

# ULTEM™ RESIN AUT230

REGION EUROPE

## DESCRIPTION

Transparent polyetherimide (Tg 247C). Very low outgassing and plateout, for automotive lighting applications where highly metallized, reflective surfaces are required. Haze onset temperature of 230C (SABIC Innovative Plastics method)

| INDUSTRY   | SUB INDUSTRY              |
|------------|---------------------------|
| Automotive | Automotive Under the Hood |

## TYPICAL PROPERTY VALUES

Revision 20231109

| PROPERTIES                                  | TYPICAL VALUES | UNITS             | TEST METHODS |
|---|----------------|-------------------|--------------|
| <b>MECHANICAL</b>                           |                |                   |              |
| Tensile Stress, yld, Type I, 5 mm/min       | 96             | MPa               | ASTM D638    |
| Tensile Stress, brk, Type I, 5 mm/min       | 96             | MPa               | ASTM D638    |
| Tensile Strain, yld, Type I, 5 mm/min       | 6              | %                 | ASTM D638    |
| Tensile Strain, brk, Type I, 5 mm/min       | 25             | %                 | ASTM D638    |
| Tensile Modulus, 5 mm/min                   | 3510           | MPa               | ASTM D638    |
| Flexural Modulus, 1.3 mm/min, 50 mm span    | 3170           | MPa               | ASTM D790    |
| Tensile Stress, yield, 5 mm/min             | 95             | MPa               | ISO 527      |
| Tensile Stress, break, 5 mm/min             | 78             | MPa               | ISO 527      |
| Tensile Strain, yield, 5 mm/min             | 8.5            | %                 | ISO 527      |
| Tensile Strain, break, 5 mm/min             | 16.8           | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                   | 3110           | MPa               | ISO 527      |
| Flexural Stress, yield, 2 mm/min            | 123            | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                  | 3080           | MPa               | ISO 178      |
| <b>IMPACT</b>                               |                |                   |              |
| Izod Impact, unnotched, 23°C                | NB             | J/m               | ASTM D4812   |
| Izod Impact, notched, 23°C                  | 69             | J/m               | ASTM D256    |
| Izod Impact, notched, -30°C                 | 74             | J/m               | ASTM D256    |
| Instrumented Dart Impact Total Energy, 23°C | 33             | J                 | ASTM D3763   |
| Izod Impact, unnotched 80*10*4 +23°C        | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |
| Izod Impact, unnotched 80*10*4 -30°C        | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |
| Izod Impact, notched 80*10*4 +23°C          | 4              | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, notched 80*10*4 -30°C          | 5              | kJ/m <sup>2</sup> | ISO 180/1A   |
| <b>THERMAL</b>                              |                |                   |              |
| Vicat Softening Temp, Rate B/50             | 242            | °C                | ASTM D1525   |
| HDT, 1.82 MPa, 3.2mm, unannealed            | 217            | °C                | ASTM D648    |
| HDT, 0.45 MPa, 6.4 mm, unannealed           | 237            | °C                | ASTM D648    |
| HDT, 1.82 MPa, 6.4 mm, unannealed           | 230            | °C                | ASTM D648    |
| CTE, -40°C to 150°C, flow                   | 5.E-05         | 1/°C              | ASTM E831    |
| CTE, -40°C to 150°C, xflow                  | 5.E-05         | 1/°C              | ASTM E831    |
| CTE, 23°C to 150°C, flow                    | 5.E-05         | 1/°C              | ISO 11359-2  |
| CTE, 23°C to 150°C, xflow                   | 5.E-05         | 1/°C              | ISO 11359-2  |

| PROPERTIES                            | TYPICAL VALUES | UNITS                   | TEST METHODS   |
|---------------------------------------|----------------|-------------------------|----------------|
| Ball Pressure Test, 125°C +/- 2°C     | Passes         | -                       | IEC 60695-10-2 |
| Vicat Softening Temp, Rate B/50       | 242            | °C                      | ISO 306        |
| Vicat Softening Temp, Rate B/120      | 238            | °C                      | ISO 306        |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 228            | °C                      | ISO 75 /Af     |
| Metallized Haze Onset                 | 230            | °C                      | SABIC method   |
| <b>PHYSICAL</b>                       |                |                         |                |
| Specific Gravity                      | 1.3            | -                       | ASTM D792      |
| Mold Shrinkage on Tensile Bar, flow   | 0.5 – 0.7      | %                       | SABIC method   |
| Mold Shrinkage, flow, 3.2 mm          | 0.5 – 0.7      | %                       | SABIC method   |
| Mold Shrinkage, xflow, 3.2 mm         | 0.5 – 0.7      | %                       | SABIC method   |
| Melt Flow Rate, 367°C/6.6 kgf         | 15.5           | g/10 min                | ASTM D1238     |
| Density                               | 1.3            | g/cm <sup>3</sup>       | ISO 1183       |
| Water Absorption, (23°C/saturated)    | 1.75           | %                       | ISO 62-1       |
| Moisture Absorption (23°C / 50% RH)   | 0.6            | %                       | ISO 62         |
| Melt Volume Rate, MVR at 360°C/5.0 kg | 8              | cm <sup>3</sup> /10 min | ISO 1133       |
| <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                      | 380 – 405      | °C                      |                |
| Nozzle Temperature                    | 375 – 400      | °C                      |                |
| Front - Zone 3 Temperature            | 380 – 405      | °C                      |                |
| Middle - Zone 2 Temperature           | 370 – 395      | °C                      |                |
| Rear - Zone 1 Temperature             | 360 – 380      | °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                      |                |

## DISCLAIMER

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NON-INFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.