternal toxicity)	1,350 mg/kg bw/day (rat) (OECD 414)
	NOAEL (teratogenicity)	1,350 mg/kg bw/day (rat) (OECD 414)

· **Specific target organ toxicity (single exposure)** No further relevant information available.
· **Specific target organ toxicity (repeated exposure)** No further relevant information available.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**

· **Fish toxicity**

7631-86-9 amorphous silicon dioxide, chemically prepared	
LC0 (96 h) (static)	10,000 mg/l (zebra fish) (OECD 203)
55965-84-9 Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate	
LC50 (96 h)	0.28 mg/l (Lepomis macrochirus) 1.6 mg/l (Oncorhynchus mykiss) IUCLID Dataset (18/FEB/2000) OECD TG 203

· **Water flea toxicity**

7631-86-9 amorphous silicon dioxide, chemically prepared	
EC50 (24 h)	>1,000 mg/l (Daphnia magna) (OECD 202)
55965-84-9 Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate	
EC50 (48 h)	4.71 mg/l (Daphnia magna) IUCLID Dataset (18/FEB/2000) OECD TG 202
NOEC (21 d)	172 mg/l (Daphnia magna) IUCLID Dataset (18/FEB/2000) OECD TG 202

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· **Algae toxicity**	
7631-86-9 amorphous silicon dioxide, chemically prepared	
EC50 (72 h)	>10,000 mg/l (Scenedesmus subspicatus) (OECD 201) comparable substance
55965-84-9 Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate	
EC50	18 mg/l (Selenastrum capricornutum) 3 mg/l (Skeletonema costatum)

· **Bacterial toxicity**	
55965-84-9 Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate	
EC50 (16h)	5.7 mg/l (Pseudomonas putida) IUCLID Dataset (18/FEB/2000) DIN 38412-8

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.

· **Additional ecological information:**
· **General notes:** Do not allow product to reach ground water, water course or sewage system.
· **Results of PBT and vPvB assessment**
· **PBT:** Not determined.
· **vPvB:** Not determined.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Precautions for disposal:**

· **Recommendation:**
Disposal must be made according to official regulations.
Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State/provincial and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state/provincial and local requirements.

14 Transport information

· **UN-Number** · **DOT, ADR, ADN, IMDG, IATA**	Not applicable.
· **UN proper shipping name** · **DOT, ADR, ADN, IMDG, IATA**	Not applicable.
· **Transport hazard class(es)** · **DOT, ADR, ADN, IMDG, IATA** · **Class**	Not applicable.
· **Packing group** · **DOT, ADR, IMDG, IATA**	Not applicable.

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Trade name: LUDOX® TMA

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· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Segregation groups**	-
· **Transport/Additional information:**	Not dangerous according to the above specifications. GRACE recommendation for air transport: Cargo aircraft only.
· **DOT**	
· **Hazardous substance:**	-

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15 Regulatory information

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

· **SARA**

· **SARA 302/304**

None of the ingredients is listed.

· **SARA 313**

None of the ingredients is listed.

· **SARA 311/312** Respiratory or Skin Sensitization.

· **TSCA (Toxic Substances Control Act):**

7732-18-5	water, distilled, or of similar purity	ACTIVE
7631-86-9	amorphous silicon dioxide, chemically prepared	ACTIVE
55965-84-9	Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate	EXEMPT

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **Canadian DSL**

7732-18-5	water, distilled, or of similar purity
7631-86-9	amorphous silicon dioxide, chemically prepared

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55965-84-9	Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate

· **Canadian NDSL**

None of the ingredients is listed.

· **European EINECS**

Inventory listing could not be confirmed for one or more substances.

· **Philippines Inventory of Chemicals and Chemical Substances PICCS**

All ingredients are listed or exempted from listing.

· **Inventory of the Existing Chemical Substances manufactured or imported in China IECSC**

7732-18-5	water, distilled, or of similar purity
7631-86-9	amorphous silicon dioxide, chemically prepared
55965-84-9	Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate

· **Australian Inventory of Industrial Chemicals (AIIC)**

All ingredients are listed or exempted from listing.

· **Existing and New Chemical Substance List ENCS**

7732-18-5	water, distilled, or of similar purity	
7631-86-9	amorphous silicon dioxide, chemically prepared	1-548
55965-84-9	Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate	9-378; 5-5235

· **Korean Existing Chemical Inventory KECI**

7732-18-5	water, distilled, or of similar purity	KE-35400
7631-86-9	amorphous silicon dioxide, chemically prepared	KE-31032
55965-84-9	Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate	KE-05738

· **TCSCA (Taiwan)**

7631-86-9	amorphous silicon dioxide, chemically prepared	EPEP4A01648271

· **Russian Register of Potentially Hazardous Chemical and Biological Substances (RPOHV)**

7732-18-5	water, distilled, or of similar purity	№ AT-007627 от 25.02.2014 г.
7631-86-9	amorphous silicon dioxide, chemically prepared	№ AT-000209 от 18.01.1995 г.

· **New Zealand Inventory of Chemicals (NZIoC)**

All ingredients are listed or exempted from listing.

· **Existing Chemical Directory of Thailand (DIW)**

All ingredients are listed or exempted from listing.

· **TCSI - Taiwan Chemical Substance Inventory**

All ingredients are listed or exempted from listing.

· **Mexican National Inventory of Chemical Substances (INSQ)**

7732-18-5	water, distilled, or of similar purity
7631-86-9	amorphous silicon dioxide, chemically prepared

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

GHS07

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· **Signal word** Warning
· **Hazard-determining components of labeling:**
Mixture of 5-Chloro-2-methyl-isothiazol-3(2H)-one and 2-methylisothiazol-3(2H)-one with magnesium chloride and magnesium nitrate
· **Hazard statements**
H317 May cause an allergic skin reaction.
· **Precautionary statements**

P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves.
P302+P352	If on skin: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P401	Store in accordance with local/regional/national/international regulations.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 2
Fire = 0
Reactivity = 0

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H301 Toxic if swallowed.
H310 Fatal in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H330 Fatal if inhaled.
· **Department issuing SDS:** GRACE Safety & Health Department

· **Harmonized Tariff Schedule** 3824 9996

· **Contact:**
SALES OFFICES

USA:
GRACE
W. R. Grace & Co.-Conn
7500 Grace DR
Columbia, MD 21044
Tel: +1 410-531 4000

Europe:
Grace GmbH
In der Hollerhecke 1
D-67545 Worms, Germany

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Tel: +49 6241 40300

Asia Pacific:
Grace Products (Singapore) Pte Ltd
230 Orchard Road
09-232, Faber House
Singapore 238854
Tel: +65 6737 3033
Fax: +65 6737 5826

Grace Trading (Shanghai) Ltd
19th Floor K.Wah Center
1010 Huai Hai Zhong Road
Shanghai, 200031 China
T (电话): +86 21 3325 8288
F (传真): +86 21 3325 8245

W. R. Grace Japan K.K
Kohken New River Bldg 3F
2-21-18, Shinkawa
Chuo-ku, Tokyo 104-0033
JAPAN
Tel: +81 3.3537.6006
Fax: +81 3.3537.6007

· **Other information:**

· **Date of preparation / last revision** 06/24/2022 / 22.1

· **The first date of preparation** 10/23/2014

· **Number of revision times and the latest revision date** 22.2 / 06/24/2022

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 2: Acute toxicity – Category 2
Skin Corr. 1C: Skin corrosion/irritation – Category 1C
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Skin Sens. 1A: Skin sensitisation – Category 1A

· **Others** No further relevant information available.

· *** Data compared to the previous version altered.**