

## 1200 Aluminum Alloy Overview

1200 aluminum alloy is a commercially pure aluminum alloy that is known for its excellent thermal and electrical conductivity. It belongs to the wrought aluminum series and is often used in applications where high thermal and electrical conductivity are essential.

### Chemical Composition

- Aluminum (Al): 99.0% minimum
- Silicon (Si): 0.05% maximum
- Iron (Fe): 0.05% maximum
- Copper (Cu): 0.05% maximum
- Zinc (Zn): 0.10% maximum
- Other Elements: 0.15% maximum each, 0.05% total for other elements

### Physical Properties

- Density: 2.70 g/cm<sup>3</sup> (0.0975 lb/in<sup>3</sup>)
- Melting Point: 660.3°C (1220.5°F)

### Mechanical Properties

- Tensile Strength: 45-75 MPa (6,500-11,000 psi)
- Yield Strength: 15-45 MPa (2,200-6,500 psi)
- Elongation: 5-35%
- Modulus of Elasticity: 68.9 GPa (10,000 ksi)

### Applications

1. 1200 aluminum alloy finds applications in various industries due to its exceptional thermal and electrical conductivity:
2. Electrical Conductors: Its high electrical conductivity makes it an ideal choice for electrical conductors and cables.
3. Heat Exchangers: Used in heat exchangers and radiators due to its good thermal conductivity.
4. Reflective Surfaces: Its high reflectivity makes it suitable for reflective surfaces in lighting and solar applications.
5. Cookware and Utensils: Due to its excellent heat transfer capabilities, it is used in cookware and utensils.
6. Lamp Reflectors: Its reflective properties make it suitable for lamp reflectors and housings.
7. Heat Sinks: Used in heat sinks for electronic components due to its thermal conductivity.
8. Foil and Packaging: Its malleability and formability make it useful for foil and packaging applications.

1200 aluminum alloy's remarkable thermal and electrical conductivity make it highly valued in applications that require efficient heat transfer and electrical performance. Its use in electrical conductors, heat exchangers, reflective surfaces, and various other industries showcases its versatility and practicality. Its exceptional formability and lightweight nature contribute to its popularity in manufacturing applications.

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