

# Material Safety Data Sheet



Carbon Disulfide

## Section 1. Chemical product and company identification

<b>Product Name</b>	: Carbon Disulfide
<b>Supplier</b>	: AIRGAS INC., on behalf of its subsidiaries 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
<b>Synonym</b>	: carbon bisulfide; carbon bisulfide (dot); carbon bisulphide; carbon disulfide (dot); carbon disulphide; carbone (sufure de) (french); carbonio (solfuro di) (italian); carbon sulfide; dithiocarbonic anhydride; kohlendisulfid (schwefelkohlenstoff) (german); koolstofdisulfide (zwavelkoolstof) (dutch); nci-c04591; schwefelkohlenstoff (german); sulphocarbonic anhydride; weeviltox; wegla dwusiarczek (polish)
<b>MSDS#</b>	: 001113
<b>Date of Preparation/Revision</b>	: <b>9/28/2006.</b>
<b>In case of emergency</b>	: 1-866-734-3438

## Section 2. Hazards identification

<b>Physical state</b>	: Liquid. (COLORLESS TO YELLOW WATERY LIQUID WITH A SWEET ETHER-LIKE ODOR. [NOTE: REAGENT GRADES ARE FOUL SMELLING, LIKE ROTTEN EGGS])
<b>Emergency overview</b>	: Danger! HIGHLY FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, REPRODUCTIVE SYSTEM, LIVER, PERIPHERAL NERVOUS SYSTEM, CARDIOVASCULAR SYSTEM, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA. VAPOR MAY CAUSE FLASH FIRE. MAY BE HARMFUL IF SWALLOWED. Do not ingest. Avoid contact with skin and clothing. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
<b>Routes of entry</b>	: Dermal contact. Eye contact.
<b>Potential acute health effects</b>	
<b>Eyes</b>	: Irritating to eyes.
<b>Skin</b>	: Irritating to skin.
<b>Inhalation</b>	: Irritating to respiratory system.
<b>Ingestion</b>	: Harmful if swallowed.
<b>Potential chronic health effects</b>	: <b>CARCINOGENIC EFFECTS</b> Not available. <b>MUTAGENIC EFFECTS</b> Not available. <b>TERATOGENIC EFFECTS</b> : Classified 3 by European Union.
<b>Medical conditions aggravated by overexposure</b>	: Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
See toxicological Information (section 11)	

## Section 3. Composition, Information on Ingredients

United States

Exposure limits

## Carbon Disulfide

Carbon disulphide

75-15-0

100

**ACGIH TLV (United States, 1/2004). Skin Notes: Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Substances for which there is a Biological Exposure Index or Indices**

TWA: 31 mg/m<sup>3</sup> 8 hour(s). Form: All forms

TWA: 10 ppm 8 hour(s). Form: All forms

**NIOSH REL (United States, 12/2001). Skin**

STEL: 30 mg/m<sup>3</sup> 15 minute(s). Form: All forms

STEL: 10 ppm 15 minute(s). Form: All forms

TWA: 3 mg/m<sup>3</sup> 10 hour(s). Form: All forms

TWA: 1 ppm 10 hour(s). Form: All forms

**OSHA PEL Z2 (United States, 8/1997).**

AMP: 100 ppm 30 minute(s). Form: All forms

CEIL: 30 ppm Form: All forms

TWA: 20 ppm 8 hour(s). Form: All forms

## Section 4. First aid measures

- Eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
- Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

## Section 5. Fire fighting measures

- Flammability of the product** : Flammable.
- Auto-ignition temperature** : 90°C (194°F)
- Flash point** : Closed cup: -30.15°C (-22.3°F).
- Flammable limits** : Lower: 1.3% Upper: 50%
- Products of combustion** : These products are carbon oxides (CO, CO<sub>2</sub>), sulfur oxides (SO<sub>2</sub>, SO<sub>3</sub>...).
- Fire hazards in presence of various substances** : Highly flammable in presence of oxidizing materials.
- Fire fighting media and instructions** : In case of fire, use water spray (fog), foam, dry chemicals, or CO<sub>2</sub>.
- Highly flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
- Special protective equipment for fire-fighters** : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

## Section 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Do not touch or walk through spilled material.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Carbon Disulfide

- Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

## Section 7. Handling and storage

- Handling** : Do not ingest. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling.
- Storage** : Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

## Section 8. Exposure Controls, Personal Protection

- Engineering controls** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.

### Personal protection

- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Personal protection in case of a large spill** : Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Product name

#### United States

Carbon disulphide

### Exposure limits

**ACGIH TLV (United States, 1/2004). Skin Notes: Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Substances for which there is a Biological Exposure Index or Indices**

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CEIL: 30 ppm Form: All forms

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## Carbon Disulfide

### Section 9. Physical and chemical properties

<b>Physical state</b>	: Liquid. (COLORLESS TO YELLOW WATERY LIQUID WITH A SWEET ETHER-LIKE ODOR. [NOTE: REAGENT GRADES ARE FOUL SMELLING, LIKE ROTTEN EGGS])
<b>Odor</b>	: LIKE THAT OF DECAYING CABBAGE
<b>Molecular weight</b>	: 76.13 g/mole
<b>Molecular formula</b>	: CS <sub>2</sub>
<b>Boiling/condensation point</b>	: 46.12°C (115°F)
<b>Melting/freezing point</b>	: -111.66°C (-169°F)
<b>Critical temperature</b>	: 272.9°C (523.2°F)
<b>Specific gravity</b>	: 1.26 (Water = 1)
<b>Vapor pressure</b>	: 40 kPa (300 mm Hg) (at 20°C)
<b>Vapor density</b>	: 2.6 (Air = 1)
<b>Evaporation rate</b>	: 10.9 compared to Butyl acetate.

### Section 10. Stability and reactivity

<b>Stability and reactivity</b>	: The product is stable.
<b>Incompatibility with various substances</b>	: Highly reactive with oxidizing agents.

### Section 11. Toxicological information

#### Toxicity data

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
Carbon disulphide	LD50	1200 mg/kg	Oral	Rat
	LD50	2550 mg/kg	Oral	Rabbit
	LD50	2125 mg/kg	Oral	Guinea pig

**IDLH** : 500 ppm

**Chronic effects on humans** : **TERATOGENIC EFFECTS** Classified 3 by European Union. Causes damage to the following organs: kidneys, the reproductive system, liver, peripheral nervous system, cardiovascular system, skin, central nervous system (CNS), eye, lens or cornea.

**Other toxic effects on humans** : Hazardous in case of skin contact (irritant), of eye contact (irritant).

#### Specific effects

**Carcinogenic effects** : No known significant effects or critical hazards.

**Mutagenic effects** : No known significant effects or critical hazards.

**Reproduction toxicity** : No known significant effects or critical hazards.

### Section 12. Ecological information

<u>Ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
Carbon disulphide	Poecilia reticulata (LC50)	96 hour(s)	4 mg/l

**Products of degradation** : These products are carbon oxides (CO, CO<sub>2</sub>), sulfur oxides (SO<sub>2</sub>, SO<sub>3</sub>...).







**Toxicity of the products of biodegradation** : The products of degradation are less toxic than the product itself.

### Section 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

**Consult your local or regional authorities.**

## Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
<b>DOT Classification</b>	UN1131	CARBON DISULFIDE	3	I	 	<p><b>Reportable quantity</b> 100 lbs. (45.36 kg)</p> <p><b>Limited quantity</b> Yes.</p> <p><b>Packaging instruction</b> <b>Passenger Aircraft</b> Quantity limitation: Forbidden.</p> <p><b>Cargo Aircraft</b> Quantity limitation: Forbidden.</p> <p><b>Special provisions</b> B16, T14, TP2, TP7, TP13</p>
<b>TDG Classification</b>	UN1131	CARBON DISULFIDE; OR CARBON DISULPHIDE	3	I	 	<p><b>Explosive Limit and Limited Quantity Index</b> 0</p> <p><b>ERAP Index</b> 1000</p> <p><b>Passenger Carrying Ship Index</b> Forbidden</p> <p><b>Passenger Carrying Road or Rail Index</b> Forbidden</p>
<b>Mexico Classification</b>	UN1131	CARBON DISULFIDE	3	I	 	<p><b>Reportable quantity</b> 100 lbs. (45.36 kg)</p> <p><b>Limited quantity</b> Yes.</p> <p><b>Packaging instruction</b></p>

Carbon Disulfide						
						<b>Passenger Aircraft</b> Quantity limitation: Forbidden.  <b>Cargo Aircraft</b> Quantity limitation: Forbidden.  <b>Special provisions</b> B16, T14, TP2, TP7, TP13

## Section 15. Regulatory information

### United States

**HCS Classification** : Flammable liquid  
 Irritating material  
 Target organ effects

**U.S. Federal regulations** : TSCA 4(a) final test rules: Carbon disulphide  
 TSCA 8(a) PAIR: Carbon disulphide  
 TSCA 8(b) inventory: Carbon disulphide  
 TSCA 12(b) one time export: Carbon disulphide  
 SARA 302/304/311/312 extremely hazardous substances: Carbon disulphide  
 SARA 302/304 emergency planning and notification: Carbon disulphide  
 SARA 302/304/311/312 hazardous chemicals: Carbon disulphide  
 SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Carbon disulphide: Fire hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard  
 Clean Water Act (CWA) 307: No products were found.  
 Clean Water Act (CWA) 311: Carbon disulphide  
 Clean air act (CAA) 112 accidental release prevention: Carbon disulphide  
 Clean air act (CAA) 112 regulated flammable substances: No products were found.  
 Clean air act (CAA) 112 regulated toxic substances: Carbon disulphide

### SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
<b>Form R - Reporting requirements</b>	: Carbon disulphide	75-15-0	100
<b>Supplier notification</b>	: Carbon disulphide	75-15-0	100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

**State regulations** : Pennsylvania RTK: Carbon disulphide: (environmental hazard, generic environmental hazard)  
 Massachusetts RTK: Carbon disulphide  
 New Jersey: Carbon disulphide

**WARNING:** This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>

## Carbon Disulfide

Carbon disulphide

No.

Yes.

No.

No.

### Canada

#### WHMIS (Canada)

- : Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
- Class D-1B: Material causing immediate and serious toxic effects (TOXIC).
- Class D-2A: Material causing other toxic effects (VERY TOXIC).
- Class D-2B: Material causing other toxic effects (TOXIC).
- CEPA DSL: Carbon disulphide

## Section 16. Other information

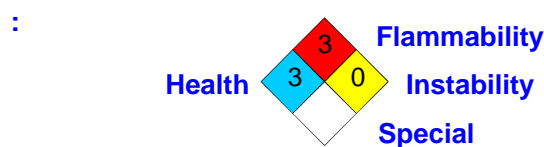
### Label Requirements

- : HIGHLY FLAMMABLE LIQUID AND VAPOR.
- CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
- CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, REPRODUCTIVE SYSTEM, LIVER, PERIPHERAL NERVOUS SYSTEM, CARDIOVASCULAR SYSTEM, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.
- VAPOR MAY CAUSE FLASH FIRE.
- MAY BE HARMFUL IF SWALLOWED.

### Hazardous Material Information System (U.S.A.)

Health	*	3
Fire hazard		3
Reactivity		0
Personal protection		C

### National Fire Protection Association (U.S.A.)



### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.