



FluoSolv® 612

3M Novec 612 Replacement Fluid

Technical Information

Magnesium Protection Engineered Fluid

Introduction

FluoSolv® 612 is a clear, colorless, low-odor fluorinated ketone engineered as a direct, drop-in replacement for 3M™ Novec™ 612 in molten Magnesium protection applications. It provides exceptional cover gas protection to prevent oxidation and burning during casting processes, offering a safe, efficient, and environmentally responsible solution.

Key Features & Benefits

- Environmentally superior - eliminates Ozone Depletion Potential concerns and dramatically reduces Global Warming Potential compared to SF₆.
- Usage-efficient - effective at much lower concentrations due to higher reactivity at molten Magnesium temperatures.
- Lower emissions - reacts effectively with the metal surface, minimizing unreacted release.
- Safe and easy to handle - liquid at room temperature, pumpable, and non-flammable ester with low toxicity.

Applications

FluoSolv® 612 acts as a **cover gas** to safeguard molten Magnesium during operations such as open casting, die casting (hot or cold chamber), sand casting, investment casting, alloy preparation, and scrap remelting.

FluoSolv® 612 is designed to replace SF₆ and SO₂, reducing greenhouse gas emissions by over 99%.

Material Compatibility

Metals & Equipment Materials:

- Highly compatible with carbon steel, stainless steel, Aluminum, brass, and Copper - no corrosion or degradation observed even with prolonged exposure.
- Ideal for use in molten Magnesium systems and associated gas mixing and transport equipment without need for material upgrades.

Seals, Gaskets & Elastomers:

- Excellent compatibility with polymeric seals and gaskets typically used in valves and gas mixing meters.
- Important caution: Fluoroelastomers (e.g. FKM), commonly used in casting machinery, are not recommended - they may deteriorate or fail.

Physical Properties

Property	NuGenTec FluoSolv® 612	HCFC 141b	HCFC-225
Boiling Point °C	49.2	32	54
Liquid Density (g/mL)	1.6	1.23	1.55
Solubility of Solvent in Water	Negligible	210	330
Vapor Pressure at 25°C	~0.404 bar (5.85 psia)	569	290
Global Warming Potential (GWP)	1	700	180/160
Ozone Depleting Chemical	0	0.10	0.03
Volatile Organic Compounds (VOC)	1600g/L	Exempt	-
Flash point	None	None	None

Free Solvent Sample and Vapor Degreaser for Testing

NuGenTec offers a small loaner vapor degreaser and a loaner 5-gallon pail to assist with your testing. The loaner vapor degreaser plugs into a standard wall outlet and fits on a standard pallet. This allows you to test our FluoSolv® solvent in your own controlled environment without immediately changing the solvent in your current equipment.

FluoSolv® 612 is available for purchase in three package sizes:

- 55-gal phenolic lined metal drums
- 5-gal phenolic lined pails
- 1-gal HDPE plastic bottles

For further information about FluoSolv® 612 for testing or purchasing please contact:

Nugentec

1155 Park Ave

Emeryville, CA 94608

Tel: 800-409-3142 fluosolv@nugentec.com

