G. O. Carlson Plate Products

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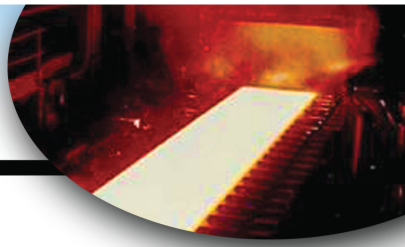

CARLSON ALLOYS EC800 (UNS N08800) EC800H (UNS N08810) PRODUCT DATA BULLETIN

High strength plus excellent resistance to oxidation and carburization at elevated temperatures. Fair degree of resistance to stress corrosion cracking. Resists sulfur attack, internal oxidation, scaling and corrosion in industrial atmospheres.

GENERAL PROPERTIES AND TYPICAL APPLICATIONS

Carlson Alloy EC800 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 EC800 assures good resistance to oxidation, while the nickel content imparts a fair degree of resistance to stress corrosion cracking.

Carlson Alloy EC800H is essentially the same alloy as EC800 except the carbon content is restricted to the upper portion of the specified range. EC800H also receives a solution-anneal which produces a coarser grain structure. This assures higher creep and rupture strengths, enabling EC800H 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 gases in refineries, reformer tubing, catalyst grid supports and convertors 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 plant quench-car liners and process piping, steam methane reformers and recuperators for direct reduction of iron ore.

CHEMICAL COMPOSITION (NOMINAL ANALYSIS, PERCENT)

	EC800 (UNS N08800)	EC800H (UNS N08810)
Carbon	0.10 max.	0.05 min – 0.10 max.
Manganese, max.	1.50	
Silicon, max.	1.00	
Phosphorus, max.	0.035	
Sulfur, max.	0.015	
Copper, max.	0.75	
Aluminum	0.15 min. – 0.60 max.	
Titanium	0.15 min. – 0.60 max.	
Nickel	30.00 – 35.00 max.	
Chromium	19.00 min. – 23.00 max.	
Iron*	39.5 min.	

*Element shall be determined arithmetically by difference.

AVAILABLE PRODUCTS*

Plate	3/16" through 4" Widths to 108", lengths to 480" *For larger dimensions – inquire.*
Plate Products	cut bar, plasma cut or machined rings and discs, heads, rolled and tack-welded cylinders, and special cut shapes

* Bar, billet, ingot and master alloy pigs are available from: ELECTRALLOY, a G.O. Carlson Inc. company, 175 Main Street, Oil City, PA 16301 (800) 458-7273

MECHANICAL AND PHYSICAL PROPERTIES

	Alloy EC800	Alloy EC800H
Tensile Strength, psi, min.	75,000 (520 MPa)	65,000 (450 MPa)
Yield Strength (0.2% offset), psi, min.	30,000 (125 MPa)	25,000 (172 MPa)
Elongation in 2 in. (50.8 mm), or 4D, %, min.	30	30
Density, grams per cu. cm.	7.94	
lb. per cu. in.	0.287	
Magnetic Permeability (70˚F, 200 Oersted)	1.014	
Melting Range, ºF	2475-2525	
Curie Temperature, ˚F	-175	
Coefficient of Thermal Expansion		
in./in./˚F x 10^{-6} (70˚ - 1600˚F)	10.2	

SPECIFICATIONS

ASME SB409 / ASTM B409 / AMS 5871

Information in this product data bulletin is not intended for specification purposes. All data should be considered as typical or average, except when listed as minimum or maximum values.

The applications cited will allow a potential user to consider this Carlson alloy for a particular installation. But none of the information is to be construed as a warranty of fitness for any application.

As with all special-service materials, this alloy must be tested under actual service conditions to determine its suitability for a specific project.

G. O. Carlson
Plate Products

Unsurpassed experience with specialty metals

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 Printed in U.S.A. 04/2016