According to EC-Regulation 1907/2006 (REACH)

SAFETY DATA SHEET

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

1.1. Product identifier

Trade name
Sulphur dioxide
Product no.
-
REACH registration number
01-2119485028-34-XXXX
Other means of identification
EC# 231-195-2, CAS# 7446-09-5

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

Relevant identified uses of the substance or mixture
Sulfur dioxide used in the production of foundry cores, in the paper and pulp industry, in the sugar and starch industry, in the production of pharmaceutical products, in industrial water treatment, in glass coating/lubricate rollers in glass manufacture, in metal casting/mining/purification.
In winemaking, refilling of refrigeration equipment.
Uses advised against
-

1.3. Details of the supplier of the safety data sheet

Company and address
Boliden Commercial
Box 750
SE-101 35 Stockholm
Sweden

Tel +46 8 610 15 00
Fax +46 8 31 55 45
Contact person

E-mail
info.market@boliden.com
SDS date
19-05-2016
SDS Version
1.1

1.4. Emergency telephone number

999 (or 111 for non-emergency medical advice). Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department or the NHS enquiry service). See section 16.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Comp. Gas; H280
Acute Tox. 3; H331
Skin Corr. 1B; H314

See full text of H-phrases in section 2.2.

2.2. Label elements

Hazard pictogram(s)

Signal word

Danger!

Hazard statement(s)

Contains gas under pressure; may explode if heated. (H280)
Toxic if inhaled. (H331)
Causes severe skin burns and eye damage. (H314)

General	-
Prevention	Wear protective gloves/protective clothing/eye protection/face protection. (P280)
Response	Immediately call a POISON CENTER/doctor. (P310).
Safety statement(s)	IF INHALED: Remove person to fresh air and keep comfortable for breathing. (P304+P340).
	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338).
Storage	Protect from sunlight. Store in a well-ventilated place. (P410+P403).
Disposal	-

Identity of the substances primarily responsible for the major health hazards

sulphur dioxide. Index-no.: 016-011-00-9

2.3. Other hazards

-

Additional labelling

-

Additional warnings

-

VOC

-

SECTION 3: Composition/information on ingredients

3.1. Substances

NAME:	sulphur dioxide
IDENTIFICATION NOS.:	CAS-no: 7446-09-5 EC-no: 231-195-2 REACH-no: 01-2119485028-34-XXXX Index-no: 016-011-00-9
CONTENT:	100%
CLP CLASSIFICATION:	Comp. Gas, Acute Tox. 3, Skin corr. 1B H280, H314, H331

3.2. Mixtures

-

(*) See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

Other informations

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Get medical advice immediately. Keep warm. Do not scrub the frostbites.

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or kiss of life.

Skin contact

Remove contaminated clothing and shoes at once. Skin that has come in contact with the material must be washed thoroughly with water.
Get medical advice.

Eye contact

Remove contact lenses. Flush eyes with water (20-30°C) for at least 15 minutes. Rinse also under eyelids. Call a doctor.

Ingestion

Give the person plenty of water to drink and stay with the person. Contact a doctor immediately and take this safety data sheet or the label from the product with you. Do not induce vomiting. Hold head facing down so that no vomit runs back into the mouth and throat.

4.2. Most important symptoms and effects, both acute and delayed

Sulphur dioxide gas irritates eyes, damp skin areas and airways causing stinging, tearing, cough and at high concentrations breathing difficulties. Spilling of liquid sulphur dioxide may cause frostbites on skin and corneal opacity in eyes. Sulphur dioxide water solutions corrode skin and eyes. Long-term exposure to sulphur dioxide may expose pulmonary diseases, cause bronchitis and damages of tooth enamel.

4.3. Indication of any immediate medical attention and special treatment needed

First aid, decontamination, treatment of symptoms. Follow the advice given in section 4.1.
IF exposed or concerned:
Get immediate medical advice/attention.

Information to medics

Bring this safety data sheet.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Use water as a fire extinguishing media. Containers are cooled with water spray. Do not spray water to leakage point.

5.2. Special hazards arising from the substance or mixture

During heating poisonous gases (SO_X) are evaporated.

5.3. Advice for firefighters

Use compressed air line breathing apparatus and chemical suit.

5.4. Additional information

Intervention actions - General
PUBLIC SAFETY HAZARD - Warn people to stay indoors with doors and windows closed. Stop any ventilation. Consider evacuation of people in immediate danger. Keep upwind. Put in protective equipment before entering danger area. Minimise number of personnel in risk area. Warn people to leave and not to re-enter basements, sewers or other confined spaces.

Intervention actions - Fire (involving the substance)
May react in a fire to produce toxic or irritant gases or fumes. Heating of container(s) will cause pressure rise with risk of bursting and immediate release of expanding toxic and corrosive vapour cloud creating a pressure wave. Contact with liquid will cause frost-bite and severe damage to eyes.
May attack metals and produce hydrogen gas which may form explosive mixtures with air. The gas may be invisible and may enter sewers, basements or confined spaces. Keep container(s) cool with water. Work from protected position to reduce risk to personnel. Use unmanned monitors or lances. Use water-spray to knock down fire fumes if possible.
Avoid unnecessary run-off of extinguishing media which may cause pollution.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate leakage area and keep people on the upwind side. Avoid splashes to skin or eyes. Use personal protection. At low concentrations use respiratory protection with E or C type filter. To avoid slashes use heat-insulating rubber gloves, boots and apron. Do not spray water on the liquid.

6.2. Environmental precautions

Close the leakage if possible. Prevent liquids to spray into air with a PVC or PE cover. Gas clouds can be directed (limited) with water-spray.

6.3. Methods and material for containment and cleaning up

Liquid is pumped and collected in slightly opened covered containers or closed pressure-proof containers (evaporation of gas may break the container). Let liquid evaporate in a controlled way.

6.4. Reference to other sections

See section 13 with regard to the handling of waste. See section 8 for protective measures.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

See section 8 for information on personal protection.
Open and handle the container carefully according to local and national pressure vessel legislation. Use personal protection.
Use only in well ventilated spaces.
Equip the working area with emergency shower and eye rinsing bottle.

7.2. Conditions for safe storage, including any incompatibilities

Store in a dry, cool and well-ventilated place.
Protect from heat and direct sunshine.
Store in the original package.

Incompatible products:
Cr, Mn, Al, Zn, Na FeO, SnO, halogenated compounds.
Oxygen, oxidising compounds, catalytic materials (to avoid formation of sulphur trioxide).

Hydrogen is formed when sulphur dioxide is reacting with metals in the presence of water. Hydrogen may form an explosive mixture with air.

Storage temperature

No data available.

7.3. Specific end use(s)

This product should only be used for applications described in Section 1.2

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

OEL

No data available

DNEL / PNEC

DNEL
DNEL inhalation (long - term): 0.5 ppm (1.3 mg sulphur dioxide/m3)
DNEL inhalation (acute effects): 1 ppm (2.7 mg sulphur dioxide/m3)

The relevant DNELs are based on the recommendations of the "Scientific Committee on Occupational Exposure Limits" (SCOEL) for occupational exposure limits for sulphur dioxide (short-term exposure limit (STEL, 15 min) of 1.0 ppm (2.7 mg/m3) and 8-hour time weighted average (TWA) of 0.5 ppm (1.3 mg/m3)). Guidance on how to comply with these DNELs is given in the attached Exposure Scenarios, in the annex.

PNEC
The gaseous substance SO2 as such does not occur in the aquatic environment. Therefore a PNEC expressed as mg SO2/L is not relevant

8.2. Exposure controls

No control is necessary if the product is used in a normal way.

General recommendations

Observe general occupational hygiene. Avoid exposure to skin, eyes and clothes.

Exposure scenarios

If there is an appendix to this safety data sheet, the indicated exposure scenarios must be complied.

Exposure limits

There are no maximum exposure limits for the substances contained in this product.

Appropriate technical measures

Take ordinary precautions when using the product. Avoid inhalation of gas or dust.

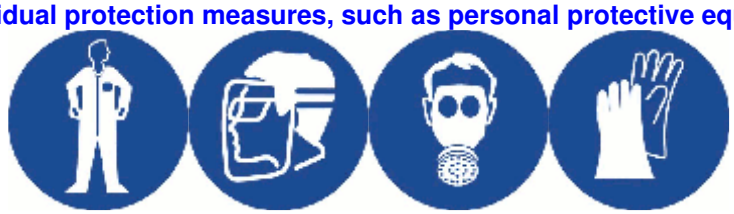
Hygiene measures

Whenever you take a break in using this product and when you have finished using it, all exposed areas of the body must be washed. Always wash hands, forearms and face.

Measures to avoid environmental exposure

-

Individual protection measures, such as personal protective equipment



Generally

Only CE-marked personal protection equipment should be used.

Respiratory Equipment

Use respiration protector if the ventilation is inadequate. At low concentrations use a respiration protector with E or C type filter. At high concentrations use a compressed air line breathing apparatus.

Skin protection

Use protective clothing

Hand protection

Use heat-insulating gloves.

Eye protection

Use an eye or face protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	Colour	Odour	pH	Viscosity	Vapour density
Compressed, liquefied gas	-	Pungent	<1	0.25 mPa (20℃ liquid)	about 2,7 kg/m3 gas

Phase changes

Melting point (℃)	Boiling point (℃)	Vapour pressure
-75	-10	330 kPa (20℃)

Data on fire and explosion hazards

Flashpoint (℃)	Ignition (℃)	Self ignition (℃)
-	-	-

Explosion limits (Vol %)	Oxidizing properties
-	-

Solubility

Solubility in water	n-octanol/water coefficient
Soluble 113 g/l (20℃)	-

9.2. Other information

Solubility in fat	Additional information
-	Odour threshold: 1-3 ppm (3-8 mg/m3) Evaporation rate: - Flammability (solid, gas): – Relative density: 1380 kg/m3 liquid (20℃) Decomposition temperature: – Sulfur dioxide is classified as "Liquefied gas - Contains gas under pressure; may explode if heated." Sulfur dioxide heavier than air; Relative density (air = 1): 2.27; Critical temperature T(c) [℃]: 157.5℃; Critical pressure p(c) [bar]: 78.84 bar

SECTION 10: Stability and reactivity

10.1. Reactivity

See section 10.5

10.2. Chemical stability

See also section 10.6

10.3. Possibility of hazardous reactions

See also section 10.5 and 10.6

10.4. Conditions to avoid

High temperatures

10.5. Incompatible materials

Violent reaction with: ammonia; oxidising agents, strong chlorine; alkalis.
On contact with water: Sulphuric acid and sulphurous acid.
Strongly corrosive to metals when moisture is present.

10.6. Hazardous decomposition products

During heating poisonous gases, sulphur oxides (SOx) are evaporated.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Substance	Species	Test	Route of exposure	Result
Sulphur dioxide	Rat	LC50	Inhalation/1h	2520 ppm
Sulphur dioxide	Human	LCLo	Inhalation/5min,	3000 ppm

Mortal danger (human)

30-60 min. 50 - 100 ppm
5 min. 400 - 500 ppm

Skin corrosion/irritation

Causes severe skin burns.
Liquid sulphur dioxide causes frostbites.

Serious eye damage/irritation

Causes serious eye damage.
Liquid sulphur dioxide causes corneal damage, corneal opacity and blindness.
Gaseous sulphur dioxide irritates and conjunctivas and corneal Inflammation.

Ingestion

Swallowing corrodes mouth, throat, stomach and small intestine.

Respiratory or skin sensitisation

No data available.

Germ cell mutagenicity

No data available.

Carcinogenicity

No data available.

Reproductive toxicity

No data available.

STOT-single exposure

No data available.

STOT-repeated exposure

No data available.

Aspiration hazard

Breathing of large concentrations of sulphur dioxide may cause pulmonary edema.

Long term effects

Tissue damaging effects: This product contains substances which are corrosive. If vapour or aerosols are inhaled, it can result in damage to lungs, irritation and burns in the respiratory organs as well as coughing.
Corrosive substances cause irreversible damage to eyes and acid burns to skin.

Other health related data

Gaseous sulphur dioxide causes cough, sneeze, tearing, nausea shortness of breath, weakness, unconsciousness and suffocation and it irritates nose and throat.
Asthmatic people may get symptoms even at low concentrations.
In case of leakage forming sulphur dioxide cloud may be life-threatening.

SECTION 12: Ecological information

12.1. Toxicity

May lower the pH in waterways and thus be dangerous to live organisms.

Substance	Species	Test	Test duration	Result

No data available.

12.2. Persistence and degradability

Substance	Biodegradability	Test	Result
	Poorly biologically degradable. At air oxidizes to SO3.		

12.3. Bioaccumulative potential

Substance	Potential bioaccumulation	LogPow	BFC
	Does not accumulate.		

12.4. Mobility in soil

Soluble in water.

12.5. Results of PBT and vPvB assessment

The PBT and vPvB criteria do not apply to inorganic substances.

12.6. Other adverse effects

No special

SECTION 13: Disposal considerations

13.1. Waste treatment methods

The product is covered by the regulations on dangerous waste.
Get information of reuse and recycling from the producer. Empty containers are returned to the producer.
Dissolve sulphur dioxide into water and neutralize.
Dispose of it acccording to national legislation.

Waste

EWC code

-

Specific labelling

-

Contaminated packing

Packaging which contains leftovers from the product must be disposed of in the same way as the product.

SECTION 14: Transport information

This product is covered by the conventions on dangerous goods.

14.1 – 14.4

ADR/RID

14.1. UN number	1079
14.2. UN proper shipping name	SULPHUR DIOXIDE
14.3. Transport hazard class(es)	2
14.4. Packing group	-
Notes	-
Tunnel restriction code	C/D

IMDG

UN-no.	1079
Proper Shipping Name	SULPHUR DIOXIDE
Class	2
PG*	-
EmS	-
MP**	-
Hazardous constituent	-

IATA/ICAO

UN-no.	1079
Proper Shipping Name	SULPHUR DIOXIDE
Class	2
PG*	-

14.5. Environmental hazards

-

14.6. Special precautions for user

Hazard code 268

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

No data available

(*) Packing group

(**) Marine pollutant

SECTION 15: Regulatory information

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

Restrictions for application

People under the age of 18 must not be exposed to this product cf. Council Directive 94/33/EC. Only for industrial use.

Demands for specific education

-

Additional information

-

Sources

EC regulation 1907/2006 (REACH)
Directive 2000/532/EC
EC Regulation 1272/2008 (CLP)

15.2. Chemical safety assessment

Yes

SECTION 16: Other information

Full text of H-phrases as mentioned in section 3

H280 - Contains gas under pressure; may explode if heated.
H314 - Causes severe skin burns and eye damage.
H331 - Toxic if inhaled.

The full text of identified uses as mentioned in section 1

-

Other symbols mentioned in section 2

-

Other

It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.
The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.
A change (in proportion to the last essential change (first cipher in SDS version)) is marked with a blue triangle.

Emergency Numbers

Austria: Poison Control Centre Emergency helpline +43 1 406 43 43, 112
Belgium: 070 - 245 245
Bulgaria: +359 2 9154 409
Czech Republic: Toxikologické informační středisko Telefon: +420 224 919 293, +420 224 915 402
Denmark: Kontakt Giftlinien på tlf.nr.: 82 12 12 12 (åbent 24 timer i døgnet).
Estonia: 112, 16662, ((+372) 626 93 90)
Finland: 09-4711/Myrkytystietokeskus tai suora numero 09-471977 Myrkytystietokeskus/HUS, Tukholmankatu 17, 00029 HUS (Helsinki) 112
France: ORFILA (INRS) : + 33 (0)1 45 42 59 59. 24 heures sur 24 et 7 jours sur 7
Germany: Giftnotruf Berlin, Emergency telephone: +49 30 19240 (Tag und Nacht)
Greece: +30 10 779 3777
Hungary: Telefon: 06-80-20-11-99
Iceland: Neyðarlínan: Sími 112. Eitrunarmiðstöð Landsspítalans. Sími: 543 2222.
Ireland: +353 1 8379964
Italy: Centro antiveleni di Roma - Policlinico Umberto I tel. 06-49978000
Latvia: +371 704 2468
Lithuania: Visuomenės sveikatos centrams +370 5 236 20 52 arba +370 687 53378
Malta: 2425 0000
Netherlands: 30-2748888
Norway: Giftinformasjonssentralen på tlf.nr.: 22 59 13 00, 113
Poland: +48 58301 65 16 / +48 58 349 2831
Portugal: Em caso de intoxicacao, ligue 808 250 143
Romania: +40 21 3183606
Slovakia: +421 2 54 77 4166
Slovenia: + 386 41 650500
Spain: Servicio de Información Toxicológica Teléfono: + 34 91 562 04 20 (solo emergencias toxicológicas) Información en español (24h/365 días)
Sweden: 112, 08-331231 (vardagar kl 9-17)
United Kingdom: 999 (or 111 for non-emergency medical advice). Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department or the NHS enquiry service)

Date of last essential change
(First cipher in SDS version)

01-06-2015

Date of last minor change
(Last cipher in SDS version)

19-05-2016