



Versollan™ RU 2204X

Thermoplastic Elastomer

Key Characteristics

Product Description

Versollan™ RU 2204X is the first of a new class of high performance, injection moldable TPU alloys developed to offer a rubbery feel and appearance, reduced cycle times, combined with the performance properties associated with TPUs.

- Bonds to PC, ABS, PC/ABS, and Copolyester
- Excellent Abrasion Resistance
- Fast Set Up Rates During Processing
- Good Chemical and Oil Resistance
- Matte Finish
- Rubbery, Soft Touch Feel

General

| | | | |
|-----------------------|------------------------|----------------------|-----------------|
| Material Status | • Commercial: Active | | |
| Regional Availability | • Africa & Middle East | • Latin America | • North America |
| Features | • Abrasion Resistant | • Chemical Resistant | • Oil Resistant |
| Appearance | • Natural Color | | |
| Processing Method | • Extrusion | • Injection Molding | |

Technical Properties ¹

| Physical | Typical Value (English) | Typical Value (SI) | Test Method |
|-----------------------------------------------------------|-------------------------|--------------------|-------------|
| Specific Gravity | 1.14 | 1.14 | ASTM D792 |
| Melt Mass-Flow Rate (MFR) | | | ASTM D1238 |
| 190°C/2.16 kg | 11 g/10 min | 11 g/10 min | |
| 200°C/5.0 kg | 76 g/10 min | 76 g/10 min | |
| Molding Shrinkage - Flow | 0.012 to 0.016 in/in | 1.2 to 1.6 % | ASTM D955 |
| Elastomers | Typical Value (English) | Typical Value (SI) | Test Method |
| Tensile Stress ^{2, 3} (100% Strain, 73°F (23°C)) | 270 psi | 1.86 MPa | ASTM D412 |
| Tensile Stress ^{2, 3} (300% Strain, 73°F (23°C)) | 440 psi | 3.03 MPa | ASTM D412 |
| Tensile Strength ^{2, 3} (Break, 73°F (23°C)) | 1800 psi | 12.4 MPa | ASTM D412 |
| Tensile Elongation ^{2, 3} (Break, 73°F (23°C)) | 690 % | 690 % | ASTM D412 |
| Tear Strength | 240 lbf/in | 42.0 kN/m | ASTM D624 |
| Compression Set (73°F (23°C), 22 hr) | 26 % | 26 % | ASTM D395B |
| Hardness | Typical Value (English) | Typical Value (SI) | Test Method |
| Durometer Hardness (Shore A, 10 sec) | 55 | 55 | ASTM D2240 |
| Fill Analysis | Typical Value (English) | Typical Value (SI) | Test Method |
| Apparent Viscosity | | | ASTM D3835 |
| 392°F (200°C), 1340 sec ⁻¹ | 69.0 Pa·s | 69.0 Pa·s | |
| 392°F (200°C), 11200 sec ⁻¹ | 13.9 Pa·s | 13.9 Pa·s | |

Processing Information

| Injection | Typical Value (English) | Typical Value (SI) |
|------------------------|-------------------------|--------------------|
| Drying Temperature | 120 to 130 °F | 48.9 to 54.4 °C |
| Drying Time | 3.0 to 4.0 hr | 3.0 to 4.0 hr |
| Suggested Max Moisture | < 0.030 % | < 0.030 % |

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| Injection | Typical Value (English) | Typical Value (SI) |
|------------------------|-------------------------|--------------------|
| Suggested Max Regrind | 20 % | 20 % |
| Rear Temperature | 325 to 370 °F | 163 to 188 °C |
| Middle Temperature | 360 to 380 °F | 182 to 193 °C |
| Front Temperature | 370 to 410 °F | 188 to 210 °C |
| Nozzle Temperature | 380 to 420 °F | 193 to 216 °C |
| Processing (Melt) Temp | 370 to 410 °F | 188 to 210 °C |
| Mold Temperature | 70.0 to 90.0 °F | 21.1 to 32.2 °C |
| Back Pressure | 0.00 to 80.0 psi | 0.00 to 0.552 MPa |
| Screw Speed | 75 to 125 rpm | 75 to 125 rpm |

Injection Notes

Color concentrates with polyether or polyester-based urethane carriers are most suitable for coloring Versollan™ RU 2204X. Typical letdown ratios are 50:1 to 25:1 - loading levels should be as low as possible to minimize the effect on hardness. A high color match consistency can be obtained by the use of precolored compounds available from GLS. Polypropylene (PP) based color concentrates are not recommended because they significantly affect adhesion of the TPE to the substrate. Concentrates based on TPE should not be used. The final determination of color concentrate suitability should be determined by customer trials.

Purge thoroughly before and after use of this product with a low flow (0.5 - 2.5 MFR) polyethylene (PE) or polypropylene (PP).

Regrind levels up to 20% can be used with Versollan™ RU 2204X with minimal property loss, provided that the regrind is free of contamination. To minimize losses during molding, the melt temperature should remain as low as possible. The final determination of regrind effectiveness should be determined by the customer.

Versollan™ RU 2204X should not be left in the barrel for extended idle periods (greater than 5 minutes).

Suggested Dewpoint: -40°F

Injection Speed: 0.5 to 2 in/sec
 1st Stage - Boost Pressure: 300 to 700 psi
 2nd Stage - Hold Pressure: 30% of Boost
 Hold Time (Thick Part): 4 to 10 sec
 Hold Time (Thin Part): 1 to 3 sec

Notes

¹ Typical values are not to be construed as specifications.

² Die C

³ 2 hr

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