

## Valox\* Resin 457

Americas: COMMERCIAL

6.5% GR PBT, UL94 V-0/5V.

### Property

| TYPICAL PROPERTIES <sup>(1)</sup>            |           |                    |              |
|--|-----------|--------------------|--------------|
|  | Value     | Unit               | Standard     |
| <b>MECHANICAL</b>                            |           |                    |              |
| Tensile Stress, brk, Type I, 5 mm/min        | 79        | MPa                | ASTM D 638   |
| Flexural Stress, brk, 1.3 mm/min, 50 mm span | 124       | MPa                | ASTM D 790   |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 3510      | MPa                | ASTM D 790   |
| Hardness, Rockwell R                         | 121       | -                  | ASTM D 785   |
| <b>IMPACT</b>                                |           |                    |              |
| Izod Impact, unnotched, 23°C                 | 267       | J/m                | ASTM D 4812  |
| Izod Impact, notched, 23°C                   | 32        | J/m                | ASTM D 256   |
| <b>THERMAL</b>                               |           |                    |              |
| HDT, 0.45 MPa, 6.4 mm, unannealed            | 204       | °C                 | ASTM D 648   |
| HDT, 1.82 MPa, 6.4 mm, unannealed            | 151       | °C                 | ASTM D 648   |
| CTE, -40°C to 40°C, flow                     | 6.66E-05  | 1/°C               | ASTM E 831   |
| CTE, 60°C to 138°C, flow                     | 6.66E-05  | 1/°C               | ASTM E 831   |
| Relative Temp Index, Elec                    | 120       | °C                 | UL 746B      |
| Relative Temp Index, Mech w/impact           | 120       | °C                 | UL 746B      |
| Relative Temp Index, Mech w/o impact         | 140       | °C                 | UL 746B      |
| <b>PHYSICAL</b>                              |           |                    |              |
| Specific Gravity                             | 1.44      | -                  | ASTM D 792   |
| Specific Volume                              | 0.69      | cm <sup>3</sup> /g | ASTM D 792   |
| Water Absorption, 24 hours                   | 0.06      | %                  | ASTM D 570   |
| Mold Shrinkage, flow, 1.5-3.2 mm             | 0.6 - 0.8 | %                  | SABIC Method |
| Mold Shrinkage, flow, 3.2-4.6 mm             | 0.8 - 1   | %                  | SABIC Method |
| Mold Shrinkage, xflow, 1.5-3.2 mm            | 0.7 - 0.9 | %                  | SABIC Method |
| Mold Shrinkage, xflow, 3.2-4.6 mm            | 0.9 - 1.2 | %                  | SABIC Method |
| <b>ELECTRICAL</b>                            |           |                    |              |
| Volume Resistivity                           | >5.5E+16  | Ohm-cm             | ASTM D 257   |
| Dielectric Strength, in air, 3.2 mm          | 17.7      | kV/mm              | ASTM D 149   |
| Dielectric Strength, in oil, 1.6 mm          | 23.6      | kV/mm              | ASTM D 149   |
| Relative Permittivity, 100 Hz                | 3.5       | -                  | ASTM D 150   |
| Relative Permittivity, 1 MHz                 | 3.4       | -                  | ASTM D 150   |
| Dissipation Factor, 100 Hz                   | 0.002     | -                  | ASTM D 150   |
| Dissipation Factor, 1 MHz                    | 0.02      | -                  | ASTM D 150   |
| Arc Resistance, Tungsten {PLC}               | 7         | PLC Code           | ASTM D 495   |
| Hot Wire Ignition {PLC}                      | 3         | PLC Code           | UL 746A      |
| High Voltage Arc Track Rate {PLC}            | 4         | PLC Code           | UL 746A      |
| High Ampere Arc Ign, surface {PLC}           | 3         | PLC Code           | UL 746A      |
| Comparative Tracking Index (UL) {PLC}        | 3         | PLC Code           | UL 746A      |
| <b>FLAME CHARACTERISTICS</b>                 |           |                    |              |
| UL Recognized, 94V-0 Flame Class Rating (3)  | 0.71      | mm                 | UL 94        |
| UL Recognized, 94-5VA Rating (3)             | 2.99      | mm                 | UL 94        |

|                    |      |   |             |
|--------------------|------|---|-------------|
| Oxygen Index (LOI) | 31.5 | % | ASTM D 2863 |
|--------------------|------|---|-------------|

Source GMD, last updated:12/29/1999

## Processing

| Parameter                   | Value         | Unit |
|-----------------------------|---------------|------|
| Injection Molding           |               |      |
| Drying Temperature          | 120           | °C   |
| Drying Time                 | 3 - 4         | hrs  |
| Drying Time (Cumulative)    | 12            | hrs  |
| Maximum Moisture Content    | 0.02          | %    |
| Melt Temperature            | 250 - 265     | °C   |
| Nozzle Temperature          | 245 - 260     | °C   |
| Front - Zone 3 Temperature  | 250 - 265     | °C   |
| Middle - Zone 2 Temperature | 245 - 260     | °C   |
| Rear - Zone 1 Temperature   | 240 - 255     | °C   |
| Mold Temperature            | 65 - 90       | °C   |
| Back Pressure               | 0.3 - 0.7     | MPa  |
| Screw Speed                 | 50 - 80       | rpm  |
| Shot to Cylinder Size       | 40 - 80       | %    |
| Vent Depth                  | 0.025 - 0.038 | mm   |

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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.

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