

## Ultem\* Resin HU2410

Americas: COMMERCIAL

40% Glass fiber filled, enhanced flow Polyetherimide (Tg 217C). ECO Conforming. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO 10993 or USP Class VI), food contact compliant.

### Property

| TYPICAL PROPERTIES <sup>(1)</sup>            |           |                   |              |
|--|-----------|-------------------|--------------|
| MECHANICAL                                   | Value     | Unit              | Standard     |
| Tensile Stress, yld, Type I, 5 mm/min        | 186       | MPa               | ASTM D 638   |
| Tensile Stress, brk, Type I, 5 mm/min        | 179       | MPa               | ASTM D 638   |
| Tensile Strain, yld, Type I, 5 mm/min        | 2.5       | %                 | ASTM D 638   |
| Tensile Strain, brk, Type I, 5 mm/min        | 2.5       | %                 | ASTM D 638   |
| Tensile Modulus, 5 mm/min                    | 11720     | MPa               | ASTM D 638   |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 254       | MPa               | ASTM D 790   |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 11430     | MPa               | ASTM D 790   |
| Tensile Stress, yield, 5 mm/min              | 180       | MPa               | ISO 527      |
| Tensile Stress, break, 5 mm/min              | 180       | MPa               | ISO 527      |
| Tensile Strain, yield, 5 mm/min              | 2         | %                 | ISO 527      |
| Tensile Strain, break, 5 mm/min              | 2         | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                    | 11500     | MPa               | ISO 527      |
| Flexural Stress, yield, 2 mm/min             | 240       | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                   | 10000     | MPa               | ISO 178      |
| IMPACT                                       | Value     | Unit              | Standard     |
| Izod Impact, unnotched, 23°C                 | 427       | J/m               | ASTM D 4812  |
| Izod Impact, notched, 23°C                   | 112       | J/m               | ASTM D 256   |
| Izod Impact, notched, -30°C                  | 114       | J/m               | ASTM D 256   |
| Instrumented Impact Total Energy, 23°C       | 18        | J                 | ASTM D 3763  |
| Izod Impact, notched 80*10*4 +23°C           | 10        | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, notched 80*10*4 -30°C           | 10        | kJ/m <sup>2</sup> | ISO 180/1A   |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm   | 10        | kJ/m <sup>2</sup> | ISO 179/1eA  |
| THERMAL                                      | Value     | Unit              | Standard     |
| Vicat Softening Temp, Rate B/50              | 234       | °C                | ASTM D 1525  |
| HDT, 1.82 MPa, 6.4 mm, unannealed            | 212       | °C                | ASTM D 648   |
| CTE, -40°C to 40°C, xflow                    | 4.5E-05   | 1/°C              | ASTM E 831   |
| CTE, -20°C to 150°C, flow                    | 1.44E-05  | 1/°C              | ASTM E 831   |
| CTE, -40°C to 40°C, flow                     | 1.5E-05   | 1/°C              | ISO 11359-2  |
| CTE, -40°C to 40°C, xflow                    | 4.5E-05   | 1/°C              | ISO 11359-2  |
| Vicat Softening Temp, Rate B/50              | 214       | °C                | ISO 306      |
| Vicat Softening Temp, Rate B/120             | 215       | °C                | ISO 306      |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm        | 197       | °C                | ISO 75/Af    |
| PHYSICAL                                     | Value     | Unit              | Standard     |
| Specific Gravity                             | 1.61      | -                 | ASTM D 792   |
| Water Absorption, 24 hours                   | 0.13      | %                 | ASTM D 570   |
| Water Absorption, equilibrium, 23C           | 0.9       | %                 | ASTM D 570   |
| Mold Shrinkage, flow, 3.2 mm                 | 0.1 - 0.3 | %                 | SABIC Method |
| Melt Flow Rate, 337°C/6.6 kgf                | 5.2       | g/10 min          | ASTM D 1238  |

|                                       |              |                         |                 |
|---------------------------------------|--------------|-------------------------|-----------------|
| Density                               | 1.56         | g/cm <sup>3</sup>       | ISO 1183        |
| Water Absorption, (23°C/sat)          | 0.8          | %                       | ISO 62          |
| Moisture Absorption (23°C / 50% RH)   | 0.4          | %                       | ISO 62          |
| Melt Volume Rate, MVR at 220°C/5.0 kg | 11           | cm <sup>3</sup> /10 min | ISO 1133        |
| <b>ELECTRICAL</b>                     | <b>Value</b> | <b>Unit</b>             | <b>Standard</b> |
| Volume Resistivity                    | 1.5E+16      | Ohm-cm                  | ASTM D 257      |
| Dielectric Strength, in oil, 1.6 mm   | 24           | kV/mm                   | ASTM D 149      |
| Relative Permittivity, 1 kHz          | 3.7          | -                       | ASTM D 150      |
| Dissipation Factor, 1 kHz             | 0.002        | -                       | ASTM D 150      |
| <b>FLAME CHARACTERISTICS</b>          | <b>Value</b> | <b>Unit</b>             | <b>Standard</b> |
| Oxygen Index (LOI)                    | 54           | %                       | ASTM D 2863     |

Source GMD, last updated:05/23/2007

## Processing

| Parameter                   | Value         | Unit |
|-----------------------------|---------------|------|
| <b>Injection Molding</b>    |               |      |
| Drying Temperature          | 150           | °C   |
| Drying Time                 | 4 - 6         | hrs  |
| Drying Time (Cumulative)    | 24            | hrs  |
| Maximum Moisture Content    | 0.02          | %    |
| Melt Temperature            | 350 - 400     | °C   |
| Nozzle Temperature          | 345 - 400     | °C   |
| Front - Zone 3 Temperature  | 345 - 400     | °C   |
| Middle - Zone 2 Temperature | 340 - 400     | °C   |
| Rear - Zone 1 Temperature   | 330 - 400     | °C   |
| Mold Temperature            | 135 - 165     | °C   |
| Back Pressure               | 0.3 - 0.7     | MPa  |
| Screw Speed                 | 40 - 70       | rpm  |
| Shot to Cylinder Size       | 40 - 60       | %    |
| Vent Depth                  | 0.025 - 0.076 | mm   |

Source GMD, last updated:05/23/2007

THESE PROPERTY VALUES ARE NOT INTENDED FOR SPECIFICATION PURPOSES.

PLEASE CHECK WITH YOUR [\(LOCAL SALES OFFICE\)](#) FOR AVAILABILITY IN YOUR REGION

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) Only typical data for selection purposes. Not to be used for part or tool design.

(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

(4) Internal measurements according to UL standards.

**Disclaimer** : THE MATERIALS AND PRODUCTS OF THE BUSINESSES MAKING UP THE SABIC INNOVATIVE PLASTICS COMPANY, ITS SUBSIDIARIES AND AFFILIATES ("SABIC IP"), ARE SOLD SUBJECT TO SABIC IP' S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SABIC IP MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (I) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (II) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING SABIC IP MATERIALS, PRODUCTS, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN SABIC IP' S STANDARD CONDITIONS OF SALE, SABIC IP AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS OR PRODUCTS DESCRIBED HEREIN. Each user bears full responsibility for making its own determination as to the suitability of SABIC IP' s materials, products, recommendations, or advice for its own particular use. Each

user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating SABIC IP materials or products will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of SABIC IP' s Standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by SABIC IP. No statement contained herein concerning a possible or suggested use of any material, product or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of SABIC Innovative Plastics Company or any of its subsidiaries or affiliates covering such use or design, or as a recommendation for the use of such material, product or design in the infringement of any patent or other intellectual property right

\* Ultem is a trademark of the SABIC Innovative Plastics Company

© 1997-2008 SABIC Innovative Plastics Company.All rights reserved