Product Data Sheet

Commercial Product

3M™ Dyneon™

PTFE Dispersion TF 5035Z

Product Description

3M™ Dyneon™ PTFE Dispersion TF 5035Z is a milky-white, water-based fluoropolymer dispersion. The dispersion has a solids content of around 58 %. The spherical hydrophobic polymer particles have an average size of around 200 nm. The polymer has a density of approximately 2.2 g/ml.

Special Features

- Large operating temperature range
- Almost universal chemical resistance
- High shear stability
- Very good film formation
- Low settling tendency
- Very good non-stick properties
- High degree of transparency
- Approved for use with repeated food contact
- U.S. Food and Drug Administration (FDA) listed: 21CFR 177.1550
- Approved by the German Federal Ministry of Health (BGA)

Properties	Test method	Unit	Value
Solids Content	DIN EN ISO 12086	%	58
Emulsifier			non-ionic
Emulsifier Content (based on solids)	DIN EN ISO 12086	%	6
Particle Size	DIN ISO 13321	nm	200
pH Value	DIN ISO 976		> 9
Viscosity (D = 30 s^{-1})	DIN EN ISO 3219	mPas	12

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Typical Properties

3M™ Dyneon™ PTFE Dispersion TF 5035Z is supplied with a pH value of 9 – 11. The dispersion can be mixed with fillers or pigments for use in coating formulations. Dilution is possible at any time but should be carried out with desalinated water.

Typical Applications

3M™ Dyneon™ PTFE Dispersion TF 5035Z is mainly used to formulate non-stick coatings for manufacturing cookware and baking tins. It is also used for technical metal coatings for corrosion protection and to improve sliding properties.

For coating metal surfaces, various techniques such as spray coating, roller coating and silk-screen coating can be employed. The formulations have to be adjusted for each technique.

Processing Recommendations

Dyneon recommends that the dispersion always be gently homogenised before processing and filtered using a 50 µm filter.

When adding pigments and fillers, make sure that these do not negatively influence the excellent stability of the product. If necessary, stabilisers should be added to the mixture. If fillers or pigments require grinding, this should be carried out before they are added to the dispersion.

The dispersion can be used for manufacturing primers, intermediate layers or top coats. In order to optimise the coating result with regard to shine and porosity, Dyneon recommends adding small amounts of fluorothermoplastic polymers such as 3M™ Dyneon™ Fluoroplastic PFA 6900GZ, PFA 6910GZ or FEP 6300GZ.

To dry the layers Dyneon recommends a three-step, ideally continuous process with pre-drying at 90 – 120 °C, intermediate drying at 230 – 320 °C and then final sintering at 360 – 400 °C. The temperatures should be selected taking into account the substrate thickness, coating thickness and throughput speed. A flawlessly sintered polymer layer is always transparent and smoothly coalesced.

Storage and Handling

The aqueous dispersion must be stored under frost-proof conditions (5 – 30 °C). Although 3M™ Dyneon™ PTFE Dispersion TF 5035Z has a low settling tendency, it should be homogenised once or twice a month by gentle rolling or stirring. Should sediment still build up, it can be redispersed by homogenising the dispersion as described above.

For more information please consult our technical information regarding “Shelf Life and Storage of 3M™ Dyneon™ Fluoropolymer Dispersion Products”.

Safety Instructions

Follow the normal precautions observed with all fluoropolymer materials.

Please consult the Material Safety Data Sheet and Product Label for information regarding the safe handling of the material. By following all precautions and safety measures, processing these products poses no known health risks. General handling/processing precautions include: 1) Process only in well-ventilated areas. 2) Do not smoke in areas contaminated with powder/residue from these products. 3) Avoid eye contact. 4) If skin comes into contact with these products during handling, wash with soap and water afterwards. 5) Avoid contact with hot fluoropolymer.

Potential hazards, including release of toxic vapours, can arise if processing occurs under excessively high temperature conditions. Vapour extractor units should be installed above processing equipment. When cleaning processing equipment, do not burn off any of this product with a naked flame or in a furnace.

Delivery Form

3M™ Dyneon™ PTFE Dispersion TF 5035Z is delivered as a water-based solution (dispersion).

Packaging sizes are:

- 30 l PE-drum with 40 kg content
- 1000 l IBC container with 1200 kg content
- 1000 l IBC container with 1500 kg content

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Important Notice

All information set forth herein is based on our present state of knowledge and is intended to provide general notes regarding products and their uses. It should not therefore be construed as a guarantee of specific properties of the products described or their suitability for a particular application. Because conditions of product use are outside Dyneon's control and vary widely, user must evaluate and determine whether a Dyneon product will be suitable for user's intended application before using it.

The quality of our products is warranted under our General Terms and Conditions of Sale as now are or hereafter may be in force.
Technical information, test data, and advice provided by Dyneon personnel are based on information and tests we believe are reliable and are intended for persons with knowledge and technical skills sufficient to analyze test types and conditions, and to handle and use raw polymers and related compounding ingredients.

No license under any Dyneon or third party intellectual rights is granted or implied by virtue of this information.
General recommendations on health and safety in processing, on work hygiene and on measures to be taken in the event of accident are detailed in our material safety data sheets.

You will find further notes on the safe handling of fluoropolymers in the brochure "Guide for the safe handling of Fluoropolymers Resins" (download link) by PlasticsEurope, Box 3, B-1160 Brussels, Tel. +32 (2) 676 17 32.

You can also download it with your smartphone using the QR code below.

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