

1 Identification

- **Product identifier**
- **Trade name: LUDOX® AS-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:**
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

3 Composition/information on ingredients

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

· **CAS No. and description:**

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

- **List of Dangerous Components** None
- **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.

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- **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.
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:**

CAS: 7631-86-9	amorphous silicon dioxide, chemically prepared	18 mg/m ³
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- **PAC-2:**

CAS: 7631-86-9	amorphous silicon dioxide, chemically prepared	740 mg/m ³
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- **PAC-3:**

CAS: 7631-86-9	amorphous silicon dioxide, chemically prepared	4,500 mg/m ³
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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.

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- **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 section 7.
- **Control parameters**

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

CAS: 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

CAS: 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: 80mg/m ³ /%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 OSHA TWA *Total dust **Respirable fraction

- **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.
- **Breathing equipment:**
Required if the Occupational Exposure Limit (OEL) value is exceeded. As appropriate for the employee exposure, use a NIOSH approved respirator and cartridge.
- **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.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

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Use gloves of stable material

· **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

· **Skin and 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:**

Characteristic

· **pH-value at 25 °C (77 °F):**

9.0 - 10

· **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 determined.

· **Flammability (solid, gaseous):**

Product is not flammable.

· **Auto igniting:**

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.

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· Vapor pressure at 25 °C (77 °F):	32 hPa (24 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 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):	20-30 mPas
Kinematic:	Not determined.

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:** 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:

Oral	LD50	>5,000 mg/kg (ATE)
Dermal	LD50	>5,000 mg/kg (ATE)
Inhalative	LC50 (4h)	>5,000 mg/l (ATE)

CAS: 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:

CAS: 7631-86-9 amorphous silicon dioxide, chemically prepared

Irritation of skin | IS | 0 (rabbit) (OECD 404)

· on the eye:

CAS: 7631-86-9 amorphous silicon dioxide, chemically prepared

Irritation of eyes | IS | 0 (rabbit) (OECD 405)

- **Sensitization:** No sensitizing effects known.
- **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)**

CAS: 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****CAS: 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) (OECD 413)· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**· **Carcinogenicity****CAS: 7631-86-9 amorphous silicon dioxide, chemically prepared**

Oral | NOAEL (carcinogenicity) | 3,950-5,530 mg/kg bw/day (mouse)

Literature

1,830 mg/kg bw/day (rat)

Literature

· **Mutagenicity****CAS: 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****CAS: 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****CAS: 7631-86-9 amorphous silicon dioxide, chemically prepared**

LC0 (96 h) (static) | 10,000 mg/l (zebra fish) (OECD 203)

· **Water flea toxicity****CAS: 7631-86-9 amorphous silicon dioxide, chemically prepared**

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

· **Algae toxicity****CAS: 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.

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- **Other information:**
Do not allow product to reach sewage system, groundwater and any water course.
- **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.
· Environmental hazards:	Not applicable.
· Special precautions for user	Not applicable.
· Segregation groups	-
· 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.

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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 Not applicable.

- TSCA (Toxic Substances Control Act):

CAS: 7732-18-5 | water, distilled, or of similar purity

ACTIVE

CAS: 7631-86-9 | amorphous silicon dioxide, chemically prepared

ACTIVE

- 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

CAS: 7732-18-5 | water, distilled, or of similar purity

CAS: 7631-86-9 | amorphous silicon dioxide, chemically prepared

- Canadian NDSL

None of the ingredients is listed.

- 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

CAS: 7732-18-5 | water, distilled, or of similar purity

CAS: 7631-86-9 | amorphous silicon dioxide, chemically prepared

- Australian Inventory of Industrial Chemicals (AIC)

All ingredients are listed or exempted from listing.

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· Japanese Existing and New Chemical Substance List ENCS		
CAS: 7732-18-5	water, distilled, or of similar purity	
CAS: 7631-86-9	amorphous silicon dioxide, chemically prepared	1-548

· Korean Existing Chemical Inventory KECI		
CAS: 7732-18-5	water, distilled, or of similar purity	KE-35400
CAS: 7631-86-9	amorphous silicon dioxide, chemically prepared	KE-31032

· TCSCA (Taiwan)		
CAS: 7631-86-9	amorphous silicon dioxide, chemically prepared	EPEP4A01648271

· Russian Register of Potentially Hazardous Chemical and Biological Substances (RPOHV)		
CAS: 7732-18-5	water, distilled, or of similar purity	№ AT-007627 от 25.02.2014 г.
CAS: 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)		
All ingredients are listed or exempted from listing.		

- **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 Health = 1

FIRE 0 Fire = 0

REACTIVITY 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.

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

- **Other information:**

The applicable regulations and industrial hygiene standards have to be considered.

- **Contact:**

SALES OFFICES

USA:

GRACE

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Other information:

- **Date of preparation / last revision** 07/25/2024 / 27.6
- **The first date of preparation** 06/07/2013
- **Number of revision times and the latest revision date** 28.0 / 07/25/2024

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
ECHA: European Chemical Agency
EPA: Environmental Protection Agency
EC50: Half maximal effective concentration
NOAEL: No Observed Adverse Effect Level
BCF: Bioconcentration Factor
CLH: Harmonised classification and labelling
ADR: Accord relatif au transport international des marchandises dangereuses par route (Agreement Concerning the Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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)
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
ATE: Acute toxicity estimate values

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

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