

EPLAMID HT00 GFR 40 NC Q1E001

DATA SHEET / TECHNISCHE DATEN

Material Information / Materialinformationen

: Partially Aromatic copolyamide with a combination of semi-crystalline polyamide reinforced with 40% Glass fiber, heat stabilized and lubricated for injection molding process.

: Partiiell aromatisches Copolyamid kombiniert mit semikristallinem Polyamid, verstärkt mit 40% GF. GF-verstärkt, wärmostabilisiert und geschmiert für Spritzgussverfahren

Notes / Anmerkungen

: Eplamid HT 00 grades offer the following unique properties in general conditions, and even after moisture absorption
 : Eplamid HT 00 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
- Outstanding Chemical Resistance to Glycols and Oils / Hervorragend chemische Beständigkeit gegen Glykole und Öle
- Excellent Creep Resistance / Hervorragende Kriechfestigkeit

Eplamid HT 00 grades are used for molding technical parts where higher operating temperatures and higher stiffness in moist environments are required.

Eplamid HT 00-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 / DICHTE (23°C) | ISO 1183 | g/cm3 | 1,52 | - |
| ASH CONTENT / ASCHENGEHALT | ISO 3451-4 | % | 40 | - |
| MOISTURE ABSORBATION / WASSERAUFNAHME | ISO 62 | % | 1,5 | - |
| MOULD SHRINKAGE TRANS. / VERARBEITUNGSSCHWINDUNG | ISO 294 | % | 0-1/0,6 | - |

MECHANICAL TESTS / MECHANISCHE EIGENSCHAFTEN

| | | | | | |
|--|---------------|---------------|-------------------|-------|-------|
| TENSILE MODULUS / ZUG-E MODUL (23°C) | 1mm/min | ISO 527 | MPa | 14700 | 14300 |
| TENSILE STRESS AT BREAK / ZUGFESTIGKEIT (23°C) | 5mm/min | ISO 527 | MPa | 220 | 210 |
| TENSILE STRAIN AT BREAK / STRECKDEHNUNG (23°C) | 5mm/min | ISO 527 | % | 2 | 2 |
| IMPACT STRENGTH / CHARPY-SCHLAGZÄHIGKEIT | CHARPY, 23°C | ISO 179/2-1eU | kJ/m ² | 75 | 75 |
| IMPACT STRENGTH / CHARPY-SCHLAGZÄHIGKEIT | CHARPY, -30°C | ISO 179/2-1eU | kJ/m ² | 75 | 75 |
| NOTCHED IMPACT STRENGTH / CHARPY-KERBSCHLAGZÄHIGKEIT | CHARPY, 23°C | ISO 179/2-1eU | kJ/m ² | 10 | 10 |
| NOTCHED IMPACT STRENGTH / CHARPY-KERBSCHLAGZÄHIGKEIT | CHARPY, -30°C | ISO 179/2-1eU | kJ/m ² | 10 | 10 |
| BALL INDENTATION HARDNESS / KUGELDRUCKHÄRTE | | ISO 2039-1 | MPa | 310 | 300 |

THERMAL TESTS / THERMISCHE EIGENSCHAFTEN

| | | | | | |
|---|-----|-----------|---------------------|-------|---|
| MELTING POINT / SCHMELZTEMPERATUR | DSC | ISO 11357 | °C | 315 | - |
| HDT/C - WÄRMEFORMBESTÄNDIGKEIT (8,0 MPa) | | ISO 75 | °C | 175 | - |
| HDT/A - WÄRMEFORMBESTÄNDIGKEIT (1,8 MPa) | | ISO 75 | °C | 280 | - |
| MAXIMUM WORKING TEMPERATURE / MAXIMALE BETRIEBSTEMPERATUR | | ISO 2578 | °C | | |
| LONG TERM / LANGFRISTIG | | ISO 2578 | °C | 140 | - |
| SHORT TERM / KURZFRISTIG | | ISO 2578 | °C | 250 | - |
| THERMAL EXPANSION COEFFICIENT LONG./TRANS. | | ISO 11359 | 10 ⁻⁴ /K | 15/50 | - |
| 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 | 35 | 35 |
| 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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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 m³ /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 |
|-------------------------|---------|---------|
| Pref. melt temp. | 300-330 | 265-300 |
| Rear | 305-325 | 280-290 |
| Center | 305-325 | 280-290 |
| Front | 310-325 | 285-290 |
| Nozzle | 320-330 | 285-300 |
| * °C | | |

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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