

Special Metals DURANICKEL® 301 (UNS N03301) Annealed Wire

Category : Metal , Nonferrous Metal , Nickel Alloy

Material Notes:

Tensile strength (ultimate) and elongation values reported here are typical for Annealed Wire specifically. Other property values are typical of annealed DURANICKEL® alloy 301 or the alloy in general. Data provided by the manufacturer, Special Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Special-Metals-DURANICKEL-301-UNS-N03301-Annealed-Wire.php

Physical Properties	Metric	English	Comments
Density	8.19 g/cc	0.296 lb/in ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	621 - 827 MPa	90000 - 120000 psi	
Elongation at Break	25 - 50 %	25 - 50 %	
Modulus of Elasticity	207 GPa	30000 ksi	Tension
Poissons Ratio	0.31	0.31	
Shear Modulus	76.0 GPa	11000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	13.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	7.22 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	Mean; aged
	@Temperature 21.0 - 100 $\text{Å}^\circ\text{C}$	@Temperature 69.8 - 212 $\text{Å}^\circ\text{F}$	
	14.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	7.78 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	Mean; aged
	@Temperature 21.0 - 300 $\text{Å}^\circ\text{C}$	@Temperature 69.8 - 572 $\text{Å}^\circ\text{F}$	
Specific Heat Capacity	14.7 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	8.17 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	Mean; aged
	@Temperature 21.0 - 500 $\text{Å}^\circ\text{C}$	@Temperature 69.8 - 932 $\text{Å}^\circ\text{F}$	
Thermal Conductivity	16.6 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	9.22 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	Mean; aged
	@Temperature 21.0 - 900 $\text{Å}^\circ\text{C}$	@Temperature 69.8 - 1650 $\text{Å}^\circ\text{F}$	
Specific Heat Capacity	0.435 J/g- $\text{Å}^\circ\text{C}$	0.104 BTU/lb- $\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 100 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 212 $\text{Å}^\circ\text{F}$	
Thermal Conductivity	23.8 W/m-K	165 BTU-in/hr-ft ² - $\text{Å}^\circ\text{F}$	Age Hardened

Melting Point Thermal Properties	1400 - 1440 Å°C Metric	2550 - 2620 Å°F English	Comments
Solidus	1400 Å°C	2550 Å°F	
Liquidus	1440 Å°C	2620 Å°F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	4.0 - 4.75 %	4.0 - 4.75 %	
Carbon, C	<= 0.30 %	<= 0.30 %	
Copper, Cu	<= 0.25 %	<= 0.25 %	
Iron, Fe	<= 0.60 %	<= 0.60 %	
Manganese, Mn	<= 0.50 %	<= 0.50 %	
Nickel, Ni	>= 93 %	>= 93 %	Including Cobalt
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.010 %	<= 0.010 %	
Titanium, Ti	0.25 - 1.0 %	0.25 - 1.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000424 ohm-cm	0.0000424 ohm-cm	Aged
Magnetic Permeability	4.28	4.28	Annealed Strip at 200 Oersted (15.9 kA/m)
Curie Temperature	15.0 - 50.0 Å°C	59.0 - 122 Å°F	

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