AN ISO 9001:2015 COMPANY
CERTIFICATE NO.: C755336

E81T1-Ni2C/Ni2M DATA SHEET

Pinnacle Alloys E81T1-Ni2C/Ni2M
AWS CLASS E81T1-Ni2C, E81T1-Ni2M
CODE AND SPECIFICATION DATA:
AWS A5.29 ASME SFA 5.29; UNS W22031

DESCRIPTION:
Pinnacle Alloys E81T1-Ni2C/Ni2M has a nominal composition (wt-%) of 2.25 Ni. Filler metals of this classification are used to weld 2½Ni steels and other materials requiring good toughness at temperatures as low as -40°F, such as ASTM A 572, A 575, and A 734. Typical applications include offshore platform construction, ship building, earth moving, and mining machinery. Preheat and interpass temperatures are typically kept between 275-325°F. This filler metal is used in the as welded condition.

DIAMETERS: .045", .052", 1/16"

WELDING POSITIONS: All positions

TYPICAL DEPOSIT COMPOSITION:

	AWS Spec	Weld Metal Analysis (%)	
		100% CO_2	75% Ar/ 25% CO_2
Carbon (C)	0.12	0.05	0.04
Manganese (Mn)	1.50	0.83	0.90
Nickel (Ni)	1.75-2.75	2.40	2.40
Phosphorus (P)	0.03	0.01	0.01
Silicon (Si)	0.80	0.29	0.30
Sulfur (S)	0.03	0.01	0.01

NOTE: Single values are maximums.

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TYPICAL MECHANICAL PROPERTIES:

100% CO_2 Shielding Gas	AWS Spec (min)	As Welded
Ultimate Tensile Strength	80,000-100,000 psi (550-690 MPa)	87,000 psi (600 MPa)
Yield Strength	68,000 psi (470 MPa)	73,000 psi (505 MPa)
Percent Elongation in 2”	19%	26%
CVN @ -40°F (-40°C)	20 ft•lb_f (27 Joules)	50 ft•lb_f (67 Joules)

75% Ar/ 25% CO_2 Shielding Gas	AWS Spec (min)	As Welded
Ultimate Tensile Strength	80,000-100,000 psi (550-690 MPa)	90,000 psi (620 MPa)
Yield Strength	68,000 psi (470 MPa)	80,000 psi (550 MPa)
Percent Elongation in 2”	19%	22%
CVN @ -20°F (-30°C)	20 ft•lb_f (27 Joules)	40 ft•lb_f (53 Joules)

TYPICAL WELDING PARAMETERS:

Diameter	Position	Optimum			Amperage Range	Voltage Range
		Amperage	Voltage	WFS (ipm)		
.045”	Flat	250	28	282	100-300	21-32
	Overhead	200	26	265	150-280	21-29
	Vertical Up	200	25	265	100-230	21-28
.052”	Flat	300	28	360	100-330	19-32
	Overhead	225	26	245	150-310	21-28
	Vertical Up	225	25	245	150-280	21-27
1/16”	Flat	350	29	300	150-400	22-34
	Overhead	225	26	160	150-310	22-28
	Vertical Up	225	25	160	150-280	22-27

NOTE: Parameters reflect CO_2 shielding gas - reduce by 1-1½ volts when using 75-80% Ar/ balance CO_2. Maintaining a proper welding procedure, including pre-heat and interpass temperatures, may be critical depending on the type and thickness of steel 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 CRF 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.

www.pinnaclealloys.com
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