



Teflon® PTFE 850-A

fluoropolymer resin

Granular Compression Molding Resin

Brand

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Description

Teflon® PTFE 850-A is a free-flowing pelletized PTFE granular resin that extends the *Teflon*® PTFE 8 resin family by providing superior processing characteristics. Compared with other resins in this family, *Teflon*® PTFE 850-A offers superior powder flow, low mold shrinkage, and high bulk density.

The uniform particles and high flow performance of *Teflon*® PTFE 850-A meet requirements for many high-quality automatic molding processes. Because it provides uniform shrinkage, *Teflon*® PTFE 850-A helps meet tight dimensional tolerances.

Teflon® PTFE 850-A can also be used for isostatic molding. Compared with other resins in the *Teflon*® PTFE 8 family, it can be molded at moderate pressures, and its relatively soft particles yield smooth-surfaced parts.

Typical End Products

Small parts such as ball valve seats, seals, and discs can be made efficiently with *Teflon*® PTFE 850-A. It can also be used for lined pipes, valves and fittings, and for stock shapes to be machined for a wide range of applications.

FDA Compliance

Properly processed products (sintered at high temperatures common to the industry) made from *Teflon*® PTFE 850-A resin can qualify for use in contact with food in compliance with FDA Regulation 21 CFR 177.1550.

Processing

Teflon® PTFE 850-A is usually processed in two steps: preforming and sintering.

Teflon® PTFE 850-A can be preformed by machines that automatically fill and then press to make small shapes. The resin has the required characteristics for automatic preforming, including good flow, high bulk density, and particles that break up under pressure to permit void-free moldings. Preformed shapes are batch sintered with a precise heating/cooling cycle that consolidates them at a temperature above the crystalline melting point of the neat resin.

Finished product properties depend on preform pressure, sintering time and temperature, and cooling rate. Refer to the typical property data in **Table 1**.

Safety Precautions

WARNING!

VAPORS CAN BE LIBERATED THAT MAY BE HAZARDOUS IF INHALED.

Before using *Teflon*[®] PTFE 850-A, 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 850-A, may cause flu-like symptoms (chills, fever, sore throat) that may not occur until several hours after exposure and that typically pass within about 24 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 850-A. 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.

Freight Classification

Teflon[®] PTFE 850-A, when shipped by rail or express, is classified “Plastics, Synthetic, O.T.L., NOIBN.” Resin shipped by truck is classified “Plastics, Materials Granules.”

Packaging

Teflon[®] PTFE 850-A is packaged in 100-lb (45-kg) drums. Each drum has a bag liner made of polyethylene resin.

Table 1
Typical Property Data for *Teflon*[®] PTFE Fluoropolymer Resin Grade 850-A*

Property	ASTM Test Method	Unit	Nominal Value
General			
Average Bulk Density	D4894	g/L	900
Average Mold Shrinkage (at preform pressure of 35 MPa [5,000 psi])	D4894	%	2.7
Powder Flow	Modified D1855	g/min	450
Average Particle Size	D4894	μm	400
Standard Specific Gravity	D4894	—	2.16
Melting, Peak Temperature	D4894		
Initial		°C (°F)	342 ±10 (648 ±18)
Second		°C (°F)	327 ±10 (621 ±18)
Mechanical			
Tensile Strength	D4894	MPa (psi)	28 (4,000)
Elongation at Break	D4894	%	300

* *Teflon*[®] PTFE 850-A is ASTM D4894, Type IV, Grade 2.

Note: Typical properties are not suitable for specification purposes.

For more information on Fluoroproducts:**(302) 479-7731**

DuPont Fluoroproducts
P.O. Box 80713
Wilmington, DE 19880-0713

Europe

DuPont de Nemours Int'l SA
DuPont Fluoroproducts
2, chemin du Pavillon
P.O. Box 50
CH-1218 Le Grand-Saconnex
Geneva, Switzerland
(022) 7175111

Japan and Asia Pacific

DuPont Mitsui Fluorochemicals Co., Ltd.
Chiyoda Honsha Building
5-18, Sarugaku-cho 1-chome
Chiyoda-ku, Tokyo 101 Japan
81-3-5281-5872

Canada

DuPont Canada, Inc.
DuPont Fluoroproducts
P.O. Box 2200, Streetsville
7070 Mississauga Road
Mississauga, Ontario, Canada
L5M 2H3
(905) 821-5925

Latin America

Du Pont Fluoroproducts
Latin America Regional Office
P.O. Box 80702
Wilmington, DE 19880-0702
(302) 999-3582

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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.



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