Product Data Sheet

3M™ Dyneon™
Fluoroplastic THV 221AZ

Product Description

3M™ Dyneon™ Fluoroplastic THV 221AZ is a fluorothermoplastic containing tetrafluoroethylene, hexafluoropropylene, and vinylidene fluoride. This product comes in an agglomerate form which enables the processor to dissolve it in various solvents for use in wire and cable as well as architectural applications.

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
- Soluble in some common solvents

Properties	Test method	Unit	Value*
Melting Point	DIN EN ISO 12086	°C	115
Glass Transition (Tg)	ASTM D 4591	°C	5
Melt Flow Index	DIN EN ISO 1133	g/10 min	20
Specific Gravity	DIN EN ISO 12086	g/cm³	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_D	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 221AZ provides a balance of solvent processing, low flammability, thermal stability and high transparency. This product exhibits excellent weatherability and good anti-soiling properties.

Typical Applications

3M™ Dyneon™ Fluoroplastic THV 221AZ can be used for films and architectural and wire coatings. It is useful for applications that require the highest level of flexibility, transparency, low temperature fusion or bonding capability. Due to its special solubility properties as a fluoropolymer, it is commonly used as cast coating in the above mentioned application areas.

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 processing trials. However, one can use the following as a starting point for the processing of THV 221AZ.

THV 221AZ can be dissolved in ketones, such as methyl ethyl ketone (MEK), acetone, and methyl isobutyl ketone (MiBK). It can also be easily dissolved in tetrahydrofuran (THF) and ethyl acetate. For solvent castings, a solids content of 10 - 15 % by weight is a convenient level as a starting point. Subsequent solvent removal should initially occur at 90 – 100 °C under proper conditions to insure safe removal of the employed solvent. A final thermal treatment around 170 °C is necessary to achieve a uniform coating of THV 221AZ. Higher temperatures can be used; however, this depends on the substrate employed.

Storage and Handling

3M™ Dyneon™ Fluoroplastic THV 221AZ has an unlimited shelf life provided it is stored in a clean, dry place. THV 221AZ 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 221AZ is delivered in pellet form.

Packaging sizes are:

- 50 kg cardboard box, containing two PE-bags each with 25 kg content
- 625 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.

Customer Service

Europe
Phone: 00 800 396 366 27
Fax: 00 800 396 366 39
Italy
Phone: 800 7 910 18
Fax: 800 7 810 19
USA
Phone : +1 800 810 8499
Fax : +1 800 635 8061

Technical Service Fluoroplastics

Dyneon GmbH
3M Advanced Materials Division
Industrieparkstraße 1
84508 Burgkirchen
Germany
Phone: +49 8679 7 4709
Fax : +49 8679 7 5037

Technical Service Fluoroelastomers & Polymer Processing Additives

3M Belgium N.V.
3M Advanced Materials Division
Canadastraat 11,
Haven 1005
2070 Zwijndrecht
Belgium
Phone: +32 3 250 7868
Fax: +32 3 250 7905

Technical Service PTFE Compounds

Dyneon B.V.
3M Advanced Materials Division
Tunnelweg 95
6468 EJ Kerkrade
The Netherlands
Phone: +31 45 567 9600
Fax: +31 45 567 9619

We will gladly supply further contact details for our full network of global sales offices. Alternatively, find them here.

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