Teflon™ FFR 770

Fluoroplastic Foam Resin

Product Information

Description

Teflon™ FFR 770 is a fluoroplastic resin compounded with a foam nucleating package. This resin is supplied as white pellets and is used in a nitrogen gas-injected foam extrusion process to produce uniform foam cells in the dielectric insulation. Foaming the fluoroplastic reduces its dielectric constant, providing opportunities for miniaturization and weight savings. Foamed insulation of Teflon™ FFR 770 produces cables for high frequency signal transmission with minimal distortion.

Teflon™ FFR 770 is ideal for producing foamed primary dielectric insulation for twisted pair cables and miniature coaxial cables. A typical cable core would have conductor sizes of 32 AWG or greater, wall thickness of 0.004 in or greater, with void content from 20% to 65%.

These voids are closed cell in nature and range from 0.0007 in (0.018 mm) to 0.0013 in (0.033 mm) in diameter. Achievable void content will vary based on wall thickness and processing conditions.

Safety Precautions

Before using Teflon™ FFR 770 resin, refer to the Safety Data Sheet and the latest edition of "The Guide to the Safe Handling of Fluoropolymer Resins," published by The Society of the Plastics Industry, Inc. (www.fluoropolymers.org) or by PlasticsEurope (www.plasticseurope.org).

Open and use containers only in well-ventilated areas using local exhaust ventilation (LEV). Vapors and fumes liberated during hot processing of Teflon™ FFR 770 should be exhausted completely from the work area. Contamination of tobacco with these polymers should be avoided. Vapors and fumes liberated during hot processing that are not properly exhausted, or from smoking tobacco or cigarettes contaminated with Teflon™ FFR 770, may cause flu-like symptoms, such as chills, fever, and sore throat. This may not occur until several hours after exposure and will typically pass within about 24 hours.

Mixtures of Teflon™ fluoroplastic resin with some finely divided metals, such as magnesium or aluminum, can be flammable or explosive under some conditions.

Authorization

Chemours has developed technology for the compounding and processing of these products. Some of that technology is protected by patents. Customers wishing to purchase and process these products should consult their Chemours sales representative with a view to obtaining a license authorizing the purchaser to process the resin into cable primaries of various dimensions and to sell these foamed primaries in final cables.

Processing

Teflon™ FFR 770 can be fed directly to a conventional single-screw extruder with nitrogen gas injection. The process contact metals must be high-nickel, low-iron alloys suitable for fluoroplastic processing. The process should include devices to monitor diameter, capacitance, and gas flow. When adding color concentrate, use one compounded in FEP fluoroplastic. Color addition may affect cell formation and capacitance, requiring process adjustment.

Insulation performance is determined by extruder output, wire line speed, and void content. Void content is controlled by nitrogen flow rate, process temperatures, and quench point. It is best for the voids to grow after the melt is drawn down onto the wire. Elongated voids in the insulation indicate early growth of the cells in the draw-down cone.

More detailed processing information is available to customers through their Chemours sales representative.

Packaging

Teflon™ FFR 770 is supplied as pellets packaged in 55-lb (25-kg) bags or 1,000-kg boxes.

Storage and Handling

The properties of Teflon™ FFR 770 resin are not affected by storage time. Ambient storage conditions should be designed to avoid airborne contamination and water condensation on the resin when it is removed from containers.

Table 1: Typical Property Data for Teflon™ FFR 770 Fluoroplastic Foam Resin

Property	Test Method[1]		Unit	Typical Value
PROCESSING				
Melt Flow Rate (MFR at 372 °C [702 °F]/5.0 kg)	ISO 12086	D 2116	g/10 min	30
Melting Point	—	D 4591	°C (°F)	260 (500)
Specific Gravity	ISO 1183	D 792	—	2.14
ELECTRICAL				
Dielectric Constant				
1 kHz	IEC 250	D 150	—	2.04
1 MHz	IEC 250	D 150	—	2.04
1 GHz	IEC 250	D 2520	—	2.04
Dissipation Factor				
1 kHz	IEC 250	D 150	—	0.0001
1 MHz	IEC 250	D 150	—	0.0006
1 GHz	IEC 250	D 2520	—	0.0005

[1]ASTM method unless otherwise specified

HOW TO USE THE TEFLON™ BRAND NAME WITH YOUR PRODUCT

Teflon™ is a registered trademark of Chemours for its brand of fluoroplastic resins, coatings, films, and dispersions. The Teflon™ brand name is licensed by Chemours in association with approved applications. Without a trademark license, customers may not identify their product with the Teflon™ brand name, as Chemours does not sell such offerings with the Teflon™ trademark. Unlicensed customers may refer to the Chemours product offering with only the Chemours name and product code number descriptor as Chemours sells its product offerings. There are no fair use rights or exhaustion of rights to use the Teflon™ trademark from buying from Chemours, a Chemours customer, or a distributor without a trademark license from Chemours.

If you are interested in applying for a trademark licensing agreement for the Teflon™ brand, please visit www.teflon.com/license

CAUTION: Do not use Chemours materials in medical applications involving permanent implantation in the human body or contact with bodily fluids or tissues, unless the material has been provided from Chemours under a written contract that is consistent with Chemours policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your Chemours representative. You may also visit www.teflon.com/industrial to download a copy of the "Chemours POLICY Regarding Medical Applications" and "Chemours CAUTION Regarding Medical Applications." For medical emergencies, spills, or other critical situations, call (866) 595-1473 within the United States. For those outside of the United States, call (302) 773-2000.

The information set forth herein is furnished free of charge and based on technical data that Chemours believes to be reliable. It is intended for use by persons having technical skill, at their own discretion and risk. The handling precaution information contained herein is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards. Because conditions of product use are outside our control, Chemours makes no warranties, express or implied, and assumes no liability in connection with any use of this information. As with any material, evaluation of any compound under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents.

For more information, visit teflon.com/industrial

For sales and technical support contacts, visit teflon.com/industrialglobalsupport

Replaces: K-16524-2
C-10101 (7/15)