

3105 Aluminum Alloy Overview:

The 3105 aluminum alloy is known for its exceptional corrosion resistance, good formability, and moderate strength. As a non-heat-treatable alloy, it finds application in various industries such as construction, electronics, and general fabrication.

Chemical Composition:

- Aluminum (Al): 95.0-98.0%
- Copper (Cu): 0.05-0.20%
- Manganese (Mn): 0.30-0.80%
- Magnesium (Mg): 0.20-0.80%
- Other elements: $\leq 0.20\%$ each, $\leq 0.05\%$ total

Physical Properties:

- Density: 2.73 g/cm³ (0.098 lb/in³)
- Melting Point: 643°C (1190°F)

Mechanical Properties:

- Tensile Strength: 145-185 MPa (21,000-26,800 psi)
- Yield Strength: 115-155 MPa (16,700-22,400 psi)
- Elongation: 20-30%
- Modulus of Elasticity: 68.9 GPa (10,000 ksi)

Applications:

1. Roofing and Siding: Used in roofing and cladding due to its corrosion resistance and aesthetic appeal.
2. Heat Exchangers: Suitable for heat exchanger fins due to its corrosion resistance.
3. Packaging: Used for packaging materials due to its formability and non-reactive nature.
4. Road Signs: Widely used for road signs due to its durability and resistance to harsh weather conditions.
5. Utensils: Used for kitchen utensils and cookware due to its corrosion resistance.

The 3105 aluminum alloy's combination of properties makes it a valuable material in applications where corrosion resistance, formability, and moderate strength are essential.