



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 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.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
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	12 – 24
Methyl Nonafluoroisobutyl Ether	163702-08-7	20 – 32

4. FIRST AID MEASURES

Inhalation: Remove patient to fresh air. If not breathing, give artificial respiration. Give oxygen as necessary, if qualified a person is available. Get medical attention if necessary.

Eye: Flush with large amounts of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue to rinse. Get medical attention.

Skin: Wash with soap and water. Wash contaminated clothing before use. Get medical attention if necessary.

Oral: Rinse mouth. Never give anything by mouth to an unconscious person. Get medical attention, if you feel unwell.

Most important symptoms/effects, acute and delayed: Causes serious eye irritation. Symptoms may include stinging, tearing, swelling, and blurred vision. May cause drowsiness and dizziness. Headache, Nausea, vomiting.

5. FIRE FIGHTING MEASURES

Flash Point: None

Method: TCC

Suitable Extinguishing Media: 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: The product is not flammable but may burn at high temperatures. Product is not explosive. Hazardous decomposition can occur when exposed to extreme heat. Hazardous decomposition products are Carbon monoxide, Carbon dioxide, Hydrogen Fluoride, Hydrogen Chloride, Perfluoroisobutylene (PFIB), Toxic vapors and gases.

Special Fire Fighting Instruction: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. 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 or fog. Do not allow run-off from the fire-fighting to enter drains or water sources. 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. If using mechanical ventilation to disperse the vapors: Warning! The motor could be an ignition source and cause flammable gases or vapors in the spill area to burn. In case of insufficient ventilation, wear suitable respiratory equipment. Use appropriate personal protection equipment.

Environmental precautions: 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 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. Vapors are heavier than air and accumulate in low areas. Use only with adequate ventilation. Use appropriate respiratory protection when ventilation is inadequate. When using do not eat, drink, or smoke. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling. Avoid release to the environment.

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. Avoid strong acids, strong bases and strong oxidizers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Exposure Limits:</u>	<u>TWA (ACGIH)</u>	<u>TWA (OSHA)</u>	<u>TWA (AIHA)</u>
Isopropyl Alcohol	200 ppm	400 ppm	
1,2-Trans-Dichloroethylene	200 ppm	200 ppm	
Methyl Nonafluorobutyl Ether	Not Established	Not Established	750ppm
Methyl Nonafluoroisobutyl Ether	Not Established	Not Established	750 ppm

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 a full facepiece air-purifying respirator suitable for organic vapors or a 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 when prolonged or frequently repeated contact occurs.

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 H₂O: Slight
pH Information: Neutral	Evaporation Rate (CC14=1): N.A.
Form: Liquid	Appearance: Clear
Color: Clear-Colorless	Odor: Slight 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: Hazardous polymerization will not occur.

Material and Conditions to Avoid: Direct sunlight. Extremely high and low temperatures. 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: 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 sensitizing 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, 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: 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 sensitizing 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, 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

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

Acute Inhalation: 4 hour LC50: 95.4 mg/l in rats. Test atmosphere: vapor. Method: OECD Test Guideline 403

Skin Corrosion/Irritation: Mild skin irritation in rabbits

Serious Eye Irritation/ Eye Irritation: Mild eye irritation in rabbits. Reversing within 7 days.

Skin Sensitization: No data available
Respiratory Sensitization: No data available
Germ Cell Mutagenicity: Evidence does not support classification of a germ cell mutagen.
Carcinogenicity: Not classified based on available information.
Reproductive toxicity: Not classified based on available information.
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.
Aspiration toxicity: Not classified based on available information.

Isopropyl Alcohol

Acute Toxicity

Ingestion: LD50, Rat 4,700 - 5,800 mg/kg.
Skin Absorption: LD50, Rabbit 13,000 mg/kg
Inhalation: LC50, Rat, 16,000 ppm
Skin Corrosion/Irritation: Mild skin irritation in rabbits.
Serious Eye Irritation/ Eye Irritation: Eye irritation, 24 h, in rabbits.
Skin Sensitization: No data available
Respiratory Sensitization: No data available
Germ Cell Mutagenicity: No data available
Carcinogenicity: Not classified based on available information.
Reproductive toxicity: No data available
STOT-single exposure: Inhalation, Oral – May cause drowsiness and dizziness.
STOT-repeated exposure: No data available
Aspiration toxicity: No data available

12. ECOLOGICAL INFORMATION

Trans-1,2-Dichloroethylene

96 hour LC50 in *Lepomis macrochirus* (Bluegill sunfish): 135 mg/l
48 hour EC50 in *Daphnia magna* (Water flea): 220 mg/l
72 hour EC50 in *Pseudokirchneriella subcapitata* (Green algae): 36.36 mg/l

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

Isopropyl Alcohol

Ecotoxicity: The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Aquatic: Fish: 96 hour LC50 in Bluegill (*Lepomis macrochirus*): > 1400 mg/l
Persistence and degradability: No data is available on the degradability of this product.
Bioaccumulative potential: Partition coefficient n-octanol/ water (log Kow): 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 2018

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.