TECHNICAL DATA SHEET

GRILON R 50 H NZ

General product description

Grilon R 50 H NZ is a high viscosity, unreinforced, heat stabilised, impact modified PA6 extrusion blow moulding grade.

Grilon R 50 H NZ has the following important properties:

- Very high melt strength
- High impact resistance even at low temperatures
- Very good weld line strength
- Processable on conventional as well as on 3 D-machines
- Suitable for sequential blow moulding process in combination with flexible grades

Grilon R 50 H NZ is used typically for automotive applications such are air ducts for turbo-chargers, air ducts, oil filler pipes, fuel and oil containers.

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EMS

PROPERTIES

Mechanical Properties

		Standard	Unit	State	Grilon R 50 H NZ
Tensile E-Modulus	1 mm/min	ISO 527	MPa	dry cond.	1800 600
Tensile strength at yield	50 mm/min	ISO 527	MPa	dry cond.	50 *
Elongation at yield	50 mm/min	ISO 527	%	dry cond.	5 *
Tensile strength at break	50 mm/min	ISO 527	MPa	dry cond.	* 25▲
Elongation at break	50 mm/min	ISO 527	%	dry cond.	> 50 > 50
Impact strength	Charpy, 23°C	ISO 179/2-1eU	kJ/m^2	dry cond.	no break no break
Impact strength	Charpy, -30°C	ISO 179/2-1eU	kJ/m^2	dry cond.	no break no break
Notched impact strength	Charpy, 23°C	ISO 179/2-1eA	kJ/m^2	dry cond.	95 no break
Notched impact strength	Charpy, -30°C	ISO 179/2-1eA	kJ/m^2	dry cond.	25 25
Ball indentation hardness		ISO 2039-1	MPa	dry cond.	90 30

Thermal Properties

Melting point	DSC	ISO 11357	°C	dry	222
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	105
Thermal expansion coefficient long.	23-55°C	ISO 11359	$10^{-4}/K$	dry	1.3
Thermal expansion coefficient trans.	23-55°C	ISO 11359	$10^{-4}/K$	dry	1.4
Maximum usage temperature	long term	ISO 2578	°C	dry	100 - 120
Maximum usage temperature	short term	ISO 2578	°C	dry	160

Electrical Properties

Dielectric strength		IEC 60243-1	kV/mm	dry cond.	- -
Comparative tracking index	CTI	IEC 60112	-	cond.	475
Specific volume resistivity		IEC 60093	$\Omega \cdot m$	dry cond.	10^{12} 10^{11}
Specific surface resistivity		IEC 60093	Ω	cond.	10^{12}

General Properties

Density		ISO 1183	g/cm^3	dry	1.07
Flammability (UL94)	0.8 mm	ISO 1210	rating	-	HB
Water absorption	23°C/sat.	ISO 62	%	-	9
Moisture absorption	23°C/50% r.h.	ISO 62	%	-	3

Product-nomenclature acc. ISO 1874: PA 6-HI, GH, 34-020

▲ Stress at 50% strain.

Processing information for the extrusion blow moulding of Grilon R 50 H NZ

This technical data sheet provides you with information on material preparation and processing of Grilon R 50 H NZ.

For more detailed information on processing please consult our Technical Datasheet “Extrusion Blow Moulding of Grilamid and Grilon”, available from our Sales Office.

MATERIAL PREPARATION

Grilon R 50 H NZ is delivered dry and ready for processing in sealed, air tight packaging.

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

Grilon R 50 H NZ has to be processed in a dry state due to its hygroscopic character and the resulting water absorption. It is recommended to dry the material prior to processing, although the material is delivered dry. The permissible water content is 0.1 %.

Drying can be done as follows:

Desiccant dryer

Temperature:	60 - 80°C
Time:	6 - 8 hours
Dew point of the dryer:	-30°C

Vacuum oven

Temperature:	80°C
Time:	4 - 12 hours

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

Regrind material

Regrind flash material can be reprocessed. The proportion of regrind material should not exceed 50 %, as processing problems could occur due to reduced material properties. It is important that this material is reprocessed immediately in line. If the regrind is exposed to air for more than 30 minutes, it has to be dried again prior to processing.

MACHINE REQUIREMENTS

Grilon R 50 H NZ can be processed economically and without problems on extrusion blow moulding machines suitable for polyamides.

Barrels having a grooved feeding bush, should be heated with an oil circulation heater, in order to avoid the risk of blocking the extruder during start-up.

The moulding shrinkage values for Grilon R 50 H NZ are approximately 1 - 2 %.

The obtainable blow up ratio, calculated as the ratio between the article- and the parison diameter, is approximately 4:1.

PROCESSING

Basic machine settings

In order to start up the machine for processing Grilon R 50 H NZ, the following basic settings can be recommended:

Temperatures

Feeding zone	100 - 160°C
Zone 1	240 - 260°C
Zone 2	240 - 260°C
Zone 3	240 - 260°C
Adapter	240 - 250°C
Die	230 - 250°C
Tool	40 - 80°C
Melt	240 - 250°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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