

1100 Aluminum Alloy Overview

1100 aluminum alloy is a commercially pure aluminum alloy known for its excellent corrosion resistance, high ductility, and good thermal and electrical conductivity. It belongs to the non-heat-treatable series, making it highly suitable for applications that require formability and workability.

Chemical Composition

- Aluminum (Al): 99.00% minimum
- Silicon (Si): 0.95% 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/cm³ (0.0975 lb/in³)
- Melting Point: 660.3°C (1220.5°F)

Mechanical Properties

- Tensile Strength: 95-130 MPa (14,000-19,000 psi)
- Yield Strength: 35-115 MPa (5,000-16,000 psi)
- Elongation: 5-30%
- Modulus of Elasticity: 69 GPa (10,000 ksi)
- Brinell Hardness: 23 HB

Applications

1. Chemical and Food Processing: Its corrosion resistance makes it suitable for chemical and food processing equipment.
2. Heat Exchangers: Used in heat exchangers for its good thermal conductivity.
3. Lighting Reflectors: The high reflectivity of 1100 alloy makes it ideal for lighting reflectors.
4. Signs and Nameplates: Due to its ease of stamping and formability, it's used for signs and nameplates.
5. Utensils and Cookware: Its excellent corrosion resistance makes it a choice for kitchen utensils and cookware.
6. Electrical Conductors: 1100 alloy's electrical conductivity makes it useful for electrical conductors.
7. Sheet Metal Work: Its formability makes it suitable for sheet metal work and fabrication.
8. Chemical Storage: Its corrosion resistance makes it suitable for chemical storage tanks.

1100 aluminum alloy is valued for its versatility, corrosion resistance, and formability. Its use spans a wide range of industries, from chemical processing and cookware to electrical conductors and lighting reflectors. Its non-heat-treatable nature allows for easy fabrication and processing, making it a reliable choice for

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applications that require high ductility and good resistance to corrosion.

