

# DuPont™ Teflon® FEPD 121 Fluoropolymer Resin

FEP AQUEOUS DISPERSION

## Product Information

### Product Description

DuPont™ Teflon® FEPD 121 is an off-white aqueous fluorinated ethylene propylene (FEP) dispersion stabilized with a non-ionic surfactant. It is a general-purpose dispersion that can be used to impart some of the unique properties of FEP to end products that would be difficult to make using traditional melt extrusion processes. It can be used to coat or impregnate porous structures or to make thin films. It can be coated and melt bonded to polytetrafluoroethylene (PTFE) resin or used as a hot melt adhesive.

The FEP resin in FEPD 121 is a melt flowable thermoplastic, providing superior properties typical of fluoropolymer resins: retention of properties after service at 204 °C (400 °F) and useful properties at -240 °C (-400 °F).

FEPD 121 aqueous dispersion provides:

- inertness to nearly all industrial chemicals and solvents
- stability at high temperatures
- excellent dielectric properties
- excellent weatherability

### Typical Applications

- Heat-sealable top coatings for PTFE-coated fabrics for belting, circuit boards, architectural fabrics and electrical insulation
- Cast film for capacitor dielectrics or chemical barriers
- Hot melt adhesive for PTFE, PFA and FEP parts
- Metal coatings

### Food Contact Compliance

Properly processed products (sintered at high temperatures common to the industry) made from FEP 121 resin can qualify for use in contact with food in compliance with FDA 21 CFR 177.1550 and European Regulation (EU) No 10/2011. For details and information, please contact your DuPont representative.

### Processing

Conventional dip or flow techniques can be used for coating or impregnating high temperature fabrics, fibers and other products with FEPD 121. A FEP resin coating on woven fabrics made of fiberglass, Nomex® aramid fiber, Kevlar® aramid fiber, or other high-temperature resistant fibers can be made by dip coating. Successive passes may be necessary to build the desired thickness to produce a smooth, crack-free coating. Each coating layer is usually dried to remove water (typically at 120 °C [250 °F]), baked to remove the wetting agent (typically at 270 °C [518 °F]), and then heated above the crystalline melting point of the resin

particles (approximately 265 °C [509 °F]). If the FEPD 121 is being used as a top coat over a PTFE coated fabric or other parts, the coating must be heated to melt the PTFE (approximately 337 °C [639 °F]) to maximize adhesion.

Other solid or liquid ingredients can be added to FEPD 121 to provide specific processing or finished product behavior.

### Safety Precautions

**Before processing any fluoropolymers, read the Material Safety Data Sheet, available upon request from our Customer Care Group at (800) 207-0756 in the US or (302) 996-7906 (outside of the US). Also read the detailed information in the latest edition of the "Guide to the Safe Handling of Fluoropolymer Resins," published by the Fluoropolymers Division of The Society of the Plastics Industry ([www.fluoropolymers.org](http://www.fluoropolymers.org)) or by PlasticsEurope ([www.plasticseurope.org](http://www.plasticseurope.org)).**

### Storage and Handling

FEPD 121 must be properly stored to maximize the stability of the dispersion. The FEP particles will settle on prolonged standing and/or on prolonged heating - temperatures above 40 °C (104 °F) should be avoided. The dispersion must be protected from freezing, which will cause irreversible settling. The optimum storage temperature range is 7–24 °C (45–75 °F). If dispersions are to be stored for extended periods, lower-temperature storage is desirable. For optimal performance, FEPD 121 should be gently mixed or rolled monthly and prior to use.

Ammonium hydroxide is used by DuPont to set the pH to 9.5-11.0 at the time of shipment. High ambient temperatures can deplete the ammonium hydroxide level and reduce the pH. Declining pH eventually favors bacterial growth, which causes odor and scum. The pH of opened containers should be measured and maintained between 9.5 and 11.0.

High-speed stirring, pumping, or any other violent agitation should be minimized to prevent coagulation and to minimize foaming. Ideally, the dispersion should be conveyed by gravity from storage to processing stations.

Storage and handling areas should be clean. Keep dispersion drums closed and clean to avoid both contamination and coagulation by drying at the liquid surface. High processing temperatures will cause even very small foreign particles to become visible or to make defects in finished products. Good housekeeping and careful handling are essential.



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## Typical Property Data for DuPont™ Teflon® FEFD 121 Aqueous Dispersion

Property Test	Test Method		Unit	Typical Values
Solids Content (% FEP by weight)	ASTM D4441-04	ISO 12086	%	55
% Surfactant based on FEP solids	ASTM D4441-04	ISO 12086	%	5.5
Density of Dispersion (at 55% solids)	ASTM D4441-04	ISO 12086	g/cm <sup>3</sup>	1.41
Dispersion Particle Size, average diameter		DuPont	µm	0.18
pH of Dispersion	ASTM E 70	ISO 1148		10
Brookfield Viscosity (at 25°C)	ASTM D 2196	ISO 2555	mPa-s	25
Melting Temperature	ASTM D 2116	ISO 12086	°C (°F)	260 (500)
Melt Flow Rate (MFR 372/5.0)	ASTM D 2116	ISO 12086	g/10 min	8

Typical properties are not suitable for specification purposes.

### Packaging

FEFD 121 is packaged in 114-L (30 gal) non-returnable drums and 1000-L (264 gal) recyclable containers. Contact the local DuPont sales office for package sizes available in your specific geographic area.

This product is manufactured with technology that meets the goals of the U.S. Environmental Protection Agency (EPA) 2010/15 PFOA stewardship program. See [www.fluoropolymers.dupont.com](http://www.fluoropolymers.dupont.com) for more details.

For more information, visit  
[www.teflon.com/industrial](http://www.teflon.com/industrial)

For sales and technical support contacts, visit  
[www.teflon.com/industrialglobalsupport](http://www.teflon.com/industrialglobalsupport)

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For medical emergencies, spills, or other critical situations, call 1.800.441.7515 within the United States. For those outside of the United States, call 1.302.774.1000.

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