

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**



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**
May cause an allergic skin reaction.
- **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves.
Contaminated work clothing must not be allowed out of the workplace.
Wash contaminated clothing before reuse.
If skin irritation or rash occurs: Get medical advice/attention.
If on skin: Wash with plenty of water.
Take off contaminated clothing and wash it before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

Printing date 12/29/2014

Version: 20.2

Reviewed on 12/29/2014

Trade name: LUDOX® TMA

(Contd. of page 1)

- **Hazard description:**
- **WHMIS-symbols:**
D2B - Toxic material causing other toxic effects



- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 2
Fire = 0
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



HEALTH 2 Health = 2
FIRE 0 Fire = 0
REACTIVITY 0 Reactivity = 0

- **Other hazards**

When exceeding the OEL (Occupational Exposure Limit) a mechanical overburdening of the respiratory system is possible.

The product is very adsorbent and may have a drying effect on skin and eyes.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Aqueous colloidal suspension of surface treated silica.

- **CAS No. and description:**

7631-86-9	amorphous silicon dioxide, chemically prepared	30-35%
7732-18-5	water, distilled, or of similar purity	65-70%

- **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	≤0.01%
	⚠ Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331; ⚠ Skin Corr. 1B, H314; ⚠ Skin Sens. 1, H317	

4 First-aid measures

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

(Contd. on page 3)

USA

Trade name: LUDOX® TMA

(Contd. of page 2)

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

5 Fire-fighting measures

- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Hazardous combustion products** No further relevant information available.
- **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.

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.
In case of seepage into the ground inform responsible authorities.
Dilute with plenty of water.
- **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.

7 Handling and storage

- **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.

- **Components with limit values that require monitoring at the workplace:**

7631-86-9 amorphous silicon dioxide, chemically prepared

IDLH	Short-term value: 3000 mg/m ³ IDLH: Immediately Dangerous to Life or Health
PEL	Long-term value: 80/%SiO ₂ mg/m ³ OSHA TWA for amorphous silica

(Contd. on page 4)

Trade name: **LUDOX® TMA**

(Contd. of page 3)

REL	Long-term value: 6 mg/m ³ NIOSH TWA
TLV	Long-term value: 10* 5** mg/m ³ ACGIH 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/m ³ Long-term value: 0.076 mg/m ³ Manufacturer suggested
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

- **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.
- **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 (e.g. Nitrile)
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

(Contd. on page 5)

USA

Printing date 12/29/2014

Version: 20.2

Reviewed on 12/29/2014

Trade name: LUDOX® TMA

(Contd. of page 4)

· 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:	Cloudy

· Odor:	Odorless
· Odour threshold:	Not available.

· pH-value at 25 °C (77 °F):	4.0-5.0
------------------------------	---------

· Change in condition

Melting point/Melting range:	0 °C (32 °F) (water)
------------------------------	-------------------------

Boiling point/Boiling range:	100 °C (212 °F) (water)
------------------------------	----------------------------

· Conditions of flammability

Flash point:	Not available.
--------------	----------------

· Flammability (solid, gaseous):	Product is not flammable.
· Ignition temperature:	Not available.
· Decomposition temperature:	Not available.

· Auto igniting:	Product is not self-igniting.
------------------	-------------------------------

· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	- Vol %
Upper:	- Vol %

· Vapor pressure at 25 °C (77 °F):	3.2 kPa (water)
------------------------------------	-----------------

· Density at 20 °C (68 °F):	1.2 g/cm ³ (10.014 lbs/gal)
· Vapour density	Not available

· Evaporation rate	Not available
--------------------	---------------

· Solubility in / Miscibility with	
Water:	Fully miscible.
· Coefficient of water/oil distribution:	Not available.

· Viscosity:	
Dynamic at 25 °C (77 °F):	7-10 mPas

· Other information	No further relevant information available.
---------------------	--

USA

(Contd. on page 6)

Trade name: **LUDOX® TMA**

(Contd. of page 5)

10 Stability and reactivity

- **Chemical stability** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid**
In case of thermal decomposition caused by smouldering and incomplete combustion toxic fumes may be developed.
- **Incompatible materials:** Protect from contamination.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on the likely routes of exposure**
- **Delayed and immediate effects and chronic effects from short or long term exposure**
- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

7631-86-9 amorphous silicon dioxide, chemically prepared		
Oral	LD50	>5000 mg/kg (rat) (OECD 401)
Dermal	LD50	> 5000 mg/kg (rabbit)
Inhalative	LC0	>140->2000 mg/m ³ /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	50 mg/kg (rat)
Dermal	LD50 (24 h)	87 mg/kg (rabbit)
Inhalative	LC50 (4 h)	0.33 mg/l (rat)

· **Primary irritant effect:**

· **on the skin:**

7631-86-9 amorphous silicon dioxide, chemically prepared		
Irritation of skin	IS	0 (rabbit) (OECD 404) not irritating

· **on the eye:**

7631-86-9 amorphous silicon dioxide, chemically prepared		
Irritation of eyes	IS	0 (rabbit) (OECD 405) not irritating

- **Respiratory sensitization** No further relevant information available.
- **Skin sensitization** No further relevant information available.

· **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.

(Contd. on page 7)

Trade name: **LUDOX® TMA**

(Contd. of page 6)

· **Repeated dose toxicity****7631-86-9 amorphous silicon dioxide, chemically prepared**

Oral	NOAEL (90 d)	9000 mg/kg bw/day (rat) (OECD 408)
Inhalative	NOAEC (90 d)	1 mg/m ³ (rat) (OECD 413)

· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**· **Carcinogenicity** No further relevant information available.· **Germ cell mutagenicity****7631-86-9 amorphous silicon dioxide, chemically prepared**

AMES Test	>5 mg/plate (in-vitro) (OECD 471) negative with and without metabolic activation	
-----------	--	--

· **Reproductive toxicity****7631-86-9 amorphous silicon dioxide, chemically prepared**

Oral	NOAEL (maternal toxicity)	1350 mg/kg bw/day (rat) (OECD 414)
	NOAEL (teratogenicity)	1350 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.· **Aspiration hazard** 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)	10000 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)	> 1000 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)	0.172 mg/l (Daphnia magna) IUCLID Dataset (18/FEB/2000) OECD TG 202
-------------	---

· **Algae toxicity****7631-86-9 amorphous silicon dioxide, chemically prepared**

EC50 (72 h)	> 10000 mg/l (Scenedesmus subspicatus) (OECD 201) comparable substance
-------------	---

(Contd. on page 8)

Printing date 12/29/2014

Version: 20.2

Reviewed on 12/29/2014

Trade name: **LUDOX® TMA**

(Contd. of page 7)

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	0.018 mg/l (Selenastrum capricornutum)
	0.003 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.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **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 and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14 Transport information

- | | |
|--|--|
| · UN-Number | |
| · DOT, ADR, ADN, IMDG, IATA | None |
| · UN proper shipping name | |
| · DOT, ADR, ADN, IMDG, IATA | None |
| · Transport hazard class(es) | |
| · DOT, ADR, ADN, IMDG, IATA | |
| · Class | None |
| · Packing group | |
| · DOT, ADR, IMDG, IATA | None |
| · Environmental hazards: | Not applicable. |
| · Special precautions for user | Not applicable. |
| · Transport/Additional information: | Not dangerous according to the above specifications.
GRACE recommendation for air transport: Cargo aircraft only. |

(Contd. on page 9)

USA

Printing date 12/29/2014

Version: 20.2

Reviewed on 12/29/2014

Trade name: **LUDOX® TMA**

(Contd. of page 8)

- DOT
- Hazardous substance: -

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.

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

All ingredients are 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 established by ACGIH)**

None of the ingredients is listed.

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

None of the ingredients is listed.

- **Canadian DSL**

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

7732-18-5 water, distilled, or of similar purity

- **Canadian NDSL**

All substances are listed or exempt from listing.

- **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.

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

All ingredients are listed.

- **Australian Inventory of Chemical Substances AICS**

All ingredients are listed.

(Contd. on page 10)

Trade name: **LUDOX® TMA**

(Contd. of page 9)

· Existing and New Chemical Substance List ENCS		
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	
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	
7732-18-5	water, distilled, or of similar purity	

· Korean Existing Chemical Inventory KECI		
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
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
7732-18-5	water, distilled, or of similar purity	KE-35400

- **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**

May cause an allergic skin reaction.

- **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray

Wear protective gloves.

Contaminated work clothing must not be allowed out of the workplace.

Wash contaminated clothing before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

If on skin: Wash with plenty of water.

Take off contaminated clothing and wash it before reuse.

Dispose of contents/container in accordance with local/regional/national/international regulations.

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.

H311 Toxic in contact with skin.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H331 Toxic if inhaled.

- **Department issuing SDS:** GRACE Safety & Health Department

- **Tarif number** 3824 9096 99 0

- **Contact:**

SALES OFFICES

USA:

GRACE

W. R. Grace & Co.-Conn

7500 Grace DR

Columbia, MD 21044

Tel: +1 410-531 4000

(Contd. on page 11)

Trade name: LUDOX® TMA

(Contd. of page 10)

Europe:
Grace GmbH & Co. K.G.
In der Hollerhecke 1
Postfach 1445
D-67545 Worms, Germany
Tel: +49 6241 4030

Asia Pacific:
W. R. Grace Pte. Ltd.
501 Orchard Road
07-02 Wheelock Place
Singapore 238880
Tel: +65 6737 5488
Fax: +65 6737 5826

19th Floor K.Wah Center
1010 Huai Hai Zhong Road
Shanghai, 200031 China
Tel: +86 21 5467 4678
Fax: +86 21 5405 1500

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

- **Date of preparation / last revision** 12/29/2014 / 20.1
- **The first date of preparation** 10/23/2014
- **Number of revision times and the latest revision date** 20.2 / 12/29/2014
- **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 européen sur le transport 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

ACGIH: American Conference of Governmental Industrial Hygienists

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)

NFPA: National Fire Protection Association (USA)

HMS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

Acute Tox. 3: Acute toxicity, Hazard Category 3

Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B

Skin Sens. 1: Sensitisation - Skin, Hazard Category 1

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