TECHNICAL DATA SHEET

GRILAMID L 25A NZ

General product description

Grilamid L 25A NZ is a high viscosity extrusion grade Polyamide 12 (PA12).

Grilamid L 25A NZ is hydrolysis and heat stabilised and impact modified.

The main features of Grilamid L 25A NZ are:

- Very good hydrolysis resistance
- Good heat stability
- Good low temperature impact strength
- Good chemical resistance
- High surface finish
- Good dimensional stability
- High processing speeds
- Low density, low weight

Applications examples

Grilamid L 25A NZ is suitable for the extrusion of profiles and tubes for applications in automotive and industrial markets.

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PROPERTIES

Mechanical Properties

		Standard	Unit	State	Grilamid L 25A NZ
Tensile E-Modulus	1 mm/min	ISO 527	MPa	cond.	750
Tensile strength at yield	50 mm/min	ISO 527	MPa	cond.	30
Elongation at yield	50 mm/min	ISO 527	%	cond.	15
Tensile strength at break	50 mm/min	ISO 527	MPa	cond.	40
Elongation at break	50 mm/min	ISO 527	%	cond.	> 50
Impact strength	Charpy, 23°C	ISO 179/2-1eU	kJ/m²	cond.	no break
Impact strength	Charpy, -30°C	ISO 179/2-1eU	kJ/m²	cond.	no break
Notched impact strength	Charpy, 23°C	ISO 179/2-1eA	kJ/m²	cond.	100
Notched impact strength	Charpy, -30°C	ISO 179/2-1eA	kJ/m²	cond.	75
Shore-D hardness		ISO 868	-	cond.	66

Thermal Properties

Melting point	DSC	ISO 11357	°C	dry	178
Heat deflection temperature HDT/A	1.80 MPa	ISO 75	°C	dry	45
Heat deflection temperature HDT/B	0.45 MPa	ISO 75	°C	dry	80
Thermal expansion coefficient long.	23-55°C	ISO 11359	10^{-4}/K	dry	1.2
Thermal expansion coefficient trans.	23-55°C	ISO 11359	10^{-4}/K	dry	1.4
Maximum usage temperature	long term	ISO 2578	°C	dry	90 - 100
Maximum usage temperature	Short term	ISO 2578	°C	dry	150

Electrical Properties

Dielectric strength		IEC 60243-1	kV/mm	cond.	--
Comparative tracking index	CTI	IEC 60112	-	cond.	--
Specific volume resistivity		IEC 60093	Ω · m	cond.	10^{11}
Specific surface resistivity		IEC 60093	Ω	cond.	10^{12}

General Properties

Density		ISO 1183	g/cm³	dry	0.98
Flammability (UL94)	0.8 mm	ISO 1210	rating	-	HB
Water absorption	23°C/sat.	ISO 62	%	-	1.3
Moisture absorption	23°C/50% r.h.	ISO 62	%	-	0.6
Linear mould shrinkage	long.	ISO 294	%	dry	1.00
Linear mould shrinkage	Trans.	ISO 294	%	dry	1.60

Product-nomenclature acc. ISO 1874: PA12-HI, EH, 24-007

Processing information for the extrusion of Grilamid L 25A NZ

This technical data sheet for Grilamid L 25A NZ provides you with useful information on material preparation, machine requirements, tooling and processing.

MATERIAL PREPARATION

Grilamid L 25A NZ is delivered dry and ready for processing in sealed, air tight packaging. Pre-drying is not necessary.

Storage
Sealed, undamaged bags can be kept over a long period of time in storage facilities which are dry, protected from the influence of weather and where the bags can be protected from damage.

Handling and safety
Detailed information can be obtained from the "Material Safety Data Sheet" (MSDS) which can be requested with every material order.

Drying
Grilamid L 25A NZ is dried and packed with a moisture content of less than 0.10 %. Should the packaging become damaged or the material is left open too long, then the material must be dried. A too high moisture content reduces the optical (streaks) and mechanical (embrittlement) qualities of the final product.

Drying can be done as follows:

Desiccant dryer

Temperature:	max. 80°C
Time:	4 - 12 hours
Dew point of the dryer:	-30°C

Vacuum oven

Temperature:	max. 100°C
Time:	4 - 12 hours

Drying temperature
Polyamides are subject to the effects of oxidation at temperatures above 80°C in the presence of oxygen. Visible yellowing of the material is an indication of oxidation hence temperatures above 80°C for desiccant dryers and temperatures above 100°C for vacuum ovens should be avoided. In order to detect oxidation it is advised to keep a small amount of granulate (light colour only !) as a comparison sample.

With longer residence times (over 1 hour) hopper heating or a hopper dryer (80°C) is useful.

MACHINE REQUIREMENTS

Grilamid L 25A NZ can be processed economically and without problems on all machines suitable for polyamides.

Screw
Wear protected, universal screws are recommended (3 zones).

Screw

Length:	24 D - 25 D
Compression ratio:	2.5 - 3.1

Grooved Feeding Zone
A grooved bush is not usually recommended for the extrusion of polyamides grades. In order to obtain a higher through-put by using a grooved bush its depth should not exceed 0.5 mm. It is recommended to maintain a constant temperature of 60 - 90°C in the hopper zone.

PROCESSING

Basic machine settings
In order to start up the machines for processing Grilamid L 25A NZ, following basic settings are recommended:

Temperatures

Hopper zone	60 - 90°C
Feeding zone	200 - 230°C
Compression zone	210 - 240°C
Metering zone	210 - 240°C
Head	220 - 230°C
Nozzle	220 - 230°C
Melt	220 - 240°C
Cooling bath temperature	15 - 40°C

CUSTOMER SERVICES

EMS-GRIVORY is a specialist for polyamide synthesis and polyamide-processing. Our customer services are not only concerned with the manufacturing and supply of engineering thermoplastics but also provide a full of technical support program:

- Rheological design calculation / FEA
- Material selection
- Processing support
- Tool and component design

For further details concerning extrusion please refer to our Technical Information Booklet “Tube Extrusion” available from your EMS-GRIVORY specialist.

We are happy to advice you. Simply call one of our sales offices.

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