



## 1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

**Name:** MS-762  
Cleaning Agent

**Product Use:** Cleaning Solvent

### **MANUFACTURER/DISTRIBUTOR:**

Miller-Stephenson Chemical  
55 Backus Ave  
Danbury, Conn. 06810 USA  
(203) 743-4447

**Emergency Phone Number:**  
(800) 424-9300

## 2. HAZARDS IDENTIFICATION

### **Hazard classification**

Serious Eye Damage/Irritation: Category 2A.

### **Label elements:**

#### **Signal word**

Warning

### **Pictogram**



### **Hazard Statements**

Causes serious eye irritation.

### **Prevention Statements**

Wash thoroughly after handling.

Wear eye protection/face protection.

Use only in a well-ventilated area.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/ attention.

Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents/ container to an approved waste disposal plant.

#### **Other Hazards**

Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Prolonged skin contact may defat the skin and produce dermatitis. May cause cardiac arrhythmia. Misuse or intentional inhalation abuse may lead to death without warning.

### **3. INGREDIENTS**

<b><u>Material (s)</u></b>	<b><u>CAS No.</u></b>	<b><u>Approximate %</u></b>
1,1,1,2,2,3,4,5,5,5-Decafluoropentane (HFC-43-10mee)	138495-42-8	89 - 91
Isopropyl Alcohol	67-63-0	9 - 11

### **4. FIRST AID MEASURES**

**Inhalation:** Remove patient to fresh air, lie down. Keep patient warm and at rest. If not breathing, give artificial respiration. Give oxygen as necessary, if qualified personnel is available. Get medical attention if necessary.

**Eye:** Flush with large amounts of water for at least 15 minutes, lifting eyelids until no evidence of the chemical remains. Get medical attention. Remove contact lenses, if present and easy to do. Continue to rinse.

**Skin:** Wash skin with warm water after contact. Wash contaminated clothing before use. Get medical attention if necessary.

**Oral:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Give 2 glasses of water. If vomiting occurs, lean victim forward to reduce the risk of aspiration. Call a physician.

**Most important symptoms/effects, acute and delayed:** Dizziness

**Notes to Physician:** Do not give adrenaline or similar drugs. Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

### **5. FIRE FIGHTING MEASURES**

**Flammability:** This product is not flammable. Does not flash using ASTM D 93

**Upper Explosion limit, % by Vol.:** 11.0%      **Lower Explosion limit, % by Vol.:** 5.0%

**Suitable Extinguishing Media:** Water spray, Water mist, Dry chemical, Carbon dioxide (CO<sub>2</sub>)

**Unsuitable extinguishing media:** No applicable data available.

**Special hazards:** Fire or intense heat may cause violent rupture of packages. The product is not flammable. Vapors may form flammable mixture in air. Hazardous combustion products: Hydrogen fluoride, Fluorinated hydrocarbons, Carbonyl fluoride, Carbon oxides, Hydrogen chloride.

**Special Fire Fighting Instruction:** In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Wear neoprene gloves during cleaning up work after a fire. Exposure to decomposition products may be a hazard to health.

**Further information:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Evacuate personnel to safe areas. Cool containers/tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

## 6. ACCIDENTAL RELEASE MEASURES

**Safeguards (Personnel):** Evacuate personnel to safe area. Ventilate area, especially low or enclosed places where heavy vapors might collect. In case of insufficient ventilation, wear suitable respiratory equipment.

**Environmental precautions:** If containers rupture, prevent material from entering sewers, waterways, or low areas. Should not be released into the environment. Do not allow contact with soil, surface or ground water.

**Spill Cleanup:** Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations

## 7. HANDLING AND STORAGE

**Handling:** Use in a well-ventilated area to avoid breathing vapors. Vapors are heavier than air and accumulate in low areas. Use only with adequate ventilation. Use appropriate respiratory protection when ventilations is inadequate. When using do not eat, drink, or smoke. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.

**Storage Conditions:** Store tightly sealed in a clean, dry place, and well ventilated place. Do not store in temperatures that exceed 125°F/52°C, because the containers could leak or rupture from pressure and expansion. Protect from freezing temperatures. If solvent is stored below -10°C (14°F), mix prior to use.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Exposure Limits:</u>	<u>TWA (ACGIH)</u>	<u>PEL (OSHA)</u>	<u>AEL*(DuPont)</u>
1,1,1,2,2,3,4,5,5-Decafluoropentane	None Established	None Established	200 ppm, 8 & 12 Hr. TWA 400 ppm, Ceiling
Isopropyl Alcohol	400 ppm , STEL	400 ppm, 8 Hr. TWA	200 ppm, 8 & 12 Hr. TWA

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

**Respiratory Protection:** Avoid breathing vapors, mists or spray. Use with sufficient ventilation especially for enclosed or low places. Vapors are heavier than air and can cause suffocation by reducing oxygen. In poorly ventilated areas, use an approved self-contained breathing apparatus.

**Eye Protection:** Avoid eye contact. Use chemical goggles or safety glasses with side shields.

**Skin Protection:** Avoid contact with skin. Use gloves impervious to this material.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Boiling Point:** 129°F/54°C

**Percent Volatile by Volume:** 100

**Density:** 1.42 g/cc @ 77°F/25°C

**Vapor Pressure:** 238 mmHg @ 77°F/25°C

**Vapor Density (Air=1):** N.A.

**Solubility in H<sub>2</sub>O:** Alcohol portion is miscible with water

**pH Information:** Neutral

**Evaporation Rate (CC14=1):** N.A.

**Form:** Liquid

**Appearance:** Clear & Colorless

**Color:** Colorless

**Odor:** Faint Alcohol odor

## 10. STABILITY AND REACTIVITY

**Stability:** Stable at normal temperatures and storage conditions.

**Chemical stability:** No decomposition if stored and applied as directed.

**Possibility of hazardous reactions:** No applicable data available.

**Material and Conditions to Avoid:** Open flames and high temperatures. Alkali or alkaline earth metals. Powder metals. Powdered metal salts, Nitrogen oxides (NO<sub>x</sub>), Acids, bases and strong oxidizing agents, Oxygen.

**Decomposition:** This product can be decomposed by high temperatures (flame, glowing metal surfaces, etc.) forming Fluorinated hydrocarbons, Hydrogen fluoride, Carbon dioxide, Carbon monoxide, Hydrogen chloride gas, Carbonyl fluoride.

## 11. TOXICOLOGICAL INFORMATION

### Animal Data

#### 1,1,1,2,2,3,4,5,5,5-Decafluoropentane (HFC-43-10mee)

**Inhalation:** 4 hour LC50: 114mg/l in rats, Central nervous system effects, Convulsions

**Oral:** LD50: > 5,000 mg/kg in rats

**Dermal:** LD50: > 5,000 mg/kg in rabbits

**Skin Irritation:** No skin irritation, rabbit

**Eye Irritation:** No eye irritation, rabbit

**Skin Sensitization:** Did not cause sensitization on laboratory animals., guinea pig

**Repeated dose toxicity:** Inhalation, rat

No toxicologically significant effects were found.

**Mutagenicity:** Animal testing showed no mutagenic effects.

**Reproductive toxicity:** Animal testing showed no reproductive toxicity.

**Teratogenicity:** Animal testing showed no developmental toxicity.

## **Isopropyl Alcohol**

### **Acute Toxicity**

**Ingestion:** LD50, Rat 4,700 - 5,800 mg/kg. Approximate. Lethal Dose, Human 100 ml

### **Skin Absorption**

LD50, Rabbit 13,000 mg/kg

### **Inhalation**

LC50, 8 h, Vapor, Rat, female 19,000 ppm

### **Sensitization Skin**

Did not demonstrate the potential for contact allergy in mice.

### **Repeated Dose Toxicity**

In animals, effects have been reported on the following organs: Liver. Kidney. Kidney effects have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans. Observations in animals include: Lethargy.

### **Chronic Toxicity and Carcinogenicity Inhalation:**

Did not cause cancer in laboratory animals.

### **Developmental Toxicity**

Isopropanol has been toxic to the fetus in laboratory animals at doses toxic to the mother.

### **Reproductive Toxicity**

In animal studies, did not interfere with reproduction.

### **Genetic Toxicology**

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative

## **12. ECOLOGICAL INFORMATION**

### **Aquatic Toxicity:**

#### **HFC-43-10mee:**

96 hour LC50 in fathead minnows: 27.2 mg/l

96 hour LC50 in rainbow trout: 13.9 mg/l

48 hour LC50 in Daphnia magna: 11.7 mg/l

72 hour EC50 in green algae: > 120mg/l

### **Isopropyl Alcohol**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

#### **Fish Acute & Prolonged Toxicity**

LC50, fathead minnow (*Pimephales promelas*), flow-through, 96 h: 9,640 - 10,400 mg/l

#### **Aquatic Invertebrate Acute Toxicity**

EC50, water flea *Daphnia magna*, 48 h, immobilization: 7,550 - 13,299 mg/l

#### **Aquatic Plant Toxicity**

EC50, alga *Scenedesmus* sp., Growth rate inhibition, 72 h: > 1,000 mg/l

#### **Toxicity to Micro-organisms**

EC50; activated sludge, respiration inhibition: > 1,000 mg/l

### 13. DISPOSAL CONSIDERATIONS

If recycling is not practicable, dispose of in compliance with local regulations. Remove to a permitted waste disposal facility. The product should not be allowed to enter drains, water courses or the soil.

### 14. TRANSPORT INFORMATION

U.S. DOT

Not Regulated

IATA

Not Regulated

IMDG

Not Regulated

### 15. REGULATORY INFORMATION

#### U.S. Federal Regulations

**TSCA:** All ingredients are listed in TSCA inventory.

1,1,1,2,2,3,4,5,5-DECAFLUOROPENTANE (CAS# 138495-42-8) is controlled by TSCA Section 5, Significant New Use Rule (SNUR; 40 CFR 721.5645) The approved uses are: precision and general cleaning, carrier fluid, displacement drying, printed circuit board cleaning, particulate removal, film cleaning, process medium, heat transfer fluid (dielectric and non-dielectric), and test fluid. Processors and users of this substance must also comply with the applicable general SNUR requirements set forth in 40 CFR 721 subpart A, including export notification requirements if applicable (40 CFR 721.20), and the applicable record keeping requirements set forth at 40 CFR 721.125.

### 16. OTHER INFORMATION

#### NPCA-HMIS Ratings:

Health - 1  
Flammability - 0  
Reactivity - 1

Personal Protective rating to be supplied by user depending on the conditions.

#### **FOR INDUSTRIAL USE ONLY**

#### **REVISION DATE: MARCH 2015**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user.