DuPont Packaging & Industrial Polymers

DuPont™ HPF 1000

DuPont™ HPF resins Product Data Sheet

Description

Product Description	DuPont™ HPF 1000 is based on a new technology platform. It is extremely versatile and can be used to manufacture all layers of the golf ball. DuPont™ HPF 1000 offers a combination of high resilience and low compression never before available. This polymer is a highly amorphous material.

Restrictions

Material Status	• Commercial: Active

Typical Characteristics

Features	Magnesium ionomer
Characteristics / Benefits	Shore Hardness (D Scale) -------ASTM D2240D ---------- 52 Flex Modulus ----------ASTM D790 ---------- 31 Kpsi (220 MPa) Tensile Strength ----------ASTM D638 ---------- 2.6 Kpsi (18 MPa) Elongation % ----------ASTM D638 ---------- 430
Applications	Golf Ball constructions.

Typical Properties

Physical	Nominal Values	Test Method(s)	
* Density ()	0.96 g/cm³	ASTM D792	ISO 1183
* Melt Flow Rate (190°C/2.16kg)	0.65 g/10 min	ASTM D1238	IS0 1133

Thermal	Nominal Values	Test Method(s)	
* Melting Point (DSC)	78°C (172°F)	ASTM D3418	ISO 3146
Vicat Softening Point ()	59°C (138°F)	ASTM D1525	ISO 306

Processing Information

General

* Maximum Processing Temperature	285°C (545°F)
General Processing Information	This material is readily processible in conventional molding equipment. Typical melt temperatures for injection molding are 410°F (210C) to 500°F (260C). Actual processing temperatures will usually be determined by either the specific equipment or other polymers in a blend or coextrusion. Drying DuPont™ HPF 1000 is shipped dry, (<1000 ppm moisture), in moisture-resistant bags or in moisture-resistant liners in boxes, and can be used as received. However, DuPont™ HPF 1000 does absorb moisture from the air, and should be

kept sealed in a moisture-resistant container whenever possible. DuPont™ HPF 1000 may be dried using regenerative-type desiccant bed dryers capable of producing dry air with a dew point of -20 to -40ºC (-4 to -40ºF). Typical drying conditions for this magnesium ionomer grade are 24 hours at a temperature below 50ºC (122ºF). If moisture levels have reached greater than 2000 ppm, it may be necessary to employ vacuum as well as heat to remove moisture.

Materials of construction used in the processing of this resin preferrably should be corrosion resistant. Stainless steels of the types 316, 15-5PH, and 17-4PH are excellent, as is quality chrome or nickel plating, and in particular duplex chrome plating. Type 410 stainless steel is satisfactory, but needs to be tempered at a minimum temperature of 600°C (1112°F) to avoid hydrogen-assisted stress corrosion cracking. Alloy steels such as 4140 are borderline in performance. Carbon steels are not satisfactory. While stainless steels can provide adequate corrosion protection, in some cases severe purging difficulties have been encountered. Nickel plating has been satisfactory, but experiments have shown that chrome surfaces have the least adhesion to acid based polymers. In recent years, the quality of chrome plating has been deteriorating due to environmental pressures, and the corrosion protection has not always been adequate. Chrome over top of stainless steel seems to provide the best combination for corrosion protection and ease of purging.

After processing DuPont™ HPF 1000, purge the material out using a polyethylene resin, preferably with a lower melt flow rate than the DuPont™ HPF resin in use. The "Disco Purge Method" is suggested as the preferred purging method, as this method usually results in a more effective purging process. Information on the Disco Purge Method can be obtained via your DuPont Sales Representative.

Never shut down the extrusion system with DuPont™ HPF resin in the extruder and die. Properly purge out the DuPont™ HPF with a polyethylene, and shut down the line with polyethylene or polypropylene in the system.

Regulatory Information	For information on regulatory compliance outside of the U.S., consult your local DuPont representative.
Safety & Handling	For information on appropriate Handling & Storage of this polymeric resin, please refer to the Material Safety Data Sheet..
	A Product Safety Bulletin, Material Safety Data Sheet, and/or more detailed information on extrusion processing and/or compounding of this polymeric resin for specific applications are available from your DuPont Packaging and Industrial Polymers representative.

Read and Understand the Material Safety Data Sheet (MSDS) before using this product

Regional Centres

DuPont operates in more than 70 countries. For help finding a local representative, please contact one of the following regional customer contact centers:

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