

## Aluminum 3104-H19

**Categories:** [Metal](#); [Nonferrous Metal](#); [Aluminum Alloy](#); [3000 Series Aluminum Alloy](#)

**Material Notes:** Data points with the AA note have been provided by the Aluminum Association, Inc. and are NOT FOR DESIGN.

**Composition Notes:**

Composition information provided by the Aluminum Association and is not for design.

**Key Words:** UNS A93104; Aluminium 3104-H19; AA3104-H19

**Vendors:** [Click here to view all available suppliers for this material.](#)

Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	2.72 g/cc	0.0983 lb/in <sup>3</sup>	AA; Typical
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	78	78	500 kg load with 10 mm ball. Calculated value.
Hardness, Knoop	101	101	Converted from Brinell Hardness Value
Hardness, Vickers	88	88	Converted from Brinell Hardness Value
Tensile Strength, Ultimate	290 MPa	42100 psi	
Tensile Strength, Yield	260 MPa	37700 psi	
Elongation at Break	4.00 %	4.00 %	In 5 cm; Sample 1.6 mm thick
Modulus of Elasticity	69.0 GPa	10000 ksi	Average of Tension and Compression. In Aluminum alloys, the compressive modulus is typically 2% greater than the tensile modulus. Estimated from trends in similar Al alloys.
Poissons Ratio	0.340	0.340	Estimated from trends in similar Al alloys.
Shear Modulus	26.0 GPa	3770 ksi	Estimated from similar Al alloys.
Shear Strength	175 MPa	25400 psi	Calculated value.
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000400 ohm-cm	0.00000400 ohm-cm	Estimated from trends in similar Al alloys.
Thermal Properties	Metric	English	Comments
CTE, linear	23.8 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature 20.0 - 100 °C	13.2 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature 68.0 - 212 °F	
	25.4 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature 20.0 - 300 °C	14.1 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature 68.0 - 572 °F	
Specific Heat Capacity	0.880 J/g-°C	0.210 BTU/lb-°F	Estimated from trends in similar Al alloys.
Thermal Conductivity	170 W/m-K	1180 BTU-in/hr-ft <sup>2</sup> -°F	Estimated from trends in similar Al alloys.
Melting Point	630 - 655 °C	1170 - 1210 °F	Estimated from trends in similar Al alloys.
Solidus	630 °C	1170 °F	Estimated from trends in similar Al alloys.
Liquidus	655 °C	1210 °F	Estimated from trends in similar Al alloys.
Material Components Properties	Metric	English	Comments
Aluminum, Al	95.0 - 98.4 %	95.0 - 98.4 %	As remainder
Copper, Cu	0.050 - 0.25 %	0.050 - 0.25 %	
Gallium, Ga	<= 0.050 %	<= 0.050 %	
Iron, Fe	<= 0.80 %	<= 0.80 %	
Magnesium, Mg	0.80 - 1.30 %	0.80 - 1.30 %	
Manganese, Mn	0.80 - 1.40 %	0.80 - 1.40 %	
Other, each	<= 0.050 %	<= 0.050 %	
Other, total	<= 0.15 %	<= 0.15 %	
Silicon, Si	<= 0.60 %	<= 0.60 %	
Titanium, Ti	<= 0.10 %	<= 0.10 %	
Vanadium, V	<= 0.050 %	<= 0.050 %	
Zinc, Zn	<= 0.25 %	<= 0.25 %	

[References](#) for this datasheet.

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. We also ask that you refer to MatWeb's disclaimer and terms of use regarding this information. [Click here](#) to view all the property values for this datasheet as they were originally entered into MatWeb.

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