

SECTION 1: Identification

1.1. Identification

Product form : Substance
 Substance name : Carbon Disulfide
 CAS No : 75-15-0
 Product code : SG-1001-00054
 Formula : CS₂

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

Use of the substance/mixture : Laboratory chemicals

1.3. Details of the supplier of the safety data sheet

Air Liquide
 9811 Katy Freeway, Suite 100
 Houston, TX 77024 - USA
 T 1-800-819-1704
www.us.airliquide.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Flam. Liq. 2	H225 -	Highly flammable liquid and vapour
Acute Tox. 4 (Inhalation:gas)	H332 -	Harmful if inhaled
Skin Irrit. 2	H315 -	Causes skin irritation
Eye Irrit. 2A	H319 -	Causes serious eye irritation
Repr. 2	H361 -	Suspected of damaging fertility or the unborn child
STOT RE 1	H372 -	Causes damage to organs (central nervous system, peripheral nervous system, cardiovascular system, kidneys, liver) through prolonged or repeated exposure (Inhalation)
Asp. Tox. 1	H304 -	May be fatal if swallowed and enters airways

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :

- H225 - Highly flammable liquid and vapor
- H304 - May be fatal if swallowed and enters airways
- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H332 - Harmful if inhaled
- H361 - Suspected of damaging fertility or the unborn child
- H372 - Causes damage to organs (central nervous system, peripheral nervous system, cardiovascular system, kidneys, liver) through prolonged or repeated exposure (Inhalation)
- CGA-HG04 - May form explosive mixtures with air
- CGA-HG16 - Extended exposure to gas reduces the ability to smell sulfides.

Precautionary statements (GHS-US) :

- P202 - Do not handle until all safety precautions have been read and understood
- P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
- P260 - Do not breathe gas
- P271 - Use only outdoors or in a well-ventilated area
- P280 - Wear eye protection, face protection, protective gloves, protective clothing
- P301+P310 - If swallowed: Immediately call a doctor

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P302+P352 - If on skin: Wash with plenty of water
P304+P340 - If inhaled: Remove person to fresh air and keep 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
P308+P313 - If exposed or concerned: Get medical advice/attention
P331 - Do NOT induce vomiting
P362 - Take off contaminated clothing and wash it before reuse
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely
P381 - Eliminate all ignition sources if safe to do so
P403 - Store in a well-ventilated place
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)
CGA-PG05 - Use a back flow preventive device in the piping
CGA-PG14 - Approach suspected leak area with caution
CGA-PG29 - Do not depend on odor to detect presence of gas

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substance

Substance type : Mono-constituent

Name	Product identifier	%	GHS-US classification
Carbon Disulfide (Main constituent)	(CAS No) 75-15-0	> 99.9	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation:gas), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Repr. 2, H361 STOT RE 1, H372 Asp. Tox. 1, H304

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.
First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation occurs, seek medical attention.
First-aid measures after ingestion : Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

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

Symptoms/injuries after inhalation : Harmful if inhaled.
Symptoms/injuries after skin contact : Causes skin irritation.
Symptoms/injuries after eye contact : Causes serious eye irritation.
Symptoms/injuries after ingestion : May be fatal if swallowed and enters airways.
Symptoms/injuries upon intravenous administration : Not known.
Chronic symptoms : Suspected of damaging fertility. Suspected of damaging the unborn child. Causes damage to organs (central nervous system, peripheral nervous system, cardiovascular system, kidneys, liver) through prolonged or repeated exposure (Inhalation).

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

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : This product is flammable.
- Explosion hazard : Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
- Reactivity : None known.

5.3. Advice for firefighters

- Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.
- Protection during firefighting : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Ensure adequate ventilation.

6.1.1. For non-emergency personnel

- Protective equipment : Wear protective equipment consistent with the site emergency plan.
- Emergency procedures : Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

6.1.2. For emergency responders

- Protective equipment : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.
- Emergency procedures : Evacuate and limit access. Ventilate area. Remove ignition sources. Monitor concentration of released product. Consider the risk of potentially explosive atmospheres. Wear self-contained breathing apparatus when entering atmospheres of unknown contaminant concentration until proven to be safe.

6.2. Environmental precautions

- Try to stop release if safe to do so.

6.3. Methods and material for containment and cleaning up

- For containment : Try to stop release if safe to do so.
- Methods for cleaning up : Dispose of this material and its container in accordance with local regulations.

6.4. Reference to other sections

- See also Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Handle empty containers with care because residual vapors are flammable. In use, may form flammable vapor-air mixture.
- Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Use only non-sparking tools.
- Hygiene measures : Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed.
- Storage conditions : Keep container closed when not in use. Keep cool. Store in well ventilated area. Store locked up.
- Incompatible products : None known.
- Incompatible materials : Oxidizing agent. Air. Alkali metals. Amines.

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Carbon Disulfide (75-15-0)		
ACGIH	ACGIH TWA (ppm)	1 ppm
OSHA	OSHA PEL (TWA) (ppm)	20 ppm
OSHA	OSHA PEL (Ceiling) (ppm)	30 ppm

8.2. Exposure controls

Appropriate engineering controls	: Ensure exposure is below occupational exposure limits. Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities.
Hand protection	: Wear chemically resistant protective gloves. 29 CFR 1910.138: Hand Protection.
Eye protection	: Wear safety glasses with side shields. 29 CFR 1910.133: Eye and Face Protection.
Skin and body protection	: Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.
Respiratory protection	: None necessary during normal and routine operations. See Sections 5 & 6.
Thermal hazard protection	: None necessary during normal and routine operations.
Environmental exposure controls	: Refer to local regulations for restrictions on release of emissions to the atmosphere.
Other information	: Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear liquid.
Color	: Colorless to pale yellow
Odor	: Sulfide-like stench
Odor threshold	: No data available
pH	: No data available
Melting point	: -111.6 °C
Freezing point	: No data available
Boiling point	: 46.85 °C
Critical temperature	: 279.85 °C
Flash point	: -30 °C
Relative evaporation rate (butyl acetate=1)	: 22.6
Flammability (solid, gas)	: See Section 2.1 and 2.2
Explosion limits	: 1.3 vol %
Explosive properties	: Without adequate ventilation formation of explosive mixtures may be possible.
Oxidizing properties	: None.
Vapor pressure	: 410 mbar (5.9508 psi)
Relative density	: No data available
Relative vapor density at 20 °C	: 2.67
Specific gravity / density	: 1.26 g/cm³ (at 20 °C)
Molecular mass	: 76.13 g/mol
Relative gas density	: Heavier than air
Solubility	: Water: 2.1 g/l
Log Pow	: No data available
Auto-ignition temperature	: 90 °C
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

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9.2. Other information

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

SECTION 10: Stability and reactivity

10.1. Reactivity

None known.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Can form explosive mixture with air.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Oxidizing agent. Air. Alkali metals. Amines.

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 : Inhalation:gas: Harmful if inhaled.

Carbon Disulfide (75-15-0)	
LD50 oral rat	3188 mg/kg
LC50 inhalation rat (ppm)	5676.52 ppm/4h
ATE US (oral)	500.000 mg/kg body weight
ATE US (gases)	5676.520 ppmV/4h

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Suspected of damaging fertility or the unborn child.
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Causes damage to organs (central nervous system, peripheral nervous system, cardiovascular system, kidneys, liver) through prolonged or repeated exposure (Inhalation).
Aspiration hazard	: May be fatal if swallowed and enters airways.
Symptoms/injuries after inhalation	: Harmful if inhaled.
Symptoms/injuries after skin contact	: Causes skin irritation.
Symptoms/injuries after eye contact	: Causes serious eye irritation.
Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways.
Symptoms/injuries upon intravenous administration	: Not known.
Chronic symptoms	: Suspected of damaging fertility. Suspected of damaging the unborn child. Causes damage to organs (central nervous system, peripheral nervous system, cardiovascular system, kidneys, liver) through prolonged or repeated exposure (Inhalation).

SECTION 12: Ecological information

12.1. Toxicity

Carbon Disulfide (75-15-0)	
LC50 fish 1	3 - 5.8 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [semi-static])
EC50 Daphnia 1	2.1 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	4 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [static])

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12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Carbon Disulfide (75-15-0)

BCF fish 1	4.3 - 8
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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on ozone layer : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Contact supplier if guidance is required. Disposal through controlled incineration or authorized waste dump. Ensure that the emission levels from local regulations or operating permits are not exceeded.

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1131 Carbon disulfide, 3, I

UN-No.(DOT) : UN1131

Proper Shipping Name (DOT) : Carbon disulfide

Transport hazard class(es) (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Hazard labels (DOT) : 3 - Flammable liquid
6.1 - Poison inhalation hazard



Packing group (DOT) : I - Great Danger

DOT Packaging Non Bulk (49 CFR 173.xxx) : 201

DOT Packaging Bulk (49 CFR 173.xxx) : 243

DOT Special Provisions (49 CFR 172.102) : B16 - The lading must be completely covered with nitrogen, inert gas or other inert materials.
T14 - 6 mm Prohibited 178.275(g)(3).
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
TP7 - The vapor space must be purged of air by nitrogen or other means.
TP13 - Self-contained breathing apparatus must be provided when this hazardous material is transported by sea.

DOT Packaging Exceptions (49 CFR 173.xxx) : None

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : Forbidden

DOT Vessel Stowage Location : D - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.

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DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters", 78 - Stow "separated longitudinally by an intervening complete compartment or hold from" explosives, 115 - If packaged in glass or earthenware inner packaging in wooden or fiberboard outer packaging, the maximum quantity on any vessel is 500 kg (equivalent to 450 L)
Emergency Response Guide (ERG) Number	: 131
Other information	: No supplementary information available.

TDG

Transport document description	: UN1131 CARBON DISULFIDE (CARBON DISULFIDE), 3, I
UN-No. (TDG)	: UN1131
TDG Proper Shipping Name	: CARBON DISULFIDE
TDG Primary Hazard Classes	: 3 - Class 3 - Flammable Liquids
Packing group	: I - Great Danger
TDG Subsidiary Classes	: 6.1
ERAP Index	: 1 000
Explosive Limit and Limited Quantity Index	: 0
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	: Forbidden
Passenger Carrying Ship Index	: Forbidden

Transport by sea

UN-No. (IMDG)	: UN1131
Proper Shipping Name (IMDG)	: CARBON DISULFIDE
Class (IMDG)	: 3 - Flammable liquids
Packing group (IMDG)	: I - substances presenting high danger

Air transport

UN-No. (IATA)	: Forbidden
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SECTION 15: Regulatory information

15.1. US Federal regulations

Carbon Disulfide (75-15-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302 Subject to reporting requirements of United States SARA Section 313	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.
SARA Section 302 Threshold Planning Quantity (TPQ)	10000
SARA Section 313 - Emission Reporting	1.0 %

15.2. International regulations

CANADA

Carbon Disulfide (75-15-0)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations

No additional information available

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National regulations

Carbon Disulfide (75-15-0)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Poisonous and Deleterious Substances Control Law
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on the Canadian IDL (Ingredient Disclosure List)

15.3. US State regulations

Carbon Disulfide (75-15-0)

U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Yes
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

- Indication of changes : Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.
- Other information : This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

Full text of H-phrases:

Acute Tox. 4 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 4
Asp. Tox. 1	Aspiration hazard Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 2	Flammable liquids Category 2
Repr. 2	Reproductive toxicity Category 2
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
H225	Highly flammable liquid and vapor
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H319	Causes serious eye irritation
H332	Harmful if inhaled
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure

SDS US (GHS HazCom 2012)

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