

Special Metals INCONEL® alloy 22 Austenitic Alloy

Category : Metal , Nonferrous Metal , Nickel Alloy

Material Notes:

INCONEL® alloy 22 (UNS N06022; W.Nr. 2.4602; NiCr21Mo14W) is a fully austenitic advanced corrosion-resistant alloy that offers resistance to both aqueous corrosion and attack at elevated temperatures. This alloy provides exceptional resistance to general corrosion, pitting, crevice corrosion, intergranular attack, and stress corrosion cracking. Alloy 22 has found numerous applications in the chemical/petrochemical processing, pollution control (flue gas desulfurization), power, marine, pulp and paper processing, and waste disposal industries. Information Provided by Special Metals Corporation

Order this product through the following link:

http://www.lookpolymers.com/polymer_Special-Metals-INCONEL-alloy-22-Austenitic-Alloy.php

Physical Properties	Metric	English	Comments
Density	8.61 g/cc	0.311 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	89	89	Plate
	89	89	Bar
	93	93	Sheet
Tensile Strength at Break	772 MPa	112000 psi	Plate
	793 MPa	115000 psi	Bar
	841 MPa	122000 psi	Sheet
Tensile Strength, Yield	365 MPa	52900 psi	Plate
	@Strain 0.200 %	@Strain 0.200 %	
	379 MPa	55000 psi	
	@Strain 0.200 %	@Strain 0.200 %	
	434 MPa	62900 psi	Sheet
	@Strain 0.200 %	@Strain 0.200 %	
@Strain 0.200 %	@Strain 0.200 %		
Elongation at Break	54 %	54 %	Sheet
	60 %	60 %	Bar
	62 %	62 %	Plate
Modulus of Elasticity	209 GPa	30300 ksi	Dynamic

Thermal Properties	Metric	English	Comments
CTE, linear	12.42 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	6.900 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 193 $\text{Å}^\circ\text{C}$	@Temperature 379 $\text{Å}^\circ\text{F}$	
Specific Heat Capacity	0.381 $\text{J}/\text{g}\cdot\text{Å}^\circ\text{C}$	0.0911 $\text{BTU}/\text{lb}\cdot\text{Å}^\circ\text{F}$	
Thermal Conductivity	7.3995 $\text{W}/\text{m}\cdot\text{K}$	51.353 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}\cdot\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
	@Temperature 23.0 $\text{Å}^\circ\text{C}$	@Temperature 73.4 $\text{Å}^\circ\text{F}$	
	10.148 $\text{W}/\text{m}\cdot\text{K}$	70.427 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}\cdot\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
	@Temperature 100 $\text{Å}^\circ\text{C}$	@Temperature 212 $\text{Å}^\circ\text{F}$	
	14.089 $\text{W}/\text{m}\cdot\text{K}$	97.778 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}\cdot\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
	@Temperature 300 $\text{Å}^\circ\text{C}$	@Temperature 572 $\text{Å}^\circ\text{F}$	
	16.4 $\text{W}/\text{m}\cdot\text{K}$	114 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}\cdot\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
	@Temperature 500 $\text{Å}^\circ\text{C}$	@Temperature 932 $\text{Å}^\circ\text{F}$	
	22.733 $\text{W}/\text{m}\cdot\text{K}$	157.77 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}\cdot\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
	@Temperature 700 $\text{Å}^\circ\text{C}$	@Temperature 1290 $\text{Å}^\circ\text{F}$	
	23.696 $\text{W}/\text{m}\cdot\text{K}$	164.45 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}\cdot\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
	@Temperature 900 $\text{Å}^\circ\text{C}$	@Temperature 1650 $\text{Å}^\circ\text{F}$	
	27.56 $\text{W}/\text{m}\cdot\text{K}$	191.3 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}\cdot\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
	@Temperature 1100 $\text{Å}^\circ\text{C}$	@Temperature 2010 $\text{Å}^\circ\text{F}$	
Melting Point	1351 - 1387 $\text{Å}^\circ\text{C}$	2464 - 2529 $\text{Å}^\circ\text{F}$	
Solidus	1351 $\text{Å}^\circ\text{C}$	2464 $\text{Å}^\circ\text{F}$	
Liquidus	1387 $\text{Å}^\circ\text{C}$	2529 $\text{Å}^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	$\leq 0.015\%$	$\leq 0.015\%$	
Chromium, Cr	20 - 22.5 %	20 - 22.5 %	
Cobalt, Co	$\leq 2.5\%$	$\leq 2.5\%$	

Component Elements Properties	Metric	English	Comments
Manganese, Mn	<= 0.50 %	<= 0.50 %	
Molybdenum, Mo	12.5 - 14.5 %	12.5 - 14.5 %	
Nickel, Ni	50.015 - 63 %	50.015 - 63 %	Balance
Phosphorous, P	<= 0.020 %	<= 0.020 %	
Silicon, Si	<= 0.080 %	<= 0.080 %	
Sulfur, S	<= 0.020 %	<= 0.020 %	
Tungsten, W	2.5 - 3.5 %	2.5 - 3.5 %	
Vanadium, V	<= 0.35 %	<= 0.35 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0001215 ohm-cm	0.0001215 ohm-cm	
Magnetic Permeability	<= 1.001	<= 1.001	at 200 oersted (15.9 kA/m)

Descriptive Properties	Value	Comments
Critical Crevice Temperature (Â°C)	75	
Critical Pitting Temperature (Â°C)	>85	

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