



Teflon® PTFE B

fluoropolymer resin

Filter Fabric Finish

Brand

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Description

Teflon® PTFE B is an aqueous dispersion containing approximately 61%, by total weight, of active ingredients, which include 0.05 to 0.5 µm polytetrafluoroethylene (PTFE) resin particles. It is a milky white liquid with a pH of 8.5.

Compared with other grades of PTFE dispersions, *Teflon*® PTFE B is a special formulation designed for application to woven glass fabric used to make bags for difficult gaseous filtration or product collection systems. The bags must be self-lubricating and resist clogging for years, while being flexed in high-temperature, corrosive atmospheres.

When properly applied, *Teflon*® PTFE B improves the flex life, heat and chemical resistance, and antiadhesion behavior of glass fabric, resulting in filter bags with enhanced service life and efficiency. Refer to **Table 1** for typical property data.

Typical End Products

Large, high-performance filter bags are made of woven glass fabric treated with *Teflon*® PTFE B. Principal markets are for pollution control of coal-fired boilers in utility and industrial plants, and for product collection in hostile environments, such as those for producing carbon black.

Processing

The benefits of *Teflon*® PTFE B are obtained by impregnating glass fabric with the dispersion and heating the treated fabric below the crystalline melting point of the PTFE resin particles. The dispersion wets internal surfaces and promotes penetration of the extremely small particles of PTFE. The unmelted particles are sheared and retained as an impregnant, even when the fabric is exposed in hostile atmospheres.

Glass filaments are usually sized to protect them from self-abrasion during textile processing. The sizing should be removed before the fabric is finished with *Teflon*® PTFE B. A high temperature or chemical treatment is often used.

A conventional textile finishing process is suitable for *Teflon*® PTFE B. It should include dip impregnation, squeeze rolling, and baking to dry and alter the ingredients. Recommended nominal loading is 10%, based on the weight of the finished fabric. To achieve this loading, the bath of *Teflon*® PTFE B should be diluted with water to approximately 28% active ingredients.

The dry fabric should be led into and taken from the dip tank with minimal tension to maintain an open structure for impregnation.

Roller nip pressure should be the minimum that is necessary to remove the excess finish. Roll speeds must be synchronized to avoid picking up sheared PTFE on the rolls.

Oven temperature and residence time should be balanced. Five minutes with the oven set at 246°C (475°F) is a suggested starting point.

The finish is properly applied when it resists rewetting with water droplets. The PTFE resin particles must not be melted; this can occur at approximately 337°C (639°F).

Safety Precautions

WARNING!

VAPORS CAN BE LIBERATED THAT MAY BE HAZARDOUS IF INHALED.

Before using *Teflon*[®] PTFE B, 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 B, may cause flu-like symptoms (chills, fever, sore throat) that may not occur until several hours after exposure and 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.

Teflon[®] PTFE B fluoropolymer contains additives in the aqueous phase that are irritants. In case of skin contact, flush with water immediately. In case of eye contact, flush with water immediately and get medical help.

Storage and Handling

The dispersion particles in *Teflon*[®] PTFE B will settle on prolonged standing or heating above 66°C (150°F). They usually can be redispersed by mild agitation. Drums may be rolled or the product stirred gently just prior to use.

Both very high and very low temperatures may be detrimental. Dispersions must not be allowed to freeze. The optimum storage temperature range is 7–24°C (45–75°F), with temperatures low in the range preferred. Storage at 7–32°C (45–90°F) is acceptable within nominal shelf life for standard dispersions. If dispersions are to be stored for extended periods beyond their nominal shelf life, low-temperature storage is especially desirable because the particles are harder at lower temperatures and, therefore, are less likely to stick together as they settle.

High-speed stirring, pumping, or any other violent agitation must be avoided to minimize sheared particles or coagulation. Ideally, the dispersion should be conveyed by gravity from storage to processing stations.

Keep dispersion drums closed and clean to avoid both contamination and coagulation by drying at the liquid surfaces. Do not attempt to adjust the pH of *Teflon*[®] PTFE B.

Table 1
Typical Property Data for *Teflon*® PTFE Fluoropolymer Resin Dispersion Grade B

Property	ASTM Standard	Unit	Nominal Value
Percent Active Ingredients	D4441	%	61
Specific Gravity of Dispersion	D4441	—	1.44
Average PTFE Dispersion Particle Size	—	µm	0.22
pH (max.) of Dispersion	E70	—	8.5
Melting, Peak Temperature			
Initial	D1457	°C (°F)	337 (639)
Second	D1457	°C (°F)	327 (621)

Notes: *Teflon*® PTFE B is ASTM D4441-98, II 5B.

Typical properties are not suitable for specification purposes.

Freight Classification

Teflon® PTFE B, when shipped by rail or express, is classified “Plastics, Synthetic, Liquid, NOIBN.” Resin shipped by truck is classified “Plastics, Materials, Liquid, NOI.”

Packaging

Teflon® PTFE B is packaged in 19- and 114-L (5- and 30-gal) nonreturnable drums.

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