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

Avoid breathing dust/fume/gas/mist/vapors/spray.
Use in a well-ventilated area.
Wear eye/face protection.
Wash thoroughly after handling.

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.
Pressurized container: Do not pierce or burn, even after use.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified: None

3. INGREDIENTS

Material (s)	CAS No.	Approximate %
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	2 – 7
Methyl Nonafluoroisobutyl Ether	163702-08-7	2 – 7
Ethyl Nonafluorobutyl Ether	163702-05-4	3 – 13
Ethyl Nonafluoroisobutyl Ether	163702-06-5	3 – 13

4. FIRST AID MEASURES

Inhalation: Remove patient to fresh air. 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. Remove contact lenses if easy to do. Continue rinsing. Get medical attention.

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

Oral: Rinse mouth. Never give anything by mouth to an unconscious person. Get medical attention.

Notes to Physician: Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

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

Autoignition Temperature: 766^{O}F/408^{O}C **Flammable Limits in Air, % by Vol.:** 5.9% volume LEL
14.5% volume UEL

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

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

6. ACCIDENTAL RELEASE MEASURES

Evacuate area. Ventilate area with fresh air. If aerosols are used in confined areas, provide mechanical ventilation to disperse the vapors. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Contain 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.

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. Where ventilation is inadequate, use appropriate respiratory protection. 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.

Storage Conditions: Store in a clean, dry area. Do not store sources of heat, in direct sunlight or where temperatures exceed 120F/49C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:	TWA (ACGIH)	TWA (OSHA)	TWA (AIHA)
Isopropyl Alcohol	200 ppm	400 ppm	
1,2-Trans-Dichoroethylene	200 ppm	200 ppm	
Methyl Nonafluorobutyl Ether	Not Established	Not Established	750ppm
Methyl Nonafluoroisobutyl Ether	Not Established	Not Established	750 ppm
Ethyl Nonafluorobutyl Ether	Not Established	Not Established	200 ppm (3M)
Ethyl Nonafluoroisobutyl Ether	Not Established	Not Established	200 ppm (3M)
HFO-1234ze	Not Established	Not Established	1,000 ppm (Honeywell)

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. 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 chemically resistant to this material when prolonged or frequently repeated contact occurs. Gloves made of Fluoroelastomer are recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: N.A.

Density: 1.27 gm/cc at 70^{O}F/21^{O}C

Vapor Density (Air=1): 2.26 at 77^{O}F/25^{O}C

pH Information: N.A.

Form: Aerosol

Color: Clear-Colorless

Percent Volatile by Volume: 100%

Vapor Pressure: 360 mmHg

Solubility in H_2O: Slight

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

Appearance: Clear

Odor: Slight alcohol odor

10. STABILITY AND REACTIVITY

Stability: Stable.

Material and Conditions to Avoid: Exposure to elevated temperatures. Strong bases and strong oxidizing agents.

Decomposition: Hydrogen Chloride**,** Hydrogen-Fluoride, Perfluoroisobutylene (PFIB) may be products of thermal decomposition. (See section 5 for hazardous decomposition products during combustion).

Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Ethyl Nonafluorobutyl Ether

Acute Toxicity
Ingestion: LD50 > 2,000 mg/kg, Rat
Inhalation: LC50 > 989 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 toxic to female or male reproduction in rats. Some positive developmental data exist, but the data are not sufficient for classification.
Repeated Dose Toxicity: In Rats, some positive data exists, on the following organs: Blood, liver, kidney and/or bladder, respiratory system, but data not sufficient for classification.
Single Dose Toxicity: In Dogs, some positive data exists for cardiac sensitization, but not sufficient for classification.
Aspiration Hazard: Not an aspiration hazard

Ethyl Nonafluoroisobutyl Ether

Acute Toxicity
Ingestion: LD50 > 2,000 mg/kg, Rat
Inhalation: LC50 > 989 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 toxic to female or male reproduction in rats. Some positive developmental data exist, but the data are not sufficient for classification.
Repeated Dose Toxicity: In Rats, some positive data exists, on the following organs: Blood, liver, kidney and/or bladder, respiratory system, but data not sufficient for classification.
Single Dose Toxicity: In Dogs, some positive data exists for cardiac sensitization, but not sufficient for classification.
Aspiration Hazard: Not an aspiration hazard

Methyl Nonafluorobutyl Ether

Acute Toxicity
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 toxic to female or male reproduction in rats. Some positive developmental data exist, but the data are not sufficient for classification.
Repeated Dose Toxicity: In Rats, some positive data exists, on the following organs: Liver, bone, nails and/or hair and Endocrine System, but not sufficient for classification.
Single Dose Toxicity: In Dogs, some positive data exists on the nervous system, but not sufficient for classification.
Aspiration Hazard: Not an aspiration hazard

Methyl Nonafluoroisobutyl Ether

Acute Toxicity
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 toxic to female or male reproduction in rats. Some positive developmental data exist, but the data are not sufficient for classification.
Repeated Dose Toxicity: In Rats, some positive data exists, on the following organs: Liver, bone, nails and/or hair and Endocrine System, but not sufficient for classification.
Single Dose Toxicity: In Dogs, some positive data exists on the nervous system, but not sufficient for classification.
Aspiration Hazard: Not an aspiration hazard

Trans-1,2-Dichloroethylene

Oral: LD50: 7902 mg/kg in rats
Dermal: LD50: > 5,000 mg/kg in rabbits
Inhalation: 4 hour LC50: 95.4 mg/l in rats
Target Organs: Central nervous system depression
Skin Corrosion/Irritation: Minimal irritation in Rabbits
Serious Eye Damage/Irritation: Moderate irritation in Rabbits
Sensitization Skin: Data not available or insufficient for classification
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 toxic to female or male reproduction in rats. Some positive developmental data exist, but the data are not sufficient for classification.
Repeated Dose Toxicity: In Rats, some positive data exists, on the following organs: kidney and/or bladder, blood and liver, but not sufficient for classification.
Single Dose Toxicity: In Human, some positive data exists causing central nervous system depression and respiratory irritation, but not sufficient for classification.
Aspiration Hazard: Not an aspiration hazard

Isopropyl Alcohol

Acute Toxicity
Ingestion: LD50, Rat, 4,710 mg/l
Skin Absorption: LD50, Rabbit, 12,870 mg/kg
Inhalation: LC50, 4 h, Vapor, Rat, 72.6 mg/l
Skin Corrosion/Irritation: No significant irritation in multiple animal species.
Serious Eye Damage/Irritation: Serious eye irritant 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: Some positive data exists with inhalation in rats, but the data is not sufficient for classification.
Reproductive and/or Developmental Toxicity: Some positive developmental data exist in rats, but the data are not sufficient for classification.
Repeated Dose Toxicity: In Rats, some positive data exists, on the following organs: bladder and kidney, but not sufficient for classification.
Single Dose Toxicity: In Humans, some positive data exists on the nervous and respiratory systems, but not sufficient for classification. May cause drowsiness or dizziness, if ingested.
Aspiration Hazard: Not an aspiration hazard

12. ECOLOGICAL INFORMATION

Test Organism	Test Type	Result
Water flea (Daphnia magna)	48 hours Effect Conc. 50%	>300 mg/l
Bluegill (Lepomis macrochirus)	96 hours Lethal Conc. 50%	>190 mg/l

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

U.S. DOT
Proper Shipping Name: Consumer Commodity
Hazard Class: ORM-D
Identification No. None
Packing Group: None

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 313 Regulated Chemicals: Trans-dichloroethylene

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: SEPTEMBER 2015