3004 Aluminum Alloy Overview:

The 3004 aluminum alloy is a versatile material renowned for its exceptional formability, corrosion resistance, and moderate strength. As part of the 3000 series of aluminum alloys, it is commonly used in applications that require a balance of these properties, such as packaging and construction.

Chemical Composition:

- Aluminum (Al): 95.8-98.2%
- Copper (Cu): 0.25%
- Manganese (Mn): 1.0-1.5%
- Magnesium (Mg): 0.8-1.3%
- Other elements: ⩽ 0.15% each, ⩽ 0.05% total

Physical Properties:

- Density: 2.74 g/cm³ (0.099 lb/in³)
- Melting Point: 630°C (1166°F)

Mechanical Properties:

- Tensile Strength: 145-215 MPa (21,000-31,200 psi)
- Yield Strength: 115-190 MPa (16,700-27,600 psi)
- Elongation: 10-16%
- Modulus of Elasticity: 69 GPa (10,000 ksi)

Applications:

1. Beverage Cans: Widely used for beverage can bodies and ends due to its formability and corrosion resistance.
2. Food Packaging: Suitable for making food containers and foil for packaging due to its non-reactive nature.
3. Heat Exchangers: Used for heat exchanger fins due to its corrosion resistance.
4. Building Materials: Used in roofing, siding, and architectural applications due to its corrosion resistance and strength.
5. Storage Tanks: Its corrosion resistance makes it suitable for chemical and storage tanks.

The 3004 aluminum alloy's balanced properties make it a preferred material for applications that demand formability, corrosion resistance, and moderate strength.

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