

FRIANYL A3 GF25 VOXI

NILAMID A G5 FR C4 (original designation)

PA66, 25% glass fibre reinforced, flame retardant, with halogens, PBB and PBDE free. UL listed 0@0,4mm. Complying GWIT Std.60695-2-13

Physical properties	Conditions	Standard	Unit	Values
Abbreviation	—	ISO 1043	—	—
Density	23°C	ISO 1183	g/cm³	1,57
Viscosity Index	23°C	ISO 307	ml/g	—
Water absorption at saturation	23°C	ISO 62	%	4,0
Moisture absorption	23°C – 24 h	ISO 62	%	0,5
Shrinkage longitudinal	23°C	ISO 294-4*	%	0,40
Shrinkage transversal	23°C	ISO 294-4*	%	0,70
Flame behaviour	Conditions	Standard	Unit	Values
Flammability	3,2 (1,6) mm	UL-94	class	V0 (V0)
	0,8 (0,4) mm	UL-94	class	V0 (V0)
Flammability of interior materials	1,0 mm	FMVSS 302	mm/min	SE
Glow wire Flammability Index	3,2 (0,8) mm	IEC 60695-2-12	°C	960 (960)
Glow wire Ignition Temperature	3,2 (0,8) mm	IEC 60695-2-13	°C	875 (825)
Mechanical properties	Conditions	Standard	Unit	Values
Tensile modulus	23°C	ISO 527	MPa	9600
Tensile yield stress	23°C	ISO 527	MPa	125
Tensile strain (yield*, break)	23°C	ISO 527	%	2,5
Flexural modulus	23°C	ISO 178	MPa	8300
Flexural yield stress	23°C	ISO 178	MPa	185
Charpy impact unnotched	23°C	ISO 179/1eU	kJ/m²	27
	-30°C	ISO 179/1eU	kJ/m²	—
Charpy impact notched	23°C	ISO 179/1eA	kJ/m²	7
	-30°C	ISO 179/1eA	kJ/m²	5,5
Izod impact notched	23°C	ISO 180/A	kJ/m²	9
	-30°C	ISO 180/A	kJ/m²	—
Surface hardness	23°C	ISO 2039-1	MPa	—
Thermal properties	Conditions	Standard	Unit	Values
Melting point	—	ISO 11357-1	°C	—
HDT - deflection temperature under load	1,8 MPa	ISO 75 - Meth. A	°C	245
	0,45 MPa	ISO 75 - Meth. B	°C	255
Continuous service temperature	20.000 h	IEC 60216-1	°C	115
Electrical properties	Conditions	Standard	Unit	Values
Volume resistivity	23°C	IEC 60093	Ohm·cm	10*13
Surface resistivity	23°C	IEC 60096	Ohm	10*13
Dielectric strength	2,0 mm	IEC 60243	kV/mm	21
CTI - Comparative tracking index	3,2 mm, sol. A	IEC 60112	V	400

All values "dry as moulded". [Values with moisture content at the equilibrium between brackets, if available] (*) Plates 60x60x2mm

The information given by this datasheet is not a specification. All the data reported are based on our current knowledge and do not exonerate the user from the obligation to test this Material as to its suitability for the intended processes and uses: it is therefore the sole and exclusive responsibility of the user - before marketing, making use of or selling his own finished product to any third parties - to check its conformity to the relevant safety standards and/or regulations applicable from time to time, since the user's stocking or processing procedure might affect the inner qualities and properties of the raw material supplied by Nilit Plastics. The application, use and processing of our material and the products manufactured by the user are beyond our control and, therefore, entirely the sole user's responsibility. In so far as they are not specified as colour, the values refer to a non-dyed material - any dyeing can lead to significant changes in the material values. Nilit Plastics reserve the right to update the data sheet at any time. As a result, the previous versions will become invalid.

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Applications

Car industry, Household appliances, Electrical devices.

Pre-treatment and drying

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%.

Processing guidelines

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 contact our technical support team.

Post-treatment and conditioning

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 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 moulded 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 taken into account, 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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