

Special Metals INCONEL® Alloy 617

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

A nickel-chromium-cobalt-molybdenum alloy with an exceptional combination of metallurgical stability, strength, and oxidation resistance at high temperatures. Resistance to oxidation is enhanced by an aluminum addition. The alloy also resists a wide range of corrosive aqueous environments. Used in gas turbines for combustion cans, ducting, and transition liners; for petrochemical processing; for heat-treating equipment; and in nitric acid production. Standard product forms are round, forging stock, extruded section, plate, sheet, strip, pipe, tube, and wire. Data provided by the manufacturer, Special Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Special-Metals-INCONEL-Alloy-617.php

Physical Properties	Metric	English	Comments
Density	8.36 g/cc	0.302 lb/in ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	570 MPa	82700 psi	Solution Annealed prior to test
	@Temperature 650 °C	@Temperature 1200 °F	
Tensile Strength, Yield	710 MPa	103000 psi	Solution Annealed. Value at room temperature
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Yield	340 MPa	49300 psi	Solution Annealed. Value at room temperature
	@Strain 0.200 %	@Strain 0.200 %	
Elongation at Break	220 MPa	31900 psi	Solution Annealed prior to test
	@Strain 0.200 %, Temperature 650 °C	@Strain 0.200 %, Temperature 1200 °F	
Elongation at Break	62 %	62 %	Solution Annealed
	50 %	50 %	
	@Temperature 650 °C	@Temperature 1200 °F	Solution Annealed prior to test.

Thermal Properties	Metric	English	Comments
CTE, linear	11.6 Åµm/m-Å°C	6.44 Åµin/in-Å°F	
	@Temperature 20.0 - 100 Å°C	@Temperature 68.0 - 212 Å°F	
Specific Heat Capacity	0.419 J/g-Å°C	0.100 BTU/lb-Å°F	

Thermal Properties	Metric	English	Comments
Melting Point	1330 - 1380 Â°C	2430 - 2520 Â°F	
Solidus	1330 Â°C	2430 Â°F	
Liquidus	1380 Â°C	2520 Â°F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	0.80 - 1.5 %	0.80 - 1.5 %	
Boron, B	<= 0.0060 %	<= 0.0060 %	
Carbon, C	0.050 - 0.15 %	0.050 - 0.15 %	
Chromium, Cr	20 - 24 %	20 - 24 %	
Cobalt, Co	10 - 15 %	10 - 15 %	
Copper, Cu	<= 0.50 %	<= 0.50 %	
Iron, Fe	<= 3.0 %	<= 3.0 %	
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Molybdenum, Mo	8.0 - 10 %	8.0 - 10 %	
Nickel, Ni	>= 44.5 %	>= 44.5 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.015 %	<= 0.015 %	
Titanium, Ti	<= 0.60 %	<= 0.60 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000122 ohm-cm	0.000122 ohm-cm	

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