Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name • **Sulfur Dioxide**

CAS Number • 7446-09-5

Product Code • 20152; 60095; MSDS No: 7446-09-5/E-7

EC Number • 231-195-2

Molecular Formula • :O 2:S 1:

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

Relevant identified use(s) • Calibration Gas

1.3 Details of the supplier of the safety data sheet

Manufacturer • Air Liquide

2700 Post Oak Blvd.
Houston, TX 77056
United States
www.us.airliquide.com
sds@airliquide.com

Telephone (Technical) • 713-896-2896

Telephone (Technical) • 800-819-1704

1.4 Emergency telephone number

Manufacturer • 800-424-9300 - CHEMTREC

Manufacturer • +1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

According to EU Directive 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP • Liquefied Gas - H280
Skin Corrosion 1B - H314
Acute Toxicity Inhalation 3 - H331

DSD/DPD • Corrosive (C)
Toxic (T)
R23, R34

2.2 Label Elements

CLP

DANGER

Hazard statements
- H280 - Contains gas under pressure; may explode if heated
H314 - Skin Corrosion 1B
H331 - Toxic if inhaled

Precautionary statements

Prevention
- P202 - Do not handle until all safety precautions have been read and understood.
P233 - Keep container tightly closed.
P261 - Avoid breathing dust, fume, gas, mist, vapours and/or spray.
P264 - Wash thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P281 - Use personal protective equipment as required.

Response
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P322 - Specific measures, see supplemental first aid information.

Storage/Disposal
- P410+P403 - Protect from sunlight. Store in a well-ventilated place.
P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD

Risk phrases
- R23 - Toxic by inhalation.
R34 - Causes burns.

Safety phrases
- S36 - Wear suitable protective clothing.
S37 - Wear suitable gloves.
S39 - Wear eye/face protection.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3 Other Hazards

CLP
- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD
- According to European Directive 1999/45/EC this preparation is considered dangerous.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012
- Liquefied Gas - H280
Skin Corrosion 1 - H314
Serious Eye Damage 1 - H318
Acute Toxicity Inhalation 3 - H331
Germ Cell Mutagenicity 2 - H341
Reproductive Toxicity 2 - H361

2.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements

- Contains gas under pressure; may explode if heated - H280
  Causes severe skin burns and eye damage - H314
  Causes serious eye damage - H318
  Toxic if inhaled - H331
  Suspected of causing genetic defects. - H341
  Suspected of damaging fertility or the unborn child. - H361

Precautionary statements

Prevention

- Obtain special instructions before use. - P201
  Do not handle until all safety precautions have been read and understood. - P202
  Keep container tightly closed. - P233
  Avoid breathing dust, fume, gas, mist, vapours and/or spray. - P261
  Wash thoroughly after handling. - P264
  Do not eat, drink or smoke when using this product. - P270
  Use only outdoors or in a well-ventilated area. - P271
  Wear protective gloves/protective clothing/eye protection/face protection. - P280

Response

- IF INHALED: Remove victim to fresh air and keep at rest in a position 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
  IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. - P303+P361+P353
  IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. - P301+P310
  Specific measures, see supplemental first aid information. - P322

Storage/Disposal

- Protect from sunlight. Store in a well-ventilated place. - P410+P403
  Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

2.3 Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Compressed Gas - A
  Very Toxic - D1A
  Other Toxic Effects - D2B
  Corrosive - E

2.2 Label elements

WHMIS

- Compressed Gas - A
  Very Toxic - D1A
  Other Toxic Effects - D2B
  Corrosive - E

2.3 Other hazards

WHMIS

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

2.4 Other information

NFPA

Section 3 - Composition/Information on Ingredients

3.1 Substances

Hazardous Components					
Chemical Name	**Identifiers**	**%(weight)**	**LD50/LC50**	**Classifications According to Regulation/Directive**	**Comments**
Sulfur dioxide	**CAS:**7446-09-5 **EC Number:**231-195-2	100%	Inhalation-Rat LC50 • 2168 mg/m³	**EU DSD/DPD:** T; R23, C; R34 **EU CLP:** Pressurized Liquefied Gas - H280; Acute Tox. 3 (inh) - H331; Skin Corrosion 1B - H314 **OSHA HCS 2012:** Pressurized Liquefied Gas; Muta. 2; Acute Tox 3 (inh); Repr. 2; Skin Corr. 1; Eye Dam. 1	NDA

3.2 Mixtures

- Material does not meet the criteria of a mixture.

See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

Skin

- Although exposure is unlikely, in case of contact immediately flush skin with running water. If skin irritation develops get medical advice/attention.

Eye

- First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. Get medical attention immediately if symptoms occur. Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye.

Ingestion

- Never give anything by mouth to an unconscious person. Do NOT induce vomiting. First aid is not expected to be necessary if material is used under ordinary conditions and as recommended.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials

other than this product may have occurred.

4.4 Other information

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO GASES WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn. Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media

- Use extinguishing agent suitable for type of surrounding fire.
  SMALL FIRES: Dry chemical or CO2.
  LARGE FIRES: Water spray or fog.

Unsuitable Extinguishing Media

- No data available

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- TOXIC; may be fatal if inhaled, ingested or absorbed through skin.
  Vapors are extremely irritating and corrosive.
  Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices.
  Containers may explode when heated.
  Ruptured cylinders may rocket.

Hazardous Combustion Products

- No data available

5.3 Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
  Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.
  Wear positive pressure self-contained breathing apparatus (SCBA).
  Move containers from fire area if you can do it without risk.
  FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.
  FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
  FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out.
  FIRE INVOLVING TANKS: Do not direct water at source of leak or safety devices; icing may occur.
  FIRE INVOLVING TANKS: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
  FIRE INVOLVING TANKS: ALWAYS stay away from tanks engulfed in fire.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Self contained breathing apparatus and fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch or walk through spilled material. Ventilate the area before entry.

Emergency Procedures

- Stop leak if you can do it without risk. Keep unauthorized personnel away. Keep out of low areas. Stay upwind. Do not direct water at spill or source of leak. LARGE SPILL: Consider initial downwind evacuation for at least 500 meters (1/3 mile)

6.2 Environmental precautions

- Prevent spreading of vapors through sewers, ventilation systems and confined areas.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Stop leak if you can do it without risk.
  Do not direct water at spill or source of leak.
  Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.
  If possible, turn leaking containers so that gas escapes rather than liquid.
  Isolate area until gas has dispersed.
  Ventilate the area.
  Allow substance to evaporate.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Use only with adequate ventilation. Ventilate closed spaces before entering. Be aware of any signs of dizziness or fatigue, especially if work is done in a poorly ventilated area; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to olfactory fatigue or oxygen deficiency. Cylinders should be firmly secured to prevent falling or being knocked-over. Do not attempt to repair, adjust, or in any other way modify cylinders. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Empty containers retain product residue and can be hazardous. Do not cut, weld, puncture or incinerate container.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Store in a cool, dry, well-ventilated place. Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines						
	Result	**ACGIH**	**Canada Ontario**	**Canada Quebec**	**China**	**France**
Sulfur dioxide (7446-09-5)	STELs	0.25 ppm STEL	5 ppm STEL; 10.4 mg/m3 STEL	5 ppm STEV; 13 mg/m3 STEV	10 mg/m3 STEL	5 ppm STEL [VLCT]; 10 mg/m3 STEL [VLCT]
	TWAs	Not established	2 ppm TWA; 5.2 mg/m3 TWA	2 ppm TWAEV; 5.2 mg/m3 TWAEV	5 mg/m3 TWA	2 ppm TWA [VME]; 5 mg/m3 TWA [VME]

Exposure Limits/Guidelines (Con't.)						
	Result	**Germany DFG**	**Germany TRGS**	**Ireland**	**Israel**	**NIOSH**
	STELs	Not established	Not established	1 ppm STEL; 2.6 mg/m3 STEL	0.25 ppm STEL	5 ppm STEL; 13 mg/m3 STEL

Sulfur dioxide (7446-09-5)	TWAs	Not established	1 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 1); 2.5 mg/m3 TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 1)	0.5 ppm TWA; 1.3 mg/m3 TWA	Not established	2 ppm TWA; 5 mg/m3 TWA
	Ceilings	0.5 ppm Peak; 1.3 mg/m3 Peak	Not established	Not established	Not established	Not established
	MAKs	0.5 ppm TWA MAK; 1.3 mg/m3 TWA MAK	Not established	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)

	Result	OSHA	Portugal	Singapore	Spain	Sweden
Sulfur dioxide (7446-09-5)	STELs	Not established	5 ppm STEL [VLE-CD	5 ppm STEL; 13 mg/m3 STEL	5 ppm STEL [VLA-EC]; 13 mg/m3 STEL [VLA-EC]	Not established
	TWAs	5 ppm TWA; 13 mg/m3 TWA	2 ppm TWA [VLE-MP]	2 ppm PEL; 5.2 mg/m3 PEL	2 ppm TWA [VLA-ED] (it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary o biocide compound); 5.3 mg/m3 TWA [VLA-ED] (it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary o biocide compound)	2 ppm LLV; 5 mg/m3 LLV
	Ceilings	Not established	Not established	Not established	Not established	5 ppm CLV; 13 mg/m3 CLV

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use explosion-proof - electrical, ventilating and/or lighting equipment.

Personal Protective Equipment

Respiratory

- Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear safety glasses.

Skin/Body

- Wear leather gloves when handling cylinders.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene
LLV = Limit Level Value is the exposure limit for 8-hour work day
MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration
STEL = Short Term Exposure Limits are based on 15-minute exposures
TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures
TWAEV = Time-Weighted Average Exposure Value
VLA-EC = Valor Límite Ambiental Exposición de Corta Duración is the short-term exposure limit based on 15-minute exposure
VLA-ED = Valor Límite Ambiental Exposición Diaria is the limit for the daily average concentration
VME = Valeur Moyenne d'Exposition is the maximum permissible concentration for a work day

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Data lacking
Color	Colorless	Odor	Pungent
Odor Threshold	0.33 to 5 ppm (detection)		
General Properties			
Boiling Point	-10 C(14 F)	Melting Point	Data lacking
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	1.5 Water=1	Water Solubility	Data lacking Soluble
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	34.4 psig @ 21.1 C(69.98 F)	Vapor Density	2.1 Air=1
Evaporation Rate	Data lacking	VOC (Wt.)	Data lacking
VOC (Vol.)	Data lacking	Volatiles (Wt.)	Data lacking
Volatiles (Vol.)	Data lacking		
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- In some cases, Sulfur Dioxide behaves as both a reducing and oxidizing agent (metals such as tin, iron and magnesium burn in sulfur dioxide to form mixed sulfides and oxides). No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Avoid exposing cylinders to extremely high temperatures, which could cause cylinders to rupture.

10.5 Incompatible materials

- Avoid aluminum, cesium oxide, chlorates, chromium, iron oxide, fluorine, manganese, potassium chlorate, sodium, tin oxide, bases, oxidizing materials, unsaturated organics. Will react with water or steam to produce toxic and corrosive fumes.

10.6 Hazardous decomposition products

- Sulfur trioxide. Sulfur dioxide dissolves in water to form corrosive sulfuric acid.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Sulfur Dioxide 7446-09-5								
Test Type	**Dosage**	**Route**	**Species**	**Duration**	**Results**	**Test Class**	**Target Organs**	**Comments**
Acute Toxicity	= 2520 ppm	Inhalation	Rat	1 Hour(s)	LC50	NDA	NDA	NDA

Component Name	CAS	Data
Impurities, Stabilizers, etc...		
Sulfur dioxide (100%)	7446-09-5	**Acute Toxicity:** ihl-rat LC50:2168 mg/m3; **Irritation:** eye-rbt 6 ppm/32D MLD; **Mutagen:** dna-rat-ihl 72 mg/kg/300D-I; **Reproductive:** ihl-rat TCLo:30 ppm/6H (21W male); **Tumorigen/Carcinogen:** ihl-rat TCLo:72 mg/kg/300D-I

GHS Properties	Classification
Acute toxicity	**EU/CLP** • Acute Toxicity 3 (Inhalation) **OSHA HCS 2012** • Acute Toxicity 3 (Inhalation)
Aspiration Hazard	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
Carcinogenicity	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
Germ Cell Mutagenicity	**EU/CLP** • Data lacking **OSHA HCS 2012** • Germ Cell Mutagenicity 2
Skin corrosion/Irritation	**EU/CLP** • Skin Corrosion 1B **OSHA HCS 2012** • Skin Corrosion 1
Skin sensitization	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
STOT-RE	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
STOT-SE	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
Toxicity for Reproduction	**EU/CLP** • Data lacking **OSHA HCS 2012** • Toxic to Reproduction 2

Respiratory sensitization	**EU/CLP** • Data lacking **OSHA HCS 2012** • Data lacking
Serious eye damage/Irritation	**EU/CLP** • Serious Eye Damage 1 **OSHA HCS 2012** • Serious Eye Damage 1

Potential Health Effects

Inhalation

Acute (Immediate)
- Toxic by inhalation.

Chronic (Delayed)
- No data available

Skin

Acute (Immediate)
- Causes severe skin damage.

Chronic (Delayed)
- No data available

Eye

Acute (Immediate)
- Causes serious eye damage.

Chronic (Delayed)
- No data available

Ingestion

Acute (Immediate)
- No data available

Chronic (Delayed)
- Ingestion is not anticipated to be a likely route of exposure to this product.

Mutagenic Effects
- Based on studies in rats sulfur dioxide may cause mutagenic effects upon prolonged and repeated exposure.

Reproductive Effects
- Based on studies in mice and rabbits, sulfur dioxide may cause developmental effects.

Key to abbreviations

LC = Lethal Concentration
MLD = Mild
TC = Toxic Concentration

Section 12 - Ecological Information

12.1 Toxicity

- No data available

12.2 Persistence and degradability

- No data available

12.3 Bioaccumulative potential

- No information is available on possible bioconcentration of sulfur dioxide.

12.4 Mobility in Soil

- Sulfur Dioxide uptake is dependent upon soil pH and moisture content.

12.5 Results of PBT and vPvB assessment

- PBT and vPvB assessment has not been conducted for this material.

12.6 Other adverse effects

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1079	Sulfur dioxide	2.3,8	NDA	NDA
TDG	UN1079	SULFUR DIOXIDE	2.3,8	NDA	NDA
IMO/IMDG	UN1079	SULPHUR DIOXIDE	2.3,8	NDA	NDA
IATA/ICAO	UN1079	Sulphur Dioxide	2.3,8	NDA	NDA

14.6 Special precautions for user
- Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
- Not relevant.

Section 15 - Regulatory Information

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

SARA Hazard Classifications
- Acute, Pressure(Sudden Release of)

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Sulfur dioxide	NDA	No	No	No

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Sulfur dioxide	NDA	No	No	No	No	No

Inventory (Con't.)			
Component	**CAS**	**Japan ENCS**	**TSCA**
Sulfur dioxide	NDA	No	No

Australia

Environment

Australia - National Pollutant Inventory (NPI) Substance List

• Sulfur dioxide	7446-09-5	100%	10 tonne/yr Threshold category 1; 400 tonne/yr Threshold category 2a; 1 tonne/h Threshold category 2a; 2000 tonne/yr Threshold category 2b; 60000 MWH Threshold category 2b; 20 MW Threshold category 2b

—

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Sulfur dioxide 7446-09-5 100% A, D1A, D2B, E

Canada - WHMIS - Ingredient Disclosure List

• Sulfur dioxide 7446-09-5 100% 1 %

Environment

Canada - CEPA - Priority Substances List

• Sulfur dioxide 7446-09-5 100% Not Listed

—

China

Environment

China - Ozone Depleting Substances - First Schedule

• Sulfur dioxide 7446-09-5 100% Not Listed

China - Ozone Depleting Substances - Second Schedule

• Sulfur dioxide 7446-09-5 100% Not Listed

China - Ozone Depleting Substances - Third Schedule

• Sulfur dioxide 7446-09-5 100% Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

• Sulfur dioxide 7446-09-5 100% Not Listed

China - Dangerous Goods List

- Sulfur dioxide 7446-09-5 100% UN1079

China - Export Control List - Part I Chemicals

- Sulfur dioxide 7446-09-5 100% Not Listed

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

- Sulfur dioxide 7446-09-5 100% T; R23 C; R34

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

- Sulfur dioxide 7446-09-5 100% 20%<=C: T; R23 5%<=C<20%: Xn; R20

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

- Sulfur dioxide 7446-09-5 100% T R:23-34 S:(1/2)-9-26-36/37/39-45

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

- Sulfur dioxide 7446-09-5 100% 5

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases

- Sulfur dioxide 7446-09-5 100% S:(1/2)-9-26-36/37/39-45

Germany

Environment

Germany - TA Luft - Types and Classes

- Sulfur dioxide 7446-09-5 100% inorganic gas Substance: 5.2.4, Class IV

Germany - Water Classification (VwVwS) - Annex 1

- Sulfur dioxide 7446-09-5 100% Not Listed

Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes

- Sulfur dioxide 7446-09-5 100% ID Number 416, hazard class 1 - low hazard to waters (footnote 8)

Germany - Water Classification (VwVwS) - Annex 3

- Sulfur dioxide 7446-09-5 100% Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

- Sulfur dioxide 7446-09-5 100% Not Listed

Portugal

Other

Portugal - Prohibited Substances

- Sulfur dioxide 7446-09-5 100% Not Listed

United Kingdom

Environment

United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air

- Sulfur dioxide 7446-09-5 100% 0 kg (required only from sites affected by the LCPD)

United Kingdom - Substances Contained in Dangerous Substances or Preparations

- Sulfur dioxide 7446-09-5 100% Not Listed

Other

United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review

- Sulfur dioxide 7446-09-5 100% Not Listed

United Kingdom - The Red List - Dangerous Substances in Water

- Sulfur dioxide 7446-09-5 100% Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

- Sulfur dioxide 7446-09-5 100% 1000 lb TQ (liquid)

U.S. - OSHA - Specifically Regulated Chemicals

- Sulfur dioxide 7446-09-5 100% Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

- Sulfur dioxide 7446-09-5 100% Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

- Sulfur dioxide 7446-09-5 100% Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

- Sulfur dioxide 7446-09-5 100% 500 lb EPCRA RQ

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

- Sulfur dioxide 7446-09-5 100% 500 lb TPQ

U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII

- Sulfur dioxide 7446-09-5 100% Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261

- Sulfur dioxide 7446-09-5 100% Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

- Sulfur dioxide 7446-09-5 100% Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

- Sulfur dioxide 7446-09-5 100% developmental toxicity, initial date 7/29/11

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

- Sulfur dioxide 7446-09-5 100% Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

- Sulfur dioxide 7446-09-5 100% Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

- Sulfur dioxide 7446-09-5 100%

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

- Sulfur dioxide 7446-09-5 100% Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date	• 04/February/2013
Preparation Date	• 04/February/2013
Disclaimer/Statement of Liability	• To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.