MATERIAL SAFETY DATA SHEET
(MSDS)

Protecting your laboratory environment
LABCONCO®

8811 Prospect Avenue, K.C., MO 64132
(816) 333-8811, Fax (816) 363-0130, (800) 821-5525

PRODUCT NAME:	**Refrigerant 508B**

SECTION 1 - MANUFACTURER

DuPont Fluoroproducts
1007 Market Street
Wilmington, DE 19898
(800) 441-7515

Emergency Telephone Numbers:
Medical Emergency: (800) 441-3637 (outside the U.S. 302-774-1000)
Transport Emergency (800) 424-9300 – CHEMTREC (outside U.S. 703-527-3887)
Product Information: (800)-441-7515 (outside the U.S. 302-774-1000)

SECTION 2 – SHIPPING AND REGULATORY INFORMATION

DOT/IMO for cylinders:

Proper Shipping Name: Refrigerant Gas, N.O.S.
(Hexafluoroethane, Trifluoromethane)
Hazard Class: 2.2
UN Number: 1078

DOT/IMO for ton tanks shipped in accordance with DOT Special Permit DOT-SP3216

Shipping containers: Cylinders and ton tanks.

U.S. Federal Regulations:
TSCA Inventory Status: Reported/Included

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312
Acute: YES; Chronic: NO; Fire: NO; Reactivity: NO; Pressure: YES

LISTS:
SARA Extremely Hazardous Substance: NO; CERCLA Hazardous Substance: NO; SARA Toxic Chemicals: NO

NFPA, NPCA-HMIS
NPCA-HMIS Rating:
Health: 1; Flammability: 0; Reactivity: 1

Personal Protection rating to be supplied by user depending on use conditions.

SECTION 3 – HAZARDOUS INGREDIENTS

Chemicals/Common Name	CAS NO.	Approximate %
Trifluoromethane	75-46-7	*30-50*
Hexafluoroethane	76-16-4	*50-70*

Hazards Identification:
Potential Health Effects: Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness, or death. Intentional misuse can be fatal. Vapor reduces oxygen available for breathing and is heavier than air. Liquid contact can cause frostbite.
Human Health Effects: Human health effects of overexposure by inhalation may include nonspecific discomfort, such as nausea, headache, or weakness; temporary nervous system depression with anaesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness; or with gross overexposure, possibly temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation. Individuals with preexisting diseases of the central nervous or cardiovascular system may have increased susceptibility to the toxicity of excessive exposures. Eye or skin contact may cause frostbite.
Carcinogenicity Information: None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

SECTION 4 – PHYSICAL CHARACTERISTICS

Boiling Point:	-88 C (-126 F)
Vapor Density:	(AIR = 1)
% Volatiles:	100 WT%
Odor:	Slight ethereal
Form:	Liquefied Gas
Color:	Clear; colorless

SECTION 5 – ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES AND HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures

Material evaporates at atmospheric pressure (vaporizes). Ventilate area – especially low places where heavy vapors might collect. Remove open flames.

SECTION 6 – FIRE AND EXPLOSION DATA

Flash Point:	Will not burn
Flammable Limits in Air, % by Volume	
LEL:	Not applicable
UEL:	Not applicable
Fire & Explosion Hazards:	Use water spray or fog to cool containers. Cylinders are equipped with temperature and pressure relief devices but may still rupture under fire conditions. Decomposition may occur, producing HF, CO and possibly COF2.
Extinguishing Media:	Use media appropriate for surrounding material.

Fire Fighting Instructions:	Self-contained breathing apparatus (SCBA) is required if cylinders rupture or release under fire conditions. Water runoff should be contained and neutralized prior to release.

SECTION 7 – REACTIVITY DATA

Chemical Stability:	Material is stable. However, avoid open flames and high temperatures.
Decomposition::	This product can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming HF, COF2 or CO. These materials are toxic and irritating. Contact should be avoided.
Polymerization:	Polymerization will not occur.

SECTION 8 – HEALTH HAZARD DATA

Applicable Exposure Limits

Trifluoromethane:	PEL (OSHA): None established TLV (ACGIH): None established AEL * (DuPont): 1000 ppm, 8 & 12 Hr. TWA
Hexafluoroethane:	PEL (OSHA): None established TLV (ACGIH): None established AEL * (DuPont): 1000 ppm, 8 & 12 Hr. TWA

*AEL is DuPont's acceptable exposure limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9 – FIRST AID PROCEDURES

EYES:	In case of eye contact, flush with water. Call a physician if frostbite occurs.
INHALATION:	If high concentrations are inhaled, immediately remove to fresh air. Keep persons calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
INGESTION:	Ingestion is not considered a potential route of exposure.
SKIN:	In case of skin contact, flush skin with water. Treat for frostbite if necessary.
NOTE TO PHYSICIANS:	Because of a possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be considered only as a last resort in life-threatening emergencies.

SECTION 10 – SPILL OR LEAK PROCEDURES

Ventilate Area:	Especially low places where heavy vapors might collect. Remove open flames.
Waste Disposal:	Comply with all federal, state and local regulations. Reclaim by distillation or remove to permitted waste disposal facility.

SECTION 11 – SPECIAL PROTECTION INFORMATION

Engineering Controls:	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:	Neoprene rubber or leather gloves should be used when handling liquid. Chemical splash goggles should be worn when handling liquid. Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large spill or release occurs.

SECTION 12 – HANDLING AND STORAGE

Handling (Personnel): Avoid contact of liquid with eyes and prolonged skin exposure. Use with sufficient ventilation to keep employee exposure below recommend limits.

Storage: Clean, dry area. Do not heat above 51.7°C (125°F)

SECTION 13 – TOXICOLOGICAL INFORMATION

Animal Data:

TRIFLUOROMETHANE:
Inhalation 4-hr LC50: >663,000 ppm in rats

Material is untested for skin and eye irritancy, and for animal sensitization.

Effects from single high inhalation exposure to Trifluoromethane include anaesthetic effects, and nonspecific effects such as weight loss were observed at concentrations >22%. No cardiac sensitization was observed in dogs after breathing 800,000 ppm for periods of 5-10 minutes following epinephrine challenge. In another test, dogs exposed to up to 30% or up to 50% (with additional oxygen), had not positive responses. No cardiac sensitization occurred in baboons exposed by inhalation to 10%, 30%, 50%, or 70% Trifluoromethane before or after an epinephrine challenge; there was a dose-related decrease in heart rates and differences in respiratory rates during exposure.

No animal tests are available to define the carcinogenic hazards of Trifluoromethane. The material and developmental NOAEL was 50,000 ppm. Trifluoromethane is not considered a unique developmental hazard to the conceptuous. There were no developmental or reproductive effects.

Tests have shown that Trifluoromethane does not product genetic damage in bacterial or mammalian cell cultures. It has not produced genetic damage in tests on animals.

HEXAFLUOROETHANE:
Inhalation 4-hr LC50: >800,000 ppm in rats

Effects observed in animals by inhalation include decreased growth rate, pulmonary changes, irregular respiration, increased urine volume and creatinine, reversible pathological changes in the kidneys, and

increased urinary fluoride concentration. Once study showed no arrythemongenic effects in dogs at a concentration of 20%, while another study did show some arrhytemogenic effects in both guinea pigs and dogs. Long-term inhalation exposures resulted in an initial decrease in growth rate, but no other adverse changes were noted. NO animal test reports are available to define carcinogenic, developmental, or reproductive hazards. The compound does not produce genetic damage in bacterial cell cultures but has not been tested in animals.

SECTION 14 – DISPOSAL CONSIDERATIONS

Reclaim by distillation or remove to permitted waste disposal facility. Dispose in accordance with all Federal, State and local regulations.

The information contained herein has been developed based upon current available scientific data. New information may be developed from time to time, which may render the conclusions of this report obsolete. Therefore, no warranty is extended as to the applicability of this information to the user's intended purpose or for the consequences of its use or misuse.