



A 3M Company

Dyneon^ä

TFM 2001 PTFE

Modified fine powder PTFE for high-performance tubing

Features and Benefits

- Processable by standard paste extrusion method
- Recommended for high-performance applications with reduction ratios up to 1000:1
- Provides denser polymer structure with fewer microvoids and lower gas permeability than standard PTFE fine powder grades
- Provides smooth surface, high transparency and weldability in the finished product
- Imparts isotropic mechanical properties, high stress-crack resistance, improved flex life, and high pressure resistance under surge stress

Typical Properties (Data not for specification purposes)

Powder properties

Bulk density	450 kg/m ³	ISO 12086
Average particle size	500 µm	ISO 12086
Extrusion pressure at RR 400	26 Mpa (3770 psi)	ISO 12086
Reduction ratio (RR) range	20-1000 : 1	Dyneon method

Mechanical properties of sintered sheets*

Tensile strength	34 N/mm ² (4930 psi)	ISO 12086
Elongation at break	400 %	ISO 12086
Density	2.15 g/cm ³	ISO 12086

*average values, measured according to ISO 12086 on 1.6 mm (0.06 in) sintered sheets

Mechanical properties of extruded tubing**

Density	2.14 g/cm ³	ISO 12086
Tensile strength, longitudinal	31 N/mm ² (4490 psi)	ISO 12086
Tensile strength, transverse	30 N/mm ² (4350 psi)	ISO 12086
Void content	1.8 %	Dyneon method
Weep pressure	22 bar	Dyneon method
Stretch Void Index (SVI)***	30	ISO 12086
Amorphous content	51 %	Dyneon method

** average values, measured according to ISO 12086 on tubing with dimensions 12 x 10 mm (.047 x .039 in)

***SVI: Stretch Void Index; this measures the formation of microvoids (the smaller the index, the better the material)



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Recommended processing procedures

Dyneon TFM 2001 can be processed by the conventional paste extrusion method. To achieve optimum extrudate quality, all processing parameters such as temperature settings, extrusion pressure, lubricant content, extrusion rate and profile dimensions must be carefully balanced. The paste powder is premixed with a suitable lubricant and compacted into a preform before it is extruded into a tube through the die of a ram extruder. The lubricant is then removed through drying and the tube is sintered.

Packaging

Dyneon TFM 2001 PTFE is supplied in moisture and dust-tight plastic drums.

Capacity per drum: 25 kg (55 lbs.)

Order quantity per pallet: 300 kg (661 lbs.)

Storage

Dyneon TFM 2001 PTFE can be stored for a relatively long period of time. It should be stored and mixed (addition of lubricant) in a clean, dry place at a temperature of less than 19°C (66°F) to retain free-flowing properties. Before processing, it is advisable to store the material in a sealed container for at least 24 hours in the production area to eliminate the risk of condensation in the powder. This is particularly important when ambient temperature is low, in such cases the material should be conditioned for up to 72 hours in the production area.

Management systems

Dyneon has achieved ISO 9001 registration for its worldwide locations and ISO 14001 registration for its Gendorf facility located in Germany. Dyneon has achieved A2LA accreditation for its US operations located in Aston, PA.

Important Notice: 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.

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