

## Haynes® Alloy 214

**UNS N07214**  
**W.Nr 2.4646**

Haynes® Alloy 214 is a nickel-chromium-aluminum-iron alloy with excellent high temperature corrosion and oxidation resistance at and above 955°C (1750°F). H214 is best suited for high temperature, low stress environments. Haynes® Alloy 214 is sold in the solution heat treated condition. At temperatures above 1750°F, an Al<sub>2</sub>O<sub>3</sub> type oxide scale develops, providing excellent resistance to carburization, nitriding and corrosion in chlorine-bearing oxidizing environments. Applications include: honeycomb seals, flame hoods, burners, mesh belts, catalytic converters, Chlorine contaminated incinerator systems, and other static oxidation - limited parts  
Industries supplied include: Aerospace, Automotive, Industrial Heating, Medical Waste Disposal, and Land-Based Gas Turbines.

### Nominal Composition

|     | C    | Mn   | Si   | S     | Cr    | Co   | Mo   | W    | Ti   | Al   | B     | Fe   | Y     | Ni        |
|-----|------|------|------|-------|-------|------|------|------|------|------|-------|------|-------|-----------|
| min |      |      |      |       | 15.00 |      |      |      |      | 4.00 |       | 2.00 | 0.002 | Remainder |
| max | 0.15 | 1.00 | 0.50 | 0.015 | 17.00 | 2.00 | 1.00 | 1.00 | 0.50 | 5.00 | 0.015 | 6.00 | 0.004 |           |

### Physical Properties

|                                  | At 70°F                            | At 20°C               |
|----------------------------------|------------------------------------|-----------------------|
| <b>Density</b>                   | 0.293 lb/in <sup>3</sup>           | 8.1 g/cm <sup>3</sup> |
| <b>Modulus of Elasticity (E)</b> | 31.5 x 10 <sup>3</sup> ksi         | 218 GPa               |
| <b>Modulus of Rigidity (G)</b>   | 12 x 10 <sup>3</sup> ksi           | 84 GPa                |
| <b>Coefficient of Expansion</b>  | 7.4 microinches/in.-°F (70-1000°F) | 13 µm/m-°C (20-538°C) |
| <b>Electrical Resistivity</b>    | 55 µ ohm.in                        | 140 µ ohm.cm          |
| <b>Thermal Conductivity</b>      | 83 Btu-in./ft. <sup>2</sup> hr.-°F | 12 W/m-K              |

### Applicable Specifications

|                |  |
|----------------|--|
| Strip and Foil | B50A913, B50TF219, PS-6073, MTS 1379-1, MSRR7238, PWA 1130, DMD 0495 |
|----------------|--|

### Typical Mechanical Properties

| Condition | Heat Treatment     | Tensile Strength           | Suggested Operating Conditions      |
|-----------|--------------------|----------------------------|-------------------------------------|
| Annealed  | Per specifications | 115-160 ksi (790-1100 MPa) | -330°F to 2400°F (-200°C to 1315°C) |

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