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ISO 9001:2015 REGISTERED
Certificate No.: 50040 & 50415

PREMIER 316LT-AP DATA SHEET

Pinnacle Alloys Premier 316LT-AP

AWS CLASS E316LT1-1, E316LT1-4

CODE AND SPECIFICATION DATA:

AWS A5.22 ASME SFA 5.22; UNS W31635

DESCRIPTION:

Pinnacle Alloys Premier E316LT1-1/4 has a nominal composition (wt.-%) of 18.5 Cr, 12.5 Ni, 2.5 Mo, and a carbon content which is at the low end of the range, 0.04 max. By specifying low carbon in this alloy, it is possible to obtain resistance to intergranular corrosion due to carbide precipitation without the use of stabilizers such as niobium or titanium. The molybdenum improves pitting resistance and provides increased creep resistance. Pinnacle Alloys Premier E316LT1-1/4 is utilized to weld Type 316 stainless and other similar alloys, such as ASTM A743 and A744, as well as Types CF-8M and CF-3M. It has broad applications in pulp and paper, textile and chemical processing equipment, furnace parts, and parts exposed to marine environments. It delivers superb performance characteristics in all positions, has little spatter, and easy-to-remove slag. Minimal weaving is required to achieve a flat, well-washed bead.

TYPE OF CURRENT: Direct Current Electrode Positive (DCEP)

DIAMETERS: .035", .045", 1/16"

SHIELDING GAS: 100% CO₂, 75-80% Ar/ balance CO₂, 35-50 cfh

WELDING POSITIONS: All positions

1/16" is recommended for use in flat and horizontal positions only



FERRITE NUMBER AND PITTING RESISTANCE EQUIVALENT NUMBER:

To obtain Ferrite Numbers or PRE_N, please contact SOWESCO technical support at the number below.



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TYPICAL DEPOSIT COMPOSITION (CO₂):

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.04	0.025
Chromium (Cr)	17.0-20.0	18.18
Copper (Cu)	0.75	0.028
Manganese (Mn)	0.5-2.5	1.12
Molybdenum (Mo)	2.0-3.0	2.83
Nickel (Ni)	11.0-14.0	11.66
Nitrogen (N)	N.S.*	0.015
Phosphorus (P)	0.04	0.019
Silicon (Si)	1.00	0.81
Sulfur (S)	0.03	0.007

*N.S. means Not Specified.

NOTE: Single values are maximums.

TYPICAL MECHANICAL PROPERTIES (CO₂):

	AWS Spec (min)	As Welded
Ultimate Tensile Strength	70,000 psi (486 MPa)	79,771 psi (550 MPa)
Percent Elongation in 2"	30%	45.6%
CVN @ -4°F (-20°C)	N.S.	34 ft•lb _f (47 Joules)
CVN @ -76°F (-60°C)	N.S.	29 ft•lb _f (39 Joules)

TYPICAL DEPOSIT COMPOSITION (Ar + 20% CO₂):

	AWS Spec	Weld Metal Analysis (%)
Carbon (C)	0.04	0.024
Chromium (Cr)	17.0-20.0	18.33
Copper (Cu)	0.75	0.022
Manganese (Mn)	0.5-2.5	1.25
Molybdenum (Mo)	2.0-3.0	2.82
Nickel (Ni)	11.0-14.0	11.79
Phosphorus (P)	0.04	0.020
Silicon (Si)	1.00	0.91
Sulfur (S)	0.03	0.007

NOTE: Single values are maximums.

TYPICAL MECHANICAL PROPERTIES (Ar + 20% CO₂):

	AWS Spec (min)	As Welded
Ultimate Tensile Strength	70,000 psi (486 MPa)	82,236 psi (567 MPa)
Percent Elongation in 2"	30%	42.4%
CVN @ -4°F (-20°C)	N.S.	34 ft•lb _f (47 Joules)
CVN @ -76°F (-60°C)	N.S.	32 ft•lb _f (44 Joules)

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TYPICAL WELDING PARAMETERS:

Diameter	WFS (ipm)	Amperage	Volts	ESO (in.)	Deposition Rate (lbs/hr)
.035"	300	110	25	5/8-3/4"	3.3
	500	150	26	5/8-3/4"	5.4
	600	165	27	5/8-3/4"	6.3
	700	175	28	5/8-3/4"	7.7
.045"	250	130	24	5/8-3/4"	5.4
	300	160	26	5/8-3/4"	6.3
	425	200	28	5/8-3/4"	9.2
	780	270	34	5/8-3/4"	16.2
1/16"	150	170	25	3/4-1"	5.4
	195	215	27	3/4-1"	7.0
	240	250	28	3/4-1"	8.6
	320	305	29	3/4-1"	11.5

Note: Optimum conditions are in boldface type. Parameters reflect CO₂ shielding gas - reduce by 2 volts when using 75-80% Ar/ balance CO₂. Maintaining a proper welding procedure, including pre-heat and interpass temperatures, may be critical depending on the type and thickness of material being welded.

NOTICE: The results reported are based upon testing of the product under controlled laboratory conditions in accordance with American Welding Society Standards. Actual use of the product may produce different results due to varying conditions. An example of such conditions would be electrode size, plate chemistry, environment, weldment design, fabrication methods, welding procedure and service requirements. Thus the results are not guarantees for the use in the field. The manufacturer disclaims any warranty of merchantability of fitness for any particular purpose with respect to its products.

CAUTION: Consumers should be thoroughly familiar with the safety precautions on the warning label posted in each shipment and in the American National Standards A49.1, "Safety in Welding and Cutting," published by the American Welding Society, 8669 NW 36 Street, #130, Miami, FL 33126: OSHA Safety and Health Standards 29 CFR 1910 is available from the U.S. Department of Labor, Washington, D.C. 20210.

Pinnacle Alloys SDS sheets may be obtained on the website below.