

TFMA-6 TECHNICAL DATA SHEET

OVERVIEW

TFMA-6 is a hydrophobic and oleophobic dry-melt additive for polypropylene and polycarbonate. TFMA-6 is commonly used to manufacture low retention polypropylene pipette tips. When compounded into polypropylene at a concentration of 0.4 to 1%, injection molded devices display significantly reduced surface energy and water contact angles between 100-115°. When TFMA-6 is compounded into polycarbonate at 0.4%, water contact angles increase from ~85° to ~104°. TFMA-6 is REACH and POP compliant.

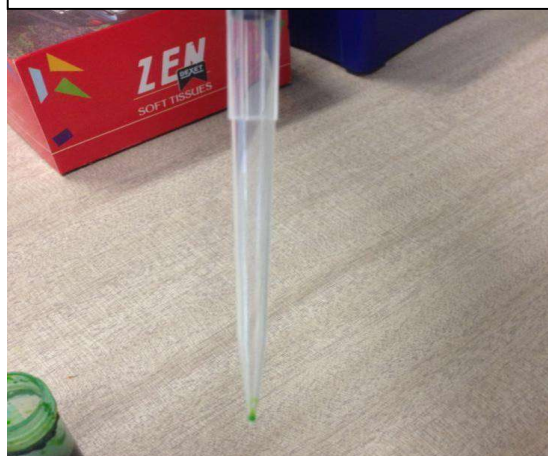
FEATURES

- Hydrophobic and oleophobic
- Low surface energy improves water and oil repellency
- Cost effective alternative to plasma and dip coating methods for low retention tips manufacture
- REACH and POP compliant

Regular pipette tip after dispensing fluid



Low retention tip after dispensing fluid



TECHNICAL DATA

Concentration	>95%
Appearance	White to brown solid
Ionic character and structure	Non-ionic fluorinated polyolefin
Density	1.02 g/ml
Flammable	No
Melting point	>60 °C
Hazardous decomposition	> 250°C
Shelf life	2 years
Freeze thaw stability	Freeze-thaw stable
Toxicity	Non-toxic
Odor	Odorless
Package options	- 1 pound can - 40 pounds in 6-gallon pail

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HOT MELT BLENDING AND COMPOUNDING NOTES

Compounding is a process, in which a polymer resin is melted and mixed with additives such as TFMA-6. Compounding is defined as the process of homogeneously incorporating additives and modifiers into polypropylene. It is also known as hot or melt blending.

TFMA is a hydrophobic melt blending additive for polypropylene. TFMA is provided as a solid that is usually pulverized into a fine powder by a compounder. Melt the polypropylene and mix in TFMA at concentration of 0.2% to 1.0%. Alternatively, a master batch of 12.5% TFMA can be produced and then the 12.5% composite mixed with the melted polypropylene. It is important that uniform distribution of TFMA is achieved in the polypropylene. The end mixture or composite is now ready for injection molding using methods appropriate for the part being manufactured. The TFMA containing composite must be maintained at temperatures below 250°C. After injection molding, TFMA may take 2 to 10 days to fully bloom on the surface and provide low retention properties. If quick surface presentation is desired, 1% TFMA in polypropylene may be required.

In the USA, TFMA is most often compounded with the polypropylene homopolymer PD702. PD702 is used for extrusion and injection molding of opaque containers including pipette tips, tubes, closures, and other labware. TFMA injection molded parts may be irradiated with either E-beam or gamma irradiation. Gamma irradiation is the preferred method for sterilizing TFMA pipette tips because it prevents TFMA migration during storage in hot and high humidity conditions. It is important that irradiation be conducted after TFMA has bloomed and low retention properties have fully developed. Premature irradiation and sterilization will prevent TFMA presentation on the surface of the pipette tips and prevent low retention properties from developing.

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