

1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: DPMS H0805A
LGW 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

Symbols

Exclamation mark

Pictograms



Hazard Statements

Causes eye irritation.

May cause drowsiness or dizziness.

Precautionary Statements

Do not pierce or burn, even after use.

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

Wash skin thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

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.

Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
Dispose of contents/ container in accordance with applicable local/national/international regulations.

3. INGREDIENTS

<u>Material (s)</u>	<u>CAS No.</u>	<u>Approximate %</u>
HFO-1234ze	29118-24-9	18-22
Isopropyl Alcohol	67-63-0	1 – 3
1,2-Trans-dichloroethylene	156-60-5	53 –56
Methyl Nonafluorobutyl Ether	163702-07-6	0.5 – 4
Methyl Nonafluoroisobutyl Ether	163702-08-7	4 – 8
Ethyl Nonafluorobutyl Ether	163702-05-4	1 – 8
Ethyl Nonafluoroisobutyl Ether	163702-06-5	8 – 15

4. FIRST AID MEASURES

Inhalation: Remove patient to fresh air. Get medical attention you feel unwell.

Eye: Immediately flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. Get medical attention.

Skin: Wash with soap and water. If you feel unwell, get medical attention.

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

Most important symptoms and effects, both acute and delayed: Central nervous system depression (headache, dizziness, drowsiness, incoordination, nausea, slurred speech, giddiness, and unconsciousness).

5. FIRE FIGHTING MEASURES

Flammability: This product is not flammable. **Test Method:** Ignition distance test and Enclosed space ignition test

Autoignition Temperature: Not Determined **Flammable Limits in Air, % by Vol.:** Not Determined

Extinguishing Media: Material will not burn. Use a fire fighting agent suitable for surrounding fire.

Special hazards arising from the substance or mixture: Exposure to extreme heat can give rise to thermal decomposition.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Chloride	During Combustion
Hydrogen Fluoride	During Combustion

Special Fire Fighting Instruction: Exposure to extreme heat can give rise to thermal decomposition and Self-contained breathing apparatus (SCBA) and full protective equipment are required.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Evacuate area. Ventilate area with fresh air. If aerosols are used in confined areas, provide mechanical ventilation to disperse or exhaust vapors. Keep away from sparks, flames, and extreme heat.

Environmental precautions: Avoid release to the environment. If cans rupture, contain spill. Prevent entry into sewer systems or bodies of water.

Methods and material for containment and cleaning up: Eliminate all potential ignition sources when cleaning up spill. Absorb spill with vermiculite or commercially available inorganic absorbent material. Collect as much of the spilled material as possible and place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

7. HANDLING AND STORAGE

Handling: Use in a well-ventilated area to avoid breathing vapors. Do not breathe thermal decomposition products. Avoid contact with skin or eyes. Do not eat, drink, or smoke when using this product. Wash thoroughly after handling. Avoid release in the environment. Avoid contact with oxidizing agents (chlorine, chromic acid etc.). Keep away from sparks, flames, and extreme heat.

Storage Conditions: Store in well-ventilated area. Keep container tightly closed. Do not store sources of heat, in direct sunlight or where temperatures exceed 100F/38C. Store away from oxidizing agents and strong bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<u>Exposure Limits:</u>	<u>TWA (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
Ethyl Nonafluorobutyl Ether	Not Established	Not Established
Ethyl Nonafluoroisobutyl Ether	Not Established	Not Established
HFO-1234ze	Not Established	Not Established

Respiratory Protection: Avoid breathing vapors, mists or spray. If necessary to keep exposure limits below permissible limits, use NIOSH approved respirators, such as an air-purifying respirator for organic vapors or a positive pressure supplied-air respirator if there is potential for over exposure from an uncontrolled release, exposure levels are not known or under any circumstances 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 chemically resistant when there is prolonged exposure or frequently repeated contact. Glove selection should be based on the use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Gloves made of neoprene are recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: N.A.

Percent Volatile by Volume: 100%

Density: 1.27 gm/cc at 70°F/21°C

Vapor Pressure: 360 mmHg

Vapor Density (Air=1): 2.26 at 77°F/25°C

Solubility in H₂O: Slight

pH Information: N.A.

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

Form: Aerosol

Appearance: Clear

Color: Clear-Colorless

Odor: Slight alcohol odor

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.

Material and Conditions to Avoid: Heat, sparks and/or flames. Strong bases and strong oxidizing agents.

Hazardous Decomposition products: Carbon monoxide, Carbon dioxide, Hydrogen Chloride, Hydrogen-Fluoride, Perfluoroisobutylene (PFIB), toxic vapors, gases or particulate may be products of thermal decomposition. (See section 5 for hazardous decomposition products during combustion).

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Ethyl Nonafluorobutyl Ether

Acute Toxicity

Dermal: LD50 estimated to be 2,000 – 5,000 mg/kg

Ingestion: LD50 > 2,000 mg/kg, Rat

Inhalation: LC50 > 989 mg/l, 4 h (vapor), Rat

Skin Corrosion/Irritation: No significant irritation in Rabbits

Serious Eye Damage/Irritation: No significant irritation in Rabbits

Skin Sensitization: Not classified in Guinea pigs

Respiratory Sensitization: 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 for development in rats by inhalation (Test results - NOAEL 260 mg/l, during gestation).

STOT-single exposure: In Dogs, some positive data, but the data is not sufficient for classification by inhalation (cardiac sensitization) (Test results – NOAEL 204 mg/l, exposure 17 mins). In Rats, not classified by inhalation (respiratory irritation) (Test results - NOAEL 989 mg/l, exposure 4 hours).

STOT-repeated exposure: In Rats, not classified by inhalation in liver, kidney and/or bladder, respiratory system, heart, endocrine system, gastrointestinal tract, bone marrow, hematopoietic system, immune system, nervous system (Test results – NOAEL 263.4 mg/l, exposure 4 weeks). In Rats, not classified by ingestion in blood, liver, kidney, and/or bladder, heart, bone marrow, endocrine, immune, hematopoietic, nervous, and respiratory systems, (Test results – NOAEL 1,000 mg/kg/day, exposure 28 days).

Aspiration Hazard: Data not available or insufficient for classification.

Ethyl Nonafluoroisobutyl Ether

Acute Toxicity

Dermal: LD50 estimated to be 2,000 – 5,000 mg/kg

Ingestion: LD50 > 2,000 mg/kg, Rat

Inhalation: LC50 > 989 mg/l, 4 h (vapor), Rat

Skin Corrosion/Irritation: No significant irritation in Rabbits

Serious Eye Damage/Irritation: No significant irritation in Rabbits

Skin Sensitization: Not classified in Guinea pigs

Respiratory Sensitization: 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 for development in rats by inhalation (Test results - NOAEL 260 mg/l, during gestation).

STOT-single exposure: In Dogs, some positive data, but the data is not sufficient for classification by inhalation (cardiac sensitization) (Test results – NOAEL 204 mg/l, exposure 17 mins). In Rats, not classified by inhalation (respiratory irritation) (Test results - NOAEL 989 mg/l, exposure 4 hours).

STOT-repeated exposure: In Rats, not classified by inhalation in liver, kidney and/or bladder, respiratory system, heart, endocrine system, gastrointestinal tract, bone marrow, hematopoietic system, immune system, nervous system (Test results – NOAEL 263.4 mg/l, exposure 4 weeks). In Rats, not classified by ingestion in blood, liver, kidney, and/or bladder, heart, bone marrow, endocrine, immune, hematopoietic, nervous, and respiratory systems, (Test results – NOAEL 1,000 mg/kg/day, exposure 28 days).

Aspiration Hazard: Data not available or insufficient for classification.

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 (vapor), Rat

Skin Corrosion/Irritation: No significant irritation in Rabbits.

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

Skin Sensitization: Not classified in Guinea pigs.

Respiratory Sensitization: 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).

STOT-single exposure: 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).

STOT-repeated exposure: 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 (vapor), Rat

Skin Corrosion/Irritation: No significant irritation in Rabbits.

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

Skin Sensitization: Not classified in Guinea pigs.

Respiratory Sensitization: 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).

STOT-single exposure: 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).

STOT-repeated exposure: 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. Method: OECD Test Guideline 420

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

Acute Inhalation: 4 h, 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

Carcinogenicity: Not classified based on available information.

Reproductive toxicity: Not classified for development in rats by inhalation (Test results - NOAEL 24 mg/l, during organogenesis)

STOT-single exposure: May cause drowsiness and dizziness. In Rats by ingestion on central nervous system depression (Test results - LOAEL 4500 mg/kg)

STOT-repeated exposure: In Rats, not classified by ingestion on heart, kidney and/or bladder, immune and respiratory system (Test results – NOAEL 2000 mg/kg/day, exposure 14 weeks) and on blood/liver (Test results – NOAEL 125 mg/kg/day, exposure 14 weeks).

Aspiration toxicity: Not classified based on available information.

Isopropyl Alcohol

Acute Toxicity

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

Skin Absorption: LD50, Rat, >5,000 mg/kg

Inhalation: LC50, 4 h, Vapor, Rat, 72.6 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: Not classified based on available information.

Respiratory Sensitization: Not classified based on available information.

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

Carcinogenicity: Negative based in inhalation testing in rats.

Reproductive Toxicity: Not classified based on available information.

STOT- single exposure: May cause drowsiness or dizziness

STOT- repeated exposure: Not classified based on available information.

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: LC50, fathead minnow (*Pimephales promelas*), 96 h: 9,640 mg/l

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

Toxicity to microorganisms: EC50, (*Pseudomonas putida*), 16 h: >1,050 mg/l

Persistence and degradability: Rapidly degradable.

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

Mobility in soil: No data available.

13. DISPOSAL CONSIDERATIONS

Comply with federal, state and local regulations. Remove to a permitted waste disposal facility.

14. TRANSPORT INFORMATION

U.S. DOT

Limited Quantity

IATA

Proper Shipping Name: Aerosols, Non-Flammable

Hazard Class: 2.2

Identification No. UN1950

Packing Group: None

IMDG

Proper Shipping Name: Aerosols, Non-Flammable

Hazard Class: 2.2

Identification No. UN1950

Packing Group: None

15. REGULATORY INFORMATION

U.S. Federal Regulations

TSCA: All ingredients are listed in TSCA inventory.

SARA 304 Extremely Hazardous Substances Reportable Quantity: This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity: This material does not contain any components with a section 302 EHS RQ.

SARA 311/312 Hazards: Serious eye damage or eye irritation. Specific target organ toxicity (single or repeated exposure).

SARA 313: This material contains the following component that is subject to reporting levels established by SARA Title III, Section 313: Isopropyl Alcohol (Propan-2-ol), 67-63-0; 1 - 3 % by wt.

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: DECEMBER 2021

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.