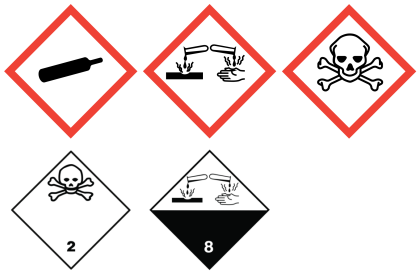
an Air Liquide company

Safety Data Sheet

Sulphur dioxide

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Issue date: 1/17/2023 Revision date: 1/31/2025 Supersedes version of: 1/17/2023 Version: 6.0

Danger



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

1.1. Product identifier

Trade name	:	Sulphur dioxide
SDS no	:	SDS_113_CLP
Other means of identification	:	Sulphur dioxide
	CAS-No.	: 7446-09-5
	EC-No.	: 231-195-2
	EC Index-No.	: 016-011-00-9
REACH 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	:	See the list of identified uses and exposure scenarios in the annex of the safety data sheet. Perform risk assessment prior to use.
Uses advised against	:	Consumer use. Uses other than those listed above are not supported, contact your supplier for more information on other uses.

1.3. Details of the supplier of the safety data sheet

Energas Ltd.
Westmorland Street
HU2 0HX Hull
T 0044 1482 329333
safety.aluk@airliquide.com

1.4. Emergency telephone number

Emergency telephone number	:	01675 462695 (Available 24/7)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Physical hazards	Gases under pressure : Liquefied gas	H280
Health hazards	Skin corrosion/irritation, Category 1, Sub-Category 1B	H314
	Serious eye damage/eye irritation, Category 1	H318
	Acute toxicity (inhalation:gas) Category 3	H331

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS04 GHS05 GHS06

Signal word (CLP) : Danger

Hazard statements (CLP) : H314 - Causes severe skin burns and eye damage.
H280 - Contains gas under pressure; may explode if heated.
H331 - Toxic if inhaled.
EUH071 - Corrosive to the respiratory tract.

Precautionary statements (CLP)

- Prevention : P280 - Wear eye protection, face protection, protective clothing, protective gloves.
P260 - Do not breathe gas, vapours.
- Response : P303+P361+P353+P315 - IF ON SKIN : (or hair) Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get immediate medical advice / attention.
P304+P340+P315 - IF INHALED : Remove victim to fresh air and keep at rest in a position 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.
- Storage : P405 - Store locked up.
P403 - Store in a well-ventilated place.

2.3. Other hazards

Not classified as PBT or vPvB.
The substance/mixture has no endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier		Classification according to Regulation (EC) No. 1272/2008 [CLP] ATE, EUH-statements, M-Factors
Sulphur dioxide	CAS-No.: 7446-09-5 EC-No.: 231-195-2 EC Index-No.: 016-011-00-9 REACH registration No: 01-2119485028-34	100	Press. Gas (Liq.), H280 Skin Corr. 1B, H314 Eye Dam. 1, H318 Acute Tox. 3 (Inhalation:gas), H331

Name	Product identifier	Specific concentration limits ()
Sulphur dioxide	CAS-No.: 7446-09-5 EC-No.: 231-195-2 EC Index-No.: 016-011-00-9 REACH registration No: 01-2119485028-34	(1 ≤ C ≤ 100) STOT SE 2; H371 (10 ≤ C ≤ 100) STOT SE 1; H370

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

3.2. Mixtures

Not applicable

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. Perform cardiopulmonary resuscitation if breathing stopped.
- Skin contact : Remove contaminated clothing. Drench affected area with water for at least 15 minutes. In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.
- 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

Prolonged exposure to small concentrations may result in pulmonary oedema.
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.
See section 11.

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

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

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray or fog.
Product does not burn, use fire control measures appropriate for the surrounding fire.
- 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 that are more hazardous than the product itself.

5.3. Advice for firefighters

Specific methods : 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.
If possible, stop flow of product.
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.
Standard 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

For non-emergency personnel : Act in accordance with local emergency plan.
Try to stop release.
Evacuate area.
Ensure adequate air ventilation.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Stay upwind.
See section 8 of the SDS for more information on personal protective equipment.

For emergency responders : Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Use chemically protective clothing.
Monitor concentration of released product.
See section 5.3 of the SDS for more information.

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

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 : Do not breathe gas.
Avoid release of product into atmosphere.
Use only lubricants and sealings approved for the specific gas service.
The product must be handled in accordance with good industrial hygiene and safety procedures.
Only experienced and properly instructed persons should handle gases under pressure.
Consider pressure relief device(s) in gas installations.
Ensure the complete gas system was (or is regularily) checked for leaks before use.
Do not smoke while handling product.
Avoid exposure, obtain special instructions before use.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Installation of a cross purge assembly between the container 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.

Safe handling of the gas receptacle : Refer to supplier's container handling instructions.
Do not allow backfeed into the container.
Protect containers 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 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 content of the container.
Suck back of water into the container must be prevented.
Open valve slowly to avoid pressure shock.

7.2. Conditions for safe storage, including any incompatibilities

Store locked up.
Observe all regulations and local requirements regarding storage of containers.
Containers should not be stored in conditions likely to encourage corrosion.
Container valve guards or caps should be in place.
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.
Keep container below 50°C in a well ventilated place.
Store containers in location free from fire risk and away from sources of heat and ignition.
Keep away from combustible materials.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Sulphur dioxide (7446-09-5)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Sulphur dioxide
IOEL TWA	1.3 mg/m³
	0.5 ppm
IOEL STEL	2.7 mg/m³
	1 ppm
Regulatory reference	COMMISSION DIRECTIVE (EU) 2017/164
Austria - Occupational Exposure Limits	
Local name	Schwefeldioxid
MAK (mg/m³)	1.3 mg/m³
MAK (OEL TWA)	0.5 ppm
MAK (OEL STEL)	2.7 mg/m³ (4x 15(Miw) min)
	1 ppm (4x 15(Miw) min)
Regulatory reference	BGBl. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Soufre (dioxyde de) # Zwaveldioxide
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Серен диоксид
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm
Remark	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)

Croatia - Occupational Exposure Limits	
Local name	Sumporov dioksid
GVI (OEL TWA)	1.3 mg/m³
	0.5 ppm
KGVI (OEL STEL)	2.7 mg/m³
	1 ppm
Remark	Direktiva: 2017/164/EU
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)
Cyprus - Occupational Exposure Limits	
Local name	Διοξείδιο του θείου
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm
Regulatory reference	Κανονισμοί του 2019 (Κ.Δ.Π. 16/2019)
Czech Republic - Occupational Exposure Limits	
Local name	Oxid siřičitý
PEL (OEL TWA)	1.3 mg/m³
	0.5 ppm
NPK-P (OEL C)	2.7 mg/m³
	1 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty) resp. kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Svovldioxid
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 202 af 21/02/2023
Estonia - Occupational Exposure Limits	
Local name	Vääveldioksiid
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm

Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 21.12.2022, 3)
Finland - Occupational Exposure Limits	
Local name	Rikkidioksidi
HTP (OEL TWA)	1.3 mg/m³
	0.5 ppm
HTP (OEL STEL)	2.7 mg/m³
	1 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Soufre (dioxyde de) (Anhydride sulfureux, Dioxyde de soufre)
VME (OEL TWA)	1.3 mg/m³
	0.5 ppm
VLE (OEL C/STEL)	2.7 mg/m³
	1 ppm
Remark	Valeurs règlementaires indicatives
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 6443, 2022; Outil65; Arrête du 27 septembre 2019)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Schwefeldioxid
AGW (OEL TWA)	2.7 mg/m³
	1 ppm
Peak exposure limitation factor	1(I)
Remark	AGS - Ausschuss für Gefahrstoffe; Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden; EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich)
Regulatory reference	TRGS900
Gibraltar - Occupational Exposure Limits	
Local name	Sulphur dioxide
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Διοξείδιο του θείου
OEL TWA	1.3 mg/m³
	0.5 ppm

OEL STEL	2.7 mg/m³
	1 ppm
Regulatory reference	Π.Δ. 82/2018 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	KÉN-DIOXID
AK (OEL TWA)	1.3 mg/m³
CK (OEL STEL)	2.7 mg/m³
Remark	m (maró hatású anyag, amely felmarja a bőrt, nyálkahártyát, szemet vagy mindhármat); EU4 (2017/164 EU irányelvben közölt érték); N (Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Sulphur dioxide
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.6 mg/m³
	1 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
Italy - Occupational Exposure Limits	
Local name	Anidride solforosa
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	Sēra (IV) oksīds (sēra dioksīds)
OEL TWA	1.3 mg/m³ 0.5 mg/m³ 2.7 mg/m³ 1 mg/m³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2018. gada 10. jūlijā noteikumiem Nr. 407)
Lithuania - Occupational Exposure Limits	
Local name	Sieros dioksidas
IPRV (OEL TWA)	1.3 mg/m³
	0.5 ppm

NRV (OEL C)	2.7 mg/m³
	1 ppm
Remark	Ū (ūmus poveikis)
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Dioxyde de soufre
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm
Regulatory reference	Mémorial A Nº 226 de 2021 concernant la protection de la sécurité et de la santé des salariés contre les risques liés à des agents chimiques sur le lieu de travail
Malta - Occupational Exposure Limits	
Local name	Sulphur dioxide
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Zwaveldioxide
TGG-8u (OEL TWA)	0.7 mg/m³
	0.26 ppm
TGG-15min (OEL STEL)	0.7 mg/m³
	0.26 ppm
Regulatory reference	Arbeidsomstandighedenregeling 2024
Poland - Occupational Exposure Limits	
Local name	Ditlenek siarki
NDS (OEL TWA)	1.3 mg/m³
NDSCh (OEL STEL)	2.7 mg/m³
Regulatory reference	Dz. U. 2018 poz. 1286 wraz z późn. zm.
Portugal - Indicative Occupational Exposure Limit (IOEL)	
Local name	Dióxido de enxofre
IOEL TWA	1.3 mg/m³
	0.5 ppm
IOEL STEL	2.7 mg/m³
	1 ppm

Regulatory reference	Decreto-Lei n.º 1/2021 de 6 de janeiro
Portugal - Occupational Exposure Limits	
Local name	Dióxido de enxofre
OEL STEL	0.25 ppm
Remark	A4 (Agente não classificável como carcinogénico no Homem)
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Dioxid de sulf/Anhidridă sulfuroasă
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Serbia - Occupational Exposure Limits	
Local name	сумпор-диоксид
OEL TWA	1 mg/m³
	1 ppm
OEL STEL	3 mg/m³
	1 ppm
Remark	ЕУ**** – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2017/164/ЕУ (четврта листа)
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
Slovakia - Occupational Exposure Limits	
Local name	Oxid siričitý
NPHV (OEL TWA)	1.3 mg/m³
	0.5 ppm
NPHV (OEL STEL)	2.7 mg/m³
	1 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	žveplov dioksid
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm
Remark	Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), EU

Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Dióxido de azufre
VLA-ED (OEL TWA)	1.32 mg/m³
	0.5 ppm
VLA-EC (OEL STEL)	2.64 mg/m³
	1 ppm
Remark	s (Esta sustancia tiene prohibida total o parcialmente su comercialización y uso como fitosanitario y/o como biocida. Para una información detallada acerca de las prohibiciones consúltese: Base de datos de productos biocidas: http://www.msssi.gob.es/ciudadanos/productos.do?tipo=plaguicidas Base de datos de productos fitosanitarios http://www.magrama.gob.es/agricultura/pags/fitos/registro/fichas/pdf/Lista_sa.pdf).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Svaveldioxid
NGV (OEL TWA)	1.3 mg/m³
	0.5 ppm
KGV (OEL STEL)	2.7 mg/m³
	1 ppm
Remark	45 (Gränsvärdet skyddar inte astamtiker. Studier har visat att astmatiker inte reagerar på exponeringar av svaveldioxid under 0,2 ppm)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Sulphur dioxide
WEL TWA (OEL TWA)	1.3 mg/m³
	0.5 ppm
WEL STEL (OEL STEL)	2.7 mg/m³
	1 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Brennisteinstvíoxíð
OEL TWA	1.3 mg/m³
	0.5 ppm
OEL STEL	2.7 mg/m³
	1 ppm
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 1069/2018)

Norway - Occupational Exposure Limits	
Local name	Svoveldioksid
Grenseverdi (OEL TWA)	1.3 mg/m³
	0.5 ppm
Korttidsverdi (OEL STEL)	2.7 mg/m³
	1 ppm
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet; 18) Enkelte bedrifter vil av teknisk–økonomiske årsaker ikke kunne overholde grenseverdiene. Det er disse bedriftenes ansvar å dokumentere et forsvarlig arbeidsmiljø. Det forutsettes at bedriften(e) har en plan for reduksjon av eksponering og at man kan vise lavere verdier over tid. Arbeidstilsynet, ansatterepresentanter og verneombud skal konsulteres og informeres om årlige planer og oppnådde resultater.
Regulatory reference	FOR-2023-12-18-2278
North Macedonia - Occupational Exposure Limits	
Local name	сулфур диоксид
OEL TWA	1.3 mg/m³
	0.5 ppm
Remark	(Y)
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанци („Службен весник на Република Македонија” бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	Dioxyde de soufre / Schwefeldioxid
MAK (OEL TWA)	1.3 mg/m³
	0.5 ppm
KZGW (OEL STEL)	2.7 mg/m³
	1 ppm
Notation	SS_C / SS_C
Remark	NIOSH, DFG, OSHA
Regulatory reference	www.suva.ch, 01.01.2024

Sulphur dioxide (7446-09-5)	
DNEL: Derived no effect level (Workers)	
Acute - local effects, inhalation	2.7 mg/m³
Long-term - local effects, inhalation	2.7 mg/m³

PNEC (Predicted No-Effect Concentration) : None established.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation.
Product to be handled in a closed system.
Systems under pressure should be regularly checked for leakages.
Ensure exposure is below occupational exposure limits (where available).
Gas detectors should be used when toxic gases may be released.
Consider the use of a work permit system e.g. for maintenance activities.

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.

• Eye/face protection : Wear goggles and a face shield when transfilling or breaking transfer connections.
Standard EN 166 - Personal eye-protection - specifications.
Provide readily accessible eye wash stations and safety showers.

• Skin protection

- Hand protection : Wear working gloves when handling gas containers.
Wear chemically resistant protective gloves.
Standard EN 388 - Protective gloves against mechanical risks, performance level 1 or higher. Recommended types include wrist gloves from leather or synthetic material with equivalent performance, fabric gloves, fabric gloves with leather palms.
Standard EN 511 - Cold insulating gloves, performance level 1 or higher. Recommended types include insulated gauntlets or gloves specifically selected to prevent liquid penetration and ingress of cryogenic liquids and to provide mechanical resistance.
Standard EN 374 - Protective gloves against chemicals.
Chloroprene rubber (CR).

- Other : Keep suitable chemically resistant protective clothing readily available for emergency use.
Standard EN943-1 - Full protective suits against liquid, solid and gaseous chemicals.
Wear safety shoes while handling containers.
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

• 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 with full face mask, where exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting containers.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
Recommended: Filter E (yellow).
Gas filters do not protect against oxygen deficiency.
Standard EN 14387 - Gas filter(s), combined filter(s) and standard EN136, full face masks .
Keep self contained breathing apparatus readily available for emergency use.
Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.

• Thermal hazards : None in addition to the above sections.

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.
Melting point / Freezing point	:	-75.5 °C
Boiling point	:	-10 °C
Flammability	:	Non flammable.

Lower explosion limit	:	Not applicable.
Upper explosion limit	:	Not applicable.
Flash point	:	Not applicable for gases and gas mixtures.
Auto-ignition temperature	:	Non flammable.
Decomposition temperature	:	Not applicable.
pH	:	If dissolved in water pH-value will be affected.
Viscosity, kinematic	:	No reliable data available.
Water solubility [20°C]	:	Completely soluble.
Partition coefficient n-octanol/water (Log Kow)	:	Not applicable for inorganic products.
Vapour pressure [20°C]	:	3.3 bar(a)
Vapour pressure [50°C]	:	8.4 bar(a)
Density and/or relative density	:	Not applicable for gases and gas mixtures.
Relative vapour density (air=1)	:	2.3
Particle characteristics	:	Not applicable for gases and gas mixtures. Nanoforms are not relevant for gases and gas mixtures.

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Flammability Properties	:	Not known.
Oxidising properties	:	No oxidising properties.
Critical temperature [°C]	:	158 °C

9.2.2. Other safety characteristics

Molar mass	:	64 g/mol
Other data	:	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

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

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.
Reacts with water to form corrosive acids.
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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity : Toxic if inhaled.

Sulphur dioxide (7446-09-5)	
LC50 Inhalation - Rat [ppm]	2520 ppm/1h (ADR) 1000 ppm/4h (CLP)

Skin corrosion/irritation : Causes severe skin burns and eye damage.
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitisation : No known effects from this product.
Germ cell mutagenicity : No known effects from this product.
Carcinogenicity : No known effects from this product.
Toxic for reproduction : Fertility : No known effects from this product.
Toxic for reproduction : unborn child : 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.

11.2. Information on other hazards

Other information : Delayed fatal pulmonary oedema possible.
The substance/mixture has no endocrine disrupting properties.

SECTION 12: Ecological information

12.1. Toxicity

Assessment : Classification criteria are not met.
EC50 48h - Daphnia magna [mg/l] : No data available.
EC50 72h - Algae [mg/l] : 48.1 mg/l
LC50 96 h - Fish [mg/l] : No data available.

12.2. Persistence and degradability

Assessment : Not applicable for inorganic products.

12.3. Bioaccumulative potential

Assessment : Product is an inorganic gas with a low potential to bioaccumulate in aquatic species.

12.4. Mobility in soil

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

12.5. Results of PBT and vPvB assessment

Assessment : Not classified as PBT or vPvB.

12.6. Endocrine disrupting properties

Assessment : The substance/mixture has no endocrine disrupting properties.

12.7. Other adverse effects

Other adverse effects : May cause pH changes in aqueous ecological systems.
Effect on the ozone layer : No effect on the ozone layer.
Effect on global warming : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Contact supplier if guidance is required.
Must not be discharged to atmosphere.
Gas may be scrubbed in alkaline solution under controlled conditions to avoid violent reaction.
Ensure that the emission levels from local regulations or operating permits are not exceeded.
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.
Return unused product in original container to supplier.

List of hazardous waste codes (from Commission Decision 2000/532/EC as amended) : 16 05 04 *: Gases in pressure containers (including halons) containing hazardous substances.

13.2. Additional information

External treatment and disposal of waste should comply with applicable local and/or national regulations.

SECTION 14: Transport information

14.1. UN number or ID number

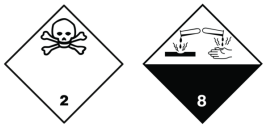
In accordance with ADR / RID / IMDG / IATA / ADN
UN-No. : 1079

14.2. UN proper shipping name

Transport by road/rail/inland waterways (ADR/RID/ADN) : SULPHUR DIOXIDE
Transport by air (ICAO-TI / IATA-DGR) : Sulphur dioxide
Transport by sea (IMDG) : SULPHUR DIOXIDE

14.3. Transport hazard class(es)

Labelling :



2.3 : Toxic gases.
8 : Corrosive substances.

Transport by road/rail/inland waterways (ADR/RID/ADN)
Class : 2
Classification code : 2TC
Hazard identification number : 268
Tunnel Restriction : C/D - Tank carriage: Passage forbidden through tunnels of category C, D and E. Other carriage: Passage forbidden through tunnels of category D and E

Transport by sea (IMDG)
Class / Div. (Sub. risk(s)) : 2.3 (8)
Emergency Schedule (EmS) - Fire : F-C
Emergency Schedule (EmS) - Spillage : S-U

14.4. Packing group

Transport by road/rail/inland waterways (ADR/RID/ADN) : Not applicable.
Transport by air (ICAO-TI / IATA-DGR) : Not applicable.
Transport by sea (IMDG) : Not applicable.

14.5. Environmental hazards

Transport by road/rail/inland waterways (ADR/RID/ADN) : None.

Transport by air (ICAO-TI / IATA-DGR) : None.
Transport by sea (IMDG) : None.

14.6. Special precautions for user

Packing Instruction(s)

Transport by road/rail/inland waterways (ADR/RID/ADN) : P200.
Transport by air (ICAO-TI / IATA-DGR)
Passenger and Cargo Aircraft : Forbidden.
Cargo Aircraft only : Forbidden.
Transport by sea (IMDG) : P200.

Special transport precautions : 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 there is adequate ventilation.
- Ensure that containers are firmly secured.
- Ensure 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.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

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

EU-Regulations

Restrictions on use : None.
Other information, restriction and prohibition regulations : Not listed on the PIC list (Regulation EU 649/2012).
Seveso Directive : 2012/18/EU (Seveso III) : Covered.

National regulations

Water hazard class (WGK) : 1 - Slightly hazardous to water.
Kenn-Nr. : 416
Regulatory reference : Ensure all national/local regulations are observed.

15.2. Chemical safety assessment

A CSA has been carried out.

SECTION 16: Other information

Indication of changes : Safety data sheet in accordance with commission regulation (EU) No 2020/878.

Abbreviations and acronyms : ATE - Acute Toxicity Estimate.
CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008.
REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
EINECS - European Inventory of Existing Commercial Chemical Substances.
CAS# - Chemical Abstract Service number.
PPE - Personal Protection Equipment.
LC50 - Lethal Concentration to 50 % of a test population.
RMM - Risk Management Measures.
PBT - Persistent, Bioaccumulative and Toxic.
vPvB - Very Persistent and Very Bioaccumulative.
STOT- SE : Specific Target Organ Toxicity - Single Exposure.
CSA - Chemical Safety Assessment.
EN - European Standard.
UN - United Nations.
ADR - Agreement concerning the International Carriage of Dangerous Goods by Road.
IATA - International Air Transport Association.
IMDG code - International Maritime Dangerous Goods.
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail.
WGK - Water Hazard Class.
STOT - RE : Specific Target Organ Toxicity - Repeated Exposure.
UFI : Unique Formula Identifier.

Training advice : Users of breathing apparatus must be trained.
Ensure operators understand the toxicity hazard.

Further information : Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).
Key literature references and sources of data are maintained in EIGA doc 169 : 'Classification and Labelling Guide', downloadable at http://www.Eiga.eu .

Full text of H- and EUH-statements	
Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Press. Gas (Liq.)	Gases under pressure : Liquefied gas
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
STOT SE 1	Specific target organ toxicity – single exposure, Category 1
STOT SE 2	Specific target organ toxicity – Single exposure, Category 2
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.
H370	Causes damage to organs.
H371	May cause damage to organs.
EUH071	Corrosive to the respiratory tract.

DISCLAIMER OF LIABILITY : Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.
Details given in this document are believed to be correct at the time of going to press.
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.

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