

Jul 2003 UM 3U (Dry)

Ultramid[®] C 3U (Dry)

Polyamide 66/6 Copolymer (Nylon 66/6)

Product Description

Injection molding grade with improved flammability performance, halogen and phosphorous free for impact resistant electrical insulating parts.

Processing

Ultramid nylon is delivered as flat or cylindrical pellets in moisture-proof packaging. Drying time is dependent on moisture content. Typical drying temperatures are 80° to 110° C, with drying times between 2 to 4 hours. The maximum permissible moisture content for injection molding is 0.15%, 0.10% for extrusion. Reprocessing is permissible, up to about 10%, provided the material has not been previously contaminated or degraded. Reground Ultramid is particularly susceptible to moisture, so extra care should be taken to ensure the moisture content is acceptable prior to processing. Changes between Ultramid and other thermoplastics should be preceded by purging the barrel with high molecular weight polyethylene or polypropylene of approximately 10 melt index or another suitable compound with cleansing action.

Applications

Contact bases, plug connector strips

Form supplied and storage

Ultramid is supplied dry and ready to use in moisture-proof packaging in the form of cylindrical or flat pellets. Its bulk density is about 0.7g/cm³. Standard packs are the special 25kg bag and the 1000kg bulk container (octagonal IBC, an intermediate bulk container made from corrugated board with a liner bag). Other forms of packaging and shipment (in tankers by road or rail) are also possible, subject to agreement.

All containers are tightly sealed and should be opened only immediately prior to processing. To ensure that the perfectly dry material delivered cannot absorb moisture from the air, the containers must be stored in dry rooms and always carefully sealed again after portions of material have been withdrawn. Ultramid can be kept indefinitely in the undamaged bags. Experience has shown that product supplied in IBCs can be stored for about 3 months without any adverse effects on processing properties due to moisture absorption. Containers stored in cold rooms should be allowed to equilibrate to normal temperature so that no condensation forms on the pellets.

Agency Approvals (Automotive, NSF, USP, FDA, etc.)**Product safety**

If this resin is overheated by exposure to abnormal processing temperatures and/or for extended time periods, decomposition products may include hydrogen cyanide, carbon monoxide and ammonia. BASF Corporation will not make its products available to customers for use in the manufacture of medical devices which are intended for permanent implantation in the human body or in permanent contact with internal bodily tissues or fluids. We at BASF take pride in our products, and our tradition of developing innovative applications in partnership with our customers. However, the possibility of being required to respond to unfounded litigation and/or claims arising out of concerns relating to such use presents an unacceptable risk to the company.

Note

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Ultramid[®] C 3U (Dry)

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key to your success

Typical Properties for uncolored products	Test Method ISO / IEC / ASTM	SI		English	
		Unit	Value	Unit	Value
Features					
Density	ISO 1183	kg/m ³	1160	lb/in ³	0.0419
Water absorption at saturation (73 °F)	ASTM D570	%	8.5	%	8.5
Moisture absorption (50% RH)	ASTM D570	%	2.9	%	2.9
Mechanical properties					
Tensile stress at yield	ISO 527-1, -2	MPa	85.0	psi	12300
Elongation at yield	ISO 527-1, -2	%	5.0	%	5.0
Tensile modulus	ISO 527-1, -2	MPa	3700	psi	537000
Flexural modulus	ASTM D790	MPa	3000	psi	435000
Charpy impact strength (+23°C)	ISO 179 /1eU	kJ/m ²	100	ft-lb/in ²	47.6
Charpy notched impact strength (+23°C)	ISO 179 /1eA	kJ/m ²	9.00	ft-lb/in ²	4.28
Charpy notched impact strength (-30°C)	ISO 179 /1eA	kJ/m ²	4.00	ft-lb/in ²	1.90
Izod notched impact strength (-40 °C (-40 °F))	ASTM D256	J/m	32.03	ft-lb/in	0.60
Izod notched impact strength (23 °C (73 °F))	ASTM D256	J/m	42.70	ft-lb/in	0.80
Thermal properties					
Vicat softening temperature (50°C/h 50N)	ISO 306	°C	250	°F	482
Temp. of deflection under load @ 0.45 MPa/ 66 psi	ISO 75-1, -2	°C	210	°F	410
Temp. of deflection under load @ 1.8 MPa/ 264 psi	ISO 75-1, -2	°C	70.0	°F	158
Processing					
Melt volume rate 275°C/5.0 kg	ISO 1133	cm ³ /10min	100	in ³ /10min	6.10
Melt temperature range, injection molding		°C	260 to 279	°F	500 to 535
Mold temperature		°C	37.8 to 60.0	°F	100 to 140
Mold shrinkage. Free, longitudinal ¹⁾	ASTM D955	cm/cm	0.0080	in/in	0.0080
Mold shrinkage. Free, transverse ¹⁾	ASTM D955	cm/cm	0.0090	in/in	0.0090
Pre-drying, temperature		°C	79	°F	175
Pre-drying, time		hr	2 to 4	hr	2 to 4
Dielectric properties					
Relative permittivity (1 MHz)	IEC 60250	-	3.60	-	3.60
Volume resistivity	IEC 60093	ohm-m	1.0E+013	ohm-in	3.9E+014
Dielectric strength	IEC 60243-1	kV/mm	32	V/mil	810
Flammability					
UL 94 (1.60 mm)	UL 94	-	V-0	-	V-0
UL 94 (0.800 mm)	UL 94	-	V-0	-	V-0

NB : no break ¹⁾ Shrinkage depends on wall thickness, design of molding, gating and processing conditions

** Properties of non-oriented cast film (2 mil thick)

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