G. O. Carlson Plate Products

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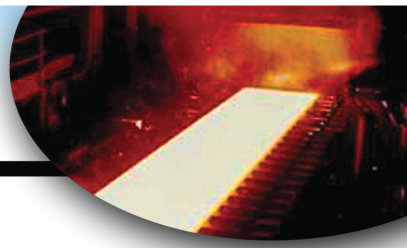

CARLSON ALLOY EC276 (UNS N10276) PRODUCT DATA BULLETIN

Used in severe operating environments. Outstanding corrosion resistance in reducing atmospheres. Excellent resistance to pitting, stress corrosion cracking and oxidation at elevated temperatures. Low carbon content eliminates the need for post-weld heat treatment of weld joints.

GENERAL PROPERTIES AND TYPICAL APPLICATIONS

Carlson Alloy EC276 is a nickel-molybdenum-chromium alloy exhibiting outstanding corrosion resistance over a wide range of service environments. This alloy is generally used in the as-welded condition. It does not require post-weld heat treatment because the low carbon content minimizes the formation of grain boundary precipitates in the heat-affected zones of weld joints.

High nickel and molybdenum content provides excellent resistance to corrosion in reducing atmospheres.

High chromium and molybdenum content provides excellent resistance to oxidation at temperatures up to 1900°F (1038°C).

EC276 also exhibits exceptional resistance to general pitting and stress corrosion cracking.

APPLICATIONS:

EC276 is used extensively in severe operating environments, including those encountered in chemical processing, pulp and paper, air pollution control, ore processing, waste treatment and disposal, and other applications. EC276 exhibits excellent resistance to ferric and cupric chlorides, hot contaminated organics and inorganics, chlorine, formic acid, acetic acid, acetic anhydride, sea water and brine. It is one of the few alloys that is resistant to wet chlorine gas, hypochlorite, and chlorine dioxide.

Chemical Processing Equipment – heat exchanges, reactors and vessels, evaporators, pumps, valves and piping for processing sulfuric acid, pesticides, phenol, styrene, vinyl chloride, chlorine and other chemicals.

Pulp and Paper – bleaching, head boxes, and waste-gas scrubbers.

Air Pollution Control – power plant scrubbers and related equipment, electrostatic precipitators, reheaters, waste-heat recovery systems, industrial boiler scrubbers, marine inert-gas scrubbers. Ore Processing – uranium and aluminum sulfate.

Waste Treatment and Disposal – sewage sludge incinerators, industrial and municipal incinerators, chemical and toxic waste incinerators.

CHEMICAL COMPOSITION (NOMINAL ANALYSIS, PERCENT)

Carbon, max.	0.010
Manganese, max.	1.0
Silicon, max.	0.08
Phosphorus, max.	0.04
Sulfur, max.	0.03
Chromium	14.5 min. - 16.5 max.
Molybdenum	15.0 min. – 17.0 max.
Iron	4.0 min. – 7.0 max.
Tungsten.	3.0 min. – 4.5 max.
Vanadium, max	0.35
Nickel*	Remainder

*Element shall be determined arithmetically by difference.

AVAILABLE PRODUCTS*

Plate	3/16" and thicker Widths to 102", lengths to 400" *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 mater alloy pigs are available from: ELECTRALLOY, a G.O. Carlson company, 175 Main Street, Oil City, PA 16301 (800)458-7273

MECHANICAL AND PHYSICAL PROPERTIES

Tensile Strength, psi, min.	100 ksi (690 MPa)
Yield Strength (0.2% offset), min.	41 ksi (283 MPa)
Elongation in 2" (50.8 mm) or 4D, % min.	40
Hardness, Rockwell, max (HRB)	100
Density, Grams per cu. cm.	8.87
Lbs. per cu. in.	0.321
Melting Range, °F	2415-2500
Specific Heat, BTU per lb. per °F	0.102
Magnetic Permeability, (B-H at 200H)	1.001
Mean Coefficient of Thermal Expansion	10^{-6} in./in./°F
75° to 400°F	6.7
75° to 800°F	7.3
75° to 1200°F	7.8
75° to 1600°F	8.8

SPECIFICATIONS

ASME SB575 / ASTM B575

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 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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Unsurpassed experience with specialty metals

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