

# ULTEM™ RESIN 2212R

REGION ASIA

## DESCRIPTION

20% Milled glass filled, enhanced flow Polyetherimide (Tg 217C) with internal mold release, 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 20231109

| PROPERTIES                                          | TYPICAL VALUES | UNITS    | TEST METHODS |
|-----------------------------------------------------|----------------|----------|--------------|
| MECHANICAL                                          |                |          |              |
| Tensile Stress, brk, Type I, 5 mm/min               | 92             | MPa      | ASTM D638    |
| Tensile Strain, brk, Type I, 5 mm/min               | 6              | %        | ASTM D638    |
| Tensile Modulus, 5 mm/min                           | 4270           | MPa      | ASTM D638    |
| Flexural Stress, brk, 2.6 mm/min, 100 mm span       | 172            | MPa      | ASTM D790    |
| Flexural Modulus, 2.6 mm/min, 100 mm span           | 5100           | MPa      | ASTM D790    |
| IMPACT                                              |                |          |              |
| Izod Impact, notched, 23°C                          | 48             | J/m      | ASTM D256    |
| Izod Impact, Reverse Notched, 3.2 mm                | 384            | J/m      | ASTM D256    |
| THERMAL                                             |                |          |              |
| HDT, 1.82 MPa, 6.4 mm, unannealed                   | 205            | °C       | ASTM D648    |
| 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      |
| PHYSICAL                                            |                |          |              |
| Specific Gravity                                    | 1.43           | -        | ASTM D792    |
| Melt Flow Rate, 337°C/6.6 kgf                       | 13.5           | g/10 min | ASTM D1238   |
| ELECTRICAL                                          |                |          |              |
| 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                      | ≥1.5           | mm       | UL 746A      |
| High Amp Arc Ignition (HAI), PLC 3                  | ≥3             | mm       | UL 746A      |

| PROPERTIES                                 | TYPICAL VALUES | UNITS    | TEST METHODS   |
|--------------------------------------------|----------------|----------|----------------|
| High Amp Arc Ignition (HAI), PLC 4         | ≥1.5           | mm       | UL 746A        |
| High Voltage Arc Track Rate {PLC}          | 2              | PLC Code | UL 746A        |
| Arc Resistance, Tungsten {PLC}             | 7              | PLC Code | ASTM D495      |
| FLAME CHARACTERISTICS <sup>(1)</sup>       |                |          |                |
| UL Yellow Card Link                        | E121562-221097 | -        | -              |
| 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    | ≥0.41          | mm       | UL 94          |
| INJECTION MOLDING                          |                |          |                |
| 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       |                |

(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.

## 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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