DuPont Packaging & Industrial Polymers

DuPont™ Nucrel® 0910

Nucrel® resins Product Data Sheet

Description

Product Description	Nucrel® 0910 is a copolymer of ethylene and methacrylic acid, made with nominally 9 wt% methacrylic acid. The resin is available for use in conventional extrusion and coextrusion equipment

Restrictions

Material Status	• Commercial: Active

Typical Characteristics

Composition	8.7% By Weight Methacrylic Acid

Typical Properties

Physical	Nominal Values	Test Method(s)	
Density ()	0.93 g/cm³	ASTM D792	ISO 1183
Melt Flow Rate (190°C/2.16kg)	10 g/10 min	ASTM D1238	ISO 1133

Thermal	Nominal Values	Test Method(s)	
Melting Point (DSC)	100°C (212°F)	ASTM D3418	ISO 3146
Freezing Point (DSC)	82°C (180°F)	ASTM D3418	
Vicat Softening Point ()	81°C (178°F)	ASTM D1525	ISO 306

Processing Information

General

Maximum Processing Temperature	310°C (590°F)
General Processing Information	Nucrel® 0910 is normally processed at melt temperatures ranging from 260°-305°C (500°-581°F) in flat die equipment. For extrusion coating and laminating, a typical extruder profile is below. Actual processing temperatures will usually be determined by either the specific equipment or substrate or one of the other polymers in a coextrusion. 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 Nucrel, purge the material out using a polyethylene resin, preferably with a lower melt flow rate than the Nucrel 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 Nucrel in the extruder and die. Properly purge out the Nucrel with a polyethylene, and shut down the line with polyethylene or polypropylene in the system.

Extrusion Coating/Lamination Processing	Nominal Values
Extrusion Processing Information	A suggested extruder set temperature profile.
Feed Zone	185°C (365°F)
Second Zone	235°C (455°F)
Third Zone	260°C (500°F)
Fourth Zone	285°C (545°F)
Fifth Zone	285°C (545°F)
Adapter Zone	285°C (545°F)
Die Zone	285°C (545°F)

FDA Status Information

Nucrel® 0910 conforms to the Code of Federal Regulations, Title 21, Paragraph 177.1330 covering its use as a food contact surface subject to the extractives limitations on the finished food contact article as described in the regulation.

Safety & Handling

Nucrel® methacrylic acid copolymer resins as supplied by DuPont are not considered hazardous materials. As with any hot material, care should be taken to protect the hands and other exposed parts of the body when handling molten polymer. At recommended processing temperatures, small amounts of fumes may evolve from the resins. When resins are overheated, more extensive decomposition may occur. Adequate ventilation should be provided to remove fumes from the work area. Disposal of scrap presents no special problems and can be by landfill or incineration in a properly operated incinerator. Disposal should comply with local, state, and federal regulations. Resin pellets can be a slipping hazard. Loose pellets should be swept up promptly to prevent falls. For more detailed information on the safe handling and disposal of DuPont resins, a Material Safety Data Sheet can be obtained from the DuPont Packaging and Industrial Polymers website or by contacting your sales representative.

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

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This data sheet is effective as of 03/07/2007 02:51:27 PM and supersedes all previous versions.

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