

# EPLAMID HT02 GFR 50 BK Q1F001

## DATA SHEET / TECHNISCHE DATEN

### Material Information / Materialinformationen

: Partially Aromatic copolyamide with a combination of semi-crystalline polyamide reinforced with 50% Glass fiber, heat stabilized and lubricated for injection molding process.

: Partiiell aromatisches Copolyamid kombiniert mit semikristallinem Polyamid, verstärkt mit 50% GF. GF-verstärkt, wärmestabilisiert und geschmiert für Spritzgussverfahren

### Notes / Anmerkungen

: Eplamid HT 02 grades offer the following unique properties in general conditions, and even after moisture absorption

: Eplamid HT 02 bietet hervorragende Eigenschaften bei üblichen Bedingungen und sogar nach Feuchtigkeitsaufnahme

- Good Surface Finish / Gute Oberfläche
- Good Dimensional Stability / Ausgezeichnete Formstabilität
- Good High Temperature Properties / Gutes Hochtemperaturverhalten
- Good Chemical Resistance to Glycols and Oils / Gute chemische Beständigkeit gegen Glykole und Öle
- Excellent Creep Resistance / Hervorragende Kriechfestigkeit

Eplamid HT 02 grades are used for molding technical parts where higher operating temperatures and higher stiffness in moist environments are required.

Eplamid HT 02-Typen werden für Herstellung von technischen Teilen eingesetzt, von denen hohe Wärmestabilität und hohe Steifigkeit in feuchter Umgebung verlangt wird.

: This product is available in colours on request / Dieses Produkt ist in eingefärbten Varianten auf Anfrage verfügbar

## PHYSICAL TESTS / PHYSIKALISCHE EIGENSCHAFTEN

	Test Method/Norm	Unit/Einheit	VALUES / WERTE	
			Dry/Spritzfrisch	Cond./Kond.
DENSITY / DICHT( 23°C )	ISO 1183	g/cm3	1,57	-
ASH CONTENT / ASCHENGEHALT	ISO 3451-4	%	50	-
MOISTURE ABSORBATION / WASSERAUFNAHME	ISO 62	%	1,3	-
MOULD SHRINKAGE TRANS. / VERARBEITUNGSSCHWINDUNG	ISO 294	%	0,1/0,4	-

## MECHANICAL TESTS / MECHANISCHE EIGENSCHAFTEN

TENSILE MODULUS / ZUG-E MODUL ( 23°C )	1mm/min	ISO 527	MPa	17700	16500
TENSILE STRESS AT BREAK / ZUGFESTIGKEIT ( 23°C )	5mm/min	ISO 527	MPa	250	215
TENSILE STRAIN AT BREAK / STRECKDEHNUNG ( 23°C )	5mm/min	ISO 527	%	2,5	2,5
IMPACT STRENGTH / CHARPY-SCHLAGZÄHIGKEIT	CHARPY, 23°C	ISO 179/2-1eU	kJ/m <sup>2</sup>	90	90
IMPACT STRENGTH / CHARPY-SCHLAGZÄHIGKEIT	CHARPY,-30°C	ISO 179/2-1eU	kJ/m <sup>2</sup>	80	80
NOTCHED IMPACT STRENGTH / CHARPY-KERBSCHLAGZÄHIGKEIT	CHARPY, 23°C	ISO 179/2-1eU	kJ/m <sup>2</sup>	15	15
NOTCHED IMPACT STRENGTH / CHARPY-KERBSCHLAGZÄHIGKEIT	CHARPY,-30°C	ISO 179/2-1eU	kJ/m <sup>2</sup>	13	13
BALL INDENTATION HARDNESS / KUGELDRUCKHÄRTE		ISO 2039-1	MPa	280	260

## THERMAL TESTS / THERMISCHE EIGENSCHAFTEN

MELTING POINT / SCHMELZTEMPERATUR	DSC	ISO 11357	°C	260	-
HDT/C - WÄRMEFORMBESTÄNDIGKEIT (8,0 MPa)		ISO 75	°C	165	-
HDT/A - WÄRMEFORMBESTÄNDIGKEIT (1,8 MPa)		ISO 75	°C	230	-
MAXIMUM WORKING TEMPERATURE / MAXIMALE BETRIEBSTEMPERATUR		ISO 2578	°C		
LONG TERM / LANGFRISTIG		ISO 2578	°C	110	-
SHORT TERM / KURZFRISTIG		ISO 2578	°C	215	-
THERMAL EXPANSION COEFFICIENT LONG./TRANS.		ISO 11359	10 <sup>-4</sup> /K	90/15	-
LINEARER THERMISCHER AUSDEHNUNGSKOEFFIZIENT					

## FLAMMABILITY AND ELECTRICAL PROPERTIES / BRENNBARKEIT UND ELEKTRISCHE EIGENSCHAFTEN

FLAME RETARDENCY / ENTLAMMBARKEITSKLASSE (0,8 mm)		ISO 1210		HB	-
DIELECTRIC STRENGTH / DIELEKTRISCHE FESTIGKEIT		IEC 60243-1	kV/mm	33	33
CTI ( SOLUTION A ) / KRIECHSTROMFESTIGKEIT CTI ( SOLUTION A )		EN 60112	V	600	-

## TEST CONDITIONS / TESTBEDINGUNGEN

Laboratory conditions are 23 ±2°C and 45-55 % RH.

Laborbedingungen sind 23 ± 2 ° C und 45-55% RL.

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PREPARED BY	DATE OF PREPARATION	MODIFICATION NO	MODIFICATION DATE	FORM NO
QUALITY MANAGEMENT AGENT	20.08.2003	9	01.02.2013	F03T05P04

## Processing Conditions of the Eplamid HT Grades

### Handling Eplamid HT Polymer

For optimum properties the polymer must be kept below 0.1% moisture level. Flow in thin sections will be reduced at high moisture levels. Dried resin, resin from opened bags, or regrind that is not going to be used immediately should be stored in a way that prevents moisture pickup

### Drying

For best properties Eplamid HT polymer must be dried to less than 0.1% moisture. This low level of moisture must be maintained throughout the molding run by the use of dehumidified dryers. Typical times to dry the Eplamid HT polymer approximately 7 to 9 hours. It is normally recommended to dry the resin in a dehumidified hopper dryer that has air flow rates of 3.0 to 3.7 m<sup>3</sup> /hr per kg/hr of resin being processed. The air velocity should be about 0.25 m/s.

### Regrind

For optimum physical properties, the amount of regrind must be kept below 25%. The use of up to 25% regrind reduces the elongation, tensile strength, and Izod impact properties of the Eplamid HT polymer.

- \* Either feed the regrind straight back into the machine, or pre-dry the regrind before usage.
- \* Store regrind in a dry, clean place to avoid contamination and excess moisture.
- \* Ensure sharp cutting blades to keep dust generation to a minimum; cut glass fibre reinforced material when it is still hot.
- \* Clean the grinder regularly to avoid build up of dust.
- \* Do not use splayed, discoloured or degraded parts and runners

### Machine and Operating Conditions

The preferred shot size should be from 25% to 70% of the maximum stroke. Typical cylinder temperatures are as below

	HT00	HT02
<b>Pref. melt temp.</b>	300-330	265-300
<b>Rear</b>	305-325	280-290
<b>Center</b>	305-325	280-290
<b>Front</b>	310-325	285-290
<b>Nozzle</b>	320-330	285-300
<b>* °C</b>		

If the shot size is small compared to the machine rated shot size and/or if long cycles are used, then the rear zone temperatures should be reduced. The recommended melt temperatures are also given above. To limit the thermal degradation of the Eplamid HT polymer, the residence time of the polymer in the cylinder should be less than 8 min. The preferred residence time is 4 to 6 min.

### Nozzle Temperature

The nozzle temperature should be adjusted so that the resin does not drool or prematurely freeze off. Above table also gives more details on temperature profiles.

### Mold Temperature

Below table lists the preferred mold surface temperatures for maximum polymer crystallinity as a function of part thickness. To mold the HT00 series resins, oil heaters with high temperature rated hoses or electric mold heating will be needed.

**Tool Surface Temperature > 140°C**

Polymers in the HT02 series can be molded in water-heated molds. At the temperatures listed below, the mold shrinkage will be maximized and the post-mold shrinkage or annealing shrinkage will be minimized.

### Screw Speed and Back Pressure

To minimize glass fiber breakage in the reinforced Eplamid HT polymer, the screw speed should be selected so that the screw retraction time is at least 90% of the mold closed time. Maximum tangential screw speeds should be 9.0 m/min 8. The minimum amount of hydraulic back pressure should be used consistent with uniform screw recovery times, typically no higher than 3 bar.

### Packaging

Eplamid HT grades are delivered in dry and ready to process 25Kg Aluminum bags. Pre-drying is not necessary in Eplamid HT grades. Upon request, materials can be packed into 1.000 kg to 1.250 kg octabins and big bags with PE in-liner bags. For other packing options, please contact your sales representatives.

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