

# GELOY<sup>TM</sup> RESIN HRA222F

REGION AMERICAS

## 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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| 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    |
| Relative Temp Index, Elec               | 90                                | °C                      | UL 746B      |
| Relative Temp Index, Mech w/impact      | 90                                | °C                      | UL 746B      |
| Relative Temp Index, Mech w/o impact    | 90                                | °C                      | UL 746B      |
| PHYSICAL                                |                                   |                         |              |
| Mold Shrinkage on Tensile Bar, flow     | 0.4 – 0.6                         | %                       | SABIC method |
| Density                                 | 1.17                              | g/cm <sup>3</sup>       | 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                                | cm <sup>3</sup> /10 min | ISO 1133     |
| ELECTRICAL                              |                                   |                         |              |
| Comparative Tracking Index (UL) {PLC}   | 0                                 | PLC Code                | UL 746A      |
| Comparative Tracking Index              | 600                               | V                       | IEC 60112    |
| FLAME CHARACTERISTICS                   |                                   |                         |              |
| UL Yellow Card Link                     | <a href="#">E121562-101287795</a> | -                       | -            |
| UL Yellow Card Link 2                   | <a href="#">E121562-101287860</a> | -                       | -            |
| UL Recognized, 94V-0 Flame Class Rating | 2                                 | mm                      | UL 94        |
| Oxygen Index (LOI)                      | 29                                | %                       | ISO 4589     |
| UV-light, water exposure/immersion      | F1                                | -                       | UL 746C      |
| 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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