Safety Data Sheet

acc. to Hazardous Products Regulations (HPR)

Solar Flux® Type B

Version number: 6.0

1 Identification

1.1 Product identifier

Trade name **Solar Flux® Type B**

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses Welding powder

1.3 Details of the supplier of the safety data sheet

Golden Empire Corporation / Solar Flux
CA 91372 Calabasas
United States

Telephone: +1 424 645 8845
e-mail: eaw.solarflux@gmail.com

e-mail (competent person) sdb@csb-online.de

Please do not use this e-mail address to ask for the latest safety data sheet. For this purpose contact Golden Empire Corporation / Solar Flux.

1.4 Emergency telephone number

As above or nearest toxicological information centre.

2 Hazard identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Classification

Section	Hazard class	Category	Hazard class and category	Hazard state-ment
3.6	carcinogenicity	1A	Carc. 1A	H350
3.7	reproductive toxicity	1B	Repr. 1B	H360FD
3.9	specific target organ toxicity - repeated ex-posure	1+2	STOT RE 1+2	H372,H373
3.HH	health hazards not otherwise classified	1	HHNOS 1	-

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Delayed or immediate effects can be expected after short or long-term exposure.

2.2 Label elements

Labeling

Signal word danger

Pictograms

GHS08

Hazard statements

H350	May cause cancer.
H360FD	May damage fertility. May damage the unborn child (if swallowed).
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P308+P313	IF exposed or concerned: Get medical advice/ attention.
P314	Get medical advice/attention if you feel unwell.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazardous ingredients for labelling

manganese dioxide
quartz
boric acid

2.3 Other hazards

Hazards not otherwise classified

In contact with water, releases gases which are fatal if inhaled.

Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of ≥ 0.1%.

3 Composition/ Information on ingredients

3.1 Substances

Not relevant (mixture).

3.2 Mixtures

Description of the mixture

Hazardous ingredients

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes	Specific Conc. Limits
quartz	CAS No 14808-60-7	10 – < 30	Carc. 1A / H350 STOT RE 1 / H372		-	-
manganese dioxide	CAS No 1313-13-9	5 – < 10	Acute Tox. 4 / H302 Acute Tox. 4 / H332 STOT RE 2 / H373		-	-
boric acid	CAS No 10043-35-3	1 – < 5	Repr. 1B / H360FD		11	-
lithium fluoride	CAS No 7789-24-4	1 – < 5	Acute Tox. 4 / H302 Eye Irrit. 2A / H319		-	-

Notes

11: The classification of mixtures as reproductive toxicant is necessary if the sum of the concentrations of individual boron compounds that are classified as reproductive toxicant in the mixture as placed on the market is ≥ 0,3 %.

Remarks

For full text of H-phrases: see SECTION 16
The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

4 First-aid measures

4.1 Description of first-aid measures

General notes

Self-protection of the first aider.
Remove affected person from the danger area and lay down.
Take off immediately all contaminated clothing.
IF exposed or concerned: Get medical advice/attention.

Following inhalation

Provide fresh air.
Get medical advice/attention.
If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Following skin contact

After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap.
Get medical advice/attention.

Following eye contact

Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
Get medical advice/attention.

Following ingestion

Rinse mouth. Do not induce vomiting.
Call a physician in any case.

Notes for the doctor

None.

4.2 Most important symptoms and effects, both acute and delayed

Varying degrees of pulmonary injury.

4.3 Indication of any immediate medical attention and special treatment needed

None.

5 Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

use metal fire powder to extinguish

Unsuitable extinguishing media

water

5.2 Special hazards arising from the substance or mixture

Hazardous decomposition products: Section 10.

Hazardous combustion products

metal oxide smoke, toxic

5.3 Advice for firefighters

Non-combustible.
Keep containers cool with water spray.
In case of fire and/or explosion do not breathe fumes.
Coordinate firefighting measures to the fire surroundings.
Do not allow firefighting water to enter drains or water courses.
Collect contaminated firefighting water separately.
Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

chemical protection suit, self-contained breathing apparatus (SCBA)

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Follow emergency procedures such as the need to evacuate the danger area or to consult an expert.
Remove persons to safety.
Ventilate affected area.
Do not get in eyes, on skin, or on clothing.
Do not breathe dust.
Control of dust.
Wearing of suitable protective equipment (including personal protective equipment referred to under

Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.
Warning and evacuating people in the neighborhood.

6.2 Environmental precautions

Knock down dust with water spray.
Keep away from drains, surface and ground water.
Retain contaminated washing water and dispose of it.
If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.
Take up mechanically.

Advice on how to clean up a spill

Take up mechanically.
Collect spillage.

Other information relating to spills and releases

Place in appropriate containers for disposal.
Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5.
Personal protective equipment: see section 8.
Incompatible materials: see section 10.
Disposal considerations: see section 13.

7 Handling and storage

7.1 Precautions for safe handling

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid contact with skin and eyes.
Do not breathe dust.
Obtain special instructions before use.

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.
Take precautionary measures against static discharge.
Only vacuum cleaners containing no ignition sources may be used for combustible dusts.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.

Specific notes/details

Layers, deposits and heaps of combustible dust must be considered, like any other source which can form a hazardous explosive atmosphere.
Dust deposits may accumulate on all deposition surfaces in a technical room.

Handling of incompatible substances or mixtures

Do not mix with acids.
Do not mix with alkali.
Do not mix with oxidizer

Measures to protect the environment

Avoid release to the environment.
Do not empty into drains; dispose of this material and its container at hazardous or special waste collection point.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.
Wash hands after use.
Preventive skin protection (barrier creams/ointments) is recommended.
Remove contaminated clothing and protective equipment before entering eating areas.
Do not breathe dust.
Do not get in eyes, on skin, or on clothing.

7.2 Conditions for safe storage, including any incompatibilities

Explosive atmospheres

Only vacuum cleaners containing no ignition sources may be used for combustible dusts.

Flammability hazards

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharge.
Ground/bond container and receiving equipment.

Incompatible substances or mixtures

Incompatible materials: see section 10.

Protect against external exposure, such as

heat

Consideration of other advice

Keep away from food, drink and animal feedingstuffs.

Ventilation requirements

Provision of sufficient ventilation.

Specific designs for storage rooms or vessels

Store locked up.
Store in a well-ventilated place. Keep container tightly closed.

Packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)

No information available.

8 Exposure controls/ Personal protection

8.1 Control parameters

The following constituents are the only constituents of the product which have a OEL, a PEV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Notation	Source
CA	fluorides	-	OEL (AB)	-	2.5	-	-	F	OHS Code
CA	fluorides	-	OEL (BC)	-	2.5	-	-	F	"BC Regulation"
CA	fluorides	-	PEV/VEA	-	2.5	-	-	F	Regulation OHS
CA	particulate not otherwise regulated	-	OEL (AB)	-	10	-	-	particle	OHS Code
CA	particulate not otherwise regulated	-	OEL (AB)	-	3	-	-	particle, r	OHS Code
CA	boric acid	10043-35-3	PEV/VEA	-	2	-	6	dust, i	Regulation OHS
CA	boric acid	10043-35-3	OEL (BC)	-	2	-	6	i	"BC Regulation"
CA	manganese, inorganic compounds	1313-13-9	OEL (AB)	-	0.2	-	-	Mn	OHS Code
CA	manganese, inorganic compounds	1313-13-9	OEL (BC)	-	0.1	-	-	Mn, i	"BC Regulation"
CA	manganese, inorganic compounds	1313-13-9	OEL (BC)	-	0.02	-	-	Mn, r	"BC Regulation"
CA	manganese compounds	1313-13-9	PEV/VEA	-	0.2	-	-	Mn, i, aerosol, df	Regulation OHS
CA	manganese compounds	1313-13-9	PEV/VEA	-	0.05	-	-	Mn, r, aerosol, df	Regulation OHS
CA	Calcium silicate, naturally occurring as Wollastonite	13983-17-0	OEL (BC)	-	1	-	-	i, noAsb_less1Sil	"BC Regulation"
CA	Wollastonite	13983-17-0	PEV/VEA	-	10	-	-	dust, noAsb_less1Sil	Regulation OHS
CA	Wollastonite	13983-17-0	PEV/VEA	-	5	-	-	dust, r, noAsb_	Regulation OHS

Occupational exposure limit values (Workplace Exposure Limits)									
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Notation	Source
								less1Sil	
CA	silica, crystalline - quartz	14808-60-7	OEL (ON)	-	0.1	-	-	r	Regulation 833
CA	silica, crystalline - quartz	14808-60-7	PEV/VEA	-	0.05	-	-	r, dust	Regulation OHS
CA	silica, crystalline - quartz	14808-60-7	OEL (AB)	-	0.025	-	-	r, particle	OHS Code
CA	silica, crystalline - α-quartz	14808-60-7	OEL (BC)	-	0.025	-	-	r	"BC Regulation"
CA	manganese	7439-96-5	OEL (AB)	-	0.2	-	-	-	OHS Code
CA	manganese	7439-96-5	OEL (ON)	-	0.2	-	-	-	Regulation 833
CA	manganese	7439-96-5	OEL (BC)	-	0.1	-	-	i	"BC Regulation"
CA	manganese	7439-96-5	PEV/VEA	-	0.2	-	-	i, aerosol, df	Regulation OHS
CA	manganese	7439-96-5	OEL (BC)	-	0.02	-	-	r	"BC Regulation"
CA	manganese	7439-96-5	PEV/VEA	-	0.05	-	-	r, aerosol, df	Regulation OHS

Notation

aerosol	as aerosols
df	as dust and fumes
dust	as dust
F	calculated as F (fluorine)
i	inhalable fraction
Mn	calculated as Mn (manganese)
noAsb_less1Sil	contains no asbestos and less than 1% free crystalline silica
particle	as airborne particles
r	respirable fraction
STEL	short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified

8.2 Exposure controls

Avoid contact during pregnancy/while nursing.

Appropriate engineering controls

Use local and general ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Hand protection

Protective gloves		
Material	**Material thickness**	**Breakthrough times of the glove material**
no information available	no information available	no information available

Wear suitable gloves.
Chemical protection gloves are suitable, which are tested according to EN 374.
Check leak-tightness/impermeability prior to use.
In the case of wanting to use the gloves again, clean them before taking off and air them well.

Body protection

Protective clothing for use against solid particulates.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.
Particle filter device (DIN EN 143).

Environmental exposure controls

Use appropriate container to avoid environmental contamination.
Keep away from drains, surface and ground water.

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	solid (powder)
Color	dark grey
Odor	odorless
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	1,682 °C
Flammability	non-combustible
Lower and upper explosion limit	not applicable (solid)
Flash point	not applicable
Auto-ignition temperature	not applicable (solid)

Decomposition temperature	not relevant
pH (value)	not applicable
Viscosity	not relevant (solid)
Solubility(ies)	
Water solubility	42 $^{mg}/_{l}$ not miscible in any proportion
Partition coefficient n-octanol/water (log value)	not relevant (inorganic)
Vapor pressure	not determined
Density and/or relative density	
Density	2.2 $^{g}/_{cm^3}$ at 20 °C
Relative vapour density	not relevant (solid)
Particle characteristics	no data available

9.2 Other information

Information with regard to physical hazard classes	hazard classes acc. to GHS (physical hazards): not relevant
Other safety characteristics	there is no additional information

10 Stability and reactivity

10.1 Reactivity

No information available.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

Contact with acids liberates very toxic gas.

10.4 Conditions to avoid

Take precautionary measures against static discharge.

10.5 Incompatible materials

bases, oxidizers, aluminum, halogen

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

Hydrogen fluoride (HF).
Metallic oxides containing heavy metals.

11 Toxicological information

11.1 Information on toxicological effects

Classification procedure

If not otherwise specified the classification is based on:
Ingredients of the mixture (additivity formula).

Classification acc. to GHS

Acute toxicity

Test data are not available for the complete mixture.

Acute toxicity of components

Name of substance	CAS No	Exposure route	End-point	Value	Species	Method	Source
boric acid	10043-35-3	oral	LD50	3,450 mg/kg	rat, male	-	ECHA
boric acid	10043-35-3	oral	LD50	4,080 mg/kg	rat, female	-	ECHA
boric acid	10043-35-3	dermal	LD0	>2,000 mg/kg	rabbit	FIFRA (40 CFR 163)	ECHA
lithium fluoride	7789-24-4	oral	LD50	706 mg/kg	rat	OECD Guideline 401	ECHA
lithium fluoride	7789-24-4	inhalation: dust/mist	LC50	>15.57 mg/l/4h	rat	OECD Guideline 403	ECHA
lithium fluoride	7789-24-4	dermal	LD50	>2,000 mg/kg	rat	OECD Guideline 402	ECHA

Skin corrosion/irritation

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Serious eye damage/eye irritation

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory or skin sensitization

Skin sensitization

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory sensitization

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Germ cell mutagenicity

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Carcinogenicity

May cause cancer.

IARC Monographs

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans			
Name of substance	**CAS No**	**Classification**	**Number**
Solar Flux® Type B		1	-
quartz	14808-60-7	1	-
lithium fluoride		3	-
wollastonite (calcium metasilicate)	13983-17-0	3	-
calcium fluoride		3	-

Legend

1	Carcinogenic to humans
3	Not classifiable as to carcinogenicity in humans

National Toxicology Program (United States)

None of the ingredients are listed.

OSHA Carcinogens

None of the ingredients are listed.

Reproductive toxicity

May damage the unborn child (if swallowed).
May damage fertility (if swallowed).

Specific target organ toxicity - single exposure

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - repeated exposure

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Other information

There is no additional information.

12 Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

Based on available data, the classification criteria are not met.

Aquatic toxicity (acute) of components

Name of substance	CAS No	Endpoint	Exposure time	Value	Species	Method	Source
lithium fluoride	7789-24-4	EC50	48 h	132.4 mg/l	aquatic invertebrates	-	ECHA
lithium fluoride	7789-24-4	EC50	72 h	112 mg/l	algae (Desmodesmus subspicatus)	OECD Guideline 201	ECHA
lithium fluoride	7789-24-4	ErC50	72 h	>400 mg/l	algae (Desmodesmus subspicatus)	OECD Guideline 201	ECHA

Aquatic toxicity (chronic)

Based on available data, the classification criteria are not met.

Aquatic toxicity (chronic) of components

Name of substance	CAS No	Endpoint	Exposure time	Value	Species	Method	Source
manganese dioxide	1313-13-9	EC50	3 h	>1,000 mg/l	Bacteria (activated sludge)	OECD Guideline 209	ECHA
manganese dioxide	1313-13-9	NOEC	3 h	1,000 mg/l	Bacteria (activated sludge)	OECD Guideline 209	ECHA
lithium fluoride	7789-24-4	NOEC	21 d	14.1 mg/l	daphnia magna	-	ECHA
lithium fluoride	7789-24-4	NOEC	21 d	4 mg/l	rainbow trout (Oncorhynchus mykiss)	-	ECHA
lithium fluoride	7789-24-4	NOEC	72 h	25 mg/l	algae (Desmodesmus subspicatus)	OECD Guideline 201	ECHA
lithium fluoride	7789-24-4	LOEC	72 h	50 mg/l	algae (Desmodesmus subspicatus)	OECD Guideline 201	ECHA
lithium fluoride	7789-24-4	growth rate (ErCx) 10%	72 h	80 mg/l	algae (Desmodesmus subspicatus)	OECD Guideline 201	ECHA

12.2 Persistence and degradability

Biodegradation

No data available.

Persistence

No data available.

12.3 Bioaccumulative potential

n-octanol/water (log KOW) not relevant
(inorganic)

Bioaccumulative potential of components

Name of substance	CAS No	BCF	Log KOW
boric acid	10043-35-3	-	-1.09 (pH value: 7.5, 22 °C)

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of ≥ 0.1%.

12.6 Other adverse effects

Data are not available.

Remarks

Keep away from drains, surface and ground water.

13 Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packages

Completely emptied packages can be recycled.
Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions.

14 Transport information

14.1	**UN number**	not subject to transport regulations
14.2	**UN proper shipping name**	-
14.3	**Transport hazard class(es)**	-
14.4	**Packing group**	-

14.5	**Environmental hazards**	-
14.6	**Special precautions for user**	-
14.7	**Transport in bulk according to IMO instruments**	-

14.8 **Information for each of the UN Model Regulations**

Transport information National regulations Additional information (UN RTDG)

Not subject to transport regulations: UN RTDG

15 Regulatory information

15.1 **Safety, health and environmental regulations specific for the product in question**

National regulations (United States)

Toxic Substance Control Act (TSCA) Not all ingredients are listed (ACTIVE)

Superfund Amendment and Reauthorization Act (SARA TITLE III)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

None of the ingredients are listed

Specific Toxic Chemical Listings (EPCRA Section 313)

Toxics Release Inventory: Specific Toxic Chemical Listings				
Name of substance	**Name acc. to inventory**	**CAS No**	**Remarks**	**Effective date**
manganese dioxide	manganese compounds		-	1987-01-01
aluminium oxide	aluminium oxide	1344-28-1	fibrous forms	1987-01-01
aluminium	aluminium	7429-90-5	fume or dust	1987-01-01
manganese	manganese	7439-96-5	-	1987-01-01

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

None of the ingredients are listed

Clean Air Act

None of the ingredients are listed

Right to Know Hazardous Substance List

Toxic or Hazardous Substance List (MA-TURA)

Name of substance	Name acc. to inventory	CAS No	DEP CODE	PBT / HHS / LHS	PBT / HHS Threshold	De Minimis Concentration Threshold
quartz	Silica, crystalline (respirable, < 10 microns) in abrasive blasting or molding	-	1095	-	-	1.0 %
quartz	Silica, crystalline (respirable, < 10 microns) in abrasive blasting or molding	-	1095	-	-	1.0 %
manganese dioxide	Manganese Compounds	-	1027	-	-	1.0 %
aluminium oxide	Aluminum oxide (fibrous forms)	1344-28-1	-	-	-	1.0 %
aluminium	Aluminum (fume or dust)	7429-90-5	-	-	-	1.0 %
manganese	Manganese	7439-96-5	-	-	-	1.0 %
manganese	Manganese Compounds	-	1027	-	-	1.0 %

Hazardous Substances List (MN-ERTK)

Name of substance	Name acc. to inventory	CAS No	References	Remarks
quartz	Silica - Crystalline	-	A, *	-
Rutil Titandioxid - NICHT verwenden! Besser CSB 018358 - Siehe Handbuch!	Dust, Inert or Nuisance (When toxic impurities are not present, for example, quartz less than 1 percent.)	-	A	dust
lithium fluoride	Fluoride, as F	16984-48-8	A, N, O	dust
lithium fluoride	Fluorides, inorganic	-	N	-
manganese dioxide	Manganese, elemental and compounds, as Mn	-	A, O	-
wollastonite (calcium metasilicate)	Dust, Inert or Nuisance (When toxic impurities are not present, for example, quartz less than 1 percent.)	-	A	dust
manganese	Manganese, elemental and compounds, as Mn	-	A, O	-
calcium fluoride	Fluoride, as F	16984-48-8	A, N, O	dust
calcium fluoride	Fluorides, inorganic	-	N	-

Legend

* Substances which are regulated by OSHA as carcinogens; have been categorized by the ACGIH as either "human carcinogens" or "suspect of carcinogenic potential for man"; have been evaluated by the International Agency for

Legend

	Research on Cancer (IARC) and found to be carcinogens or potential carcinogens; or have been listed as a carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP).
A	American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 1992-93", available from ACGIH
dust	If the substance poses an airborne particulate exposure hazard, the substance is followed by the word "dust."
N	National Institute for Occupational Safety and Health (NIOSH), "Recommendations for Occupational Safety and Health Standards," August 1988, available from NIOSH, Publications Dissemination Office, Division of Standards Development and Technology Transfer
O	Occupational Safety and Health Administration (OSHA), Safety and Health Standards, Code of Federal Regulations, title 29, part 1910, subpart Z, "Toxic and Hazardous Substances, 1990." General information: Minnesota Department of Labor and Industry, Occupational Safety and Health Division

Hazardous Substance List (NJ-RTK)

Name of substance	Name acc. to inventory	CAS No	Remarks	Classifications	Listed in	Substance number	DOT number
quartz	SILICA, QUARTZ (QUARTZ (SiO2), SILICA, CRYSTALLINE-QUARTZ)	14808-60-7	-	CA.	1 2 4 5 7	1660	-
calcium carbonate	calcium carbonate (limestone)	1317-65-3	-		1 4	4001	-
lithium fluoride	fluorides	-	-		1 2 4	0936	-
quartz	SILICA, QUARTZ (QUARTZ (SiO2), SILICA, CRYSTALLINE-QUARTZ)	14808-60-7	-	CA.	1 2 4 5 7	1660	-
Ferrosilicon	ferrosilicon	8049-17-0	-	F2 R2.	3 17	0927	1408
titanium dioxide	titanium dioxide	13463-67-7	-		1 2 4 7	1861	-
manganese dioxide	manganese compounds	-	-		1 2 4 6 18 20	2324	-
aluminium oxide	ALUMINUM OXIDE (ALUMINUM OXIDE	1344-28-1	-		1 2	2891	-

Name of substance	Name acc. to inventory	CAS No	Remarks	Classifications	Listed in	Substance number	DOT number
	(Al2O3), alpha-ALUMINA)				4 6 18		
aluminium	ALUMINUM	7429-90-5	-	F3 R1.	1 2 3 4 6 15 17 18	0054	1396
manganese	manganese	7439-96-5	-	F3 R1.	1 2 3 4 6 8 17 18 20	1155	3089
silicon	silicon	7440-21-3	-	F3.	1 3 4 17	3125	1346
titanium	titanium	7440-32-6	-	F3 R1.	3 17	1860	2546
carbon	graphite	7782-42-5	-		1 2 4	3325	-
calcium fluoride	fluorides	-	-		1 2 4	0936	-

Legend

1 Occupational Safety and Health Administration, 29 CFR 1910-Occupational Safety and Health Standards, Subpart Z-Toxicand Hazardous Substances, July 1, 2008.

15 "Fire Protection Guide to Hazardous Materials," N FPA 49 (Hazardous Chemicals Data), NFPA 325 (Guide to Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids), and NFPA 704 (Standard System for the Identification of the Hazards of Materials for Emergency Response), National Fire Protection Association (NFPA), 2001.

17 "2008 Emergency Response Guidebook," Research and Special Programs Administration, U.S. Department of Transportation, 2008.

18 List of Toxics Release Inventory Chemicals, Section 313, Emergency Planning and Community Right to Know Act (EPCRA), Toxics Release Inventory (TRI) Program, U.S. Environmental Protection Agency, 40 CFR 372.65, July 1, 2008.

2 "2009 TLVs® and BEIs®, Threshold Limit Values and Biological Exposure Indices," American Conference of Gov-

Legend

ernmental Industrial Hygienists (ACGIH), 2009.

20 List of Hazardous Substances and Reportable Quantities (RQ) , Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), U.S. Environmenta l Protection Agency, 40 CFR 302, Table 302.4, July 1, 2008.

3 Office of Hazardous Materials Safety, Research and Special Programs Administration, U.S. Department of Transportation, 49 CFR 172.101-Hazardous Materials Table, October 1, 2008.

4 "NIOSH Pocket Guide to Chemical Hazards," National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, No. 2005-149, September 2005.

5 "Eleventh Report on Carcinogens, 2004," National Toxicology Progr am, National Institute of Environmental Health Sciences, Public Health Service, U.S. Department of Health and Human Services, 2004.

6 "Environmental Hazardous Substance List," New Jersey Department of Environmental Protection, N.J.A.C. 7:1G-2, as printed in the Community Right to Know Survey Instruction Book, 2008.

7 IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, "All Supplements, All Volumes, Groups 1, 2A, 2B, and 3, International Agency for Research on Cancer (IARC), World Health Organization, 2008.

8 Integrated Risk Information System (IRIS) Database for Risk Assessment, Office of Research and Development, National Center for Environmental Assessment, U.S. Environmental Protection Agency (EPA), September 2008.

CA Carcinogenic

F2 Flammable - Second Degree

F3 Flammable - Third Degree

R1 Reactive - First Degree

R2 Reactive - Second Degree

Hazardous Substance List (Chapter 323) (PA-RTK)

Name acc. to inventory	CAS No	Classification
QUARTZ (SIO2)	14808-60-7	-
RUTILE (TIO2)	1317-80-2	-
MANGANESE	7439-96-5	*, E
ALUMINUM OXIDE (AL2O3)	1344-28-1	E
ALUMINUM	7429-90-5	E
ALUMINUM PRODUCTION	-	S
MANGANESE	7439-96-5	*, E

Legend

* Any compound of this substance is also an environmental hazard

E Environmental hazard

S Special hazardous substance

Hazardous Substance List (RI-RTK)

Name of substance	Name acc. to inventory	CAS No	References
quartz	Fibrous glass dust	14808-60-7	T
quartz	Glass (fibrous or dust)	14808-60-7	T

Name of substance	Name acc. to inventory	CAS No	References
calcium carbonate	Calcium carbonate/Marble	1317-65-3	T
calcium carbonate	Limestone	1317-65-3	T
calcium carbonate	Marble	1317-65-3	T
quartz	Fibrous glass dust	14808-60-7	T
quartz	Glass (fibrous or dust)	14808-60-7	T
titanium dioxide	Titanium dioxide	13463-67-7	T
aluminium oxide	Aluminum oxide - "inert" particulate	1344-28-1	T
aluminium oxide	alpha-Alumina	1344-28-1	T
aluminium	Aluminum (Dust or Powder), metal & oxide, welding fumes	7429-90-5	T, F
manganese	Manganese, as Mn.	7439-96-5	T
silicon	Silicon	7440-21-3	T
carbon	Graphite (synthetic)	7440-44-0	T

Legend

F Flammability (NFPA®)

T Toxicity (ACGIH®)

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

Proposition 65 List of chemicals

Name acc. to inventory	CAS No	Remarks	Type of the toxicity
silica, crystalline	-	airborne particles of respirable size	cancer
silica, crystalline	-	airborne particles of respirable size	cancer
titanium dioxide	13463-67-7	airborne, unbound particles of respirable size	cancer

Drug precursors, Chemicals designated within the Controlled Substances Act, 21 U.S.C. § 802, paragraphs 34 (list I) and 35 (list II)

None of the ingredients are listed

16 Other information

Date of preparation: 2019-04-03

Date of last revision: 2025-11-05.

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
"BC Regulation"	OHS Regulation: Section 5.48 (British Columbia)
ACGIH®	American Conference of Governmental Industrial Hygienists
Acute Tox.	Acute toxicity
BCF	Bioconcentration factor
Carc.	Carcinogenicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DEP CODE	Department of Environmental Protection Code
DGR	Dangerous Goods Regulations (see IATA/DGR)
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
HHS	Higher hazard substance
IARC	International Agency for Research on Cancer
IARC Monographs	IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
LHS	Lower hazard substance
LOEC	Lowest Observed Effect Concentration
log KOW	n-Octanol/water
NFPA®	National Fire Protection Association (United States)
NOEC	No Observed Effect Concentration
OHS Code	Occupational Health and Safety Code: Occupational exposure limits for chemical substances (Alberta)

Abbr.	Descriptions of used abbreviations
PBT	Persistent, Bioaccumulative and Toxic
ppm	Parts per million
Regulation 833	R.R.O. 1990, Reg. 833: Control of exposure to biological or chemical agents (Ontario)
Regulation OHS	Regulation respecting occupational health and safety: Permissible exposure values for airborne contaminants (Quebec)
Repr.	Reproductive toxicity
RTECS	Registry of Toxic Effects of Chemical Substances (database of NIOSH with toxicological information)
STEL	Short-term exposure limit
STOT RE	Specific target organ toxicity - repeated exposure
TWA	Time-weighted average
UN RTDG	UN Recommendations on the Transport of Dangerous Good
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

Hazardous Products Regulations (HPR).
SOR/2022-272: Regulations Amending the Hazardous Products Regulations (GHS, Seventh Revised Edition).
UN Recommendations on the Transport of Dangerous Good.
International Maritime Dangerous Goods Code (IMDG).
Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties.
Health hazards.
Environmental hazards.
The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
-	-.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H350	May cause cancer.
H360FD	May damage fertility. May damage the unborn child (if swallowed).
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.

Responsible for the safety data sheet

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Disclaimer

This information is based upon the present state of our knowledge.
This SDS has been compiled and is solely intended for this product.