

Carlson C 800H Nickel-Iron-Chromium Alloy

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

General Description Carlson Alloy C 800 is a nickel-iron-chromium alloy, combining high strength with excellent resistance to oxidation and carburization at elevated temperatures. This alloy resists sulfur attack, internal oxidation, scaling and corrosion in a wide variety of industrial atmospheres. The high chromium content of C 800 assures good resistance to oxidation, while the nickel content imparts a fair degree of resistance to stress corrosion cracking. Carlson Alloy C 800H is essentially the same alloy as C 800 except the carbon content is restricted to the upper portion of the specified range. C 800H also receives a solution-anneal which produces a coarser grain structure. This assures higher creep and rupture strengths, enabling C 800H to be used in applications that require prolonged exposure at elevated temperatures and/or in corrosive environments.

Applications Chemical Processing – heat exchangers for nitric acid production; calciners, dryers and recuperators in soda ash plants; process equipment in fiberglass and ore processing plants. Petroleum and Petrochemical – tubing for hydrotreaters and effluent coolers; tubing, manifolds, pigtails and quench lines in hydrogen reformers; flare tips for incinerating waste gasses in refineries; reformer tubing, catalyst grid supports and converters for ammonia production; ethylene furnaces; tubing, bends and flanges for vinyl chloride production; steam superheaters for styrene production. Power Generation – boiler superheaters and reheater tubes and shields; gas turbine combustion cans, transition liners and diffusers. Thermal Processing – baskets and boxes, fixtures and radiant tubes for heat treat furnaces. Steel Production – coke plat quench-car liners and process piping; steam methane reformers and recuperators for direct reduction of iron ore. Information provided by Carlson

Order this product through the following link:

http://www.lookpolymers.com/polymer_Carlson-C-800H-Nickel-Iron-Chromium-Alloy.php

Physical Properties	Metric	English	Comments
Density	7.94 g/cc	0.287 lb/in ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	>= 448 MPa	>= 65000 psi	
Tensile Strength, Ultimate	378 MPa	54800 psi	
	@Temperature 649 °C	@Temperature 1200 °F	
Tensile Strength, Yield	465 MPa	67500 psi	
	@Temperature 427 °C	@Temperature 800 °F	
Tensile Strength, Yield	93.1 MPa	13500 psi	
	@Temperature 649 °C	@Temperature 1200 °F	
Tensile Strength, Yield	130 MPa	18800 psi	
	@Temperature 427 °C	@Temperature 800 °F	
Tensile Strength, Yield	>= 172 MPa	>= 25000 psi	
	@Strain 0.200 %	@Strain 0.200 %	

Elongation at Break Mechanical Properties	≥ 30 % Metric	≥ 30 % English	Comments
Rupture Strength	5.52 MPa	801 psi	
	@Temperature 982 °C, Time 3.60e+8 sec	@Temperature 1800 °F, Time 100000 hour	
	6.89 MPa	999 psi	
	@Temperature 982 °C, Time 1.08e+8 sec	@Temperature 1800 °F, Time 30000 hour	
	8.27 MPa	1200 psi	
	@Temperature 982 °C, Time 3.60e+7 sec	@Temperature 1800 °F, Time 10000 hour	
	89.63 MPa	13000 psi	
	@Temperature 649 °C, Time 3.60e+8 sec	@Temperature 1200 °F, Time 100000 hour	
	103.42 MPa	15000 psi	
	@Temperature 649 °C, Time 1.08e+8 sec	@Temperature 1200 °F, Time 30000 hour	
	120.65 MPa	17499 psi	
	@Temperature 649 °C, Time 1.08e+8 sec	@Temperature 1200 °F, Time 30000 hour	
Modulus of Elasticity	197 GPa	28500 ksi	
	132 GPa	19200 ksi	
	@Temperature 871 °C	@Temperature 1600 °F	
	169.9 GPa	24640 ksi	
	@Temperature 427 °C	@Temperature 800 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	18.4 µm/m-°C	10.2 µin/in-°F	
	@Temperature 21.1 - 871 °C	@Temperature 70.0 - 1600 °F	
Melting Point	1357 - 1385 °C	2475 - 2525 °F	
Solidus	1357 °C	2475 °F	
Liquidus	1385 °C	2525 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	0.15 - 0.60 %	0.15 - 0.60 %	

Carbon C Component Elements Properties	0.050 - 0.10 % Metric	0.050 - 0.10 % English	Comments
Chromium, Cr	19 - 23 %	19 - 23 %	
Copper, Cu	<= 0.75 %	<= 0.75 %	
Iron, Fe	>= 39.5 %	>= 39.5 %	
Manganese, Mn	<= 1.5 %	<= 1.5 %	
Nickel, Ni	30 - 35 %	30 - 35 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.015 %	<= 0.015 %	
Titanium, Ti	0.15 - 0.60 %	0.15 - 0.60 %	

Electrical Properties	Metric	English	Comments
Magnetic Permeability	1.014	1.014	200 Oersted
Curie Temperature	-115 °C	-175 °F	

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com

Email : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China