



## ER2594 DATA SHEET

**Pinnacle Alloys ER2594**

AWS CLASS ER2594

**CODE AND SPECIFICATION DATA:**

AWS A5.9 ASME SFA 5.9; UNS S32750

**DESCRIPTION:**

Pinnacle Alloys ER2594 has a nominal composition (wt.-%) of 25.5 Cr, 9.2 Ni, 3.5 Mo, 0.25 N. It is an austenitic-ferritic duplex stainless steel, characterized by a Pitting Resistance Equivalent Number (PRE<sub>N</sub>) of at least 40, allowing the weld metal to be called a "super duplex stainless steel." This number is a semi-quantitative indicator of resistance to pitting in aqueous chloride-containing environments. It is designed for the welding of super duplex stainless steels UNS S32750 and S32760 (wrought), and UNS J93380 and J93404 (cast). It can also be used for the welding of UNS S32550, J93370, and J93372 when not subject to sulfurous or sulfuric acids in service. It can also be used for the welding of carbon and low alloys steels to duplex stainless steels as well as to weld "standard" duplex stainless steels, such as UNS S32205 and J92205, especially for root passes in pipe. Pinnacle Alloys ER2594 is well suited for applications in the petrochemical and offshore industry, the pulp and paper industry, and for the production of pollution control equipment for environmental protection.

**DIAMETERS:** .035", .045", 1/16", 3/32", 1/8", 5/32"**WELDING POSITIONS:** GTAW & GMAW: All positions**TYPICAL DEPOSIT COMPOSITION:**

|                 | AWS Spec  | Weld Metal Analysis (%) |
|-----------------|-----------|-------------------------|
| Carbon (C)      | 0.03      | 0.014                   |
| Chromium (Cr)   | 24.0-27.0 | 25.35                   |
| Copper (Cu)     | 1.50      | 0.09                    |
| Manganese (Mn)  | 2.50      | 0.58                    |
| Molybdenum (Mo) | 2.5-4.5   | 3.96                    |
| Nickel (Ni)     | 8.0-10.5  | 9.17                    |
| Nitrogen (N)    | 0.20-0.30 | 0.26                    |
| Phosphorus (P)  | 0.03      | 0.015                   |
| Silicon (Si)    | 1.00      | 0.001                   |
| Sulfur (S)      | 0.02      | 0.42                    |
| Tungsten (W)    | 1.00      | 0.02                    |

NOTE: Single values are maximums.



**AN ISO 9001:2015 COMPANY**  
CERTIFICATE NO.: C755336

**FERRITE NUMBER AND PITTING RESISTANCE EQUIVALENT NUMBER:**

To obtain Ferrite Numbers or PRE<sub>N</sub>, please contact SOWESCO technical support at the number below.

**TYPICAL WELDING PARAMETERS:**

|                               | Diameter | Amperage | Volts | Shielding Gas                                   |
|-------------------------------|----------|----------|-------|-------------------------------------------------|
| <b>GTAW</b>                   | 1/16"    | 80-110   |       | 100% Ar                                         |
|                               | 3/32"    | 90-130   |       |                                                 |
|                               | 1/8"     | 120-175  |       |                                                 |
|                               | 5/32"    | 150-220  |       |                                                 |
| <b>GMAW</b><br>Spray Transfer | .030"    | 130-200  | 23-27 | 98% Ar/ 2% O <sub>2</sub><br>(35 cfh)           |
|                               | .035"    | 150-225  | 23-26 |                                                 |
|                               | .045"    | 200-325  | 24-28 |                                                 |
|                               | 1/16"    | 300-350  | 24-27 |                                                 |
| <b>GMAW</b><br>Short-Circuit  | .030"    | 50-150   | 14-20 | 90% He/ 7½% Ar/ 2½% CO <sub>2</sub><br>(25 cfh) |
|                               | .035"    | 60-200   | 14-22 |                                                 |
|                               | .045"    | 75-225   | 15-23 |                                                 |
|                               | 1/16"    | 100-250  | 16-23 |                                                 |

**NOTE:** 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 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.