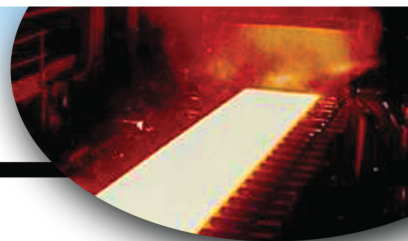




G.O. Carlson Plate



CARLSON ALLOY EC800AT (UNS N08811) PRODUCT DATA BULLETIN

Superior creep and rupture strengths over long-term exposure to high temperatures. Higher ASME boiler and pressure vessel design stress allowables than EC800H. Resists stress corrosion cracking. Resists sulfur attack, internal oxidation, scaling and corrosion in thermal processing and heat transfer applications.

GENERAL PROPERTIES AND TYPICAL APPLICATIONS

Carlson Alloy EC800AT is a modification of Carlson Alloy EC800, exhibiting higher creep and rupture strengths. This nickel-iron-chromium alloy has a carbon content restricted to a range of 0.06 to 0.10%. The aluminum plus titanium content of this alloy is also maintained in the upper portion of the standard range (0.85 to 1.20%).

EC800AT is solution-annealed at 2100°F (1150°C). That heat treatment and the compositional restrictions are responsible for this alloy's improved creep and rupture strengths.

Since the chemistry of EC800AT falls within the range of EC800, there are no significant differences in physical and thermal properties. The major differences between the alloys are in the mechanical properties. (Generally, EC800 exhibits higher mechanical properties at room temperature and during short-term exposure to elevated temperatures.) EC800AT displays superior and rupture strengths over long-term exposure to elevated temperatures.

EC800AT offers higher ASME boiler and pressure vessel design stress allowables in creep and rupture test ranges than EC800H.

APPLICATIONS:

Chemical and Petrochemical – piping, tubing, pigtails and outlet manifolds in steam/hydrocarbon reforming; tubing for ethylene production; tubing and heaters for oxo-alcohol production; hydrodealkylation units; tubing, flanges and bends for production of vinyl chloride monomer.

Thermal Processing – tubing, muffles, retorts and fixtures in heat treating furnaces.

Power Generation – tubing in power plant superheaters and reheaters.

CHEMICAL COMPOSITION (NOMINAL ANALYSIS, PERCENT)

Carbon0.06 min. – 0.10 max.
 Manganese, max.1.5
 Silicon, max.1.0
 Sulfur, max.0.015
 Copper0.75
 Chromium19.0 min. – 23.0 max.
 Nickel30.0 min. – 35.0 max.

Aluminum*0.15 min. – 0.60 max.
 Titanium*0.15 min. – 0.60 max.
 Iron**39.5 min.

* Aluminum plus titanium: 0.85 min.; 1.20 max.

** Element shall be determined arithmetically by difference.

AVAILABLE PRODUCTS*

Plate	3/16" through 4" Widths to 108", lengths to 480" <i>For larger dimensions – inquire.</i>
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

Tensile Strength, psi, min.	65,000
Yield Strength (0.2% offset), psi, min.	25,000
Elongation in 2 in., %, min.	30
Density, grams per cu. cm.	7.95
lb. per cu. in.	0.287
Magnetic Permeability (70°F, 200 Oersted), annealed	1.014
Melting Range, °F	2475-2525
Curie Temperature, °F	-175
Coefficient of Thermal Expansion, 10⁻⁶ inches/ inch/°F	10.2
Modulus of Elasticity, psi x 10⁶ @ 70°F Intension	28.5
Poisson's Ratio	0.339

SPECIFICATIONS

**ASME SB409
ASTM B409**

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.



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