

Haynes 214® alloy, sheet, 32 hours exposure at 980°C (1800°F)

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Intended principally for use at temperatures of 955°C and above, exhibits resistance to oxidation that exceeds virtually all conventional heat-resistant wrought alloys. Applications include mesh belts, trays, and fixtures for firing of pottery and fine china, and the heat treatment of electronic devices and technical grade ceramics, used for foil construction honeycomb seals, combustor splash plates, and other static oxidation-limited parts, catalytic converter internals, burner cup material in auxiliary heaters for military vehicles, refractory anchors, furnace flame hoods, and rotary calciners for processing chloride compounds, and as hospital waste incinerator internals. Data provided by the manufacturer, Haynes International, Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Haynes-214-alloy-sheet-32-hours-exposure-at-980C-1800F.php

| Physical Properties | Metric | English | Comments |
|---------------------|-----------|--------------------------|----------|
| Density | 8.05 g/cc | 0.291 lb/in ³ | at RT |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|---------------------------------|-----------------------------------|------------|
| Tensile Strength, Ultimate | 950 MPa | 138000 psi | |
| Tensile Strength, Yield | 585 MPa @Strain 0.200 % | 84800 psi @Strain 0.200 % | |
| Elongation at Break | 38 % | 38 % | in 50.8 mm |
| Modulus of Elasticity | 218 GPa | 31600 ksi | RT |
| | 137 GPa @Temperature 1000 °C | 19900 ksi @Temperature 1830 °F | |
| | 151 GPa @Temperature 900 °C | 21900 ksi @Temperature 1650 °F | |
| | 162 GPa @Temperature 800 °C | 23500 ksi @Temperature 1470 °F | |
| | 170 GPa @Temperature 700 °C | 24700 ksi @Temperature 1290 °F | |
| | 177 GPa @Temperature 600 °C | 25700 ksi @Temperature 1110 °F | |

| Mechanical Properties | Metric | English | Comments |
|-----------------------|----------------------|----------------------|----------|
| | @Temperature 500 Â°C | @Temperature 932 Â°F | |
| | 190 GPa | 27600 ksi | |
| | @Temperature 400 Â°C | @Temperature 752 Â°F | |
| | 199 GPa | 28900 ksi | |
| | @Temperature 300 Â°C | @Temperature 572 Â°F | |
| | 204 GPa | 29600 ksi | |
| | @Temperature 200 Â°C | @Temperature 392 Â°F | |
| | 210 GPa | 30500 ksi | |
| | @Temperature 100 Â°C | @Temperature 212 Â°F | |

| Thermal Properties | Metric | English | Comments |
|--------------------|-----------------------------|------------------------------|----------|
| CTE, linear | 13.3 Âµm/m-Â°C | 7.39 Âµin/in-Â°F | |
| | @Temperature 25.0 - 200 Â°C | @Temperature 77.0 - 392 Â°F | |
| | 13.6 Âµm/m-Â°C | 7.56 Âµin/in-Â°F | |
| | @Temperature 25.0 - 300 Â°C | @Temperature 77.0 - 572 Â°F | |
| | 14.1 Âµm/m-Â°C | 7.83 Âµin/in-Â°F | |
| | @Temperature 25.0 - 400 Â°C | @Temperature 77.0 - 752 Â°F | |
| | 14.6 Âµm/m-Â°C | 8.11 Âµin/in-Â°F | |
| | @Temperature 25.0 - 500 Â°C | @Temperature 77.0 - 932 Â°F | |
| | 15.2 Âµm/m-Â°C | 8.44 Âµin/in-Â°F | |
| | @Temperature 25.0 - 600 Â°C | @Temperature 77.0 - 1110 Â°F | |
| | 15.8 Âµm/m-Â°C | 8.78 Âµin/in-Â°F | |
| | @Temperature 25.0 - 700 Â°C | @Temperature 77.0 - 1290 Â°F | |
| | 16.6 Âµm/m-Â°C | 9.22 Âµin/in-Â°F | |
| | @Temperature 25.0 - 800 Â°C | @Temperature 77.0 - 1470 Â°F | |
| | 17.6 Âµm/m-Â°C | 9.78 Âµin/in-Â°F | |
| | @Temperature 25.0 - 900 Â°C | @Temperature 77.0 - 1650 Â°F | |

| Thermal Properties | Metric $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$ | English $\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$ | Comments |
|------------------------|--|--|----------|
| | @Temperature 25.0 - 1000 Å°C | @Temperature 77.0 - 1830 Å°F | |
| Specific Heat Capacity | 0.452 J/g-Å°C | 0.108 BTU/lb-Å°F | RT |
| | 0.470 J/g-Å°C | 0.112 BTU/lb-Å°F | |
| | @Temperature 100 Å°C | @Temperature 212 Å°F | |
| | 0.493 J/g-Å°C | 0.118 BTU/lb-Å°F | |
| | @Temperature 200 Å°C | @Temperature 392 Å°F | |
| | 0.515 J/g-Å°C | 0.123 BTU/lb-Å°F | |
| | @Temperature 300 Å°C | @Temperature 572 Å°F | |
| | 0.538 J/g-Å°C | 0.129 BTU/lb-Å°F | |
| | @Temperature 400 Å°C | @Temperature 752 Å°F | |
| | 0.561 J/g-Å°C | 0.134 BTU/lb-Å°F | |
| | @Temperature 500 Å°C | @Temperature 932 Å°F | |
| | 0.611 J/g-Å°C | 0.146 BTU/lb-Å°F | |
| | @Temperature 600 Å°C | @Temperature 1110 Å°F | |
| | 0.668 J/g-Å°C | 0.160 BTU/lb-Å°F | |
| | @Temperature 700 Å°C | @Temperature 1290 Å°F | |
| | 0.705 J/g-Å°C | 0.168 BTU/lb-Å°F | |
| | @Temperature 800 Å°C | @Temperature 1470 Å°F | |
| | 0.728 J/g-Å°C | 0.174 BTU/lb-Å°F | |
| | @Temperature 900 Å°C | @Temperature 1650 Å°F | |
| | 0.742 J/g-Å°C | 0.177 BTU/lb-Å°F | |
| | @Temperature 1000 Å°C | @Temperature 1830 Å°F | |
| | 0.749 J/g-Å°C | 0.179 BTU/lb-Å°F | |
| | @Temperature 1100 Å°C | @Temperature 2010 Å°F | |
| | 0.753 J/g-Å°C | 0.180 BTU/lb-Å°F | |
| | @Temperature 1200 Å°C | @Temperature 2190 Å°F | |

| Thermal Properties | Metric | English | Comments |
|--------------------|---------------------------------------|---|----------|
| | 12.8 W/m-K @Temperature 100 °C | 88.8 BTU-in/hr-ft ² - °F @Temperature 212 °F | |
| | 14.2 W/m-K @Temperature 200 °C | 98.5 BTU-in/hr-ft ² - °F @Temperature 392 °F | |
| | 15.9 W/m-K @Temperature 300 °C | 110 BTU-in/hr-ft ² -°F @Temperature 572 °F | |
| | 18.4 W/m-K @Temperature 400 °C | 128 BTU-in/hr-ft ² -°F @Temperature 752 °F | |
| | 21.1 W/m-K @Temperature 500 °C | 146 BTU-in/hr-ft ² -°F @Temperature 932 °F | |
| | 23.9 W/m-K @Temperature 600 °C | 166 BTU-in/hr-ft ² -°F @Temperature 1110 °F | |
| | 26.9 W/m-K @Temperature 700 °C | 187 BTU-in/hr-ft ² -°F @Temperature 1290 °F | |
| | 29.7 W/m-K @Temperature 800 °C | 206 BTU-in/hr-ft ² -°F @Temperature 1470 °F | |
| | 31.4 W/m-K @Temperature 900 °C | 218 BTU-in/hr-ft ² -°F @Temperature 1650 °F | |
| | 34.0 W/m-K @Temperature 1100 °C | 236 BTU-in/hr-ft ² -°F @Temperature 2010 °F | |
| | 34.7 W/m-K @Temperature 1000 °C | 241 BTU-in/hr-ft ² -°F @Temperature 1830 °F | |
| | 36.7 W/m-K @Temperature 1200 °C | 255 BTU-in/hr-ft ² -°F @Temperature 2190 °F | |

| Electrical Properties | Metric | English | Comments |
|-----------------------|--------|---------|----------|
|-----------------------|--------|---------|----------|

| Electrical Properties | Metric | English | Comments |
|-----------------------|--|--|----------|
| | 0.0001209 ohm-cm @Temperature 1050 Â°C | 0.0001209 ohm-cm @Temperature 1920 Â°F | |
| | 0.000121 ohm-cm @Temperature 1100 Â°C | 0.000121 ohm-cm @Temperature 2010 Â°F | |
| | 0.0001216 ohm-cm @Temperature 1000 Â°C | 0.0001216 ohm-cm @Temperature 1830 Â°F | |
| | 0.0001219 ohm-cm @Temperature 1150 Â°C | 0.0001219 ohm-cm @Temperature 2100 Â°F | |
| | 0.0001229 ohm-cm @Temperature 1200 Â°C | 0.0001229 ohm-cm @Temperature 2190 Â°F | |
| | 0.0001249 ohm-cm @Temperature 900 Â°C | 0.0001249 ohm-cm @Temperature 1650 Â°F | |
| | 0.0001292 ohm-cm @Temperature 800 Â°C | 0.0001292 ohm-cm @Temperature 1470 Â°F | |
| | 0.0001337 ohm-cm @Temperature 700 Â°C | 0.0001337 ohm-cm @Temperature 1290 Â°F | |
| | 0.0001368 ohm-cm @Temperature 600 Â°C | 0.0001368 ohm-cm @Temperature 1110 Â°F | |
| | 0.0001369 ohm-cm @Temperature 100 Â°C | 0.0001369 ohm-cm @Temperature 212 Â°F | |
| | 0.0001369 ohm-cm @Temperature 200 Â°C | 0.0001369 ohm-cm @Temperature 392 Â°F | |
| | 0.0001369 ohm-cm @Temperature 300 Â°C | 0.0001369 ohm-cm @Temperature 572 Â°F | |
| | 0.0001369 ohm-cm @Temperature 300 Â°C | 0.0001369 ohm-cm @Temperature 572 Â°F | |

| Electrical Properties | Metric 377 ohm-cm | English 377 ohm-cm | Comments |
|-----------------------|----------------------|----------------------|----------|
| | @Temperature 400 Â°C | @Temperature 752 Â°F | |
| | 0.0001379 ohm-cm | 0.0001379 ohm-cm | |
| | @Temperature 500 Â°C | @Temperature 932 Â°F | |

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