ChasePlastics®
Redefining Resin Distribution®

Real solutions. Real metal to plastic choices.

Industry regulations and consumer demands change frequently – and as a result, so do your product needs. Let us help you understand how to reduce your product's weight and cost all while maintaining performance and quality.

Benefits of choosing plastic over metal:

- Cost reduction
- Weight reduction
- Design freedom
- Secondary operation elimination
- Parts consolidation
- Inherent corrosion resistance
- Longer tool life

Typical metal die-cast competition:

- Aluminum
- Magnesium
- Zinc

Type of Material	Abbreviation(s)	Recommended Tool Temperature (°C)	Hot Water Moldable	Surface Appearance	Heat Deflection at 264 psi (°C)	Tensile Strength (MPa)	Flexural Modulus (MPa)	Wear and Friction	Chemical Resistance	Tradenames	Advantages
High Performance Polyamide	HPPA	80-140	Yes	Better	255	285	21,500	Better	Better	Solvay Omnix®	• Excellent colorability • Higher heat resistance and lower moisture uptake than PA 6/6
Polyamide 66/6I	PA 66/6I	65-120	Yes	Best	255	250	16,400	Better	Better	Asahi Kasei Leona™	• Excellent flowability • Great paintability and weatherability
Polyarylamide	PARA, PA MXD6	120-160	—	Best	255	290	33,000	Better	Better	Mitsubishi Reny® Solvay Ixef®	• Low moisture uptake for great dimensional stability • Great retention of mechanicals even at elevated temperatures
Polyetherimide	PEI	135-165	—	Better	212	179	11,700	Better	Better	SABIC's Specialties business ULTEM™	• Inherently V-0 flame rated • Good clarity • Plateable • Fire-Smoke-Toxicity (FST) compliant
Polyphenylene Sulfide	PPS	135-150	—	Best	270	212	20,800	Better	Best	Solvay Ryton®	• Low moisture uptake for great dimensional stability • Inherently V-0 flame rated
Polyphthalamide	PPA	65-180	Yes	Better	310	280	22,800	Better	Better	Solvay Amodel®	• Lower and slower moisture uptake than PA 6/6 • Great retention of mechanicals even at elevated temperatures and high humidity
Polyethersulfone	PESU	120-160	—	Better	216	126	8,070	Better	Better	Veradel® PESU	• Improved isotropic shrinkage and CLTE leading to better dimensional stability • High RTI • Good chemical resistance • Inherently V-0 flame rated

*HDT, Tensile, and Flex all based on grade with the highest value

Long fiber compounds: LNP™ VERTON™ from SABIC's Specialties business

Advantages

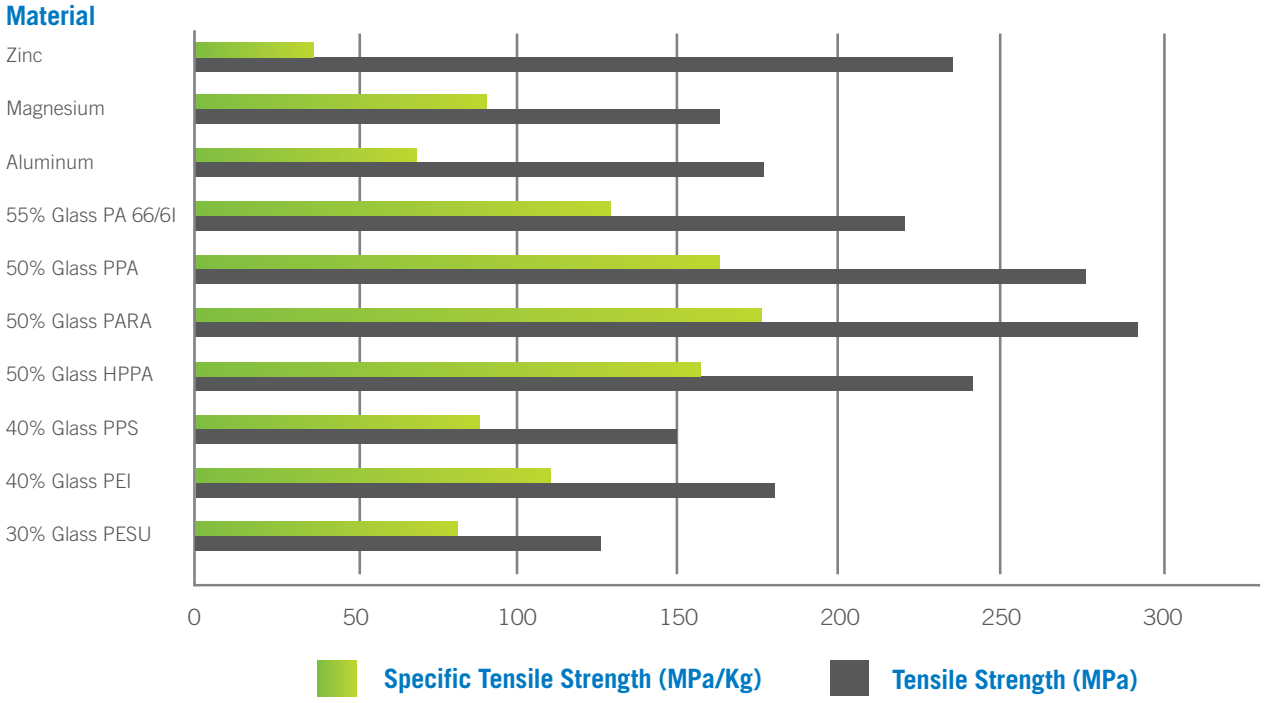
- Hot water moldable grades available
- High stiffness and heat deflection
- Availability in many different base resins

Specific Gravity Comparison

Material	Specific Gravity (g/cm³)
Zinc	6.5
Magnesium	1.74
Aluminum	2.7
55% Glass PA 66/6I	1.64
50% Glass PPA	1.67
50% Glass PARA	1.65
50% Glass HPPA	1.59
40% Glass PPS	1.69
40% Glass PEI	1.61
30% Glass PESU	1.58

Weight vs. Strength Comparison

Plastics show greater specific strength* compared to metals, allowing applications to meet the strength requirements while reducing weight



*Specific strength is a material's strength (force per unit area at failure) divided by its density. It is also known as the strength-to-weight ratio or strength/weight ratio.

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