

## TECHNICAL DATA SHEET

### GRILON EBV-15H BLACK 9697

#### General product description

Grilon EBV-15H black 9697 is a high viscosity, heat stabilised PA6 extrusion blow moulding grade with 15% glass fibres.

Grilon EBV-15H black 9697 has the following important properties:

- High melt strength
- Impact resistant even at low temperatures
- Easy processing
- Processable on conventional as well as on 3 D-machines
- Suitable for sequential blow moulding process in combination with flexible grades

Grilon EBV-15H black 9697 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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## PROPERTIES

### Mechanical Properties

		Standard	Unit	State	Grilon EBV-15H
Tensile E-Modulus	1 mm/min	ISO 527	MPa	dry cond.	5600 2700
Tensile strength at break	5 mm/min	ISO 527	MPa	dry cond.	110 65
Elongation at break	5 mm/min	ISO 527	%	dry cond.	5 25
Impact strength	Charpy, 23°C	ISO 179/2-1eU	kJ/m <sup>2</sup>	dry cond.	80 no break
Impact strength	Charpy, -30°C	ISO 179/2-1eU	kJ/m <sup>2</sup>	dry cond.	80 80
Notched impact strength	Charpy, 23°C	ISO 179/2-1eA	kJ/m <sup>2</sup>	dry cond.	15 30
Notched impact strength	Charpy, -30°C	ISO 179/2-1eA	kJ/m <sup>2</sup>	dry cond.	6 8
Ball indentation hardness		ISO 2039-1	MPa	dry cond.	145 70

### Thermal Properties

Melting point	DSC	ISO 11357	°C	dry	222
Heat deflection temperature HDT/A	1.8 MPa	ISO 75	°C	dry	165
Heat deflection temperature HDT/C	8.0 MPa	ISO 75	°C	dry	50
Thermal expansion coefficient long.	23-55°C	ISO 11359	10 <sup>-4</sup> /K	dry	0.5
Thermal expansion coefficient trans.	23-55°C	ISO 11359	10 <sup>-4</sup> /K	dry	1.2
Maximum usage temperature	long term	ISO 2578	°C	dry	100 - 120
Maximum usage temperature	short term	ISO 2578	°C	dry	180

### Electrical Properties

Dielectric strength		IEC 60243-1	kV/mm	dry cond.	26 22
Comparative tracking index	CTI	IEC 60112	-	cond.	325
Specific volume resistivity		IEC 60093	Ω · m	dry cond.	10 <sup>11</sup> 10 <sup>9</sup>
Specific surface resistivity		IEC 60093	Ω	cond.	10 <sup>10</sup>

### General Properties

Density		ISO 1183	g/cm <sup>3</sup>	dry	1.21
Flammability (UL94)	0.8 mm	ISO 1210	rating	-	HB
Water absorption	23°C/sat.	ISO 62	%	-	8
Moisture absorption	23°C/50% r.h.	ISO 62	%	-	2.5

Product-nomenclature acc. ISO 1874: PA 6-HI, BH, 27-060, GF15

# Processing information for the extrusion blow moulding of Grilon EBV-15H

This technical data sheet provides you with information on material preparation and processing of Grilon EBV-15H.

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 EBV-15H 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 EBV-15H 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 EBV-15H 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 EBV-15H are approximately 0.5 - 1 %.

The obtainable blow up ratio, calculated as the ratio between the article- and the parison diameter, is approximately 2.5:1.

## PROCESSING

### Basic machine settings

In order to start up the machine for processing Grilon EBV-15H, the following basic settings can be recommended:

#### Temperatures

Feeding zone	120 - 180°C
Zone 1	250 - 260°C
Zone 2	250 - 260°C
Zone 3	250 - 260°C
Adapter	240 - 250°C
Die	230 - 250°C
Tool	40 - 90°C
Melt	250 - 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.

The recommendations and data given are based on our experience to date, however, no liability can be assumed in connection with their usage and processing.

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