

## 3M™ Dyneon™ Fluoroplastic THV 221GZ

### Product Description

3M™ Dyneon™ Fluoroplastic THV 221GZ is a fluorothermoplastic containing tetrafluoroethylene, hexafluoropropylene and vinylidene fluoride. This product can be chosen for applications which require the highest level of flexibility and transparency. It offers many processing options including welding and e-beam cross-linking.

### Special Features

- Very flexible grade of THV
- High transparency
- Low flammability
- Weldable with all common methods including high-frequency welding
- Excellent weatherability
- Processing profile allows co-processing with olefinic plastics and hydrocarbon elastomers
- E-beam crosslinkable
- Bondable to itself and other substrates
- Low refractive index

Properties	Test method	Unit	Value*
Melting Point	DIN EN ISO 12086	°C	115
Glass Transition (T <sub>g</sub> )	ASTM D 4591	°C	5
Melt Flow Index	DIN EN ISO 1133	g/10 min	20
Specific Gravity	DIN EN ISO 12086	g/cm <sup>3</sup>	1.93
Tensile at Break	DIN EN ISO 527-1	MPa	20
Elongation at Break	DIN EN ISO 527-1	%	700
Flexural Modulus	ASTM D 790	MPa	80
Limiting Oxygen Index	ASTM D 2863	%	> 65
Refractive Index	ASTM D 542	n <sub>D</sub>	1.363
UV-Vis Light Transmission (100µm film)	300 nm	%	87
	600 nm	%	93
Dielectric Constant (23°C)	ASTM D 150, @ 1MHz		5.72
	ASTM D 150, @ 9.4GHz		2.66
Dissipation Factor	ASTM D 150, @ 1MHz		0.14
	ASTM D 150, @ 9.4GHz		0.08
Dielectric Breakdown Strength	ASTM D 149	kV/mm	62

\* typical values

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### Typical Properties

3M™ Dyneon™ Fluoroplastic THV 221GZ provides a balance of low temperature processing, low flammability, thermal stability, and melt processability. This product exhibits excellent weatherability and good anti-soiling properties.

### Typical Applications

3M™ Dyneon™ Fluoroplastic THV 221GZ can be used for extruded films, tubes, profiles, and wire coatings. It is useful for applications that require the highest level of flexibility, transparency, low temperature fusion or bonding capability.

### Processing Recommendations

The processing recommendations depend on a variety of factors and it is best advised to contact a technical service person before embarking on extrusion trials. However, one can use the following as a starting point for the extrusion of THV 221GZ. Cooling on the feed throat of the extruder to maintain a temperature of 20 – 40 °C, Zone 1 80 °C, Zone 2 140 °C, Zone 3 180 °C, the die and other tooling around 200 °C. Typical processing temperatures for injection moulding vary around 200 – 230 °C for the nozzle temperature and 50 °C-100 °C for the mould. A screen pack of 1000 µm / 500 µm / 200 µm is recommended. Corrosion resistant equipment and an air exhausting system are recommended for safe processing.

### Storage and Handling

3M™ Dyneon™ Fluoroplastic THV 221GZ has an unlimited shelf life provided it is stored in a clean, dry place. THV 221GZ is hydrophobic, and generally does not require drying before processing unless high humidity conditions create surface moisture adsorption.

### Safety Instructions

Follow the normal precautions observed with all fluorothermoplastic 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™ Fluoroplastic THV 221GZ is delivered in pellet form.

Packaging sizes are:

- 25 kg cardboard box
- 50 kg cardboard box, containing two PE-bags each with 25 kg content
- 500 kg big bag

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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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Web Site: [www.dyneon.eu](http://www.dyneon.eu)

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