

# 1050 Aluminum Coil

**Grade:** 1050  
**Formula:** Al  
**Percentage Purity:** 99.5%  
**Temper:** Annealed  
**Thickness:** 0.1mm  
**Coil Width:** 305mm  
**Length:** 2m  
**CAS Number:** 7429-90-5  
**UOM Code:** 771-481-31  
**SKU:** 1000012564  
**Product Code:** AL00-FL-000158

## Material Properties for Metals

### Atomic Properties

| Element                                           | Value                              |
|---------------------------------------------------|------------------------------------|
| Atomic number                                     | 13                                 |
| Crystal structure                                 | Face centred cubic                 |
| Electronic structure                              | Ne 3s <sup>2</sup> 3p <sup>1</sup> |
| Valences shown                                    | 3                                  |
| Atomic weight( amu )                              | 26.98154                           |
| Thermal neutron absorption cross-section( Barns ) | 0.232                              |
| Photo-electric work function( eV )                | 4.2                                |
| Atomic radius - Goldschmidt( nm )                 | 0.143                              |
| Ionisation potential( No./eV )                    | 4/ 120                             |
| Ionisation potential( No./eV )                    | 5/ 154                             |
| Ionisation potential( No./eV )                    | 6/ 190                             |
| Ionisation potential( No./eV )                    | 1/ 5.99                            |
| Ionisation potential( No./eV )                    | 3/ 28.4                            |
| Ionisation potential( No./eV )                    | 2/ 18.8                            |

### Mechanical Properties

| Element            | Value |
|--------------------|-------|
| Material condition | Soft  |

| Element                                   | Value   |
|-------------------------------------------|---------|
| Material condition                        | Hard    |
| Poisson's ratio                           | 0.345   |
| Poisson's ratio                           | 0.345   |
| Bulk modulus( GPa )                       | 75.2    |
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| Tensile modulus( GPa )                    | 70.6    |
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| Hardness - Vickers( kgf mm <sup>2</sup> ) | 21      |
| Hardness - Vickers( kgf mm <sup>2</sup> ) | 35-48   |
| Tensile strength( MPa )                   | 130-195 |
| Tensile strength( MPa )                   | 50-90   |
| Yield strength( MPa )                     | 110-170 |
| Yield strength( MPa )                     | Oct-35  |

## Electrical Properties

| Element                                           | Value          |
|---------------------------------------------------|----------------|
| Electrical resistivity( $\mu\text{Ohmcm}$ )       | 2.67@20@20°C   |
| Superconductivity critical temperature( K )       | 1.175          |
| Temperature coefficient( K <sup>-1</sup> )        | 0.0045@0-100°C |
| Thermal emf against Pt (cold 0C - hot 100C)( mV ) | 0.42           |

## Physical Properties

| Element                     | Value    |
|-----------------------------|----------|
| Boiling point( C )          | 2467     |
| Density( gcm <sup>3</sup> ) | 2.7@20°C |

## Thermal Properties

| Element                                                              | Value        |
|----------------------------------------------------------------------|--------------|
| Melting point( C )                                                   | 660.4        |
| Latent heat of evaporation( J g <sup>-1</sup> )                      | 10800        |
| Latent heat of fusion( J g <sup>-1</sup> )                           | 388          |
| Specific heat( J K <sup>-1</sup> kg <sup>-1</sup> )                  | 900@25°C     |
| Thermal conductivity( W m <sup>-1</sup> K <sup>-1</sup> )            | 237@0-100°C  |
| Coefficient of thermal expansion( $\times 10^{-6}$ K <sup>-1</sup> ) | 23.5@0-100°C |