Celanese
The chemistry inside innovation™

FRIANYL® A3 RV0 L BK 9005

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Designed for Electrical applications requiring self-extinguishing properties combined with easy processability and good surface quality, this grade meets the most stringent safety requirements for insulating materials.

Product information

Resin Identification	PA66-FR(30)		ISO 1043
Part Marking Code	>PA66-FR(30)<		ISO 11469
Continuous Service Temperature	130	°C	IEC 60216-1

Rheological properties

	dry/cond.		
Viscosity number	120 / *	cm^3/g	ISO 307, 1628
Moulding shrinkage, parallel	1.2 / -	%	ISO 294-4, 2577
Moulding shrinkage range, parallel	1 - 1.4	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.2 / -	%	ISO 294-4, 2577
Moulding shrinkage range, normal	1 - 1.4	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	3600 / -	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	70 / -	MPa	ISO 527-1/-2
Tensile strain at break, 50mm/min	3 / -	%	ISO 527-1/-2
Charpy impact strength, 23°C	30 / -	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	2.8 / -	kJ/m^2	ISO 179/1eA
Poisson's ratio	0.36 / -[C]		

[C]: Calculated

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	265 / *	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	80 / *	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	200 / *	°C	ISO 75-1/-2
Ball pressure test	175 / -	°C	IEC 60695-10-2

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	V-0 / *	class	IEC 60695-11-10
Burning Behav. at thickness h	V-0 / *	class	IEC 60695-11-10
Thickness tested	0.25 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Glow Wire Flammability Index, 0.75mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	960 / -	°C	IEC 60695-2-12
FMVSS Class	SE		ISO 3795 (FMVSS 302)
Hot Wire Ignition, 0.75mm	PLC 4 / *	s	UL 746A
Hot Wire Ignition, 1.5mm	PLC 3 / *	s	UL 746A
Hot Wire Ignition, 3mm	PLC 1 / *	s	UL 746A

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Electrical properties

Comparative tracking index, 100 drops	600		IEC 60112

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	2 / *	%	Sim. to ISO 62
Water absorption, 2mm	7.3 / *	%	Sim. to ISO 62
Density	1160 / -	kg/m³	ISO 1183

Characteristics

Processing	Injection Moulding
Delivery form	Granules
Additives	Flame retardant
Special characteristics	Flame retardant, Heat stabilised or stable to heat

Additional 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%.

Processing

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.

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

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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 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.

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Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
VW Group	VW 50133	*Best Fitting Grade To PA66-1-A, Not Officially Approved

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