MATERION

DATA SHEET

AlBeMet® Property Datasheet

Physical Properties of AlBeMet® 162 compared to Common Aluminum

Property	2024T6	6061T6	AM162
Density g/cm^3 (Lbs/in^3)	2.77 (0.100)	2.70 (0.100)	2.10 (0.076)
Modulus GPa (Msi)	72 (10.5)	70 (10.0)	193 (28)
Poisson's Ratio	0.33	0.33	0.17
CTE @ 25°C ppm/°C (ppm/°F)	22.9 (12.7)	23.6 (13.1)	13.9 (7.7)
Thermal Conductivity, W/mK (BTU/hr Ft °F)	151 (87.3)	167 (96.5)	210 (121)
Specific Heat @ 20°C J/Kg K (BTU/lb °F)	875 (0.209)	896 (0.214)	1465 (0.350)
Electrical Conductivity @ 20°C, % IACS	30	43	49
Damping Capacity 25C/500 Hz	$1.05x10^{-2}$	$1.05x10^{-2}$	$1.5x10^{-3}$
Fracture Toughness K_{1c} Ksi $\sqrt{in}$ (MPa $\cdot\sqrt{m}$)	23 (25)	23 (25)	10-21 (11-23)

A Comparison of AM162 AlBeMet® HIP'd, Extruded Bar, and Rolled Sheet

Property	HIP'd	Extruded Rod,Bar,Tube*	Rolled Sheet
Composition	Al-62 wt% Be	Al-62 wt% Be	Al-62 wt% Be
Density g/cm3 (lb/in3)	2.071 (0.0748)	2.071 (0.0748)	2.071 (0.0748)
Minimum Yield Strength MPa (Ksi)	193 (28)	276 (40)	276 (40)
Minimum Ultimate Strength MPa (Ksi)	262 (38)	400 (58)	379 (55)
Minimum Elongation %	2	7	5
Typical Modulus GPa (Msi)	197 (29)	202 (29)	193 (28)
Thermal Conductivity at 25°C W/m ·K (Btu/hr ·ft ·°F)	210 (121)	210 (121)	210 (121)
Coefficient of Thermal Expansion at 25°C ppm/°C (ppm/°F)	13.91 (7.73)	13.91 (7.73)	13.91 (7.73)

*Mechanical properties in the direction of extrusion.

Typical Tensile Yield Strength at Room Temperature

Property	Heat Treatment	Yield Strength MPa (Ksi)	Ultimate Strength MPa (Ksi)	Elongation, %
HIP'd	593°C/24 hours	221 (32)	288 (42)	4
Extruded Bar	593°C/24 hours	328 (48)	439 (64)	9
Rolled Sheet	593°C/24 hours	314 (46)	413 (60)	7

The room temperature tensile strength of the wrought forms of AM162 compares favorable to 6061T6 aluminum and are less than the 2024T6 aluminum.

Handling AlBeMet® in solid form poses no special health risk. Like many industrial materials, beryllium-containing materials may pose a health risk if recommended safe handling practices are not followed. Inhalation of airborne beryllium may cause a serious lung disorder in susceptible individuals. The Occupational Safety and Health Administration (OSHA) has set mandatory limits on occupational respiratory exposures. Read and follow the guidance in the Safety Data Sheet (SDS) before working with this material. For additional information on safe handling practices or technical data on AlBeMet®, please contact Materion Beryllium & Composites Product Steward at 216-383-4040.

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