

1 Identification

- **Product identifier**
- **Trade name: LUDOX® HS-40**
- **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**
The product is not classified, according to the Globally Harmonized System (GHS).
- **Label elements**
- **GHS label elements** None
- **Hazard pictograms** None
- **Signal word** None
- **Hazard statements** None
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 1
Fire = 0
Reactivity = 0

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



Health = 1
Fire = 0
Reactivity = 0

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Water colloidal suspension of amorphous silica.

- **CAS No. and description:**

7732-18-5	water, distilled, or of similar purity	60-70%
7631-86-9	amorphous silicon dioxide, chemically prepared	30-40%

- **List of Dangerous Components** None

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4 First-aid measures

- **Description of first aid measures**

- **General information:**

Immediately remove contaminated clothing if necessary to prevent direct skin contact.

- **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.

- **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**

No further relevant information available.

- **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

The product is not flammable.

Use fire fighting measures that suit the environment.

- **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.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Wear protective clothing.

- **Environmental precautions:** Do not allow to enter sewers/ surface or ground 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** No dangerous substances are released.

- **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

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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:	
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
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
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

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
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

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:**
The usual precautionary measures for handling chemicals should be followed.
Do not breathe dust or spray mist.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
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.

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The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Use gloves of stable material (e.g. Nitrile)

- **Material of gloves**

Butyl rubber, BR

Nitrile rubber, NBR

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

- **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:	Colorless

• Odor:	Odorless
• Odor threshold:	Not available.

• pH-value at 25 °C (77 °F):	9.5 - 10.3
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- **Change in condition**

Melting point/Melting range:	0 °C (32 °F) (water)
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Boiling point/Boiling range:	100 °C (212 °F) (water)
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- **Conditions of flammability**

Flash point:	Not available.
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• Flammability (solid, gaseous):	Product is not flammable.
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• Ignition temperature:	Not available.
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• Decomposition temperature:	Not available.
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• Auto igniting:	Product is not self-igniting.
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• Danger of explosion:	Product does not present an explosion hazard.
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· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg) (water)
· Density at 15 °C (59 °F):	1.1-1.3 g/cm ³ (9.1795-10.8485 lbs/gal)
· Vapor 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):	max. 45 mPas
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **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	>5,000 mg/kg (rat) (OECD 401)
Dermal	LD50	>5,000 mg/kg (rabbit)
Inhalative	LC0	>140->2,000 mg/m ³ /4h (rat) (OCED 403)
Maximum attainable concentration, mortality does not appear.		

- **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.

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- **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

7631-86-9 amorphous silicon dioxide, chemically prepared

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- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

- **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 NOAEC (90 d) 1 mg/m³ (rat) (OECD 413)

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

- **Carcinogenicity** No further relevant information available.

- **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) 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.

- **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) 10,000 mg/l (zebra fish) (OECD 203)

- **Water flea toxicity**

7631-86-9 amorphous silicon dioxide, chemically prepared

EC50 (24 h) >1,000 mg/l (Daphnia magna) (OECD 202)

- **Algae toxicity**

7631-86-9 amorphous silicon dioxide, chemically prepared
EC50 (72 h) >10,000 mg/l (Scenedesmus subspicatus) (OECD 201)
comparable substance

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

- **Other information:** Amorphous silica dioxide is chemically and biologically inert.

- **Behavior in environmental systems:**

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

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- **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/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	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 in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
• Transport/Additional information:	Not dangerous according to the above specifications. GRACE recommendation for air transport: Cargo aircraft only.

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):**

7631-86-9 amorphous silicon dioxide, chemically prepared

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

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• **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

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

• **Canadian NDSL** Not available.• **European EINECS**

All ingredients are listed or exempted from listing.

• **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**

All ingredients are listed.

• **Australian Inventory of Chemical Substances AICS**

All ingredients are listed or exempted from listing.

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

7631-86-9 amorphous silicon dioxide, chemically prepared

1-548

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

• **Korean Existing Chemical Inventory KECI**

7631-86-9 amorphous silicon dioxide, chemically prepared

KE-31032

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

KE-35400

• **TCSCA (Taiwan)**

7631-86-9 amorphous silicon dioxide, chemically prepared

EPEP4A01648271

• **GHS label elements** None• **Hazard pictograms** None• **Signal word** None• **Hazard statements** None**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.

• **Department issuing SDS:** GRACE Safety & Health Department• **Tarif number** 3824 9996

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- **Date of preparation / last revision** 05/25/2018 / 6.3
- **The first date of preparation** 01/17/2018
- **Number of revision times and the latest revision date** 6.4 / 01/30/2018
- **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)

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

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TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

- **Others** No further relevant information available.
- * **Data compared to the previous version altered.**

— USA —