



# DuPont™ Teflon® PTFE NXT85

## FLUOROPOLYMER RESIN

### Product Information

## Chemically Modified Free-Flow Granular Molding Resin

### Brand

Teflon® is a registered trademark of DuPont for its brand of fluoropolymer resins, which can only be licensed by DuPont for use in approved applications. Customers who wish to use the Teflon® trademark in connection with DuPont PTFE products under license from DuPont should contact (800) 441-7515. Without a license, customers may not identify their product as containing Teflon®, but may refer to the resin as PTFE NXT85.

### Description

DuPont™ Teflon® PTFE NXT85 is a free-flowing, pelletized, chemically modified granular resin (its equivalent fine-cut resin is Teflon® NXT 75). It provides superior processing characteristics in addition to properties of chemically modified resins. This resin offers excellent powder flow and high bulk density.

When properly processed, Teflon® PTFE NXT85 exhibits the superior properties typical of the fluoropolymer resins: nonaging characteristics, chemical inertness, heat resistance,

toughness and flexibility, low coefficient of friction, nonstick characteristics, negligible moisture absorption, and weather resistance. In addition to typical properties of fluoropolymers, this chemically modified resin offers weldability, improved resistance to deformation under load, increased resistance to permeation of chemicals, and a higher dielectric breakdown strength. Teflon® PTFE NXT85 provides a high degree of weldability for applications where the use of elevated temperature and pressure are limited.

### Typical End Products

Teflon® PTFE NXT85 can be converted to parts by isostatic, billet, and sheet molding methods, as well as ram extrusion. It can be used for a variety of applications where weldability, low deformation under load, minimal permeation, and high dielectric breakdown strength are required. Examples include valve seats, fittings, pipe valve and vessel liners, seal rings, bearing pads, electrical insulation, and fluid handling systems. This resin is particularly useful in applications where welding of parts to other fluoropolymers such as PFA or standard PTFE is required, e.g., fluid handling systems.



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## FDA Compliance

Properly processed products (sintered at high temperatures common to the industry) made from Teflon® PTFE NXT85 resin can qualify for use in contact with food in compliance with FDA regulation 21 CFR 177.1550.

## Processing

Teflon® PTFE NXT85 can be processed by all the methods used for the conversion of free-flow granular PTFE resins to parts. Traditional billet and sheet molding techniques can be used to produce large shapes. More complex parts can be fabricated by automatic and isostatic molding methods. This resin can also be converted to rods and tubes by ram extrusion. All molding methods, except ram extrusion, produce preforms that must be sintered under heat in ovens.

Finished product properties (other than the resin type) depend on preform pressure and the sintering cycle. The latter is defined by temperature, time, and the cooling rate. Typical properties are listed in **Table 1**.

## Safety Precautions

### WARNING!

#### VAPORS CAN BE LIBERATED THAT MAY BE HAZARDOUS IF INHALED.

Before using Teflon® PTFE NXT85, read the Material Safety Data Sheet and the detailed information in the "Guide to the Safe Handling of Fluoropolymer Resins, Latest Edition," published by the Fluoropolymers Division of The Society of the Plastics Industry—available from DuPont.

Open and use containers only in well-ventilated areas using local exhaust ventilation (LEV). Vapors and fumes liberated during hot processing, or from smoking tobacco or cigarettes contaminated with Teflon® PTFE NXT85, may cause flu-like

symptoms (chills, fever, sore throat) that may not occur until several hours after exposure and that typically pass within about 36 to 48 hours. Vapors and fumes liberated during hot processing should be exhausted completely from the work area; contamination of tobacco with polymers should be avoided. Mixtures with some finely divided metals, such as magnesium or aluminum, can be flammable or explosive under some conditions.

## Storage and Handling

Preforming is easiest when the resin is uniformly between 21–27°C (70–80°F). As temperature declines below this range, the resin will be increasingly difficult to mold without cracks and problems with condensed moisture. Higher temperatures inhibit flow and promote lumping. Storage conditions should be set accordingly.

Cleanliness is a critical requirement for successful use of Teflon® PTFE NXT85. The white resin and high sintering temperatures cause even very small foreign particles to become visible in finished moldings. Keep resin drums closed and clean. Good housekeeping and careful handling are essential.

## Packaging

Teflon® PTFE NXT85 is packaged in 45-kg (100-lb) drums. Each drum has a bag liner made of polyethylene resin.

## Freight Classification

Teflon® PTFE NXT85, when shipped by rail or express, is classified "Plastics, Synthetic, O.T.L., NOIBN." Resin shipped by truck is classified "Plastics, Materials Granules."

**Table 1**  
**Typical Property Data for DuPont™ Teflon® PTFE Fluoropolymer Resin Grade NXT85<sup>a</sup>**

Property	Test Method <sup>b</sup>	Unit	Nominal Value
<b>General<sup>c</sup></b>			
Bulk Density	D4894	g/L	780
Diameter Shrinkage (at preform pressure of 35 MPa [5,000 psi])	—	%	4.7
Particle Size, average diameter	D4894	µm	400
Standard Specific Gravity	D4894	—	2.17
<b>Mechanical<sup>c</sup></b>			
Tensile Strength	D4894	MPa (psi)	28 (4,000)
Elongation at Break	D4894	%	400
Deformation Under Load 14 MPa (2,000 psi) 23°C (73°F), 24 hr	D621 Method A	%	3.5

**Note:** Typical properties are not suitable for specification purposes.

<sup>a</sup> Teflon® PTFE NXT85 is ASTM D4894, Type III.

<sup>b</sup> ASTM, unless otherwise specified.

<sup>c</sup> These values are based on limited data and are subject to adjustments as additional data become available.

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**CAUTION:** Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement," H-50102.

