



Zonyl[®] MP 1100

fluoroadditive

Description

Zonyl[®] MP 1100 fluoroadditive is a white free-flowing PTFE powder designed for use as an additive in other materials to impart low-surface energy and other fluoropolymer attributes. In particular, it has been found well suited for use in inks and coatings where a narrow particle size distribution is desired. With plastics and elastomers, it provides improved lubricity and wear resistance. Added to lubricants, it can enhance performance under severe conditions. Zonyl[®] MP 1100 can be used at temperatures from -190 to 250°C (-310 to 480°F).

Zonyl[®] MP 1100 is generally intended to be used as an additive, although it can also be used alone as a dry lubricant. Its properties (see **Table 1**), including a relatively low molecular weight, make this material unsuitable as a molding or extrusion resin. It, therefore, is not a replacement for any of the Teflon[®] high molecular weight fluoropolymer resins in these applications.

Table 1
Typical Property Data for
Zonyl[®] MP 1100 Fluoroadditive

Property	Test Method	Unit	Value
Average Bulk Density	ASTM D4894	g/L	300
Melting Peak Temperature	ASTM D4894	°C °F	325 ±5 617
Particle Size Distribution (Volume Basis)	Laser Microtrac	µm	10% <0.3 Avg. 4 90% <8
Specific Surface Area	Nitrogen Adsorption	m ² /g	5–10

Note: Meets ASTM D5675, Type I, Grade 2, Class A.

Zonyl[®] MP 1100 is inert to nearly all industrial chemicals and solvents. It is a good electrical insulator, does not absorb water, and is highly resistant to weathering.

Zonyl[®] MP 1100 tends to form clumps of particles, but it can be deagglomerated during mixing and blending operations. Agglomerates of the resin are friable—a characteristic that helps in producing an intimate mixture with host materials, which also means that the particle size distribution measured for the resin is dependent on the measuring method used. As made, the resin comprises of loose 150 µm agglomerates of 0.2 µm particles. As the resin is dispersed in a solvent for particle size measurement, the agglomerates break down and could eventually approach the 0.2 µm particle size.

Typical Applications

Zonyl[®] MP 1100 is used as an additive (at approximately 1–3% by weight) in the preparation of offset, gravure, and flexographic printing inks. It improves certain properties, such as rub resistance, slip, surface smoothness, and gloss. In addition, “blocking” can also be reduced. Typically, Zonyl[®] MP 1100 is used in combination with polyethylene waxes to obtain the desired degree of property modification. Due to its small particle size and narrow particle size distribution, Zonyl[®] MP 1100 has been found useful in a variety of coating systems. By adding Zonyl[®] MP 1100, considerable changes in the properties of the coating system can be achieved:

- Improvement of nonstick and antifriction properties
- Reduction of friction coefficient and increase in rub resistance
- Improvement in corrosion inhibition
- Reduction of wettability

Plastic and elastomeric parts containing Zonyl[®] MP 1100 fluoroadditive have shown improved lubricity and reduced friction and wear compared with similar parts made without this additive. Typical loadings of 5–20% by weight were used.

Safety Precautions

WARNING!

VAPORS CAN BE LIBERATED THAT MAY BE HAZARDOUS IF INHALED.

Before using *Zonyl*[®] MP 1100, read the Material Safety Data Sheet and the detailed information in the "Guide to the Safe Handling of Fluoropolymer Resins," latest edition, published by the Fluoropolymers Division of The Society of the Plastics Industry—available from DuPont.

Open and use containers only in well-ventilated areas using local exhaust ventilation (LEV). Vapors and fumes liberated during hot processing, or from smoking tobacco or cigarettes contaminated with *Zonyl*[®] MP 1100, may cause flu-like symptoms (chills, fever, sore throat) that may not occur until several hours after exposure and typically pass within 24 hours. Vapors and fumes liberated during hot processing should be exhausted completely

from the work area; contamination of tobacco with polymers should be avoided.

Mixtures with some finely divided metals, such as magnesium or aluminum, can be flammable or explosive under some conditions.

Packaging

Zonyl[®] MP 1100 is packaged in 25-kg (55.1-lb) and 45.5-kg (100-lb) drums. Eight 25-kg or four 45.5-kg drums are packaged on one pallet for ease of shipping, handling, and storage.

Freight Classification

Zonyl[®] MP 1100 when shipped by rail or express is classified "Plastic, Synthetic, O.T.L., NOIBN." Resin shipped by truck is classified "Plastics, Materials Granules."

For more information on *Zonyl*[®]:

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CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement," H-50102.



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