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## E9018-B3 DATA SHEET

### Pinnacle Alloys E9018-B3

AWS CLASS E9018-B3 H4R

#### CODE AND SPECIFICATION DATA:

AWS A5.5 ASME SFA 5.5

#### DESCRIPTION:

Pinnacle Alloys E9018-B3 is an outstanding welding electrode for higher strength piping, casting, and forgings. The coating is specially formulated to resist moisture pick-up under conditions of high heat and humidity. The electrode offers resistance to moisture reabsorption, which helps prevent hydrogen cracking and aids in eliminating starting porosity. Pinnacle Alloys E9018-B3 is an excellent choice for boiler fabrication, piping, castings, forgings, and chrome-moly steels.

#### FEATURES:

- Good arc characteristics
- Quick and easy slag removal
- Low moisture reabsorption
- Low smoke level
- Low hydrogen, less than 4 ml/100 g
- Low spatter level

#### BENEFITS:

- Stable, easy to control arc
- Reduces clean-up time
- Prevents starting porosity
- Welder safety and comfort
- Resistant to hydrogen-induced cracking
- Improves weld bead appearance, higher deposition

**TYPE OF CURRENT:** Direct Current Electrode Positive (DCEP) or AC

**DIAMETERS:** 3/32", 1/8", 5/32", 3/16"

**RECONDITIONING & STORAGE:** If electrode has been exposed to the atmosphere for an extended period of time, recondition for one hour at 600°F. After opening, store in holding oven (250°F to 400°F) until used.

#### RECOMMENDED WELDING TECHNIQUES:

|               |  |
|---------------|--|
| General       | - Electrode positive, work negative (DCEP) or AC |
| Arc Length    | - Very short arc                                 |
| Flat          | - Angle electrode 10°-15° from 90°               |
| Vertical Up   | - Use weaving techniques                         |
| Vertical Down | - Not recommended                                |
| Overhead      | - Use slight weaving motion within the puddle    |

**TYPICAL DIFFUSIBLE HYDROGEN BY GAS CHROMATOGRAPHY:** 3.9 ml/100g



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#### TYPICAL DEPOSIT COMPOSITION:

|                 | Weld Metal Analysis (%) | AWS Spec  |
|-----------------|-------------------------|-----------|
| Carbon (C)      | 0.08                    | 0.05-0.12 |
| Chromium (Cr)   | 2.39                    | 2.00-2.50 |
| Manganese (Mn)  | 0.68                    | 0.90 max  |
| Molybdenum (Mo) | 1.05                    | 0.90-1.20 |
| Phosphorous (P) | 0.02                    | 0.03 max  |
| Silicon (Si)    | 0.55                    | 0.80 max  |
| Sulfur (S)      | 0.01                    | 0.03 max  |

#### TYPICAL MECHANICAL PROPERTIES:

|                           | SR 1 Hr. @ 1275°F     | AWS Spec (min) |
|---------------------------|-----------------------|----------------|
| Ultimate Tensile Strength | 109,000 psi (750 MPa) | 90,000 psi     |
| Yield Strength            | 93,000 psi (640 MPa)  | 77,000 psi     |
| Percent Elongation in 2"  | 22%                   | 17%            |

#### TYPICAL WELDING PARAMETERS:

| Diameter | Type of Power     | Amperage   | Deposition Rate (lbs/hr) | Amperage Range |
|----------|-------------------|------------|--------------------------|----------------|
| 3/32"    | <b>DCEP</b> or AC | <b>100</b> | <b>2.38</b>              | 70-110         |
| 1/8"     | <b>DCEP</b> or AC | <b>135</b> | <b>2.92</b>              | 90-160         |
| 5/32"    | <b>DCEP</b> or AC | <b>170</b> | <b>4.08</b>              | 130-220        |
| 3/16"    | <b>DCEP</b> or AC | <b>250</b> | <b>5.62</b>              | 200-300        |

**NOTE:** Optimum conditions are in boldface type. For out of position welding, decrease amperage by 15%. 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, 550 NW LeJune Road, 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 MSDS sheet may be obtained at [www.pinnaclealloys.com](http://www.pinnaclealloys.com).