

FRIANYL A3 HH GF25 V0 OR 2003/T - PA66

Experimental Grade. Please contact your Celanese representative for further information.

Description

Car industry, Household appliances, Electrical devices.

| Physical properties | dry / cond | Unit | Test Standard |
|---------------------------------|------------|-------------------|-----------------|
| Density | 1410 / - | kg/m ³ | ISO 1183 |
| Molding shrinkage, parallel | 0.2 - 0.6 | % | ISO 294-4, 2577 |
| Molding shrinkage, normal | 0.6 - 1.0 | % | ISO 294-4, 2577 |
| Water absorption, 23°C-sat | 5 / * | % | ISO 62 |
| Humidity absorption, 23°C/50%RH | 1.5 / * | % | ISO 62 |
| Viscosity number (PA), H2SO4 | 135 / * | - | ISO 307 (PA) |

| Mechanical properties | dry / cond | Unit | Test Standard |
|---------------------------------------|------------|-------------------|---------------|
| Tensile modulus | 8700 / - | MPa | ISO 527-2/1A |
| Tensile stress at break, 5mm/min | 105 / - | MPa | ISO 527-2/1A |
| Tensile strain at break, 5mm/min | 2 / - | % | ISO 527-2/1A |
| Charpy impact strength, 23°C | 33 / - | kJ/m ² | ISO 179/1eU |
| Charpy impact strength, -30°C | 30 / - | kJ/m ² | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 4.5 / - | kJ/m ² | ISO 179/1eA |
| Charpy notched impact strength, -30°C | 3.5 / - | kJ/m ² | ISO 179/1eA |
| Ball indentation hardness, 30s | 190 | MPa | ISO 2039-1 |

| Thermal properties | dry / cond | Unit | Test Standard |
|--|------------|-------|-----------------|
| Melting point, peak | 262 | °C | ISO 3146 |
| DTUL at 1.8 MPa | 210 / * | °C | ISO 75-1, -2 |
| DTUL at 0.45 MPa | 220 / * | °C | ISO 75-1, -2 |
| Flammability @3.2mm nom. thickn. | V-0 / * | class | UL 94 |
| Flammability @1.6mm nom. thickn. | V-0 / * | class | UL 94 |
| Flammability @0.8mm nom. thickn. | V-0 / * | class | UL 94 |
| Continuous service temperature | 130 / * | °C | DIN/IEC 60216-1 |
| Glow wire ignition temperature, 0.8 mm | 775 | °C | IEC 60695-2-13 |
| Glow wire ignition temperature, 3.2 mm | 825 | °C | IEC 60695-2-13 |
| Glow wire flammability index, 0.8 mm | 960 | °C | IEC 60695-2-12 |
| Glow wire flammability index, 3.2 mm | 960 | °C | IEC 60695-2-12 |

| Electrical properties | dry / cond | Unit | Test Standard |
|----------------------------|------------|------|---------------|
| Surface resistivity | 1E14 / - | Ohm | IEC 60093 |
| Comparative tracking index | PLC 0 / - | - | IEC 60112 |

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 moulding process should be lower than 0.15%, according to the grade and to the moulded 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 moulding 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). Mould 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 moulded part characteristics. For further details, please refer to the document "Instructions for injection moulding" or



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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 moulding, in favourable environmental conditions, a part can quickly absorb 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 moulded parts. Conditioning is usually carried out in hot and humid environment (for example 50C, 100% RH), inside climatic chambers. Slight dimensional variations (increase in volume due to the water absorbed) must be taken into account, especially in unfilled grades. Post-treatments of parts may also include the annealing (60-80C in oven, up to four hours). This procedure can be useful to relax any internal stresses.

Characteristics

Special Characteristics

Flame retardant

