

# ULTEM™ RESIN 2312

REGION EUROPE

## DESCRIPTION

30% Milled glass filled, enhanced flow Polyetherimide (Tg 217C). ECO Conforming, UL94 V0 and 5VA listing.

ISCC+ certified renewable bio-based solutions are available for this grade via differentiated color nomenclature.

| INDUSTRY                   | SUB INDUSTRY                                                                                                                                                          |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Automotive                 | Heavy Truck, Automotive Under the Hood, Aerospace, Motorcycle, Recreational/Specialty Vehicles                                                                        |
| Building and Construction  | Building Component, Water Management                                                                                                                                  |
| Consumer                   | Consumer Goods, Sport/Leisure, Personal Accessory, Home Appliances, Commercial Appliance, Furniture                                                                   |
| Electrical and Electronics | Energy Management, Drone Solutions, Mobile Phone - Computer - Tablets, Circuit Boards/Additives, Lighting, Printer Copier, Speaker - Earphone, Wireless Communication |
| Hygiene and Healthcare     | Personal and Professional Hygiene, Pharmaceutical Packaging and Drug Delivery, Surgical devices, General Healthcare, Patient Testing                                  |
| Industrial                 | Electrical, Material Handling, Textile, Eyewear                                                                                                                       |
| Mass Transportation        | Rail                                                                                                                                                                  |
| Packaging                  | Industrial Packaging                                                                                                                                                  |

## TYPICAL PROPERTY VALUES

Revision 20230725

| PROPERTIES                                  | TYPICAL VALUES | UNITS             | TEST METHODS   |
|---------------------------------------------|----------------|-------------------|----------------|
| MECHANICAL                                  |                |                   |                |
| Tensile Stress, break, 5 mm/min             | 85             | MPa               | ISO 527        |
| Tensile Strain, break, 5 mm/min             | 3              | %                 | ISO 527        |
| Tensile Modulus, 1 mm/min                   | 6000           | MPa               | ISO 527        |
| Flexural Stress, yield, 2 mm/min            | 145            | MPa               | ISO 178        |
| Flexural Modulus, 2 mm/min                  | 6000           | MPa               | ISO 178        |
| Ball Indentation Hardness, H358/30          | 160            | MPa               | ISO 2039-1     |
| IMPACT                                      |                |                   |                |
| Izod Impact, notched 80*10*4 -40°C          | 5              | kJ/m <sup>2</sup> | ISO 180/1A     |
| Izod Impact, unnotched 80*10*4 +23°C        | 20             | kJ/m <sup>2</sup> | ISO 180/1U     |
| Izod Impact, unnotched 80*10*4 -30°C        | 20             | kJ/m <sup>2</sup> | ISO 180/1U     |
| Charpy Impact, notched, 23°C                | 4              | kJ/m <sup>2</sup> | ISO 179/2C     |
| Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm  | 25             | kJ/m <sup>2</sup> | ISO 179/1eU    |
| Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm | 25             | kJ/m <sup>2</sup> | ISO 179/1eU    |
| THERMAL                                     |                |                   |                |
| Thermal Conductivity                        | 0.3            | W/m·°C            | ISO 8302       |
| CTE, -40°C to 150°C, flow                   | 2.3E-05        | 1/°C              | ISO 11359-2    |
| CTE, -40°C to 150°C, xflow                  | 2.7E-05        | 1/°C              | ISO 11359-2    |
| Ball Pressure Test, 125°C +/- 2°C           | PASSES         | -                 | IEC 60695-10-2 |
| Vicat Softening Temp, Rate A/50             | 220            | °C                | ISO 306        |
| Vicat Softening Temp, Rate B/50             | 211            | °C                | ISO 306        |
| Vicat Softening Temp, Rate B/120            | 213            | °C                | ISO 306        |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm     | 206            | °C                | ISO 75/Be      |

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| PROPERTIES                                          | TYPICAL VALUES                 | UNITS                   | TEST METHODS   |
|-----------------------------------------------------|--------------------------------|-------------------------|----------------|
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm             | 192                            | °C                      | ISO 75/Ae      |
| Relative Temp Index, Elec <sup>(1)</sup>            | 170                            | °C                      | UL 746B        |
| Relative Temp Index, Mech w/impact <sup>(1)</sup>   | 170                            | °C                      | UL 746B        |
| Relative Temp Index, Mech w/o impact <sup>(1)</sup> | 170                            | °C                      | UL 746B        |
| <b>PHYSICAL</b>                                     |                                |                         |                |
| Mold Shrinkage on Tensile Bar, flow                 | 0.2 – 0.4                      | %                       | SABIC method   |
| Density                                             | 1.51                           | g/cm <sup>3</sup>       | ISO 1183       |
| Water Absorption, (23°C/saturated)                  | 0.9                            | %                       | ISO 62-1       |
| Moisture Absorption (23°C / 50% RH)                 | 0.5                            | %                       | ISO 62         |
| Melt Volume Rate, MVR at 360°C/5.0 kg               | 12                             | cm <sup>3</sup> /10 min | ISO 1133       |
| <b>ELECTRICAL</b>                                   |                                |                         |                |
| Volume Resistivity                                  | 1.E+15                         | Ω.cm                    | IEC 60093      |
| Surface Resistivity, ROA                            | >1.E+15                        | Ω                       | IEC 60093      |
| Relative Permittivity, 1 MHz                        | 3.4                            | -                       | IEC 60250      |
| Comparative Tracking Index <sup>(2)</sup>           | 150                            | V                       | IEC 60112      |
| Comparative Tracking Index (UL) {PLC}               | 4                              | PLC Code                | UL 746A        |
| Hot-Wire Ignition (HWI), PLC 1                      | ≥3                             | mm                      | UL 746A        |
| Hot-Wire Ignition (HWI), PLC 2                      | ≥0.81                          | mm                      | UL 746A        |
| High Amp Arc Ignition (HAI), PLC 3                  | ≥3                             | mm                      | UL 746A        |
| High Amp Arc Ignition (HAI), PLC 4                  | ≥0.81                          | mm                      | UL 746A        |
| High Voltage Arc Track Rate {PLC}                   | 0                              | PLC Code                | UL 746A        |
| Arc Resistance, Tungsten {PLC}                      | 7                              | PLC Code                | ASTM D495      |
| <b>FLAME CHARACTERISTICS <sup>(1)</sup></b>         |                                |                         |                |
| UL Yellow Card Link                                 | <a href="#">E121562-221100</a> | -                       | -              |
| Glow Wire Flammability Index, 1.5 mm                | 960                            | °C                      | IEC 60695-2-12 |
| Glow Wire Ignitability Temperature, 1.5 mm          | 875                            | °C                      | IEC 60695-2-13 |
| UL Recognized, 94V-0 Flame Class Rating             | ≥0.81                          | mm                      | UL 94          |
| <b>INJECTION MOLDING</b>                            |                                |                         |                |
| Drying Temperature                                  | 150                            | °C                      |                |
| Drying Time                                         | 4 – 6                          | Hrs                     |                |
| Maximum Moisture Content                            | 0.02                           | %                       |                |
| Melt Temperature                                    | 360 – 400                      | °C                      |                |
| Nozzle Temperature                                  | 360 – 400                      | °C                      |                |
| Front - Zone 3 Temperature                          | 370 – 410                      | °C                      |                |
| Middle - Zone 2 Temperature                         | 360 – 400                      | °C                      |                |
| Rear - Zone 1 Temperature                           | 340 – 380                      | °C                      |                |
| Hopper Temperature                                  | 80 – 100                       | °C                      |                |
| Mold Temperature                                    | 140 – 180                      | °C                      |                |

(1) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

(2) Value shown here is based on internal measurement.

## ADDITIONAL PRODUCT NOTES

No PFAS intentionally added: The grade listed in this document does not contain PFAS intentionally added during Seller's manufacturing process and is not expected to contain unintentional PFAS impurities. Each user is responsible for evaluating the presence of unintentional PFAS impurities.

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## MORE INFORMATION

For curve data and CAE cards, please visit and register at <https://materialfinder.sabic-specialties.com>

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