New Generation of Improved Release Agent/Dry Lubricant(s) with PTFE

Designed For Various Applications and Dry Times

Aerosol

MS-122AD
MS-122AX
MS-122RB
MS-122XD

Note: *We also offer custom formulations for different Spray patterns and drying times.*

Bulk Liquid

MS-143XD
DPMS-A1229B
MS-143E (Formerly DPMS-C0906B)
MS-143H (Formerly DPMS-C0831B)
DPMS-A0305B Flammable.

To select the most suitable product for your application, please call our **Technical Service Department (8 AM-4 PM E.T.): 800.992.2424 or 203.743.4447 In Canada, call 800.323.4621**

These new and improved Miller-Stephenson Release Agent/Dry Lubricants, with PTFE of smaller particle size, use the magic of DuPont's Teflon® chemistry to create suspensions of low molecular weight polytetrafluoroethylene (PTFE) fluoropolymers – white, waxy particles of PTFE with the slickness of Teflon® in an easy to apply form. The outstanding lubricity and low coefficient of friction of PTFE is perfect for use as a dry film lubricant and as a release agent in molding operations. Miller-Stephenson's Release Agent/Dry Lubricants are:

- Slippery, with outstanding lubricity (low coefficient of friction).
- Thermally stable (from cryogenic to 500^{O} F/260^{O}C).
- Nonflammable (Except for DPMS-A0305B)
- Chemically inert
- Insoluble
- Non-migrating (contain no silicones).
- Bulk formulations available in different concentrations (3% is adequate for most applications)

Use these release agents for application to molds up to 212ºF (100ºC). The different products are designed for varying drying rates to be selected on the basis of environmental and use conditions. For preheated molds above 212ºF (100ºC), use water-based MS-136W or MS-145W.

Release Agent Applications

These release agents can be used to mold plastics, rubbers, resins, acrylics, epoxies, urethanes, nylons, phenolics, polycarbonates, polystyrene, and elastomers. Air dried coatings typically provide 8 to 10 releases between applications. We have two new formulations, MS-122AX and MS-122RX that contain proprietary additives to provide even more releases between applications. The transfer of PTFE to molded parts is negligible, minimizing interference with post finishing operations.

Fused Coatings Procedure - After applying the release agent, heat the surface to 581^{O}F to 600^{O}F. Measure the surface temperature directly with a thermocouple. You may observe a change in coating appearance from an opaque white to a darker, translucent look and then to a clear and wet look. Maintain the temperature of the coated surface for 5 to 10 minutes. If a white residue is left on the metal surface, buff with a soft cloth. When the coating is fused, 25 or more releases are typical.

Dry Lubricant Applications

Miller-Stephenson's Dry Lubricant can be used on many materials, including:

- Metal
- Glass
- Rubber
- Wood
- Ceramics
- Elastomers
- Paper
- Plastics

Miller-Stephenson's Dry Lubricant minimizes "slipstick" problems, and is most effective in low speed, light load applications.

Specific uses include:

- Gears.
- Wire and cable.
- Thread, cord and rope.
- Chain drives.
- Metalworking, including extrusion, rolling, drawing and sizing.
- Machine parts and tools, including nuts, bolts, thread connections, locks, power saw blades and machine mechanisms.
- Hardware, including hinges, locks and catches, window guides, and guides on cabinet drawers.

Surface Preparation

All surfaces should be clean and dry before applying a Miller-Stephenson Release Agent/Dry Lubricant. Use MS-782 to remove PTFE release material from molds.

Application Methods

These formulations should be agitated before use as the PTFE will settle during storage. The surface material should be tested for compatibility before use. One application should provide multiple release cycles.

For aerosol applications, spray light coating 5 – 10 inches from the surface. The coating will dry rapidly.

For bulk applications, these release agents may be applied by spraying, dipping, wiping or brushing.

Dipping- Dipping is useful for coating small parts, coils of wire, and items of varied shapes. Coating levels are determined by the concentration of the PTFE, rate of withdrawal, and number of applications. A single dip is adequate for most uses.

Wiping or Brushing- This method is especially useful for coating continuous surfaces such as rods, tubing or sheets. It is also appropriate for coating small, selected areas of a larger part.

Properties of PTFE

Molecular Weight 3000
Density (grams/cc) 2.20
Particle size (microns)
mean……..3.70
range…….1 to 15
Melting Point .....581^{O}F (305^{O}C)

Thermal Stability

PTFE has excellent high temperature properties. It can be heated above its melting point before appreciable decomposition begins. PTFE contains a range of molecular weights. Prolonged heating can cause sublimation of the lower molecular weight fractions with accompanying weight loss. The actual sublimation rate is dependent on temperature, area, and airflow.

Chemical Stability

PTFE is completely resistant to attack by concentrated nitric acid, concentrated hydrochloric acid, 30% aqueous sodium hydroxide, and 30% alcoholic potassium hydroxide at temperatures of 212ºF. Concentrated sulfuric acid attacks the fluorotelomer at 212ºF but has no effect at room temperature.

Solubility

PTFE is insoluble in all non-fluorinated solvents. Approximately 10% of the lowest molecular weight fractions are soluble in fluorinated solvents.

Safety

Material Safety Data Sheets (MSDS) are available upon request.

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