HK:+852-69575415 China GuangDong:+13538586433 ShangHai:+18816996168

Celanese
The chemistry inside innovation™

FRIANYL® C3 H V0 BK 9005 - PA666

Description

PA66/6, unfilled, flame retardant, halogen and red phosphorous free
Car industry, Household appliances, Electrical devices.

Physical properties	Value	Unit	Test Standard
Density	**73**	lb/ft^3	ISO 1183
Melt volume rate, MVR	**35**	cm^3/10min	ISO 1133
MVR temperature	**518**	°F	ISO 1133
MVR load	**4.76**	lb	ISO 1133
Molding shrinkage, parallel (flow)	**1.3**	%	ISO 294-4, 2577
Molding shrinkage, transverse normal	**1.3**	%	ISO 294-4, 2577
Water absorption, 23°C-sat	**7.5**	%	Sim. to ISO 62
Humidity absorption, 23°C/50%RH	**1.9**	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	**493129/-**	psi	ISO 527-1, -2
Tensile stress at yield, 50mm/min	**10300/-**	psi	ISO 527-1, -2
Tensile strain at break, 50mm/min	**7.5/-**	%	ISO 527-1, -2
Charpy impact strength, 23°C	**33.3/-**	ft-lb/in^2	ISO 179/1eU
Charpy notched impact strength, 23°C	**1.43/-**	ft-lb/in^2	ISO 179/1eA
Izod impact notched, 23°C	**1.9/-**	ft-lb/in^2	ISO 180/1A
Izod impact unnotched, 23°C	**26.2/-**	ft-lb/in^2	ISO 180/1U

Thermal properties	Value	Unit	Test Standard
Melting temperature, 20°C/min	**491**	°F	ISO 11357-1/-3
DTUL at 1.8 MPa	**176**	°F	ISO 75-1, -2
DTUL at 0.45 MPa	**401**	°F	ISO 75-1, -2
Flammability @3.2mm nom. thickn.	**V-0**	class	UL 94
Flammability @0.8mm nom. thickn.	**V-0**	class	UL 94
Flammability @0.4mm nom. thickn.	**V-0**	class	UL 94
UL recognition (0.4)	**UL**	-	UL 94
Continuous service temperature	**110**	°C	DIN/IEC 60216-1

Other text information

Injection Molding Preprocessing

PA materials, stocked in a moisture-proof packaging, can be processed without drying; however, it is always recommended drying the product that comes from a large package (e.g. Octabin). The moisture content suggested for the injection molding process should be lower than 0.15%, according to the grade and to the molded part characteristics. The materials containing flame retardants should have moisture content below 0.10%. Red phosphorous containing grades must always be dried below 0.08%. The drying time depends on the moisture content and the drying conditions. Typically, 4-8 hours at 80-90°C using dehumidified air (dew point of -20°C) are suitable conditions for a starting moisture content of 0.20%-0.40%.

Injection molding

The following conditions apply to a standard injection molding process. Machine temperatures: barrel 265-290°C (PA66), 235-270°C (PA6), nozzle and hot runners up to 300°C (up to 290°C products with flame retardants). Mold temperatures: 60-80°C, (80-100°C highly reinforced grades). Back pressure: typically, 5-10 bar (hydraulic pressure). Temperatures exceeding 300°C and long residence time could lead to additives degradation and brittleness of the material. In case of gas generation in the melt, please verify moisture content and processing temperatures. Usage of regrind is possible depending on the molded part characteristics. For further details, please refer to the document 'Instructions for injection molding' or contact our technical support team.

Injection Molding Postprocessing

PA materials reach their final performance with a water content of about 1.5 to 3.5% by weight, depending on the type. This percentage corresponds to the point of equilibrium between the rates of absorption and desorption of moisture. After molding, in favorable environmental conditions, a part can quickly absorbs moisture up to 0.5-1.0%, while the equilibrium will be reached during its life. A conditioning treatment can accelerate further the initial water absorption of the molded parts. Conditioning is usually carried out in hot and humid environment (for example 50°C, 100% RH), inside

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climatic chambers. Slight dimensional variations (increase in volume due to the water absorbed) must be considered, especially in unfilled grades. Post-treatments of parts may also include the annealing (60-80°C in oven, up to four hours). This procedure can be useful to relax any internal stresses.

Characteristics

Special Characteristics	Flame retardant, Heat resistant
Processing	Injection molding
Delivery Form	Granules

General Disclaimer

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colorants or other additives may cause significant variations in data values. Properties of molded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use.To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication.Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards.We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products. The products mentioned herein are not intended for use in medical or dental implants.

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