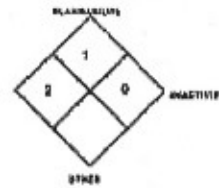




# MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

NFPA RATING



## PART I What is the material and what do I need to know in an emergency?

### 1. PRODUCT IDENTIFICATION

**PRODUCT NAME:** ANTI-SPATTER  
 Document Number: 004001

**CHEMICAL NAME/CLASS:** Methylene Chloride Solution

**SYNONYMS:** Not Applicable

**PRODUCT USE:** Metal-Working Operations

**MANUFACTURER'S NAME:** KCI, INC.

**ADDRESS:** 3710 N. Davidson Street  
 Charlotte, N.C. 28205

**SUPPLIER/DISTRIBUTOR'S NAME:** AIRGAS INC.

**ADDRESS:** 259 N. Radnor-Chester Road  
 Suite 100  
 Radnor, PA 19087-5283  
 1-610-687-5253

**BUSINESS PHONE:** CHEMTREC: 1-800-424-9300

**EMERGENCY PHONE:** International: 202-483-7616

**DATE OF PREPARATION:** September 15, 1997

**FIRST REVISION:** May 26, 1998

### 2. COMPOSITION and INFORMATION ON INGREDIENTS

This product consists of aerosol solutions propelled by Carbon Dioxide and bulk containers (which have no propellant gas). The following composition information contains data for both products.

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA		IDLH ppm	OTHER ppm
			TLV ppm	STEL ppm	PEL ppm	STEL ppm		
Methylene Chloride	75-09-2	> 80	50, A3 (Animal Carcinogen)	NE	25	125	2300	OSHA Action Level: 12.5 ppm NIOSH: Carcinogen. Reduce exposures to lowest feasible level. DFG MAK: 100 Carcinogen: EPA-B2, IARC-2B, MAK-B, NIOSH-X, NTP-2B
Carbon Dioxide (Aerosol Product Only)	124-38-9	< 20	5000	30,000	5000 10,000 (Vacated 1989 PEL)	30,000 (Vacated 1989 PEL)	40,000	DFG-MAK: 5000 NIOSH REL: TWA = 5000 STEL = 30000 C

NE = Not Established See Section 16 for Definitions of Terms Used.

NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

ANTI-SPATTER MSDS

(Document # 004001)

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## 2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA		IDLH ppm	OTHER ppm
			TLV ppm	STEL ppm	PEL ppm	STEL ppm		
Other components which are present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).		Balance	None of the other components contribute significant additional hazards at the concentrations present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards and Canadian Workplace Hazardous Materials Identification System Standards (CPR 4).					

NE = Not Established See Section 16 for Definitions of Terms Used.

NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

## 3. HAZARD IDENTIFICATION



**EMERGENCY OVERVIEW:** This product is a clear, colorless liquid with a penetrating, ether-like odor. In non-bulk solution quantities, the aerosol is propelled by a non-flammable gas (Carbon Dioxide). Methylene Chloride, the main component of this product, is a mild central nervous system depressant; inhalation of the vapors of this product may cause headache, nausea, dizziness, drowsiness, confusion, unconsciousness, and death. This product can cause severe skin and eye irritation. Prolonged skin exposures to this product can result in chemical burns. Methylene Chloride is suspected to pose a cancer hazard. This product is essentially non-flammable under most conditions of use, but can probably burn if strongly heated. This product can decompose at high temperatures, forming toxic gases (such as hydrogen chloride and phosgene). Emergency responders must wear the personal protective equipment suitable for the situation to which they are responding.

### SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE:

The most significant routes of overexposure for this product are by skin contact, eye contact, or inhalation of aerosols, mists, or sprays. The following paragraphs describe the symptoms of overexposure to this product.

**INHALATION:** If vapors, mists or sprays of this product are inhaled, they can irritate the nose and respiratory system. Inhalation can also depress the central nervous system. Symptoms may include headache, nausea, dizziness, drowsiness, confusion, and, unconsciousness. Severe inhalation overexposure may be fatal. Long-term inhalation of Methylene Chloride (the main component of this product) can cause neurological effects in humans (e.g., memory loss, speech problems). Specific human exposure data for Methylene Chloride (the main component of this product) are as follows:

**METHYLENE CHLORIDE:** No effects were seen when volunteers were exposed to 213 ppm for 60 minutes. Mild central nervous system effects (headache, dizziness) were seen in volunteers exposed to concentrations as low as 200 ppm for 2-3 hours or 986 ppm for 1 hour. Other signs of mild central nervous system depression such as dizziness, nausea, inability to concentrate, and reduced coordination have been reported in numerous case reports, usually when Methylene Chloride was used in poorly-ventilated areas. In more severe cases, Methylene Chloride has caused serious central nervous system depression, including unconsciousness, respiratory failure, pulmonary edema, and death.

HAZARDOUS MATERIAL INFORMATION SYSTEM			
<b>HEALTH</b>	(BLUE)	<b>3</b>	
<b>FLAMMABILITY</b>	(RED)	<b>1</b>	
<b>REACTIVITY</b>	(YELLOW)	<b>0</b>	
<b>PROTECTIVE EQUIPMENT</b>			<b>D</b>
EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8
For routine industrial applications			

**See Section 16 for Definition of Ratings**

### 3. HAZARD IDENTIFICATION (Continued)

Additionally, if this product is used in enclosed, confined, or otherwise poorly ventilated areas, an oxygen deficient environment can develop. The effects associated with various levels of oxygen are as follows:

12-16% Oxygen: Breathing and pulse rate increased, muscular coordination slightly disturbed.

10-12% Oxygen: Emotional upset, abnormal fatigue, disturbed respiration.

6-10% Oxygen: Nausea and vomiting, collapse or loss of consciousness.

Below 6%: Convulsive movements, possible respiratory collapse, and death.

**CONTACT WITH SKIN or EYES:** Methylene Chloride (the main component of this product) can severely irritate contaminated skin. Prolonged skin exposures to this product can result in chemical burns. Repeated skin overexposures may cause dermatitis (dry, red skin). Contact of this product with the eyes can be moderately to severely irritating. Symptoms of such overexposure to the concentrated vapor or liquid may include irritation. If the liquid contaminates the eyes, temporary corneal damage can result.

**SKIN ABSORPTION:** Methylene Chloride (the main component of this product) can be absorbed through the skin. Skin absorption is not anticipated to be a significant route of overexposure.

**INGESTION:** Ingestion is not anticipated to be a route of occupational exposure for this product. If this product is swallowed, it may cause nausea, vomiting, and diarrhea. Additionally, chemical burns and swelling of the tissues of the mouth, throat, esophagus, and other organs of the digestive system may occur after ingestion of these products. Severe ingestion exposures may be fatal.

**INJECTION:** Though not a likely route of occupational exposure for this product, injection of this product (via punctures or lacerations in the skin) may cause local reddening, tissue swelling, and discomfort.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE:** An Explanation in Lay Terms. Symptoms associated with overexposure to this product are as follows:

**ACUTE:** The chief acute health hazards associated with this product would be the potential for severe irritation of contaminated skin and eyes and central nervous system depression after inhalation exposures. If this product is used in a poorly-ventilated environment, an oxygen deficient environment may develop. Severe inhalation or ingestion exposures can be fatal.

**CHRONIC:** Persistent irritation and dermatitis may result from repeated exposures to this product. Long-term inhalation of Methylene Chloride (the main component of this product) can cause neurological effects in humans (e.g., memory loss, speech problems). Overexposure to this product may cause liver and kidney problems, based on animal data. Methylene Chloride is suspected to be a cancer hazard. Refer to Section 11 (Toxicology Information) for additional data.

**TARGET ORGANS:** Skin, eyes, respiratory system, central nervous system, liver, kidneys.

## PART II *What should I do if a hazardous situation occurs?*

### 4. FIRST-AID MEASURES

**SKIN EXPOSURE:** If this product contaminates the skin, begin decontamination with running water. Minimum flushing is for 15 minutes. Victim must seek medical attention if any adverse reaction occurs.

**EYE EXPOSURE:** If this product enters the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victim must seek immediate medical attention.

**INHALATION:** If vapors, mists, or sprays of this product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions.

**INGESTION:** If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Victim should drink milk, egg whites, or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow.

Victims of chemical exposure must be taken for medical attention, if continuing adverse health effects occur. Rescuers should be taken for medical attention if necessary. Take copy of label and MSDS to health professional with victim.

## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** None measurable by standard methods. Methylene Chloride is the main component of this product; its vapor can burn in air above 100°C (212°F).

**AUTOIGNITION TEMPERATURE:** 662°C (1224°F) (for Methylene Chloride).

**FLAMMABLE LIMITS (in air by volume %):** The following information is applicable to Methylene Chloride (the main component of this product) under specific conditions (oxygen-enriched air, elevated temperatures, or elevated pressure):

**Lower (LEL):** 12%  
**Upper (UEL):** 19%

### **FIRE EXTINGUISHING MATERIALS:**

**Water Spray:** YES (for cooling)

**Halon:** YES

**Dry Chemical:** YES

**Carbon Dioxide:** YES

**Foam:** YES

**Other:** Any "B" Class.

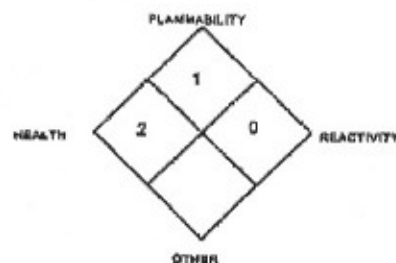
**UNUSUAL FIRE AND EXPLOSION HAZARDS:** This product is essentially non-flammable under most conditions of use; however, it may become flammable under fire conditions, when temperatures are above 100°C (212°F). During a fire, irritating vapors and toxic gases (e.g., hydrogen chloride and phosgene) may be generated. Containers of this product may explode in heat of fire.

**Explosion Sensitivity to Mechanical Impact:** Not sensitive.

**Explosion Sensitivity to Static Discharge:** Not sensitive.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Do not enter fire area without wearing specialized protective equipment suitable for the situation. Firefighter's normal protective clothing will not provide adequate protection. Chemical resistant clothing (e.g., chemical splash suit) may be necessary. Evacuate area and fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Isolate materials not yet involved in fire and protect personnel. Move containers from fire area if it can be done without risk to personnel. Use water spray to keep fire-exposed containers cool. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

### NFPA RATING



See Section 16 for  
Definition of Ratings

## 6. ACCIDENTAL RELEASE MEASURES

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a large, uncontrolled release, clear the affected area and protect people.

In the event of a non-incident release, minimum Personal Protective Equipment should be Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard-hat, and Self-Contained Breathing Apparatus. Absorb spilled liquid with poly pads or other suitable absorbent. Decontaminate the area thoroughly. Place all spill residue in a suitable container and seal. Dispose of in accordance with U.S. Federal, State, and local hazardous waste disposal regulations, or the applicable standards of Canada and its Provinces (see Section 13, Disposal Considerations).

Note: Colorimetric tubes are available for Methylene Chloride detection. If such tubes are used, the readings must be below those listed in Section 2 (Composition and Information on Ingredients) before personnel are permitted into the area without respiratory protection.

## PART III *How can I prevent hazardous situations from occurring?*

### 7. HANDLING and STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat or drink while handling this material. Use ventilation and other engineering controls to minimize potential exposure to the aerosols, vapors, mists, and sprays of this product. Remove contaminated clothing immediately.

## 7. HANDLING and STORAGE (Continued)

**STORAGE AND HANDLING PRACTICES:** All employees who handle this material should be trained to handle it safely. Use in a well-ventilated location. Direct aerosol spray carefully. Do not puncture container. Avoid exposing this material to open flames or hot surfaces; the heated material can generate toxic gases (e.g., hydrogen chloride and phosgene). Empty containers may contain residual liquid, therefore, empty containers should be handled with care. Do not cut, weld or solder any empty container which held this product. Do not incinerate empty or partially filled containers.

Store this product in cool, dry locations, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible chemicals (see Section 10, Stability and Reactivity). Avoid exposing this product to water or moisture. Methylene Chloride (the main component of this product) can become corrosive to metals (e.g., iron, steel, copper) in the presence of water. Keep container tightly closed when not in use. Inspect all incoming containers before storage to ensure they are properly labeled and not damaged.

**TANK CAR SHIPMENTS:** Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendations and all established on-site safety procedures. Appropriate personal protective equipment must be used during tank car operations (see Section 8, Engineering Controls and Personal Protection). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level and wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tank (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be clean and free of incompatible chemicals, prior to connection to the tank car or vessel. Valves and hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Collect all rinsates and dispose of according to applicable U.S. Federal, State, or local procedures, or those of Canada and its Provinces.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in Section 2 (Composition and Information on Ingredients). Prudent practice is to ensure eyewash/safety shower stations are available near areas where this product is used.

**RESPIRATORY PROTECTION:** Maintain airborne contaminant concentrations below guidelines listed in Section 2 (Composition and Information on Ingredients). If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134 or applicable U.S. State regulations (or those of Canada and its Provinces). Use supplied air respiration protection if oxygen levels are below 19.5% or are unknown. The following respiratory selection guidelines are available for Methylene Chloride (the main component of this product):

NIOSH RECOMMENDATIONS FOR METHYLENE CHLORIDE CONCENTRATIONS IN AIR:

AT ANY DETECTABLE CONCENTRATION: Positive-pressure, full-facepiece Self-Contained Breathing Apparatus (SCBA) or positive pressure, full-facepiece, Supplied-Air Resp: Apparatus (SAR) with an auxiliary positive pressure SCBA.

ESCAPE: Gas mask with organic vapor canister or escape-type SCBA.

**EYE PROTECTION:** Safety glasses or goggles and face-shield are recommended.

**HAND PROTECTION:** Wear polyvinyl alcohol or polyfluorinated polyethylene gloves for routine industrial use. The following gloves are NOT recommended: butyl rubber, natural rubber, neoprene, nitrile rubber, polyethylene, and polyvinyl chloride. Use triple gloves for spill response, as stated in Section 6 (Accidental Release Measures) of this MSDS.

**BODY PROTECTION:** Use body protection appropriate for task (e.g., apron, coveralls, chemical-resistant boots).

## 9. PHYSICAL and CHEMICAL PROPERTIES

Unless otherwise specified, the following information is for Methylene Chloride, the main component of this product.

**RELATIVE VAPOR DENSITY (air = 1):** 2.93

**SPECIFIC GRAVITY (water = 1):** 0.815-0.88

**SOLUBILITY IN WATER:** Moderately soluble.

**VAPOR PRESSURE, mm Hg @ 24°C:** 400

**ODOR THRESHOLD:** 150 ppm

**EVAPORATION RATE (nBuAc = 1):** 27.5

**FREEZING/MELTING POINT:** -97°C (-142°F)

**BOILING POINT:** 39.8°C (104°F)

**pH:** Not applicable.

## 9. PHYSICAL and CHEMICAL PROPERTIES (Continued)

**COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT):** Log  $K_{ow}$  = 1.25

**APPEARANCE AND COLOR:** This product is a clear, colorless liquid with a penetrating ether-like odor.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** The odor may act as a distinguishing characteristic of this product.

## 10. STABILITY and REACTIVITY

**STABILITY:** Stable.

**DECOMPOSITION PRODUCTS:** Carbon oxides, hydrogen chloride, and phosgene.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** This product is not compatible with the following materials: aluminum powder, amines, alkali metals, dinitrogen tetroxide, dinitrogen pentoxide, nitric acid, potassium tert-butoxide. Methylene Chloride (the main component of this product) can become corrosive to metals (e.g., iron, steel, copper) in the presence of water.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Avoid exposing this product to extreme temperatures and incompatible materials.

## PART III *How can I prevent hazardous situations from occurring?*

### 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The specific toxicology data available for components greater than 1% in concentration are as follows:

**CARBON DIOXIDE (Aerosol Product Only):**  
 TCLo (inhalation, rat) = 6 ppm/ 24 hours;  
 reproductive and teratogenic effects  
 LCLo (inhalation, human) = 9 ppm/ 6 minutes  
 LCLo (inhalation, mammal) = 90,000 ppm/ 5  
 minutes

**METHYLENE CHLORIDE:**

Skin Irritancy (rabbit) = 810 mg/ 24 hours;  
 severe

Eye Irritancy (rabbit) = 162 mg; moderate

Eye Irritancy (rabbit) = 10 mg; mild

Eye Irritancy (rabbit) = 17,500 mg/m<sup>3</sup>/ 10  
 minutes

DNA Inhibition (fibroblast, human) = 5000.  
 ppm/ 1 hour/ continuous

Cytogenetic Analysis (ovary, hamster) = 5 g/L

DNA Inhibition (lung, hamster) = 5000 ppm/ 1  
 hour/ continuous

Sister Chromatid Exchange (lung, hamster) =  
 5000 ppm/ 1 hour, continuous

TCLo (inhalation, rat) = 4600 ppm/ 24 hours/ 1-  
 17 days pregnant; reproductive effects

TCLo (inhalation, mouse) = 1250 ppm/ 7  
 hours/ 8-15 days pregnant; teratogenic  
 effects

TCLo (inhalation, rat) = 3500 ppm/ 6 hours/ 2  
 years/ intermittent; carcinogenic effects

TCLo (inhalation, mouse) = 2000 ppm / 5  
 hours/ 2 years/ continuous; carcinogenic  
 effects

**METHYLENE CHLORIDE (continued):**

LDLo (oral, human) = 357 mg/kg; central  
 nervous system effects

TCLo (inhalation, rat) = 500 ppm / 6 hours/ 2  
 years; equivocal tumorigenic agent

LDLo (oral, human) = 357 mg/kg; peripheral  
 nerves; central nervous system  
 effects

TCLo (inhalation, human) = 500 ppm/ 1 year/  
 intermittent; central nervous system effects

TCLo (inhalation, human) = 500 ppm / 6 hours;  
 central nervous system effects

LD<sub>50</sub> (oral, rat) = 1600 mg/kg

LC<sub>50</sub> (inhalation, rat) = 59,000 mg/m<sup>3</sup>/ 30  
 minutes

LC<sub>50</sub> (inhalation, mouse) = 14,400 ppm/ 7  
 hours

LD<sub>50</sub> (intraperitoneal, mouse) = 437 mg/kg

LD<sub>50</sub> (subcutaneous, mouse) = 6480 mg/kg

LDLo (oral, dog) = 3 g/kg

LCLo (inhalation, dog) = 14,108 ppm/ 7 hours

LDLo (intraperitoneal, dog) = 950 mg/kg

LDLo (subcutaneous, dog) = 2700 mg/kg

LCLo (inhalation, cat) = 43,400 mg/m<sup>3</sup>/ 4.5  
 hours

LDLo (oral, rabbit) = 1800 mg/kg

LCLo (inhalation, rabbit) = 10,000 ppm / 7  
 hours

LDLo (subcutaneous, rabbit) = 2700 mg/kg

LCLo (inhalation, guinea pig) = 5000 ppm/ 2  
 hours

**METHYLENE CHLORIDE (continued):**

Mutation in microorganisms - Salmonella  
 typhimurium: 8700 ppm

Mutation in microorganisms - Escherichia coli:  
 8300 ppm

Phage Inhibition capacity - Escherichia coli:  
 8250 ug/well

Sex chromosome loss and nondisjunction:

Oral: Insect - Drosophila melanogaster:  
 125 mmol/L

Morphological transformation - rat Embryo: 160  
 umol/L

DNA damage - Oral - rat: 1275 mg/kg

DNA damage - rat Liver: 30 umol/L

Micronucleus test - Inhalation - mouse: 27760  
 mg/m<sup>3</sup>/6H/2W (intermittent)

DNA damage - mouse Liver: 450 umol/L

DNA damage - Inhalation - mouse: 4000  
 ppm/6H (Continuous)

Cytogenetic analysis - Inhalation - mouse:  
 27760 mg/m<sup>3</sup>/6H/2W (intermittent)

Sister chromatid exchange - Inhalation - mouse:  
 13680 mg/m<sup>3</sup>/6H/2W (intermittent)

Morphological transformation - hamster  
 Embryo: 1300 uL/plate

DNA damage - hamster Ovary: 3000 ppm

DNA inhibition - hamster Lung: 5000 ppm/1H  
 (Continuous)

Mutation test systems - hamster Ovary: 6628  
 mg/L

Sister chromatid exchange - hamster Lung:  
 5000 ppm/1H (Continuous)

Mutation in mammalian somatic cells - hamster  
 Ovary: 3000 ppm

## 11. TOXICOLOGICAL INFORMATION (Continued)

**SUSPECTED CANCER AGENT:** Methylene Chloride (the main component of this product) is on the following lists:

EPA-B2, Probable Human Carcinogen (sufficient evidence from animal studies, inadequate evidence or no data from epidemiologic studies).  
IARC-2B, Possibly Carcinogenic to Humans (limited evidence in humans in the absence of sufficient evidence in experimental animals).  
MAK-S, Justifiably suspected of having carcinogenic potential.  
NIOSH-X, Carcinogen defined with no further categorization.  
NTP-2B, Reasonably anticipated to be a carcinogen (sufficient evidence of carcinogenicity from studies in experimental animals).

The other components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and IARC, and therefore are neither considered to be nor suspected to be cancer-causing agents by these agencies.

**IRRITANCY OF PRODUCT:** This product can be moderately to severely irritating to contaminated skin or eyes.

**SENSITIZATION TO THE PRODUCT:** This product contains no known skin or respiratory sensitizers. Animal studies indicate that Methylene Chloride (the main component of this product) can cause cardiac sensitization to adrenaline.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of this product and its components are on the human reproductive system.

**Mutagenicity:** This product is not reported to produce mutagenic effects in humans. Mutation data are available for Methylene Chloride (the main component of this product); these data were obtained during clinical studies on specific human tissues exposed to high doses of this compound.

**Embryotoxicity:** This product is not reported to produce embryotoxic effects in humans.

**Teratogenicity:** This product is not reported to cause teratogenic effects in humans. Clinical studies involving test animals exposed to high concentrations of Methylene Chloride and Carbon Dioxide (components of this product) indicate teratogenic effects.

**Reproductive Toxicity:** This product is not reported to cause adverse reproductive effects in humans. There are reports that suggest that Methylene Chloride (the main component of this product) may inhibit sperm production in humans. Testicular atrophy was seen in one animal study involving Methylene Chloride exposures. Clinical studies involving test animals exposed to high concentrations of Carbon Dioxide (a component of this product) indicate reproductive effects.

A *mutagen* is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An *embryotoxin* is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A *teratogen* is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A *reproductive toxin* is any substance which interferes in any way with the reproductive process.

**ACGIH BIOLOGICAL EXPOSURE INDICES:** Currently, there are no Biological Exposure Indices (BEIs) associated with the components of this product.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin disorders, respiratory conditions, central nervous system disorders, and neurological problems may be aggravated by overexposures to this product. Based on animal studies, there is the potential for liver and kidney conditions to be aggravated by overexposures to this material.

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and eliminate overexposure. Because Methylene Chloride (the main component of this product) can be metabolized to carbon monoxide, other exposures to carbon monoxide (e.g., smoking, vehicle exhaust) should be monitored.

## 12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

**ENVIRONMENTAL STABILITY:** The components of this product are relatively stable. The following environmental data are available for the components of this product.

**CARBON DIOXIDE:** Food chain concentration potential: None. Biological Oxygen Demand: None

**METHYLENE CHLORIDE:** Log  $K_{ow}$  = 1.25. Water solubility = 13,000 mg/L (25°C). Methylene Chloride should not significantly bioaccumulate.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** This product may be harmful or fatal to plant and animal life. Refer to Section 11 (Toxicological Information) for specific information on the effects of this product's components on test animals.

## 12. ECOLOGICAL INFORMATION (Continued)

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** This product may be harmful or fatal to aquatic plant and animal life. The following aquatic toxicity data are available.

### CARBON DIOXIDE:

Aquatic toxicity: 100-200 mg/l/no time specified/Various organisms/fresh water.  
Waterfowl toxicity: Inhalation 5-8%, no effect.

### METHYLENE CHLORIDE:

LC<sub>50</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 193 mg/L/ 96 hours  
LC<sub>50</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 310 mg/L/ 96 hours  
LC<sub>50</sub> (*Lepomis macrochirus*, bluegill) = 230 mg/L/ 24 hours  
LC<sub>50</sub> (*Lepomis macrochirus*, bluegill) = 220 mg/L/ 96 hours/ 21-23°C  
LC<sub>50</sub> (*Poecilia reticulata*, guppies) = 204 ppm/ 14 days  
LC<sub>50</sub> (*Daphnia magna*) = 22.4 mg/L/ 48 hours  
LC<sub>50</sub> (*Myxid atrina*) = 25.5 mg/L/ 96 hours

### METHYLENE CHLORIDE (continued):

EC<sub>10</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 68.5 mg/L/ 24 hours  
EC<sub>10</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 66.3 mg/L/ 48, 72, and 96 hours  
EC<sub>10</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 96 mg/L/ 48, 72, and 96 hours  
EC<sub>10</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 220 mg/L/ 24 hours  
EC<sub>10</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 147.9 mg/L/ 48, 72, and 96 hours  
LC<sub>10</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 122 mg/L/ 24 hours  
LC<sub>10</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 94 mg/L/ 48 hours

### METHYLENE CHLORIDE (continued):

LC<sub>10</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 51 mg/L/ 96 hours  
LC<sub>10</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 67 mg/L/ 72 hours  
LC<sub>50</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 288 mg/L/ 24 hours  
LC<sub>50</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 265 mg/L/ 48 hours  
LC<sub>50</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 232 mg/L/ 72 hours  
LC<sub>50</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 589 mg/L/ 72 hours  
LC<sub>50</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 746 mg/L/ 48 hours  
LC<sub>50</sub> (*Pimephales promelas Rafinesque*, fathead minnows) = 722 mg/L/ 96 hours

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations or with regulations of Canada and its Provinces. Return cylinders with residual product to Airgas, Inc. Do not dispose of locally.

## 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS (Per 49 CFR 172.101) BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

### NON-BULK SHIPMENTS:

#### PROPER SHIPPING NAME:

Aerosols

#### HAZARD CLASS NUMBER and DESCRIPTION:

2.2 (Nonflammable Gas)

#### UN IDENTIFICATION NUMBER:

UN 1950

#### PACKING GROUP:

Not Applicable

#### DOT LABEL(S) REQUIRED:

Nonflammable Gas

#### NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER, 1996: 126

### BULK SHIPMENTS:

#### PROPER SHIPPING NAME:

RQ Dichloromethane solution

#### HAZARD CLASS NUMBER and DESCRIPTION:

6.1 (Toxic Material)

#### UN IDENTIFICATION NUMBER:

UN 1593

#### PACKING GROUP:

PG III

#### DOT LABEL(S) REQUIRED:

Keep Away from Food

#### NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER, 1996: 160

### BOTH SHIPMENTS:

**MARINE POLLUTANT:** This product does not contain any component designated by the Department of Transportation to be a Marine Pollutant (49 CFR 172.101, Appendix B).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian shipments.



## 15. REGULATORY INFORMATION

### ADDITIONAL U.S. REGULATIONS:

**U.S. SARA REPORTING REQUIREMENTS:** This product is subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

CHEMICAL NAME	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Methylene Chloride	NO	YES	YES

**U.S. SARA THRESHOLD PLANNING QUANTITY:** Not applicable.

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Methylene Chloride = 1000 lb.

**U.S. TSCA INVENTORY STATUS:** The components of this product are listed on the TSCA Inventory.

**OTHER U.S. FEDERAL REGULATIONS:** Methylene Chloride is regulated under the Federal OSHA Standard, 29 CFR 1910.1052.

**U.S. STATE REGULATORY INFORMATION:** The components of this product are not covered under specific State regulations, as denoted below:

<p>Alaska - Designated Toxic and Hazardous Substances: Carbon Dioxide, Methylene Chloride.</p> <p>California - Permissible Exposure Limits for Chemical Contaminants: Carbon Dioxide, Methylene Chloride.</p> <p>Florida - Substance List: Carbon Dioxide, Methylene Chloride.</p> <p>Illinois - Toxic Substance List: Carbon Dioxide, Methylene Chloride.</p> <p>Kansas - Section 302/313 List: Methylene Chloride.</p> <p>Massachusetts - Substance List: Carbon Dioxide, Methylene Chloride.</p>	<p>Michigan - Critical Materials Register: No.</p> <p>Minnesota - List of Hazardous Substances: Carbon Dioxide, Methylene Chloride.</p> <p>Missouri - Employer Information/Toxic Substance List: Carbon Dioxide, Methylene Chloride.</p> <p>New Jersey - Right to Know Hazardous Substance List: Carbon Dioxide, Methylene Chloride.</p> <p>North Dakota - List of Hazardous Chemicals, Reportable Quantities: Methylene Chloride.</p>	<p>Pennsylvania - Hazardous Substance List: Carbon Dioxide, Methylene Chloride.</p> <p>Rhode Island - Hazardous Substance List: Carbon Dioxide, Methylene Chloride.</p> <p>Texas - Hazardous Substance List: Methylene Chloride.</p> <p>West Virginia - Hazardous Substance List: Carbon Dioxide, Methylene Chloride.</p> <p>Wisconsin - Toxic and Hazardous Substances: Carbon Dioxide, Methylene Chloride.</p>
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**CALIFORNIA PROPOSITION 65:** Methylene Chloride (the main component of this product) is on the California Proposition 65 Lists. **WARNING!** This product contains a chemical known to the state of California to cause cancer.

**ANSI LABELING (Z129.1; Aerosol):** **DANGER - CONTENTS UNDER PRESSURE! KEEP OUT OF REACH OF CHILDREN. AEROSOL SPRAY IS SEVERE IRRITANT TO SKIN AND EYES. MAY BE HARMFUL OR FATAL IF SWALLOWED, MAY BE HARMFUL IF INHALED. MAY CAUSE OXYGEN DEFICIENT ENVIRONMENT. INHALATION OF VAPORS CAN CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION. CAN CAUSE LIVER AND KIDNEY DAMAGE, BASED ON ANIMAL STUDIES. CONTAIN A CHEMICAL WHICH IS A CARCINOGEN, BASED ON ANIMAL STUDIES.** Risk of cancer depends on concentration and duration of exposure. Do not puncture or incinerate container. Do not expose to heat or store at temperatures above 120°F. Avoid breathing vapors, mists, or sprays. Avoid contact with skin, eyes, and clothing. Use only with adequate ventilation. Keep container closed. Wash thoroughly after handling. Wear gloves, safety goggles, face-shield, and suitable body protection when using this product. **FIRST-AID:** In case of contact, immediately flush skin or eyes for at least 15 minutes. If inhaled, move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If ingested, do not induce vomiting. **IN CASE OF FIRE:** Use fog, foam, dry chemical or CO<sub>2</sub>. **IN CASE OF SPILL:** Absorb spilled material with polypads. Containerize residue. Refer to MSDS for additional information.

**ANSI LABELING (Z129.1; Bulk):** **DANGER! KEEP OUT OF REACH OF CHILDREN. SEVERE IRRITANT TO SKIN AND EYES. MAY BE HARMFUL OR FATAL IF SWALLOWED. MAY BE HARMFUL IF INHALED. INHALATION OF VAPORS CAN CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION. CAN CAUSE LIVER AND KIDNEY DAMAGE, BASED ON ANIMAL STUDIES. CONTAIN A CHEMICAL WHICH IS A CARCINOGEN, BASED ON ANIMAL STUDIES.** (Remainder of label identical to that presented above).

## 15. REGULATORY INFORMATION (Continued)

### ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL INVENTORY: The components of this product are listed on the DSL Inventory.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: The components of this product are not on the CEPA Priorities Substances Lists.

OTHER CANADIAN REGULATIONS: Not applicable.

### CANADIAN WHMIS SYMBOLS

Class A: Compressed Gas (Aerosol Product Only)  
Class D1B: Materials Causing Immediate and Serious Toxic Effects  
Class D2A: Materials Causing Other Toxic Effects.



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## 16. OTHER INFORMATION

### PREPARED BY:

CHEMICAL SAFETY ASSOCIATES, Inc.  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. AIRGAS, Inc. assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, AIRGAS, Inc. assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

## DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

**CAS #:** This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching.

### EXPOSURE LIMITS IN AIR:

**ACGIH - American Conference of Governmental Industrial Hygienists,** a professional association which establishes exposure limits. **TLV - Threshold Limit Value -** an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average (TWA), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level (C). Skin absorption effects must also be considered.

**OSHA - U.S. Occupational Safety and Health Administration.**

**PEL - Permissible Exposure Limit -** This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL, which was vacated by Court Order. **IDLH - Immediately Dangerous to Life and Health -** This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. The DFG - MAK is the Republic of Germany's Maximum Exposure Limit, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (OSHA). **NIOSH** issues exposure guidelines called Recommended Exposure Levels (RELs). When no exposure guidelines are established, an entry of NE is made for reference.

**HAZARD RATINGS:**  
**HAZARDOUS MATERIALS IDENTIFICATION SYSTEM:** **Health Hazard:** 0 (minimal acute or chronic exposure hazard); 1 (slight acute or chronic exposure hazard); 2 (moderate acute or significant chronic exposure hazard); 3 (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); 4 (extreme acute exposure hazard; onetime overexposure can be fatal). **Flammability Hazard:** 0 (minimal hazard); 1 (materials that require substantial pre-heating before burning); 2 (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); 3 (Class IB and IC flammable liquids with flash points below 38°C [100°F]); 4 (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]). **Reactivity Hazard:** 0 (normally stable); 1 (material that can become unstable at elevated temperatures or which can react slightly with water); 2 (materials that are unstable but do not detonate or which can react violently with water); 3 (materials that can detonate when initiated or which can react explosively with water); 4 (materials that can detonate at normal temperatures or pressures).

**NATIONAL FIRE PROTECTION ASSOCIATION:** **Health Hazard:** 0 (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); 1 (materials that on exposure under fire conditions could cause irritation or minor residual injury); 2 (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); 3 (materials that can on short exposure could cause serious temporary or residual injury); 4 (materials that under very short exposure causes death or major residual injury). **Flammability Hazard and Reactivity Hazard:** Refer to definitions for "Hazardous Materials Identification System".

### FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). **Flash Point -** Minimum temperature at which a liquid gives off sufficient vapor to form an ignitable mixture with air. **Autoignition Temperature:** The minimum temperature required to initiate combustion in air with no other source of ignition. **LEL -** the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL -** the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

### TOXICOLOGICAL INFORMATION:

**Human and Animal Toxicology:** Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD<sub>50</sub> - Lethal Dose (solids & liquids)** which kills 50% of the exposed animals; **LC<sub>50</sub> - Lethal Concentration (gases)** which kills 50% of the exposed animals; ppm concentration expressed in parts of material per million parts of air or water; mg/m<sup>3</sup> concentration expressed in weight of substance per volume of air; mg/kg quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDL<sub>0</sub>**, the lowest dose to cause a symptom; **TCL<sub>0</sub>** the lowest concentration to cause a symptom; **TD<sub>0</sub>**, **LDL<sub>0</sub>**, and **LD<sub>0</sub>**, or **TC**, **TC<sub>0</sub>**, **LCL<sub>0</sub>**, and **LC<sub>0</sub>**, the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** The sources are: **IARC - the International Agency for Research on Cancer;** **NTP - the National Toxicology Program;** **ITECS - the Registry of Toxic Effects of Chemical Substances;** **OSHA** and **CALOSHA.** IARC and NTP rate chemicals on a scale of increasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other information: **BEI - ACGIH Biological Exposure Indices,** represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. **Ecological Information:** **EC** is the effect concentration in water. **BCF = Bioconcentration Factor,** which is used to determine if a substance will concentrate in life forms which consume contaminated plant or animal matter. Coefficient of Oil/Water Distribution is represented by log **K<sub>ow</sub>** or log **K<sub>oc</sub>** and is used to assess a substance's behavior in the environment.

### REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **U.S.:** **EPA** is the U.S. Environmental Protection Agency; **DOT** is the U.S. Department of Transportation. **SARA** is the Superfund Amendments and Reauthorization Act. **TSCA** is the U.S. Toxic Substances Control Act. **CERCLA** (or Superfund) refers to the Comprehensive Environmental Response, Compensation, and Liability Act. Labeling is per the American National Standards Institute (ANSI Z39.1). **CANADA:** **CEPA** is the Canadian Environmental Protection Act. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **TC** is Transport Canada. **DSL/NDSL** are the Canadian Domestic/Non-Domestic Substances Lists.

## ANTI-SPATTER MSDS

(Document # 004001)

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