

Safety Data Sheet

The REACH etc. (Amendment etc.) (EU Exit) Regulations
2019, SI 2019/758 (as amended)

Solar Flux® Type B

Version number: 5.0
Replaces version of: 2019-04-03 (3)

Revision: 2022-12-16
First version: 2018-10-09

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	Solar Flux® Type B
Registration number (REACH)	Not relevant (mixture)
CAS number	Not relevant (mixture)

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.
As above or nearest toxicological information centre.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Classification				
Section	Hazard class	Category	Hazard class and category	Hazard statement
2.12	substance and mixture which, in contact with water, emits flammable gas	2	Water-react. 2	H261
3.7	reproductive toxicity	1B	Repr. 1B	H360FD
3.9	specific target organ toxicity - repeated exposure	1	STOT RE 1	H372

Solar Flux® Type B

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.
In contact with water releases flammable gases which may ignite spontaneously.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word danger

Pictograms

GHS02, GHS08



Hazard statements

H261 In contact with water releases flammable gases.
H360FD May damage fertility. May damage the unborn child (if swallowed).
H372 Causes damage to organs (lung) through prolonged or repeated exposure (if inhaled).

Precautionary statements

P201 Obtain special instructions before use.
P260 Do not breathe dust.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P310 Immediately call a POISON CENTER/doctor.
P405 Store locked up.

Supplemental hazard information

EUH029 Contact with water liberates toxic gas.
EUH032 Contact with acids liberates very toxic gas.

Hazardous ingredients for labelling boric acid
quartz

Additional labelling requirements for professional users only

see section 15 of the safety data sheet

2.3 Other hazards

There is no additional information.

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Endocrine disrupting properties

The mixture contains substance(s) with an endocrine disrupting potential.

Solar Flux® Type B





SECTION 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
calcium fluoride	CAS No 7789-75-5 EC No 232-188-7	10 – < 25	-	-
quartz	CAS No 14808-60-7 EC No 238-878-4	10 – < 25	STOT RE 1 / H372	
manganese dioxide	CAS No 1313-13-9 EC No 215-202-6 Index No 025-001-00-3	5 – < 10	Acute Tox. 4 / H302 Acute Tox. 4 / H332 STOT RE 2 / H373 EUH031	 
boric acid	CAS No 10043-35-3 EC No 233-139-2 Index No 005-007-00-2 REACH Reg. No 01-2119486683-25- xxxx	1 – < 5	Repr. 1B / H360FD	
manganese	CAS No 7439-96-5 EC No 231-105-1 REACH Reg. No 01-2119449803-34- xxxx	1 – < 5	-	-

Solar Flux® Type B

Hazardous ingredients				
Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
lithium fluoride	CAS No 7789-24-4 EC No 232-152-0	1 – <5	Acute Tox. 4 / H302 Eye Irrit. 2 / H319 EUH032	
ferro silicon	CAS No 8049-17-0 EC No 617-088-7	1 – <5	Water-react. 2 / H261 Acute Tox. 3 / H331 EUH029	

Name of substance	Specific Conc. Limits	M-Factors	ATE	Exposure route
manganese dioxide	-	-	500 mg/kg 1.5 mg/l/4h	oral inhalation: dust/ mist
lithium fluoride	-	-	706 mg/kg	oral
ferro silicon	-	-	0.5 mg/l/4h	inhalation: dust/ mist

The product contains crystalline silicic acids in the form of cristobalite and quartz which, if inhaled, are harmful to health. However, the evaluation of scientific findings is controversial. Recent diagnostic possibilities have provided the certainty that silicosis (pneumoconiosis) is a consequence of heavy exposure to quartz dust. There is also evidence that silicotic people have an increased lung cancer risk.

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Self-protection of the first aider.
Remove victim out of the danger area.
Take off immediately all contaminated clothing.
In all cases of doubt, or when symptoms persist, seek medical advice.

Following inhalation

Provide fresh air.
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.

Following eye contact

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

Solar Flux® Type B

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

These information are not available.

4.3 Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

D-powder, dry sand, 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.

Product may release hydrogen gas. Increased storage temperatures will accelerate this process.
Water-reactive (in contact with water releases flammable gases).

Hazardous combustion products

metal oxide smoke, toxic

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes.
Co-ordinate 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 (EN 133)

SECTION 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.

Avoid contact with skin and eyes.

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 vapours/dust/spray/gases.

Warning and evacuating people in the neighbourhood.

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

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.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

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.

Specific notes/details

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 oxidiser

Measures to protect the environment

Avoid release to the environment.

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.

Avoid contact with skin and eyes.

Do not breathe dust.

7.2 Conditions for safe storage, including any incompatibilities

Flammability hazards

None.

Incompatible substances or mixtures

Incompatible materials: see section 10.

Do not allow contact with water.

Evaporative conditions

Keep container tightly closed and in a well-ventilated place.

Protect against external exposure, such as

heat, humidity

Consideration of other advice

Keep away from food, drink and animal feeding stuffs.

Ventilation requirements

Provision of sufficient ventilation.

Specific designs for storage rooms or vessels

Store locked up.

Keep container tightly closed and in a well-ventilated place.

Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

No information available.

Solar Flux® Type B

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)						
Country	Name of agent	CAS No	Identifier	TWA [mg/m ³]	Notation	Source
EU	manganese, inorganic compounds	-	IOELV	0.05	r	2017/164/EU
EU	silica, crystalline	14808-60-7	IOELV	0.1	r	2017/2398/EU
EU	fluorine, inorganic compounds	16984-48-8	IOELV	2.5	-	2000/39/EC
EU	manganese	7439-96-5	IOELV	0.2	i	2017/164/EU
GB	fluorides, inorganic	-	WEL	2.5	F	EH40/2005
GB	manganese, inorganic compounds	-	WEL	0.2	Mn, i	EH40/2005
GB	manganese, inorganic compounds	-	WEL	0.05	Mn, r	EH40/2005
GB	dust	-	WEL	10	i	EH40/2005
GB	dust	-	WEL	4	r	EH40/2005
GB	silica, crystalline	14808-60-7	WEL	0.1	r	EH40/2005
GB	manganese	7439-96-5	WEL	0.2	i	EH40/2005
GB	manganese	7439-96-5	WEL	0.05	r	EH40/2005

Notation

F calculated as F (fluorine)

i inhalable fraction

Mn calculated as Mn (manganese)

r respirable fraction

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)

Relevant DNELs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
calcium fluoride	7789-75-5	DNEL	5 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
manganese dioxide	1313-13-9	DNEL	0.2 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects

Solar Flux® Type B

Relevant DNELs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
manganese dioxide	1313-13-9	DNEL	0.004 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
boric acid	10043-35-3	DNEL	8.3 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
boric acid	10043-35-3	DNEL	392 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
lithium fluoride	7789-24-4	DNEL	10 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
lithium fluoride	7789-24-4	DNEL	44.8 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant PNECs of components of the mixture				
Name of substance	CAS No	Endpoint	Threshold level	Environmental compartment
calcium fluoride	7789-75-5	PNEC	0.9 mg/l	freshwater
calcium fluoride	7789-75-5	PNEC	51 mg/l	sewage treatment plant (STP)
calcium fluoride	7789-75-5	PNEC	11 mg/kg	soil
manganese dioxide	1313-13-9	PNEC	0 mg/l	freshwater
manganese dioxide	1313-13-9	PNEC	0 mg/l	marine water
manganese dioxide	1313-13-9	PNEC	100 mg/l	sewage treatment plant (STP)
manganese dioxide	1313-13-9	PNEC	0.037 mg/kg	freshwater sediment
manganese dioxide	1313-13-9	PNEC	0.004 mg/kg	marine sediment
manganese dioxide	1313-13-9	PNEC	0.028 mg/kg	soil
boric acid	10043-35-3	PNEC	2.9 mg/l	freshwater
boric acid	10043-35-3	PNEC	2.9 mg/l	marine water
boric acid	10043-35-3	PNEC	10 mg/l	sewage treatment plant (STP)
boric acid	10043-35-3	PNEC	5.7 mg/kg	soil
lithium fluoride	7789-24-4	PNEC	5.05 mg/l	freshwater
lithium fluoride	7789-24-4	PNEC	0.505 mg/l	marine water

Solar Flux® Type B

Relevant PNECs of components of the mixture				
Name of substance	CAS No	Endpoint	Threshold level	Environmental compartment
lithium fluoride	7789-24-4	PNEC	85.78 mg/l	sewage treatment plant (STP)
lithium fluoride	7789-24-4	PNEC	25.05 mg/kg	freshwater sediment
lithium fluoride	7789-24-4	PNEC	2.505 mg/kg	marine sediment
lithium fluoride	7789-24-4	PNEC	2.06 mg/kg	soil

8.2 Exposure controls

Appropriate engineering controls

Use local and general ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection. (EN 166).

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.

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.

Solar Flux® Type B

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	solid (powder)
Colour	dark grey
Odour	odourless
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	1,682 °C
Flammability	mixture which, in contact with water, emits flammable gases (in accordance with GHS criteria)
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)
Vapour pressure	not determined
Density and/or relative density	
Density	2.2 g/cm ³ at 20 °C
Relative vapour density	not applicable
Particle characteristics	no data available

9.2 Other information

Solar Flux® Type B

Information with regard to physical hazard classes there is no additional information

Other safety characteristics there is no additional information

SECTION 10: Stability and reactivity

10.1 Reactivity

The mixture contains reactive substance(s).
Reactivity with water.

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

Material reacts vigorously with water emitting flammable gases.
Contact with acids liberates very toxic gas.

10.4 Conditions to avoid

Protect from moisture.

10.5 Incompatible materials

water, acids, bases, oxidisers, aluminium, halogen

Release of flammable materials with:

water

Release of toxic materials with:

water

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.
Hydrogen fluoride (HF).
Metallic oxides containing heavy metals.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Classification procedure

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

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Test data are not available for the complete mixture.

Solar Flux® Type B

Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	ATE
manganese dioxide	1313-13-9	oral	500 mg/kg
manganese dioxide	1313-13-9	inhalation: dust/mist	1.5 mg/l/4h
lithium fluoride	7789-24-4	oral	706 mg/kg
ferro silicon	8049-17-0	inhalation: dust/mist	0.5 mg/l/4h

Name of substance	CAS No	Exposure route	End-point	Value	Species	Method	Source
calcium fluoride	7789-75-5	inhalation: dust/mist	LC50	>5,070 mg/m ³ /4h	rat	OECD Guideline 403	ECHA
calcium fluoride	7789-75-5	oral	LD0	>2,000 mg/kg	rat, female	OECD Guideline 423	ECHA
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
manganese	7439-96-5	oral	LD50	>2,000 mg/kg	rat	-	ECHA
manganese	7439-96-5	inhalation: dust/mist	LC50	>5.14 mg/l/4h	rat	-	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 sensitisation

Skin sensitisation

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

Respiratory sensitisation

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

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

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

Causes damage to organs (lung) through prolonged or repeated exposure (if inhaled).

Hazard category	Target organ	Exposure route
1	lung	if inhaled

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Information on other hazards

Endocrine disrupting properties

The mixture contains substance(s) with an endocrine disrupting potential.

Endocrine disrupting chemicals (EDC)		
Name of substance	CAS No	Reference decision
boric acid	10043-35-3	DHI 2006

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

Test data are not available for the complete mixture.

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Method	Source	Exposure time
calcium fluoride	7789-75-5	EC50	26 – 48 mg/l	aquatic invertebrates	EPA 440/5-86-001	ECHA	96 h
calcium fluoride	7789-75-5	EbC50	43 mg/l	algae (Scenedesmus subspicatus)	-	ECHA	96 h
calcium fluoride	7789-75-5	EbC50	122 mg/l	Grünalge (Selenastrum capricornutum)	-	ECHA	96 h
calcium fluoride	7789-75-5	EbC50	81 mg/l	algae (Skeletonema costatum)	-	ECHA	96 h
manganese dioxide	1313-13-9	EC50	>0.073 mg/l	daphnia magna	OECD Guideline 202	ECHA	48 h
boric acid	10043-35-3	LC50	487 mg/l	fish	-	GESTIS	48 h
boric acid	10043-35-3	LC50	180 mg/l	Crustaceae (Crangon sp.)	-	GESTIS	48 h
boric acid	10043-35-3	EC50	226 mg/l	Crustaceae (Crangon sp.)	-	GESTIS	48 h
lithium fluoride	7789-24-4	EC50	132.4 mg/l	aquatic invertebrates	-	ECHA	48 h
lithium fluoride	7789-24-4	EC50	112 mg/l	algae (Desmod-esmus subspicatus)	OECD Guideline 201	ECHA	72 h
lithium fluoride	7789-24-4	ErC50	>400 mg/l	algae (Desmod-esmus subspicatus)	OECD Guideline 201	ECHA	72 h

Aquatic toxicity (chronic)

Test data are not available for the complete mixture.

Solar Flux® Type B

Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Method	Source	Exposure time
calcium fluoride	7789-75-5	NOEC	4 mg/l	rainbow trout (Oncorhynchus mykiss)	-	ECHA	21 d
calcium fluoride	7789-75-5	NOEC	3.7 mg/l	daphnia magna	-	ECHA	21 d
calcium fluoride	7789-75-5	NOEC	50 mg/l	algae	-	ECHA	7 d
calcium fluoride	7789-75-5	NOEC	249 mg/l	Grünalge (Scenedesmus quadricauda)	-	ECHA	8 d
calcium fluoride	7789-75-5	NOEC	50 – 200 mg/l	algae	-	ECHA	14 d
calcium fluoride	7789-75-5	NOEC	50 – 200 mg/l	algae	-	ECHA	21 d
lithium fluoride	7789-24-4	NOEC	14.1 mg/l	daphnia magna	-	ECHA	21 d
lithium fluoride	7789-24-4	NOEC	4 mg/l	rainbow trout (Oncorhynchus mykiss)	-	ECHA	21 d
lithium fluoride	7789-24-4	NOEC	25 mg/l	algae (Desmodesmus subspicatus)	OECD Guideline 201	ECHA	72 h
lithium fluoride	7789-24-4	LOEC	50 mg/l	algae (Desmodesmus subspicatus)	OECD Guideline 201	ECHA	72 h
lithium fluoride	7789-24-4	growth rate (ErCx) 10%	80 mg/l	algae (Desmodesmus subspicatus)	OECD Guideline 201	ECHA	72 h

12.2 Persistence and degradability

Biodegradation

No data available.

Persistence

No data available.

12.3 Bioaccumulative potential

Test data are not available for the complete mixture.

n-octanol/water (log KOW)

not relevant
(inorganic)

Solar Flux® Type B

Bioaccumulative potential of components of the mixture

Name of substance	CAS No	BCF	Log KOW
boric acid	10043-35-3	3.76	-1.09 (pH value: 7.5, 22 °C)

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

The mixture contains substance(s) with an endocrine disrupting potential.

Endocrine disrupting chemicals (EDC)		
Name of substance	CAS No	Source
boric acid	10043-35-3	DHI 2006

12.7 Other adverse effects

Data are not available.

Remarks

Wassergefährdungsklasse, WGK (water hazard class): 3

SECTION 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/packagings

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.

Solar Flux® Type B

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID	UN2813
ADR/RID/ADN	UN2813
IMDG-Code	UN2813
ICAO-TI	UN2813

14.2 UN proper shipping name

ADR/RID	WATER-REACTIVE SOLID, N.O.S.
ADR/RID/ADN	WATER-REACTIVE SOLID, N.O.S.
IMDG-Code	WATER-REACTIVE SOLID, N.O.S.
ICAO-TI	Water-reactive solid, n.o.s.
Technical name (hazardous ingredients)	ferro silicon

14.3 Transport hazard class(es)

ADR/RID	4.3
ADR/RID/ADN	4.3
IMDG-Code	4.3
ICAO-TI	4.3

14.4 Packing group

ADR/RID	II
ADR/RID/ADN	II
IMDG-Code	II
ICAO-TI	II

14.5 Environmental hazards

-

14.6 Special precautions for user

-

14.7 Maritime transport in bulk according to IMO instruments


-

14.8 Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) Additional information Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) Additional information

Particulars in the transport document	UN2813, WATER-REACTIVE SOLID, N.O.S., (ferro silicon), 4.3, II, (D/E)
---------------------------------------	---

Solar Flux® Type B

Classification code	W2
Danger label(s)	4.3
	
Special provisions (SP)	274
Excepted quantities (EQ)	E2
Limited quantities (LQ)	500 g
Transport category (TC)	0
Tunnel restriction code (TRC)	D/E
Hazard identification No	423
Emergency Action Code	4W

International Maritime Dangerous Goods Code (IMDG) Additional information

Marine pollutant	-
Danger label(s)	4.3
	
Special provisions (SP)	274
Excepted quantities (EQ)	E2
Limited quantities (LQ)	500 g
EmS	F-G, S-N
Stowage category	E

International Civil Aviation Organization (ICAO-IATA/DGR) Additional information

Danger label(s)	4.3
	
Special provisions (SP)	A3
Excepted quantities (EQ)	E2
Limited quantities (LQ)	5 kg

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII

Not listed.

Seveso Directive

2012/18/EU (Seveso III)				
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements		Notes
O3	other hazards (EUH029)	50	200	60)

Notation

60) substances or mixtures with hazard statement EUH029

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

None of the ingredients are listed.

Regulation on the marketing and use of explosives precursors

None of the ingredients are listed.

Regulation on drug precursors

None of the ingredients are listed.

Regulation on substances that deplete the ozone layer (ODS)

None of the ingredients are listed.

Regulation concerning the export and import of hazardous chemicals (PIC)

None of the ingredients are listed.

Regulation on persistent organic pollutants (POP)

None of the ingredients are listed.

National regulations (GB)

List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

Solar Flux® Type B

Substance of Very High Concern (SVHC) acc. to GB REACH and HSE			
Name of substance	CAS No	Listed in	Remarks
boric acid	10043-35-3	Candidate list	Repr. A57c

Legend

candidate list Substances meeting the criteria referred to in Article 57 and for eventual inclusion in Annex XIV

Repr. A57c Toxic for reproduction (Article 57c)

Restrictions according to GB REACH, Annex 17

Dangerous substances with restrictions (GB REACH, Annex 17)			
Name of substance	Name acc. to inventory	CAS No	Conditions of restriction
Solar Flux® Type B	flammable / pyrophoric	-	R40
boric acid	toxic for reproduction	-	R28-30

Legend

R28-30 Without prejudice to the other parts of this Annex the following shall apply to entries 28 to 30:

1. Shall not be placed on the market, or used,
 - as substances,
 - as constituents of other substances, or,
 - in mixtures,

For supply to the general public when the individual concentration in the substance or mixture is equal to or greater than:

- either the relevant specific concentration limit specified in the GB mandatory classification and labelling list, or, the relevant generic concentration limit specified in the GB mandatory classification and labelling list. Without prejudice to the implementation of other legislation relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows: 'Restricted to professional users'.

2. By way of derogation, paragraph 1 shall not apply to:

- (a) medicinal or veterinary products as defined by the Veterinary Regulations 2013 and the Human Medicines Regulations 2012;
 - (b) cosmetic products as defined by Regulation 1223/2009;
 - (c) the following fuels and oil products:
 - motor fuels which are covered by the Motor Fuel (Composition and Content) Regulations 1999,
 - mineral oil products intended for use as fuel in mobile or fixed combustion plants,
 - fuels sold in closed systems (e.g. liquid gas bottles);
 - (d) artists' paints covered by Regulation (EC) No 1272/2008;
 - (e) the substances listed in Appendix 11, column 1, for the applications or uses listed in Appendix 11, column 2.
2. Where a date is specified in column 2 of Appendix 11, the derogation shall apply until the said date.

Solar Flux® Type B

Legend

- R40
1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following:
 - metallic glitter intended mainly for decoration,
 - artificial snow and frost,
 - ‘whoopee’ cushions,
 - silly string aerosols,
 - imitation excrement,
 - horns for parties,
 - decorative flakes and foams,
 - artificial cobwebs,
 - stink bombs.
 2. Without prejudice to the application of other legislation on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with: ‘For professional users only’.
 3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/324/EEC (***)).
 4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.
(***) OJ L 147, 9.6.1975, p. 40.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this mixture by the supplier.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)
1.3	e-mail (competent person): sdb@csb-online.de Please do not use this e-mail adress to ask for the latest safety data sheet. For this purpose contact Golden Empire Corporation / Solar Flux.	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.
2.1	-	Classification: change in the listing (table)
2.1	The most important adverse physicochemical, human health and environmental effects: Delayed or immediate effects can be expected after short or long-term exposure. Spillage and fire water can cause pollution of watercourses.	The most important adverse physicochemical, human health and environmental effects: Delayed or immediate effects can be expected after short or long-term exposure. In contact with water releases flammable gases which may ignite spontaneously.
2.2	-	Pictograms: change in the listing (table)
2.2	-	Hazard statements: change in the listing (table)
2.2	-	Supplemental hazard information: change in the listing (table)

Solar Flux® Type B

Section	Former entry (text/value)	Actual entry (text/value)
2.2	Hazardous ingredients for labelling: quartz silicon dioxide, crystalline	Hazardous ingredients for labelling: boric acid quartz
3.2	-	Hazardous ingredients: change in the listing (table)
8.1	-	Occupational exposure limit values (Workplace Exposure Limits): change in the listing (table)
8.1	-	Relevant DNELs of components of the mixture: change in the listing (table)
8.1	-	Relevant PNECs of components of the mixture: change in the listing (table)
8.2	Eye/face protection: Wear eye/face protection.	Eye/face protection: Wear eye/face protection. (EN 166).
8.2	Respiratory protection: In case of inadequate ventilation wear respiratory protection. Particulate filter device (EN 143).	Respiratory protection: In case of inadequate ventilation wear respiratory protection. Particle filter device (DIN EN 143).
14.1	-	ADR/RID/ADN: UN2813
14.2	-	ADR/RID/ADN: WATER-REACTIVE SOLID, N.O.S.
14.3	-	ADR/RID/ADN: 4.3
14.4	-	ADR/RID/ADN: II
14.8	-	Particulars in the transport document: UN2813, WATER-REACTIVE SOLID, N.O.S., (ferro silicon), 4.3, II, (D/E)
14.8	-	Emergency Action Code: 4W
15.1	Restrictions according to REACH, Annex XVII	Restrictions according to REACH, Annex XVII: Not listed.
15.1	-	Dangerous substances with restrictions (REACH, Annex XVII): change in the listing (table)
15.1	List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list: Not all ingredients are listed.	-
15.1	-	Substance of Very High Concern (SVHC): change in the listing (table)
15.1	Seveso Directive: Not assigned.	Seveso Directive

Solar Flux® Type B

Section	Former entry (text/value)	Actual entry (text/value)
15.1	-	2012/18/EU (Seveso III): change in the listing (table)

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2000/39/EC	Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC
2017/164/EU	Commission Directive establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU
2017/2398/EU	Directive of the European Parliament and of the Council amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
Acute Tox.	Acute toxicity
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ADR/RID/ADN	Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN)
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
Ebc50	≡ 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
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
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule

Solar Flux® Type B

Abbr.	Descriptions of used abbreviations
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
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
HSE	Health and Safety Executive
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	Indicative occupational exposure limit value
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
LOEC	Lowest Observed Effect Concentration
log KOW	n-Octanol/water
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
Repr.	Reproductive toxicity
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STOT RE	Specific target organ toxicity - repeated exposure
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative

Solar Flux® Type B

Abbr.	Descriptions of used abbreviations
Water-react.	Material which, in contact with water, emits flammable gases
WEL	Workplace exposure limit

Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).
Regulations concerning the International Carriage of Dangerous Goods by Rail (RID).
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
H261	In contact with water releases flammable gases.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H360FD	May damage fertility. May damage the unborn child (if swallowed).
H372	Causes damage to organs (lung) through prolonged or repeated exposure (if inhaled).
H373	May cause damage to organs (lung) through prolonged or repeated exposure (if inhaled).

Responsible for the safety data sheet

C.S.B. GmbH
Dujardinstr. 5
47829 Krefeld, Germany

Telephone: +49 (0) 2151 - 652086 - 0
Telefax: +49 (0) 2151 - 652086 - 9
e-Mail: info@csb-compliance.com
Website: www.csb-compliance.com

Disclaimer

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