TECHNICAL DATA SHEET

GRILAMID 2S 25 W 20 HL X NATURAL

Product description

Grilamid 2S 25 W 20 HL X natural is a semi-flexible high viscosity heat und UV stabilised, impact modified and plasticized Polyamide 610, especially suitable for extrusion applications.
This PA610 based product is to a large extent based on renewable raw materials and its eco-profile is very favourable when compared to similar products based on crude oil.

The main features of Grilamid 2S 25 W 20 HL X natural are:

- High impact strength, even at low temperatures
- High heat resistance
- Good chemical resistance
- Easy processing

Application examples

Preferred applications are tubes in the fields of Automotive and Industry, whereas the product is not recommended for direct permanent contact with gasoline.

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PROPERTIES

Mechanical Properties		Standard	Unit	State	Grilamid 2S 25 W 20 HL X natural
Tensile E-Modulus	1 mm/min	ISO 527	MPa	dry cond.	750 450
Tensile strength at break	50 mm/min	ISO 527	MPa	dry cond.	50 50
Elongation at break	50 mm/min	ISO 527	%	dry cond.	>50 >50
Impact strength	Charpy, 23°C	ISO 179/2-1eU	kJ/m²	dry cond.	no break no break
Impact strength	Charpy, -30°C	ISO 179/2-1eU	kJ/m²	dry cond.	no break no break
Notched impact strength	Charpy, 23°C	ISO 179/2-1eA	kJ/m²	dry cond.	no break no break
Notched impact strength	Charpy, -30°C	ISO 179/2-1eA	kJ/m²	dry cond.	15 15
Ball indentation hardness		ISO 2039-1	MPa	dry cond.	50 35
Thermal Properties					
Melting point	DSC	ISO 11357	°C	dry	215
Heat deflection temperature HDT/A	1.80 MPa	ISO 75	°C	dry	50
Heat deflection temperature HDT/B	0.45 MPa	ISO 75	°C	dry	125
Thermal expansion coefficient long.	23-55°C	ISO 11359	10^{-4}/K	dry	2.0
Thermal expansion coefficient trans.	23-55°C	ISO 11359	10^{-4}/K	dry	1.5
Maximum usage temperature	long term	ISO 2578	°C	dry	130
Maximum usage temperature	short term	ISO 2578	°C	dry	160
Electrical Properties					
Dielectric strength		IEC 60243-1	kV/mm	dry cond.	36 36
Comparative tracking index	CTI	IEC 60112	-	cond.	600
Specific volume resistivity		IEC 60093	Ω · m	dry cond.	10^{9} 10^{10}
Specific surface resistivity		IEC 60093	Ω	cond.	10^{11}
General Properties					
Density		ISO 1183	g/cm³	dry	1.03
Flammability (UL94)	0.8 mm	ISO 1210	rating	-	HB
Water absorption	23°C/sat.	ISO 62	%	-	3
Moisture absorption	23°C/50% r.h.	ISO 62	%	-	0.5
Linear mould shrinkage	long.	ISO 294	%	dry	1.8
Linear mould shrinkage	trans.	ISO 294	%	dry	1.3

Product-nomenclature acc. ISO 1874: PA610-HIP, EH, 22-007

Information for Extrusion Processing of Grilamid 2S 25 W 20 HL X natural

This technical data sheet for Grilamid 2S 25 W 20 HL X natural provides you with useful information on material preparation, machine requirements, tooling and processing.

MATERIAL PREPARATION

Grilamid 2S 25 W 20 HL X natural is delivered dry and ready for processing in sealed, packaging. Predrying is not necessary provided the packaging is undamaged.

Storage

Sealed, undamaged bags can be kept over a period of time of at least one year when stored in 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 2S 25 W 20 HL X natural is dried and packed with a moisture content of ≤ 0.1 %. Should the packaging become damaged or be left open for a longer period, then the material must be dried. A too high moisture content can be recognized by a foaming melt, excessive nozzle drool and silver streaks.

Drying can be done on every plasticizer suited dryer 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

To avoid oxidation of the material 80°C should not be exceeded in the desiccant dryer. In vacuum ovens due to the absence of oxygen, higher temperatures up to 100°C are possible.

With longer residence times (over 0.5 hour) a hopper dryer (80°C) is useful.

MACHINE REQUIREMENTS

Grilamid 2S 25 W 20 HL X natural natural can be processed economically on all machines suitable for polyamides.

Screw

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

Screw

Length	24 D - 25 D
Compression ratio	2.0:1 - 3.0:1

Grooved Feeding Zone

A grooved bush is usually not recommended for the extrusion of polyamides. Anyhow, in order to obtain a higher through-put by using a grooved bush it's depth should not exceed 0.5 mm.

PROCESSING

Basic machine settings

In order to start up the machine for processing Grilamid 2S 25 W 20 HL X natural natural, the following basic settings are recommended:

Temperatures

Hopper zone	60 - 90°C
Feeding zone	240 - 260°C
Compression zone	240 - 260°C
Metering zone	240 - 260°C
Head	240 - 260°C
Nozzle	240 - 260°C
Melt	240 - 260°C

CUSTOMER SERVICES

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

- Rheological design calculation / FEA
- Prototype tooling
- Material selection
- Processing support
- Mould and component design

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

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This version replaces all previous product specific data sheets.

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