Special Metals BRIGHTRAYÂ® Alloy 35 Electrical Resistance Alloy

Category : Metal , Electronic/Magnetic Alloy , Superalloy , Iron Base

Material Notes:

A nickel-iron-chromium electrical-resistance alloy for use at operating temperatures up to 1920Â°F (1050Â°C). It is similar to BRIGHTRAY alloy F but with rare-earth additions for greater resistance to oxidation under conditions of frequent switching or wide temperature fluctuations. The alloy has a high temperature coefficient of resistance. Used for heating elements in domestic appliances and industrial equipment. The standard product form is wire.Data provided by the manufacturer, Special Metals.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Special-Metals-BRIGHTRAY-Alloy-35-Electrical-Resistance-Alloy.php

Physical Properties	Metric	English	Comments
Density	7.93 g/cc	0.286 lb/inÂ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	610 MPa	88500 psi	Annealed prior to test
	500 MPa @Temperature 550 Â°C	72500 psi @Temperature 1020 Â°F	Annealed prior to test
Tensile Strength, Yield	250 MPa @Strain 0.200 %	36300 psi @Strain 0.200 %	Annealed prior to test
	140 MPa @Strain 0.200 %, Temperature 550 Â°C	20300 psi @Strain 0.200 %, Temperature 1020 Â°F	Annealed prior to test

Thermal Properties	Metric	English	Comments
CTE, linear	12.9 Âµm/m-Â°C @Temperature 20.0 - 100 Â°C	7.17 Âµin/in-Â°F @Temperature 68.0 - 212 Â°F	
Specific Heat Capacity	0.523 J/g-Â°C	0.125 BTU/lb-Â°F	
Melting Point	1340 - 1380 Â°C	2440 - 2520 Â°F	
Solidus	1340 Â°C	2440 Â°F	
Liquidus	1380 Â°C	2520 Â°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.15 %	<= 0.15 %	

Component Elements Properties	Metric	English	Comments
Chromium, Cr	18 - 21 %	18 - 21 %	
Iron, Fe	42 %	42 %	As remainder
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Nickel, Ni	34 - 37 %	34 - 37 %	Including Cobalt
Silicon, Si	1.0 - 3.0 %	1.0 - 3.0 %	
Sulfur, S	<= 0.010 %	<= 0.010 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000102 ohm-cm	0.000102 ohm-cm	Temperature coefficient of resistance is 330 ÂµOhm/Ohm-Â°C in the range 25-500Â°C.
Magnetic Permeability	1.026	1.026	at 200 oersted (15.9 kA/m)

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