Technical Data Sheet
SIL-TRODE®

Description and Application

A silicon bronze welding alloy (UNS C65600) for the inert gas welding of copper-silicon, copper zinc, copper to themselves, and also to mild steel. Used extensively in the welding of galvanized steel. The silicon content of 2.8 - 4%, increases tensile strength, hardness, and work hardening rates. Silicon bronze also provides good corrosion resistance and has good weld-ability.

Silicon bronze is hot short and extreme care must be exercised to avoid overheating the joint which tends to cause cracking.

Chemistry

% (Filler Metal)

Copper .....Balance
Silicon 2.8-4.0
Zinc .....1.0 max.
Tin .....1.0 max.
Manganese .....1.5 max.
Iron .....0.50 max.
Aluminum .....0.01 max.
Lead .....0.02 max.
Others .....0.50 max.

Mechanical Properties (nominal)

Tensile Strength, ksi .....50(350 MPa)
Elongation, % in 2" 40
BHN (500kg.)
1/4" deposit 80

**Hardness will vary depending on quality of the weld and experience and knowhow of the welder.*

Welding Procedure

With gas metal-arc welding, the weld metal should be deposited in stringer beads, maintaining a small molten pool to avoid overheating the hot short silicon bronze base metal. Use argon gas for shielding and relatively high welding travel speeds.

With the gas-tungsten arc welding process, welding is accomplished with DCEN (direct current electrode negative**)** current and argon or helium gas shielding. ACHF (alternating current high-frequency) with argon gas shielding may be used to take advantage of the arc cleaning action.

Preheat

Preheat slightly to remove moisture. Interpass temperature should not exceed 150°F (66°C).

Specification

AWS A5.7 Class ER CuSi-A