

# 5052 Aluminum Alloy: Properties

## General Characteristics

Characteristic	Appraisal
Strength	Medium to High
Corrosion Resistance	Excellent
Weldability & Brazability	Good
Workability	Good
Machinability	Fair

## Chemical Composition

Element	Minimum %	Maximum %
Silicon	No Min	0.25%
Iron	No Min	0.4%
Copper	No Min	0.1%
Manganese	No Min	0.1%
Magnesium	2.2%	2.8%
Chromium	0.15%	0.35%
Zinc	No Min	0.1%
Other Elements	No Min	0.05 each, 0.15 in total

## Physical Properties

Property	5052-O	5052-H32	5052-H34
Density	2.68 g/cc   0.0968 lb/in <sup>3</sup>	2.68 g/cc   0.0968 lb/in <sup>3</sup>	2.68 g/cc   0.0968 lb/in <sup>3</sup>

## Mechanical Properties

Property	5052-O	5052-H32	5052-H34
Tensile Strength	193 MPa   28000 psi	228 MPa   33000 psi	262 MPa   38000 psi
Yield Strength	89.6 MPa   13000 psi	193 MPa   28000 psi	214 MPa   31000 psi
Modulus of Elasticity	70.3 GPa   10200 ksi	70.3 GPa   10200 ksi	70.3 GPa   10200 ksi

## Thermal Properties

Property	5052-O	5052-H32	5052-H34
Coefficient of Thermal Expansion @ 20.0 - 100 °C Temp	23.8 μm/m-°C   13.2 μin/in-°F	23.8 μm/m-°C   13.2 μin/in-°F	23.8 μm/m-°C   13.2 μin/in-°F
Thermal Conductivity	138 W/m-K   960 BTU-in/hr-ft <sup>2</sup> -°F	138 W/m-K   960 BTU-in/hr-ft <sup>2</sup> -°F	138 W/m-K   960 BTU-in/hr-ft <sup>2</sup> -°F