

Description

Aluminum alloy 3105 is essentially a 98% aluminum alloy with minor additions to increase strength over that of alloy 1100 and 3003. It is not hardenable by heat treatment and it has good corrosion resistance, formability and weldability.

Aluminum alloy 3105 is most commonly used where a painted finish is desired. Typical applications include general sheet metal work requiring greater strength than is provided by 1000 series aluminum alloys, residential siding, mobile homes and sign making.

Mechanical Properties

Requirements for strain hardened H14 temper (½ hard) as specified in ASTM B209 and ASME SB209

Property	Data
Elastic (Young's, Tensile) Modulus	10 x 10 ⁶ psi
Elongation at Break	2.9 %
Modulus of Resilience (Unit Resilience)	4.29 BTU/ft ³
Poisson's Ratio	0.33
Shear Modulus	3.8 x 10 ⁶ psi
Shear Strength	16 x 10 ³ psi
Strength to Weight Ratio	4 psi/ft
Tensile Strength: Ultimate (UTS)	25 x 10 ³ psi
Tensile Strength: Yield (Proof)	22 x 10 ³ psi
Unit Rupture Work (Ultimate Resilience)	126 BTU/ft ³

Chemical Composition

Chemical Composition as specified in ASTM B209 and ASME SB209

Element	3105
Aluminum (Al)	96 to 99.5 %
Manganese (Mn)	0.3 to 0.8 %
Magnesium (Mg)	0.2 to 0.8 %
Iron (Fe)	0 to 0.7 %
Silicon (Si)	0 to 0.6 %
Zinc (Zn)	0 to 0.4 %
Copper (Cu)	0 to 0.3 %
Chromium (Cr)	0 to 0.2 %
Residuals	0 to 0.15 %
Titanium (Ti)	0 to 0.1 %

Physical Properties

Property	Data
Calomel Potential	-750 mV
Density	175 lb/ft ³
Electrical Conductivity	44 % IACS
Electrical Resistivity	1.504 μΩ-in
Melting Onset (Solidus)	1180 °F
Specific Heat Capacity	0.214 BTU/lb-°F
Thermal Conductivity	98 BTU/ft Hr °F
Thermal Diffusivity	721 ft ² /s
CTE (68-212°F)	13.1 μin/in-°F

Available Thicknesses

.032"	.040"	.050"	.063"
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Standards

Typical Standards for Alloy 3105 aluminum	
ASTM B209	ASME SB209

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