1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Name: Dry Film RA/IPA-5
PTFE Release Agent/Dry Lubricant

Product Use: Release Agent or Dry Lubricant

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
Flammable liquids: Category 2
Serious Eye Damage/Eye Irritation: Category 2A
Specific Target Organ Toxicity (single exposure): Category 3

Label elements:
Signal word
Danger

Pictograms

Hazardous warnings
Highly flammable liquid and vapor.
Causes serious eye irritation.
May cause respiratory irritation
May cause drowsiness or dizziness

Precautionary Statements
Keep away from heat/sparks/open flames/hot surfaces and other ignition sources – No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing fumes/gas/vapor/spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/eye protection/face protection.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing.
Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Call a POISON CENTER or doctor/ physician if you feel unwell.
If eye irritation persists: Get medical advice/ attention.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction
Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Dispose of contents/container to an approved waste disposal plant.

Other Hazards
The thermal decomposition vapors of fluorinated polymers may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco. Repeated episodes of polymer fume fever may result in persistent lung effects.

3. INGREDIENTS

Material (s)	CAS No.	Approximate %
Isopropyl Alcohol	67-63-0	94 – 96

4. FIRST AID MEASURES

Inhalation: If inhaled, immediately remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Eye: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

Skin: Immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. If skin irritation persists, call a physician.

Oral: DO NOT INDUCE VOMITING. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give anything by mouth to an unconscious person. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash Point: 53°F /12°C

Method: Tag Closed Cup

Autoignition Temperature: 750°F /399°C

Flammable Limits in Air, % by Vol.:
LEL: 2%
UEL: 12%

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

Unsuitable extinguishing media: No applicable data available.

Special hazards: Flammable liquid. Vapor forms explosive mixture with air. Vapors are heavier than air and may spread along the floor. Vapors or gases may travel considerable distances to ignition sources and flash back. Hazardous gases/vapors produced in fire are carbon monoxide, carbon dioxide and fluorinated compounds.

Special Fire Fighting Instruction: In the event of fire, wear self-contained breathing apparatus and other protective clothing to prevent contact with the skin and eyes.

Further information: Keep unopened containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel): Use personal protective equipment. Avoid breathing vapors, mist or gas. Evacuate personnel to safe area. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors accumulate in low areas. In case of insufficient ventilation, wear suitable respiratory equipment.

Environmental precautions: If containers rupture, prevent material from entering sewers, waterways, or low areas.

Spill Cleanup: Contain spillage. Soak up with inert absorbent material (e.g. sand, silica gel, universal binder, and sawdust) and put the material into a waste disposal container for disposal according to local regulations.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin, or clothing. Do not inhale vapor or mist. Wash thoroughly after handling. Keep away from heat, sparks, and open flame. Take measures to prevent the buildup of electrostatic charge. Do not consume food, drink or smoke in areas that may be contaminated with this material.

Storage Conditions: Keep container tightly closed and store in a clean, cool and dry area that is well-ventilated. Do not store sources of heat, in direct sunlight or where temperatures exceed $120^{O}F/49^{O}C$.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:	TWA (ACGIH)	TWA (OSHA)
Isopropyl Alcohol	200 ppm , TWA	400 ppm, TWA

Use only with adequate ventilation.

Vapors are heavier than air posing a hazard of asphyxia if they are trapped in enclosed or low places. Mechanical ventilation should be used in these areas.

Eye Protection: Wear safety glasses or coverall chemical splash goggles.

Respiratory Protection: Wear NIOSH approved respiratory protection, when there is potential for airborne exposures to be greater than applicable limits.

Skin Protection: Where there is potential for skin contact have available and wear as appropriate impervious gloves.

Do not smoke in area. Wash after handling. Do not eat or drink when using the material.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: 82^{O}C/180^{O}F

Density: 0.8 g/cc at 77^{O}F/25^{O}C

Vapor Density (Air=1): 2.1

pH Information: 4 –7

Form: Liquid

Color: White

Percent Volatile by Volume: 95%

Vapor Pressure: 33 mmHg at 68^{O}F/20^{O}C

Solubility in H_2O : IPA is soluble, but polymer is not.

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

Appearance: Milky

Odor: Characteristic alcohol

10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal temperatures and storage conditions.

Possibility of hazardous reactions: Reacts with Aluminum above 49C. Polymerization will not occur.

Conditions to Avoid: Heat, sparks, and flames. Decomposes on heating. Decomposition temperature is 572^{O}F/300^{O}C. Avoid static discharge.

Incompatible Materials: Avoid contact with: Aldehydes. Halogenated compounds. Strong acids. Strong oxidizers. Strong bases. Reactive metals. Alkali metals. Alkaline earth metals.

Hazardous decomposition products: Carbon oxides. Fluorinated compounds.

11. TOXICOLOGICAL 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 Irritaion/ 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

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 date 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

Empty containers must not be burned because of the explosive hazard. Recover and reclaim or recycle, if practical. Comply with Federal, State/Provincial and Local regulations. Remove to a permitted waste disposal facility.

14. TRANSPORT INFORMATION

U.S. DOT
Proper Shipping Name: Isopropanol
Hazard Class: 3
Identification No. UN1219
Packing Group: II

IATA
Proper Shipping Name: Isopropanol
Hazard Class: 3
Identification No. UN1219
Packing Group: II

IMDG
Proper Shipping Name: Isopropanol
Hazard Class: 3
Identification No. UN1219
Packing Group: II

15. REGULATORY INFORMATION

U.S. Federal Regulations

TSCA: All ingredients are listed in TSCA inventory.

SARA 313 Regulated Chemical (s): Isopropyl Alcohol

Title III Hazard Classification: Acute Health Hazard: Yes
Chronic Health Hazard: Yes
Fire: Yes
Reactivity/Physical Hazard: Yes
Pressure: Yes

16. OTHER INFORMATION

NPCA-HMIS Ratings:

Health	- 2
Flammability	- 3
Reactivity	- 0

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

FOR INDUSTRIAL USE ONLY

REVISION DATE: FEBRUARY 2018