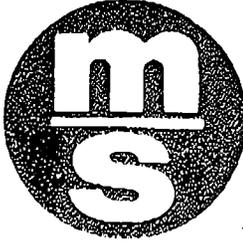


Miller-Stephenson



Material Safety Data Sheet

IDENTIFICATION

Name: MS-190/CO₂
Freon® TMC Flux Remover

Chemical Family: Halogenated Hydrocarbon

SARA/TITLE III STATUS:
Reported/Included.

Formula: CCl₂FCClF₂ CH₂Cl₂ CO₂

TSCA Inventory Status:
Reported.

MANUFACTURER/DISTRIBUTOR:
Miller-Stephenson Chemical
George Washington Highway
Danbury, Conn. 06810

Medical Emergency Phone:
(203) 797-2212

Transportation Emergency Phone:
(800) 424-9300

PHYSICAL DATA:

Boiling Point (°F): 97.7°F

Percent Volatile by Volume: 100%

Density: 1.42 g/cc at 77°F

Vapor Pressure: 500 mgHg at 77°F

Vapor Density (Air=1): 4.9

Solubility in H₂O: 0.66 wt % at 77°F

pH Information: Neutral

Evaporation Rate (CC14=1): 0.3

Form: Liquid

Appearance: Clear

Color: Colorless

Odor: Solvent Odor

HAZARDOUS COMPONENTS:

Material (s):	CAS No.:	Approximate %:
Trichlorotrifluoroethane	76-13-1	47 - 50
Methylene Chloride	75-09-2	47 - 50
Carbon Dioxide	124-38-9	2 - 4

MS-190/CO₂
Page 2 of 5HAZARDOUS REACTIVITY

Stability: Material is stable. However, avoid spraying near open flames or red hot surfaces. Do not heat aerosols containers above 120°F /49° C.

Incompatibility: Alkali or alkaline earth metals - powdered Al, Zn, Be, etc.

Decomposition: This compound can be decomposed by high temperature (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids possible carbonyl halides,

Polymerization: Will not occur.

FIRE AND EXPLOSION DATA

Flash Point: None

Method: TOC

Autoignition Temperature: Not Determined

Flammable Limits in Air, % by Vol.: Non-Flammable

Autodecomposition Temperature: Not Determined.

Fire and Explosion: Pressurized aerosol containers at elevated temperatures may vent, rupture, or burst and add to flying and falling debris. Decomposition may occur.

Extinguishing Media: Non-flammable.

Special Fire Fighting Instruction: Self-contained breathing apparatus (SCBA) may be required if aerosols rupture and contents are spilled under fire conditions.

HEALTH HAZARD INFORMATION**PRINCIPAL HEALTH HAZARDS:** (INCLUDING SIGNIFICANT ROUTES, EFFECTS
SYMPTOMS OF OVER-EXPOSURE, AND MEDICAL
CONDITIONS AGGRAVATED BY EXPOSURE.)

Inhalation: Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Breathing high concentrations of vapor may cause light headedness, giddiness, shortness of breath, and may lead to narcosis, cardiac irregularities, unconsciousness or death. Methylene chloride is metabolized to CO₂, raising the carboxy hemoglobin concentration in the blood with resulting symptoms of carbon monoxide poisoning. Trichlorotrifluoroethane LC 50 Rats 52,000 ppm/4 hrs.; Methylene chloride LC 50 Rats 15,000 ppm/2 hrs.

Skin: Methylene chloride is classified as an irritant. Skin permeation of methylene chloride can occur in amounts capable of producing the effects of systemic toxicity.

Eye: Liquid contact can cause irritation, solvent contains Methylene Chloride.

Oral: Although oral toxicity is low (Trichlorotrifluoroethane - LD 50 Rats 43,000 mg/kg; Methylene Chloride LD 50 Rats 5,000 mg/kg), ingestion of Freon® TMC is to be avoided.

Medical Conditions Possibly Aggravated by Exposure:

Skin Disease: Freon® TMC is a defatting agent. Persons with pre-existing skin disorders may be more susceptible to the effects of this agent.

Cardiovascular Disease: See Principal Health Hazards: Inhalation Section.

MS-190/CO₂
Page 4 of 5

Carcinogenicity: Trichlorotrifluoroethane is not listed as a carcinogen by IARC, NTP, or OSHA. Methylene Chloride is listed as a known carcinogen by NTP. Based on animal studies and human experiences, this mixture poses no hazard to man relative to systemic toxicity, carcinogenicity, mutagenicity, or teratogenicity when occupational exposures are below its recommended TLV. Warning: The State of California has listed Methylene Chloride under Proposition 65 as a chemical known to the State to Cause cancer.

<u>Exposure Limits:</u>	<u>TLV (ACGIH)</u>	<u>PEL (OSHA)</u>	<u>AEL (DuPont)</u>
Trichlorotrifluoroethane	1000 ppm	1000 ppm	N.A.
Methylene Chloride	50 ppm	25 ppm	N.A.
Carbon Dioxide	5000 ppm	5000 ppm	N.A.
MS-190/CO ₂	78 ppm (calc.)		

Safety Precautions: Avoid breathing vapors and prolonged skin exposure. Use only in well ventilated area.

FIRST AID:

Inhalation: Remove to fresh air, call a physician. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Do not give epinephrine or similar drugs.

Eye: Immediately flush with plenty of water for at least 15 minutes. Call a physician.

Skin: Flush with water. Get medical attention if irritation is present.

Oral: Call a physician. Do not induce vomiting as the hazard of aspirating the material into the lungs is a greater hazard than allowing it to progress through the intestinal tract. Give two glasses of water or activated charcoal slurry (50 grams activated charcoal in 400 ml. water.) Never give anything by mouth to an unconscious person.

Note to Physician: Because of possible increased risk of eliciting cardiac dysrhythmias catecholamine drugs, such as epinephrine, should be considered only as a last resort in life threatening situations.

PROTECTION INFORMATION:

Generally Applicable Control Measures: Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low places.

Personal Protective Equipment: Rubber gloves should be used to avoid prolonged or repeated exposure. Chemical splash goggles should be available for use as needed to prevent eye contact. Under normal manufacturing conditions no respiratory protection is required when using this product. Self-contained breathing apparatus is required if a large spill occurs. Do not spray liquid on skin.

DISPOSAL INFORMATION:

Aquatic Toxicity: N.A.

Spill, Leak or Release: Ventilate area. Remove open flames or red hot surfaces. Allow to evaporate. If a large spill, collect on absorbent material and transfer to steel drums for recovery or disposal.

Waste Disposal: Comply with federal, state and local regulation. Remove to a permitted waste disposal facility. EPA Hazardous waste NOS F001 & F002 may apply to waste material.

SHIPPING INFORMATION:

Proper Shipping Name:

DOMESTIC (GROUND)

Consumer Commodity
ORM-D

DOMESTIC OR

INTERNATIONAL AIR (IATA)

Aerosols, Non-Flammable
Packing Group III; Division 6.1
Non Flammable Gas, 2.2
1950
Non Flammable Gas, Toxic

Hazard Class:

UN #:

DOT/IATA LabPel:

ADDITIONAL INFORMATION:

Storage Conditions: Do not store near sources of heat or in direct sunlight. Do not store or consume food, drink or tobacco in area where it has become contaminated with this material. Freezing will effect the physical condition but will not damage. Thaw and mix before using. Rotate stock to shelf life of one year.

NPCA-HMIS Ratings:

Health - 1
Flammability - 0
Reactivity - 1

Personal Protective rating to be supplied by user depending on use condition

SARA/TITLE III HAZARD CATEGORIES AND LIST:

Product Hazard Categories:

Acute Health - Yes
Chronic Health - Yes
Fire Hazard - No
Reactivity Hazard - No
Pressure Hazard - Yes

Lists:

Extremely Hazardous Substance - No
CERCLA Hazardous Substance - Yes*
Toxic Chemicals - Yes

*Methylene Chloride component only.

Date Revised: September 1999
Person Responsible: Janet Stephens
Miller-Stephenson Chemical Company, Inc.
George Washington Highway
Danbury, Connecticut 06810 U.S.A.
(203) 743-4447