

Sulphur dioxide

SO2_113-SE



2.3 : Toxic gases



8 : Corrosive substances

Danger



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

1.1. Product identifier

Trade name : Sulphur dioxide , Svaveldioxid N30
 SDS Nr : SO2_113-SE replaces SO2 113-SE 25 / 7 / 2014
 Chemical description : Sulphur dioxide
 CAS No :7446-09-5
 EC No :231-195-2
 Index No :016-011-00-9
 Registration-No. : 01-2119485028-34-
 Chemical formula : SO2

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

Relevant identified uses : Industrial and professional. Perform risk assessment prior to use.
 Test gas/Calibration gas.
 Laboratory use. Chemical reaction / Synthesis.
 Contact supplier for more information on uses.
 Uses advised against : Consumer use.

1.3. Details of the supplier of the safety data sheet

Company identification : AIR LIQUIDE GAS AB
 Lundavägen 151
 212 24 Malmö SWEDEN
 Tfn. 040 - 38 10 00, efter kontorstid 0220- 396 00
 E-Mail address)competent person) : Info.sweden@airliquide.com

1.4. Emergency telephone number

Emergency telephone number : 112

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Hazard Class and Category Code Regulation EC 1272/2008)CLP)

• Health hazards : Acute toxicity, Inhalation - Category 3 - Danger - (CLP : Acute Tox. 3) - H311
 Skin corrosion - Category 1B - Danger - (CLP : Skin Corr. 1B) - H314
 Serious eye damage - Category 1 - Danger - (CLP : Eye Dam. 1) - H318
 • Physical hazards : Gases under pressure - Liquefied gas - Warning - (CLP : Press. Gas) - H280

2.2. Label elements

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SECTION 2. Hazards identification (continued)

Labelling Regulation EC 1272/2008 (CLP)

• Hazard pictograms



• Hazard pictograms code

: GHS06 - GHS05 - GHS04

• Signal word

: Danger

• Hazard statements

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

• Supplemental hazard information

: EUH071 - Corrosive to respiratory tract.
: EUH071 supersedes H335 when assigned in the classification.

• Precautionary statements

- Prevention

: P260 - Do not breathe gas, vapours.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

- Response

: P304+P340+P315 - IF INHALED : Remove person to fresh air and keep comfortable for breathing. Get immediate medical advice / attention.
P305+P351+P338+P315 - IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice / attention.
P303+P361+P353+P315 - IF ON SKIN (or hair) : Take off immediately all contaminated clothing. Rinse skin with water/shower. Get immediate medical advice / attention.

- Storage

: P403 - Store in a well-ventilated place.
P405 - Store locked up.

2.3. Other hazards

: None.

SECTION 3. Composition/information on ingredients

3.1. Substance / 3.2. Mixture

Substance.

Substance name	Content [Vol-%]	CAS No	EC No	Index No	Registration No.	Classification
Sulphur dioxide	100 %	7446-09-5	231-195-2	016-011-00-9	01-2119485028-34-	Acute Tox. 3 (H331) Skin Corr. 1B (H314) Eye Dam 1 (H318) Press. Gas (Liq.) (H280)

Contains no other components or impurities which will influence the classification of the product.

* 1: Listed in Annex IV / V REACH, exempted from registration.

* 2: Registration deadline not expired.

* 3: Registration not required: Substance manufactured or imported < 1t/y.

Full text of R-phrases see section 16. Full text of H-statements see section 16.

Sulphur dioxide**SO2_113-SE****SECTION 4. First aid measures****4.1. Description of first aid measures**

- Inhalation : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
- Skin contact : Remove contaminated clothing. Drench affected area with water for at least 15 minutes.
- Eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes.
- Ingestion : Ingestion is not considered a potential route of exposure.

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

- : May cause severe chemical burns to skin and cornea. Suitable first-aid treatment should be immediately available. Seek medical advice before using product.
Material is destructive to tissue of the mucuous membranes and upper respiratory tract. Cough, shortness of breath, headache, nausea.
Refer to section 11.

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

- : Treat with corticosteroid spray as soon as possible after inhalation.
Obtain medical assistance.

SECTION 5. Fire-fighting measures**5.1. Extinguishing media**

- Suitable extinguishing media : Water spray or fog.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

- Specific hazards : Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products : None.

5.3. Advice for fire-fighters

- Specific methods : If possible, stop flow of product.
Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.
Use water spray or fog to knock down fire fumes if possible.
Move containers away from the fire area if this can be done without risk.
- Special protective equipment for fire fighters : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus.
EN 943-2: Protective clothing against liquid and gaseous chemicals, aerosols and solid particles.
Gas-tight chemical protective suits for emergency teams.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

SECTION 6. Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

- : Evacuate area.
Monitor concentration of released product.
Try to stop release.
Ensure adequate air ventilation.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Wear gas tight chemically protective clothing in combination with self contained breathing apparatus.
Stay upwind.
Act in accordance with local emergency plan.

AIR LIQUIDE GAS AB

Lundavägen 151 212 24 Malmö SWEDEN

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Sulphur dioxide**SO2_113-SE****SECTION 6. Accidental release measures)continued)****6.2. Environmental precautions**

- : Try to stop release.
- Reduce vapour with fog or fine water spray.

6.3. Methods and material for containment and cleaning up

- : Ventilate area.
- Hose down area with water.
- Wash contaminated equipment or sites of leaks with copious quantities of water.

6.4. Reference to other sections

- : See also sections 8 and 13.

SECTION 7. Handling and storage**7.1. Precautions for safe handling****Safe use of the product**

- : Consider pressure relief device(s) in gas installations.
- Only experienced and properly instructed persons should handle gases under pressure.
- The product must be handled in accordance with good industrial hygiene and safety procedures.
- Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
- Avoid exposure, obtain special instructions before use.
- Do not smoke while handling product.
- Ensure the complete gas system was (or is regularly) checked for leaks before use.
- Installation of a cross purge assembly between the cylinder and the regulator is recommended.
- Purge system with dry inert gas (e.g. helium or nitrogen) before gas is introduced and when system is placed out of service.
- Avoid suck back of water, acid and alkalis.
- Do not breathe gas.
- Avoid release of product into atmosphere.

Safe handling of the gas receptacle

- : Refer to supplier's container handling instructions.
- Do not allow backfeed into the container.
- Protect cylinders from physical damage; do not drag, roll, slide or drop.
- When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.
- Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.
- If user experiences any difficulty operating cylinder valve discontinue use and contact supplier.
- Never attempt to repair or modify container valves or safety relief devices.
- Damaged valves should be reported immediately to the supplier.
- Keep container valve outlets clean and free from contaminants particularly oil and water.
- Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.
- Close container valve after each use and when empty, even if still connected to equipment.
- Never attempt to transfer gases from one cylinder/container to another.
- Never use direct flame or electrical heating devices to raise the pressure of a container.
- Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.

7.2. Conditions for safe storage, including any incompatibilities

- : Keep container below 50°C in a well ventilated place.
- Observe all regulations and local requirements regarding storage of containers. Containers should be stored in the vertical position and properly secured to prevent them from falling over. Stored containers should be periodically checked for general condition and leakage. Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition.
- Containers should not be stored in conditions likely to encourage corrosion. Keep away from combustible materials.

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SECTION 7. Handling and storage)continued)

7.3. Specific end use(s)

: None.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Sulphur dioxide : TWA (SV) OEL 8h [ppm] : 2
: TWA (SV) OEL 8h [mg/m3] : 5
: STEL (SV) OEL 15min [mg/m3] : 13
: STEL (SV) OEL 15min [ppm] : 5

DNEL: Derived no effect level)Workers)

Sulphur dioxide : Inhalation-short term (local) [mg/m3] : 2.7
: Inhalation-long term (local) [mg/m3] : 1.3

PNEC: Predicted no effect concentration

Sulphur dioxide : Inhalation-long term (local) [mg/m3] : 0.53

8.2. Exposure controls

- 8.2.1. Appropriate engineering controls** : Product to be handled in a closed system.
Ensure exposure is below occupational exposure limits (where available).
Consider work permit system e.g. for maintenance activities.
Preferably use only permanent leak-tight installations (e.g. welded pipes).
Systems under pressure should be regularly checked for leakages.
Provide adequate general and local exhaust ventilation.
Gas detectors should be used when toxic gases may be released.
- 8.2.2. Individual protection measures, e.g. personal protective equipment** : A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered:
PPE compliant to the recommended EN/ISO standards should be selected.
Protect eyes, face and skin from liquid splashes.
- **Eyeface protection** : Wear safety glasses with side shields.
Wear goggles and a face shield when transferring or breaking transfer connections.
Standard EN 166 - Personal eye-protection.
Provide readily accessible eye wash stations and safety showers.
 - **Skin protection**
 - **Hand protection** : Wear working gloves when handling gas containers.
Standard EN 388 - Protective gloves against mechanical risk.
Wear chemically resistant protective gloves.
Standard EN 374 - Protective gloves against chemicals.
The breakthrough time of the selected gloves must be greater than the intended use period.
Consult glove manufacturer's product information on material suitability and material thickness.
Chloroprene rubber (CR) /
 - **Other** : Wear safety shoes while handling containers.
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
Keep suitable chemically resistant protective clothing readily available for emergency use.
Standard EN943-1 - Full protective suits against liquid, solid and gaseous chemicals.
 - **Respiratory protection** : Gas filters may be used if all surrounding conditions e.g. type and concentration of the contaminant(s) and duration of use are known.
Use gas filters and full face mask, where exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting containers.
Recommended: Filter E (yellow).
Consult respiratory device supplier's product information for the selection of the appropriate device.
Gas filters do not protect against oxygen deficiency.

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SECTION 8. Exposure controls/personal protection)continued)

Standard EN 14387 - Gas filter(s), combined filter(s) and full face mask - EN 136.
 Keep self contained breathing apparatus readily available for emergency use.
 Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
 Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.

• **Thermal hazards**

: None necessary.

8.2.3. Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state at 20°C / 101.3kPa : Gas.

Colour : Colourless.

Odour : Pungent.

Odour threshold : Odour threshold is subjective and inadequate to warn for overexposure.

pH value : If dissolved in water pH-value will be affected.

Molar mass [g/mol] : 64

Melting point [°C] : -75.5

Boiling point [°C] : -10

Critical temperature [°C] : 158

Flash point [°C] : Not applicable for gases and gas-mixtures.

Evaporation rate)ether=1) : Not applicable for gases and gas-mixtures.

Flammability range [vol% in air] : Non flammable.

Vapour pressure [20°C] : 3.3 bar

Relative density, gas %air=1% : 2.3

Relative density, liquid %water=1% : 1.5

Solubility in water [mg/l] : Completely soluble.

Partition coefficient n-octanol/water [log Kow] : Not applicable for inorganic gases.

Auto-ignition temperature [°C] : Not applicable.

Viscosity at 20°C [mPa.s] : Not applicable.

Explosive Properties : Not applicable.

Oxidising Properties : None.

9.2. Other information

Other data : Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

Sulphur dioxide**SO2_113-SE****SECTION 10. Stability and reactivity****10.1. Reactivity**

: No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

: Stable under normal conditions.

10.3. Possibility of hazardous reactions

: None.

10.4. Conditions to avoid

: Avoid moisture in installation systems.

10.5. Incompatible materials

: Reacts with water to form corrosive acids.
May react violently with alkalis.
Reacts with most metals in the presence of moisture, liberating hydrogen, an extremely flammable gas.
With water causes rapid corrosion of some metals. Moisture.
For additional information on compatibility refer to ISO 11114.

10.6. Hazardous decomposition products

: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11. Toxicological information**11.1. Information on toxicological effects**

Acute toxicity	: Delayed fatal pulmonary oedema possible.
Rat inhalation LC50 [ppm/4h]	: 1260
Skin corrosion/irritation	: Severe corrosion to skin at high concentrations.
Serious eye damage/irritation	: Severe corrosion to the eyes at high concentrations.
Respiratory or skin sensitisation	: No known effects from this product.
Carcinogenicity	: No known effects from this product.
Germ cell mutagenicity	: No known effects from this product.
Reproductive toxicity	: No known effects from this product.
STOT-single exposure	: Severe corrosion to the respiratory tract at high concentrations.
STOT-repeated exposure	: No known effects from this product.
Aspiration hazard	: Not applicable for gases and gas-mixtures.

SECTION 12. Ecological information**12.1. Toxicity**

EC50 48h - Daphnia magna [mg/l]	: 89
EC50 72h Algae [mg/l]	: 48.1
LC50-96 h - fish [mg/l]	: No data available.

12.2. Persistence and degradability

: Not applicable for inorganic gases.

12.3. Bioaccumulative potential

: No data available.

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SECTION 12. Ecological information)continued)

12.4. Mobility in soil

: Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Results of PBT and vPvB assessment

: Not classified as PBT or vPvB.

12.6. Other adverse effects

: May cause pH changes in aqueous ecological systems.

Effect on the ozone layer

: None.

Effect on global warming

: No known effects from this product.

SECTION 13. Disposal considerations

13.1. Waste treatment methods

: Must not be discharged to atmosphere.
Gas may be scrubbed in alkaline solution under controlled conditions to avoid violent reaction. Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods.
Ensure that the emission levels from local regulations or operating permits are not exceeded.
Consult supplier for specific recommendations.

List of hazardous waste codes)from
Commission Decision 2001/118/EC)

: 16 05 04: Gases in pressure containers (including halons) containing dangerous substances.

13.2. Additional information

: None.

SECTION 14. Transport information

UN number : 1079

Labelling ADR, IMDG, IATA



: 8 : Corrosive substances
2.3 : Toxic gases

Transport by road/rail)ADR/RID)

Transport by air)ICAO-TI / IATA-DGR)

Transport by sea)IMDG)

Classification code : 2 TC

H.J. nr : 268

Tunnel Restriction : C/D : Passage forbidden through tunnels of category C when carried in tanks. Passage forbidden through tunnels of category D and E.

Emergency Schedule)EmS) - Fire : F-C

Emergency Schedule)EmS) - Spillage : S-U

14.6 Special precautions for user

Packing Instruction(s) : P200

Passenger and Cargo Aircraft : FORBIDDEN.

Cargo Aircraft only : FORBIDDEN.

Sulphur dioxide**SO2_113-SE****SECTION 14. Transport information)continued)**

Special precautions for user	: Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted. - Ensure there is adequate ventilation.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	: Not applicable.
UN proper shipping name	: SULPHUR DIOXIDE
Transport hazard class(es)	: 2
Environmental hazards	: None.
Proper shipping name	: SULPHUR DIOXIDE
Class	: 2.3
Packing instruction	: P200
IMDG-Marine pollutant	: -
Proper shipping name)IATA)	: SULPHUR DIOXIDE
Class	: 2.3

SECTION 15. Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**EU legislation

Restrictions on use	: None.
Seveso directive 2012/18/EC	: Covered.

National legislation

National legislation	: Ensure all national/local regulations are observed.
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15.2. Chemical safety assessment

: A CSA has been carried out.

SECTION 16. Other information

Indication of changes	: Revised safety data sheet in accordance with commission regulation (EU) No 2015/830.
Training advice	: Users of breathing apparatus must be trained. Ensure operators understand the toxicity hazard.
List of full text of H-statements in section 3.	: H280 - Contains gas under pressure; may explode if heated. H314 - Causes severe skin burns and eye damage. H318 - Causes serious eye damage. H331 - Toxic if inhaled.
Further information	: This Safety Data Sheet has been established in accordance with the applicable European Union legislation.
DISCLAIMER OF LIABILITY	: Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted. Details given in this document are believed to be correct at the time of going to press. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

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