

# GELOY<sup>TM</sup> RESIN HRA222

REGION EUROPE

## DESCRIPTION

PC/ASA flame retardant, excellent weatherability.

## TYPICAL PROPERTY VALUES

Revision 20190925

| PROPERTIES                                 | TYPICAL VALUES | UNITS             | TEST METHODS   |
|--------------------------------------------|----------------|-------------------|----------------|
| MECHANICAL                                 |                |                   |                |
| Tensile Stress, yld, Type I, 50 mm/min     | 63             | MPa               | ASTM D 638     |
| Tensile Stress, brk, Type I, 50 mm/min     | 56             | MPa               | ASTM D 638     |
| Tensile Stress, yld, Type I, 5 mm/min      | 59             | MPa               | ASTM D 638     |
| Tensile Stress, brk, Type I, 5 mm/min      | 66             | MPa               | ASTM D 638     |
| Tensile Strain, yld, Type I, 50 mm/min     | 4.3            | %                 | ASTM D 638     |
| Tensile Strain, brk, Type I, 50 mm/min     | >100           | %                 | ASTM D 638     |
| Tensile Strain, yld, Type I, 5 mm/min      | 4.2            | %                 | ASTM D 638     |
| Tensile Strain, brk, Type I, 5 mm/min      | >100           | %                 | ASTM D 638     |
| Tensile Modulus, 5 mm/min                  | 2590           | MPa               | ASTM D 638     |
| Tensile Stress, yield, 5 mm/min            | 62             | MPa               | ISO 527        |
| Tensile Stress, break, 5 mm/min            | 51             | MPa               | ISO 527        |
| Tensile Stress, yield, 50 mm/min           | 60             | MPa               | ISO 527        |
| Tensile Stress, break, 50 mm/min           | 45             | MPa               | ISO 527        |
| Tensile Strain, yield, 5 mm/min            | 4.3            | %                 | ISO 527        |
| Tensile Strain, break, 5 mm/min            | >50            | %                 | ISO 527        |
| Tensile Strain, yield, 50 mm/min           | 4.4            | %                 | ISO 527        |
| Tensile Strain, break, 50 mm/min           | >50            | %                 | ISO 527        |
| Tensile Modulus, 1 mm/min                  | 2520           | MPa               | ISO 527        |
| Flexural Stress, yield, 2 mm/min           | 93             | MPa               | ISO 178        |
| Flexural Modulus, 2 mm/min                 | 2510           | MPa               | ISO 178        |
| IMPACT                                     |                |                   |                |
| Izod Impact, notched, 23°C                 | 385            | J/m               | ASTM D 256     |
| Izod Impact, notched, 0°C                  | 290            | J/m               | ASTM D 256     |
| Izod Impact, notched 80°10°4 +23°C         | 17             | kJ/m <sup>2</sup> | ISO 180/1A     |
| Izod Impact, notched 80°10°4 0°C           | 12             | kJ/m <sup>2</sup> | ISO 180/1A     |
| Izod Impact, notched 80°10°4 -30°C         | 9              | kJ/m <sup>2</sup> | ISO 180/1A     |
| Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm | 15             | kJ/m <sup>2</sup> | ISO 179/1eA    |
| THERMAL                                    |                |                   |                |
| CTE, -30°C to 80°C, flow                   | 6.9E-05        | 1/°C              | ISO 11359-2    |
| CTE, -30°C to 80°C, xflow                  | 7.1E-05        | 1/°C              | ISO 11359-2    |
| CTE, 23°C to 80°C, xflow                   | 7.5E-05        | 1/°C              | ISO 11359-2    |
| Ball Pressure Test, 75°C +/- 2°C           | PASSES         | -                 | IEC 60695-10-2 |
| Vicat Softening Temp, Rate A/50            | 111            | °C                | ISO 306        |
| Vicat Softening Temp, Rate B/50            | 102            | °C                | ISO 306        |
| Vicat Softening Temp, Rate B/120           | 104            | °C                | ISO 306        |

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CHEMISTRY THAT MATTERS™



| PROPERTIES                                    | TYPICAL VALUES | UNITS      | TEST METHODS      |
|-----------------------------------------------|----------------|------------|-------------------|
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm       | 99             | °C         | ISO 75/Be         |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm       | 88             | °C         | ISO 75/Ae         |
| PHYSICAL                                      |                |            |                   |
| Mold Shrinkage on Tensile Bar, flow           | 0.4 – 0.6      | %          | SABIC method      |
| Density                                       | 1.17           | g/cm³      | ISO 1183          |
| Water Absorption, (23°C/sat)                  | 0.6            | %          | ISO 62            |
| Moisture Absorption (23°C / 50% RH)           | 0.2            | %          | ISO 62            |
| Melt Volume Rate, MVR at 260°C/2.16 kg        | 13             | cm³/10 min | ISO 1133          |
| FLAME CHARACTERISTICS                         |                |            |                   |
| UL Compliant, 94-5VB Rating                   | 2.3            | mm         | UL 94 by SABIC-IP |
| UL Recognized, 94V-2 Flame Class Rating       | 0.8            | mm         | UL 94             |
| UL Recognized, 94V-0 Flame Class Rating       | 2              | mm         | UL 94             |
| UL Recognized, 94-5VB Flame Class Rating      | 2.3            | mm         | UL 94             |
| Glow Wire Flammability Index 960°C, passes at | 1              | mm         | IEC 60695-2-12    |
| Oxygen Index (LOI)                            | 29             | %          | ISO 4589          |
| INJECTION MOLDING                             |                |            |                   |
| Drying Temperature                            | 80 – 90        | °C         |                   |
| Drying Time                                   | 2 – 4          | hrs        |                   |
| Maximum Moisture Content                      | 0.02           | %          |                   |
| Melt Temperature                              | 230 – 270      | °C         |                   |
| Nozzle Temperature                            | 220 – 260      | °C         |                   |
| Front - Zone 3 Temperature                    | 230 – 270      | °C         |                   |
| Middle - Zone 2 Temperature                   | 220 – 260      | °C         |                   |
| Rear - Zone 1 Temperature                     | 200 – 230      | °C         |                   |
| Hopper Temperature                            | 60 – 80        | °C         |                   |
| Mold Temperature                              | 50 – 70        | °C         |                   |

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