

## 1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

**Name:** MS-727  
ODC-Free Heavy Duty Solvent & Flux Remover

**Product Use:** Cleaning Solvent & Flux Remover  
for electronic assemblies.

### **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.

Specific Target Organ Toxicity (central nervous system): Category 3.

### **Label elements:**

#### **Signal word**

Warning

#### **Pictogram**



### **Hazard Statements**

Causes serious eye irritation.

May cause drowsiness and dizziness

### **Prevention Statements**

Avoid breathing dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear eye protection, protective clothing and protective gloves

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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.

Call a POISON CENTER or doctor/physician if you feel unwell.  
Store in a well-ventilated place. Keep container tightly closed.  
Dispose of contents/ container to an approved waste disposal plant.

### 3. INGREDIENTS

| <u>Material (s)</u>             | <u>CAS No.</u> | <u>Approximate %</u> |
|---------------------------------|----------------|----------------------|
| Isopropyl Alcohol               | 67-63-0        | 10 – 15              |
| 1,2-Trans-dichloroethylene      | 156-60-5       | 40 – 45              |
| Methyl Nonafluorobutyl Ether    | 163702-07-6    | 4 – 20               |
| Methyl Nonafluoroisobutyl Ether | 163702-08-7    | 24 – 40              |

### 4. FIRST AID MEASURES

**Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

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

**Skin:** Wash skin with water and soap as precaution. after contact. Get medical attention if symptoms occur.

**Oral:** DO NOT induce vomiting without medical advice. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

### 5. FIRE FIGHTING MEASURES

**Flash Point:** None

**Method:** TCC

**Suitable Extinguishing Media:** Water spray, Alcohol resistant foam, Dry chemical, Carbon dioxide (CO2)

**Unsuitable extinguishing media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

**Special hazards:** Vapors may form explosive mixture with air. Hazardous decomposition can occur when exposed to extreme heat. Hazardous decompositions products are Carbon monoxide, Carbon dioxide, Hydrogen Fluoride, Hydrogen Chloride.

**Special Fire Fighting Instruction:** In the event of fire, use personal protective equipment. Wear self-contained breathing apparatus, if necessary. 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 with water spray or fog. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Keep away from sparks, flames, and extreme heat. Evacuate personnel to safe area. Ventilate area with fresh air. Use appropriate personal protection equipment.

**Environmental precautions:** Prevent material from entering sewers, waterways, or low areas. Should not be released into the environment. Local authorities should be advised if significant spillages cannot be contained.

**Spill Cleanup:** Contain spillage, and then collect with inert 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. Use only in an area equipped with explosion-proof exhaust ventilation if advised by assessment of the local exposure potential. Do not eat, drink, or smoke. Do not swallow. 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. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Do not store in temperatures that exceed 115°F/46°C, because the containers could leak or rupture from pressure and expansion.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

| <u>Exposure Limits:</u>         | <u>TLV ( ACGIH)</u> | <u>TWA (OSHA)</u> |
|---------------------------------|---------------------|-------------------|
| Isopropyl Alcohol               | 200 ppm             | 400 ppm           |
| 1,2-Trans-Dichloroethylene      | 200 ppm             | 200 ppm           |
| Methyl Nonafluorobutyl Ether    | Not Established     | Not Established   |
| Methyl Nonafluoroisobutyl Ether | Not Established     | Not Established   |

**Respiratory Protection:** General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

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

**Skin Protection:** Use gloves impervious to this material when prolonged or frequently repeated contact occurs. For special applications, we recommend clarifying the resistance to chemicals of the protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday. Breakthrough time is not determined for the product. Change gloves often.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Boiling Point:** 113°F/45°C

**Percent Volatile by Volume:** 100%

**Density:** 1.22 gm/cc at 70°F/21°C

**Vapor Pressure:** 450 mmHg

**Vapor Density (Air=1):** >1

**Solubility in H<sub>2</sub>O:** Slight

**pH Information:** N.A.

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

**Form:** Liquid

**Appearance:** Clear

**Color:** Clear-Colorless

**Odor:** Slight alcohol odor

## 10. STABILITY AND REACTIVITY

**Reactivity:** Not classified as a reactivity hazard.

**Chemical stability:** Stable under normal conditions.

**Possibility of hazardous reactions:** Hazardous polymerization will not occur

**Material and Conditions to Avoid:** Heat, flames, sparks. Extreme temperatures and direct sunlight. Strong acids, Strong bases and Strong oxidizers.

**Decomposition:** This product can be decomposed by high temperatures (flame, glowing metal surfaces, etc.) forming Carbon monoxide, Carbon dioxide, Hydrogen Fluoride, Hydrogen Chloride, Perfluoroisobutylene (PFIB), Toxic vapors and gases.

## 11. TOXICOLOGICAL INFORMATION

### Methyl Nonafluorobutyl Ether

#### Acute Toxicity

**Dermal:** LD50 Estimated to be > 5,000 mg/kg

**Ingestion:** LD50 > 5,000 mg/kg, Rat

**Inhalation (Vapor):** LC50 > 1,000 mg/l, 4 h, Rat

**Skin Corrosion/Irritation:** No significant irritation in Rabbits.

**Serious Eye Damage/Irritation:** No significant irritation in Rabbits.

**Sensitization Skin:** Not classified in Guinea pigs.

**Sensitization Respiratory:** Data not available or insufficient for classification.

**Germ Cell Mutagenicity:** In vitro and In vivo – Not Mutagenic

**Carcinogenicity:** Data not available or insufficient for classification.

**Reproductive and/or Developmental Toxicity:** Not classified to female or male reproduction in rats by inhalation (Test results- NOAEL 129 mg/l, exposure 1 generation). Not classified for development in rats by inhalation (Test results - NOAEL 307 mg/l, during gestation).

**Single Dose Toxicity:** In Dogs, not classified by inhalation on the nervous system (Test results – LOAEL 913 mg/l, exposure 10 mins) and cardiac sensitization (Test results - NOAEL 913 mg/l, exposure 10 mins).

**Repeated Dose Toxicity:** In Rats, not classified by inhalation on bone, teeth, nails and/or hair (Test results – NOAEL 129 mg/l, exposure 11 weeks) or on liver, heart, skin, gastrointestinal tract, endocrine, immune, hematopoietic, nervous, respiratory systems, muscles, eyes, kidney, and/or bladder (Test results – NOAEL 155 mg/l, exposure 13 weeks). And in Rats, not classified by ingestion on liver, heart, endocrine, immune, hematopoietic, nervous, respiratory systems, eyes, kidney, and/or bladder (Test results – NOAEL 1000 mg/kg/day, exposure 28 days).

**Aspiration Hazard:** Data not available or insufficient for classification.

### Methyl Nonafluoroisobutyl Ether

#### Acute Toxicity

**Dermal:** LD50 Estimated to be > 5,000 mg/kg

**Ingestion:** LD50 > 5,000 mg/kg, Rat

**Inhalation (Vapor):** LC50 > 1,000 mg/l, 4 h, Rat

**Skin Corrosion/Irritation:** No significant irritation in Rabbits.

**Serious Eye Damage/Irritation:** No significant irritation in Rabbits.

**Sensitization Skin:** Not classified in Guinea pigs.

**Sensitization Respiratory:** Data not available or insufficient for classification.

**Germ Cell Mutagenicity:** In vitro and In vivo – Not Mutagenic

**Carcinogenicity:** Data not available or insufficient for classification.

**Reproductive and/or Developmental Toxicity:** Not classified to female or male reproduction in rats by inhalation (Test results- NOAEL 129 mg/l, exposure 1 generation). Not classified for development in rats by inhalation (Test results - NOAEL 307 mg/l, during gestation).

**Single Dose Toxicity:** In Dogs, not classified by inhalation on the nervous system (Test results – LOAEL 913 mg/l, exposure 10 mins) and cardiac sensitization (Test results - NOAEL 913 mg/l, exposure 10 mins).

**Repeated Dose Toxicity:** In Rats, not classified by inhalation on bone, teeth, nails and/or hair (Test results – NOAEL 129 mg/l, exposure 11 weeks) or on liver, heart, skin, gastrointestinal tract, endocrine, immune, hematopoietic, nervous, respiratory systems, muscles, eyes, kidney, and/or bladder (Test results – NOAEL 155 mg/l, exposure 13 weeks). And in Rats, not classified by ingestion on liver, heart, endocrine, immune, hematopoietic, nervous, respiratory systems, eyes, kidney, and/or bladder (Test results – NOAEL 1000 mg/kg/day, exposure 28 days).

**Aspiration Hazard:** Data not available or insufficient for classification.

### Trans-1,2-Dichloroethylene

**Acute Oral:** LD50: 7902 mg/kg in rats. Method: OECD Test Guideline 420

**Acute Dermal:** LD50: > 5,000 mg/kg in rabbits. Method: OECD Test Guideline 402

**Acute Inhalation:** 4 hour LC50: 95.5 mg/l in rats. Test atmosphere: vapor. Method: OECD Test Guideline 403

**Skin Corrosion/Irritation:** Mild skin irritation in rabbits. Method: OECD Test Guideline 404

**Serious Eye Irritation/ Eye Irritation:** Eye irritation in rabbits. Reversing within 7 days. Method: OECD Test Guideline 405

**Skin Sensitization:** Not classified based on available information.

**Respiratory Sensitization:** Not classified based on available information.

**Germ Cell Mutagenicity:** In vitro and In vivo – Not Mutagenic. Weight of evidence does not support classification as a germ cell mutagen.

**Carcinogenicity:** Not classified based on available information.

**Reproductive toxicity:** Embryo-fetal development: Negative in rat by inhalation. Method: OECD Test Guideline 414

**STOT-single exposure:** May cause drowsiness and dizziness.

**STOT-repeated exposure:** No significant health effects observed in animals at concentrations of 250 ppmV/6h/d or less by inhalation.

**Aspiration toxicity:** Not classified based on available information.

### Isopropyl Alcohol

**Acute Oral:** LD50, Rat, > 5,000 mg/kg

**Acute Dermal:** LD50, Rabbit, > 5,000 mg/kg

**Acute Inhalation (vapor):** 6 hour LC50, Rat > 25 mg/l

**Skin Corrosion/Irritation:** No skin irritation in rabbits.

**Serious Eye Damage/Irritation:** Irritation to eyes in Rabbits, reversing within 21 days.

**Skin Sensitization:** Buehler Test (skin contact) is negative in Guinea pig. Method OECD Test Guideline 406

**Respiratory Sensitization:** Not classified based on available information.

**Germ Cell Mutagenicity:** In vitro and In vivo - Not Mutagenic

**Carcinogenicity:** Negative in rats exposed 104 weeks by inhalation (vapor). Method: OECD Test Guideline 451

**Reproductive Toxicity:** Negative in rats by ingestion based on Two-generation reproduction toxicity study and Embryo-fetal development.

**STOT- single exposure:** May cause drowsiness or dizziness

**STOT- repeated exposure:** NOAEL, Rat exposed 104 weeks by inhalation (vapor): 12.5 mg/l

**Aspiration toxicity:** Not classified based on available information.

## 12. ECOLOGICAL INFORMATION

### **Trans-1,2-Dichloroethylene**

96 hour LC50 in Lepomis marochirus (Bluegill sunfish): 135 mg/l. Based on data from similar materials.  
48 hour EC50 in Daphnia magna (Water flea): 220 mg/l. Method: EPA-660/3-75-009  
72 hour EC50 in Pseudokirchneriella subcapitata (Green algae): 36.36 mg/l. Method: OECD Test Guideline 201

**Biodegradability:** Not readily biodegradable. Method: OECD Test Guideline 301D

**Bioaccumulative potential:** Partition coefficient: n-octanol/water: log Pow: 2.06

### **Isopropyl Alcohol**

**Toxicity to fish:** 96 hour LC50 in Pimephales promelas (fathead minnow): 10,000 mg/l

**Toxicity to daphnia and other aquatic invertebrates:** 24 hour EC50 in Daphnia magna (water flea): >10,000 mg/l

**Toxicity to microorganisms:** 16 hour EC50 in Pseudomonas putida: >1,050 mg/l

**Persistence and degradability:** Rapidly degradable. BOD: 1.19 (BOD5)COD: 2.23BOD/COD: 53%

**Bioaccumulative potential:** Partition coefficient: n-octanol/water: log Pow: 0.05

**Mobility in soil:** No data available.

## 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.

## **16. OTHER INFORMATION**

### **NPCA-HMIS Ratings:**

|              |     |
|--------------|-----|
| Health       | - 2 |
| Flammability | - 1 |
| Reactivity   | - 0 |

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

### **FOR INDUSTRIAL USE ONLY**

### **REVISION DATE: JANUARY 2022**

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.