

DuPont™ HPF AD1172

DuPont™ HPF resins Product Data Sheet

Description

Product Description DuPont™ HPF AD1172 is an ionomer of ethylene acid acrylate terpolymer.

This polymeric material can be processed in conventional extrusion and injection equipment designed to process polyethylene and ethylene copolymer type resins, to create various shapes and sheeting.

Restrictions

Material Status ● Developmental: Active

Typical Characteristics

Composition Magnesium Ionomer

Features DuPont™ HPF AD1172 is the next generation of the DuPont™ HPF family, offering high COR and lower compression. This combination of properties makes it extremely versatile and possible for this polymer to be used as a core, mantle, or cover in a golf ball construction. DuPont™ HPF AD1172 is based on a new technology platform. DuPont™ HPF AD1172 offers a combination of high resilience and low compression never before available. This polymer is a highly amorphous material.

Characteristics / Benefits NOTE: Approximate properties based on experimental grade material.

Shore Hardness (D Scale) ----- ASTM D2240D ----- 33.1
 Flex Modulus ----- ASTM D790 ----- 44.8 MPa
 Tensile Strength ----- ASTM D638 ----- 10.3 MPa
 Elongation % ----- ASTM D638 ----- 135
 Coefficient of Restitution (COR) ----- ADC ----- 804
 Compression ----- ADC (0.1 lbs / 200 lbs) ----- 134 mils
 Compression ----- ADC (22.03 lbs / 286.3 lbs) ----- 154 mils

Applications Golf Ball construction.

Typical Properties

| Physical | Nominal Values | Test Method(s) | |
|---------------------------------|------------------------|----------------|----------|
| * Density () | 0.95 g/cm ³ | ASTM D792 | ISO 1183 |
| * Melt Flow Rate (190°C/2.16kg) | 1.25 g/10 min | ASTM D1238 | ISO 1133 |
| Thermal | Nominal Values | Test Method(s) | |
| * Melting Point (DSC) | 58°C (136°F) | ASTM D3418 | ISO 3146 |
| Vicat Softening Point () | 54°C (129°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 AD1172 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 AD1172 does absorb moisture from the air, and should be kept sealed in a moisture-resistant container whenever possible. DuPont™ HPF AD1172 may be dried using regenerative-type desiccant bed dryers capable of producing dry air with a dew point of -20 to -40°C (-4 to -40°F). Typical drying conditions for this magnesium ionomer grade are 24 hours at a temperature below 50°C (122°F). 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 preferably 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 AD1172, purge the material out using a polyethylene resin, preferably with a lower melt flow rate than the DuPont™ HPF resin in use.

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 within or 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:

Americas

Asia Pacific

Europe / Middle East / Africa

DuPont Company
Chestnut Run Plaza – Bldg. 730
974 Centre Road
Wilmington, Delaware
19805 U.S.A.
Toll-Free (USA): 1-800-628-6208
Telephone: 1-302-774-1000
Fax: 1-302-355-4013

DuPont China Holding Co., Ltd.
Shanghai Branch
399 Keyuan Road, Bldg. 11
Zhangjiang Hi-Tech Park
Pudong New District, Shanghai
P.R. China (Postcode: 201203)
Telephone +86 21 3862 2888
Fax +86-21-3862-2889

DuPont de Nemours Int'l. S.A.
2, Chemin du Pavillon Box 50
CH-1218 Le Grand Saconnex
Geneva, Switzerland
Telephone +41 22 717 51 11
Fax +41 22 717 55 00

DuPont do Brasil, S.A.
Alameda Itapecuru, 506
06454-080 Barueri, SP Brasil
Telephone: +55 11 4166 8000
Fax: +55 11 4166 8736

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