Shell Polymers

# 54N20
# High-Density Polyethylene Resin

## Technical Data Sheet

### Product Description

Shell Polymers HDPE 54N20 is designed to deliver excellent stiffness/impact balance, flow easily, and offer good overall processability. Certified to NSF/ANSI 51 and NSF/ANSI/CAN 61.

### Highlights

- Intended for use in thin wall injection molding
- Balances physical property performance and flowability
- Gas phase technology

| Resin Properties | Method | Nominal Value |
|---|---|---|
| Density | ASTM D792 | 0.954 g/cm$^3$ |
| Melt Index (190 °C / 2.16 kg) | ASTM D1238 | 20 g/10 min |

| Mechanical Properties | Method | Nominal Value (English) | Nominal Value (SI) |
|---|---|---|---|
| Environmental Stress-Cracking Resistance (ESCR)[a] | ASTM D1693 | 2 hr | 2 hr |
| Tensile[b] Strength at Yield | ASTM D638 | 4150 psi | 28.6 MPa |
| Tensile[b] Strength at Break | ASTM D638 | 1850 psi | 12.8 MPa |
| Tensile[b] Elongation at Yield | ASTM D638 | 8.5% | 8.5% |
| Tensile[b] Elongation at Break | ASTM D638 | 146% | 146% |
| Flexural Modulus 1% Secant | ASTM D790B | 191,500 psi | 1320 MPa |
| Flexural Modulus 2% Secant | ASTM D790B | 165,000 psi | 1140 MPa |
| Tensile Impact Strength | ASTM D1822 | 24.0 ft·lb/in$^2$ | 50.3 kJ/m$^2$ |
| Notched Izod Impact (-30 °C) | ASTM D256 | 0.70 ft·lb/in | 36.0 J/m |

| Thermal Properties | Method | Nominal Value (English) | Nominal Value (SI) |
|---|---|---|---|
| Deflection Temperature Under Load at 66 psi (0.455 MPa) Unannealed | ASTM D648 | 164 °F | 73 °C |
| Peak Melting Temperature | | 267 °F | 130 °C |
| Peak Crystallization Temperature | | 241 °F | 116 °C |

## Notes

Typical properties only. Not to be construed as specifications. Users should confirm results by performing their own tests.

Plaques molded in accordance with ASTM D4703C

(a) ESCR tested using Condition B, 100% Igepal

(b) Tensile properties tested on Type IV specimens

**Regulatory Statement:**

- Complies with U.S. FDA 21 CFR 177.1520 (c) 3.1a or 3.2a
- Consult the Regulatory Data Sheet for more details. It is available upon request. Please contact your Account Manager.

**www.shell.us/polymers**