GRACE

Safety Data Sheet
acc. to OSHA HCS

Printing date 07/28/2022 Version: 4.6 Reviewed on 07/28/2022

1 Identification

· **Product identifier**

· **Trade name: SHIELDEX® AC 5**

· **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
· **Hazard not otherwise classified**
The product is very adsorbent and may have a drying effect on skin and eyes.
When exceeding the OEL (Occupational Exposure Limit) a mechanical overburdening of the respiratory system is possible.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Synthetic, amorphous silicon dioxide calcium-ion exchanged.

· **CAS No. and description:**		
7631-86-9	amorphous silicon dioxide, chemically prepared	85-99.5%
1344-95-2	silicic acid, calcium salt	0.5-15%

· **List of Dangerous Components** None

4 First-aid measures

· **Description of first aid measures**

· **General information:** Take note of the following instructions

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Wash with water.
Generally the product does not irritate the skin.
If skin irritation occur, consult a doctor.

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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:** 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:**
Damp down dust with water spray.
Do not allow to enter into sewers, surface water and/or groundwater.
· **Methods and material for containment and cleaning up:**
Vacuuming or wet sweeping may be used to avoid dust dispersal.
· **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:**		
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**
Prevent formation of dust.
Keep receptacles tightly sealed.
Provide suction extractors if dust is formed.
Use appropriate industrial vacuum cleaners or central vacuum systems for dust removal.

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Take precautionary measures against static discharges.

· **Information about protection against explosions and fires:**
When transferring this material into flammable solvents, use proper grounding to avoid static electric sparks.
· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Store away from foodstuffs.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in dry conditions.
This product is hygroscopic.

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/m³ IDLH: Immediately Dangerous to Life or Health
PEL	Long-term value: 80mg/m³/%SiO2 mg/m³ OSHA TWA for amorphous silica
REL	Long-term value: 6 mg/m³ NIOSH TWA
TLV	Long-term value: 10* 5** mg/m³ OSHA TWA *Total dust **Respirable fraction
1344-95-2 silicic acid, calcium salt	
PEL	Long-term value: 15* 5** mg/m³ *total dust **respirable fraction
REL	Long-term value: 10* 5** mg/m³ *total dust **respirable fraction
TLV	synthetic nonfibrous: TLV withdrawn, see App. B

· **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
1344-95-2 silicic acid, calcium salt		
Inhalative	DNEL(long-local)	4 mg/m³ (Worker) ECHA 2014

· **Additional Occupational Exposure Limit Values for possible hazards during processing:**	
Dust inhalable	
PEL	Long-term value: 15 mg/m³ TWA
REL	Long-term value: 15 mg/m³ TWA

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	Dust respirable
PEL	Long-term value: 5 mg/m³ TWA
REL	Long-term value: 5 mg/m³ TWA

· **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.

· **Protection of hands:**

Protective gloves

Wear gloves for the protection against mechanical hazards.
Use gloves of stable material
Check protective gloves prior to each use for their proper condition.
Check the permeability prior to each new use of the glove.

· **Material of gloves**
Butyl rubber, BR
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 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:**
Nitrile rubber, NBR

· **Not suitable are gloves made of the following materials:** 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:	Powder
Color:	White
· **Odor:**	Odorless
· **Odor threshold:**	Not applicable.
· **pH-value at 20 °C (68 °F):**	4.0 - 11.0

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· **Change in condition**	
Melting point/Melting range:	> 1700 °C (> 3,092 °F) (amorphous silicon dioxide, chemically prepared)
Boiling point/Boiling range:	> 1700 °C (> 3,092 °F) (amorphous silicon dioxide, chemically prepared)
· **Conditions of flammability**	
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:**	Not applicable.
· **Density at 20 °C (68 °F):**	1.8 g/cm³ (15.021 lbs/gal) (skeletal)
· **Bulk density at 20 °C (68 °F):**	200 - 600 kg/m³
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Slightly soluble.
· **Coefficient of water/oil distribution:**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Other information**	
Particle characteristics	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:**		
7631-86-9 amorphous silicon dioxide, chemically prepared		
Oral	LD50	>5,000 mg/kg (rat) (OECD 401)

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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.
1344-95-2 silicic acid, calcium salt		
Oral	LD50	>5,000 mg/kg (rat) (OECD Guideline 401) Read-across from supporting substance ECHA 2011
Dermal	LD50 (24 h)	>5,000 mg/kg (rabbit) (OECD Guideline 402) Read-across from supporting substance. ECHA 2014
Inhalative	LC50 (4 h)	>58.8 mg/m³ (rat) (OECD Guideline 403) ECHA 2014

· **Primary irritant effect:**

· **on the skin:**		
7631-86-9 amorphous silicon dioxide, chemically prepared		
Irritation of skin	IS	0 (rabbit) (OECD 404)
1344-95-2 silicic acid, calcium salt		
Irritation of skin	IS	0.1 (rabbit) (other, scoring according to Draize system) Read-across from supporting substance. not irritating ECHA 2014

· **on the eye:**		
7631-86-9 amorphous silicon dioxide, chemically prepared		
Irritation of eyes	IS	0 (rabbit) (OECD 405)
1344-95-2 silicic acid, calcium salt		
Irritation of eyes	IS	1 (rabbit) (other, scoring according to Draize system) Read-across from supporting substance. not irritating ECHA 2014

· **Sensitization:** No sensitizing effects known.
· **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.

· **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)
1344-95-2 silicic acid, calcium salt		
Oral	NOAEL (29 d)	≥1,600 mg/kg bw (rat) IUCLID Dataset (12/Sep/2002)

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· **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
1344-95-2 silicic acid, calcium salt	
AMES Test	10 mg/plate (Salmonella typhimurium) (OECD Guideline 471) Read-across from supporting substance negative, with and without metabolic activation ECHA 2014
Chromosome Aberration	0.01 % (Wi-38 (human embryonic lung cells)) (OECD Guideline 473) without metabolic activation negative ECHA 2014

· **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)
1344-95-2 silicic acid, calcium salt	
LC50 (96 h)	>1,000 mg/l (Oncorhynchus mykiss) (OECD Guideline 203) ECHA 2014 >1,000 mg/l (Salmo gairdneri) (OECD 203) ECHA 2011

· **Water flea toxicity**	
7631-86-9 amorphous silicon dioxide, chemically prepared	
EC50 (24 h)	>1,000 mg/l (Daphnia magna) (OECD 202)
1344-95-2 silicic acid, calcium salt	
EC50 (48 h)	>10,000 mg/l (Daphnia magna) (OECD Guideline 202) ECHA 2014

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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

· **Persistence and degradability** No further relevant information available.
· **Other information:**
Amorphous silica dioxide is chemically and biologically inert.
By the insolubility in water there is a separation at every filtration and sedimentation process.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** Does not accumulate in organisms
· **Mobility in soil** No further relevant information available.

· **Additional ecological information:**
· **General notes:** Not hazardous for water.
· **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.

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· **Transport/Additional information:**	Not dangerous according to the above specifications. GRACE recommendation for air transport: Cargo aircraft only.

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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):**

7631-86-9	amorphous silicon dioxide, chemically prepared	ACTIVE
1344-95-2	silicic acid, calcium salt	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)**

1344-95-2	silicic acid, calcium salt

· **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
1344-95-2	silicic acid, calcium salt

· **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.

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· **Inventory of the Existing Chemical Substances manufactured or imported in China IECSC**		
7631-86-9	amorphous silicon dioxide, chemically prepared	
1344-95-2	silicic acid, calcium salt	

· **Australian Inventory of Industrial Chemicals (AIIC)**
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
1344-95-2	silicic acid, calcium salt	1-194

· **Korean Existing Chemical Inventory KECI**		
7631-86-9	amorphous silicon dioxide, chemically prepared	KE-31032
1344-95-2	silicic acid, calcium salt	KE-30982

· **TCSCA (Taiwan)**		
7631-86-9	amorphous silicon dioxide, chemically prepared	EPEP4A01648271
1344-95-2	silicic acid, calcium salt	EPEP4A01714105

· **Russian Register of Potentially Hazardous Chemical and Biological Substances (RPOHV)**		
7631-86-9	amorphous silicon dioxide, chemically prepared	№ АТ-000209 от 18.01.1995 г.
1344-95-2	silicic acid, calcium salt	№ АТ-002721 от 26.04.2005 г.

· **New Zealand Inventory of Chemicals (NZIoC)**
All ingredients are listed or exempted from listing.

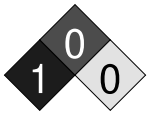
· **Existing Chemical Directory of Thailand (DIW)**
All ingredients are listed or exempted from listing.

· **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.

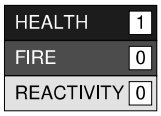
· **GHS label elements** None
· **Hazard pictograms** None
· **Signal word** None
· **Hazard statements** None
· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 1
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1
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.

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

· **Contact:**
SALES OFFICES

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· **Other information:**
· **Date of preparation / last revision** 07/28/2022 / 4.5
· **The first date of preparation** 06/04/2002
· **Number of revision times and the latest revision date** 4.6 / 07/28/2022
· **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
· **Others** No further relevant information available.
· *** Data compared to the previous version altered.**