Celanese
The chemistry inside innovation™

FRIANYL® A3 GF24 V0 YL 1018/C

FRIANYL®

Designed for Electrical applications requiring self-extinguishing properties combined with good mechanical performances, this grade meets the most stringent safety requirements for insulating materials.

Product information

Resin Identification	(PA66+PA6)-GF24 FR(40)	ISO 1043
Part Marking Code	>(PA66+PA6)-GF24 FR(40)<	ISO 11469
Continuous Service Temperature	130 °C	IEC 60216-1

Rheological properties

	dry/cond.		
Viscosity number	130 / *	cm^3/g	ISO 307, 1628
Moulding shrinkage range, parallel	0.3 - 0.6	%	ISO 294-4, 2577
Moulding shrinkage range, normal	0.6 - 0.9	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	9000 / 6300	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	130 / 90	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3.5 / 6.5	%	ISO 527-1/-2
Flexural modulus	9000 / 6000	MPa	ISO 178
Flexural strength	200 / 150	MPa	ISO 178
Flexural strain at failure	3 / -	%	ISO 178
Charpy impact strength, 23 °C	60 / >60	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23 °C	9 / 12	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30 °C	7.5 / -	kJ/m^2	ISO 179/1eA
Ball indentation hardness, H 961/30	215 / -	MPa	ISO 2039-1
Poisson's ratio	0.34 / 0.35[C]		

[C]: Calculated

Thermal properties

	dry/cond.		
Melting temperature, 10 °C/min	260 / *	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	210 / *	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	235 / *	°C	ISO 75-1/-2
Ball pressure test	175 / -	°C	IEC 60695-10-2
RTI, electrical, 0.75mm	130	°C	UL 746B
RTI, electrical, 1.5mm	130	°C	UL 746B
RTI, electrical, 3.0mm	130	°C	UL 746B
RTI, impact, 0.75mm	90	°C	UL 746B
RTI, impact, 1.5mm	90	°C	UL 746B
RTI, impact, 3.0mm	90	°C	UL 746B
RTI, strength, 0.75mm	130	°C	UL 746B
RTI, strength, 1.5mm	130 / *	°C	UL 746B
RTI, strength, 3.0mm	130	°C	UL 746B

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	0.75 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94

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Glow Wire Flammability Index, 0.75mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	960 / -	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	775 / -	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	800 / -	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	800 / -	°C	IEC 60695-2-13
FMVSS Class	SE		ISO 3795 (FMVSS 302)
Hot Wire Ignition, 0.75mm	PLC 0 / *	s	UL 746A
Hot Wire Ignition, 1.5mm	PLC 0 / *	s	UL 746A
Hot Wire Ignition, 3mm	PLC 0 / *	s	UL 746A

Electrical properties

	dry/cond.		
Volume resistivity	>1E13 / -	Ohm.m	IEC 62631-3-1
Surface resistivity	* / 1E14	Ohm	IEC 62631-3-2
Electric strength	46 / -	kV/mm	IEC 60243-1
Comparative tracking index, 100 drops	600		IEC 60112
High Amperage Arc Ignition Category, 1.5 mm	PLC 0 / *	class	UL 746A

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.4 / *	%	Sim. to ISO 62
Water absorption, 2mm	4.9 / *	%	Sim. to ISO 62
Density	1360 / -	kg/m³	ISO 1183

Injection

Melt Temperature Optimum	278	°C
Min. melt temperature	265	°C
Max. melt temperature	290	°C
Mold Temperature Optimum	70	°C
Min. mould temperature	60	°C
Max. mould temperature	80	°C
Ejection temperature	198	°C

Characteristics

Processing	Injection Moulding
Delivery form	Granules
Additives	Flame retardant, Non-halogenated/Red phosphorous free flame retardant
Special characteristics	Flame retardant, Heat stabilised or stable to heat