



SURLYN™ 9020

Ionomer

Description

Product Description SURLYN™ 9020 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 Commercial: Active

Typical Characteristics

Composition Zinc ionomer

Characteristics / Benefits

- Embrittlement Temperature ----- (-112C) ----- ASTM D746
- Abrasion Resistance ----- 220 NBS Index --- ASTM D1630
- Flexural Modulus (23C) ----- 100 MPa ----- ASTM D790
- Flexural Modulus (-40C) ----- 531 MPa ----- ASTM D790
- Tensile Elongation @ Break (23C) --- 510% ----- ASTM D638 / ISO 527-2
- Tensile Strength @ Break (23C) ----- 26 MPa ----- ASTM D638 / ISO 527-2
- Tensile Impact Strength (23C) ----- 610 ft-lb/in2 ----- ASTM D1822
- Tensile Impact Strength (-40) ----- 565 ft-lbs/in2 ----- ASTM D1822
- Hardness (Shore D) ----- 55 ----- ASTM D2240 / ISO 868
- Haze (0.25 inch) ----- 7% ----- ASTM D1003

Applications Blow Molding / Sheet Extrusion

Typical Properties

Physical	Nominal Values	Test Method(s)	
*Density ()	0.96 g/cm ³	ASTM D792	ISO 1183
*Melt Flow Rate (190°C/2.16kg)	1 g/10 min	ASTM D1238	ISO 1133
Thermal	Nominal Values	Test Method(s)	
*Melting Point (DSC)	85 °C (185 °F)	ASTM D3418	ISO 3146
Freezing Point (DSC)	64 °C (147.2 °F)	ASTM D3418	ISO 3146
Vicat Softening Point ()	57 °C (134.6 °F)	ASTM D1525	ISO 306

Processing Information

*Maximum Processing Temperature 285 °C (545 °F)

General Processing Information SURLYN™ 9020 is normally processed at melt temperatures ranging from 185°-285°C (365°-545°F). Actual processing temperatures will usually be determined by either the specific equipment or substrate or one of the other polymers in a coextrusion or coinjection..

Materials of construction used in the processing of this resin 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.

If surface properties of the extruded resin require modification (such as, lower C.o.F. for packaging machine processing), refer to the CONPOL™ Processing Additive Resins product information guide.

After processing SURLYN™, purge the material out using a polyethylene resin, preferably with a lower melt flow rate than the SURLYN™ 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 Dow Sales Representative.

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

FDA Status Information	SURLYN™ 9020 Resin complies with Food and Drug Administration Regulation 21 CFR 175.105 - - Adhesives. This Regulation describes adhesives that may be used as components of articles intended for use in packaging, transporting, or holding food, subject to the limitations and requirements therein.
Regulatory Information	For information on regulatory compliance outside of the U.S.A., consult your local Dow 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 Dow representative.

Product Stewardship

The Dow Chemical Company and its subsidiaries ("Dow") has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our Product Stewardship program rests with each and every individual involved with Dow products – from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Medical Applications Policy

NOTICE REGARDING MEDICAL APPLICATION RESTRICTIONS: Dow will not knowingly sell or sample any product or service ("Product") into any commercial or developmental application that is intended for:

- long-term or permanent contact with internal bodily fluids or tissues. "Long-term" is contact which exceeds 72 continuous hours (or for PELLETHANE™ Polyurethane Elastomers only, which exceeds 30 days);
- use in cardiac prosthetic devices regardless of the length of time involved ("cardiac prosthetic devices" include, but are not limited to, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems, and ventricular bypass-assisted devices);
- use as a critical component in medical devices that support or sustain human life; or
- use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.

Dow requests that customers considering use of Dow products in medical applications notify Dow so that appropriate assessments may be conducted.

Dow does not endorse or claim suitability of its products for specific medical applications. It is the responsibility of the medical device or pharmaceutical manufacturer to determine that the Dow product is safe, lawful, and technically suitable for the intended use. **DOW MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE SUITABILITY OF ANY DOW PRODUCT FOR USE IN MEDICAL APPLICATIONS.**

Disclaimer

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, the Customer is responsible for determining whether products and the information in this

document are appropriate for the Customer's use and for ensuring that the Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Dow assumes no obligation or liability for the information in this document. **NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.**

NOTICE: If products are described as "experimental" or "developmental": (1) product specifications may not be fully determined; (2) analysis of hazards and caution in handling and use are required; (3) there is greater potential for Dow to change specifications and/or discontinue production; and (4) although Dow may from time to time provide samples of such products, Dow is not obligated to supply or otherwise commercialize such products for any use or application whatsoever.

Additional Information

North America

U.S. & Canada: 1-800-441-4369
1-989-832-1426
Mexico: +1-800-441-4369

South Africa +800-99-5078

Europe/Middle East

All Countries +31-11567-2626
+800-3694-6367
Italy: +800-783-825

Asia Pacific +800-7776-7776
+60-3-7958-5392

Latin America

Argentina: +54-11-4319-0100
Brazil: +55-11-5188-9000
Colombia: +57-1-219-6000
Mexico: +52-55-5201-4700

<http://www.dow.com>

Published August 2019

© 2019 The Dow Chemical Company

Version: 141.0

Last modified at 8/31/2019 6:04 PM