



HANDY ONE SILVALOY 505 (HANDY ONE[®] BRAZE[™] 505)

This proprietary family of brazing & soldering products eliminates the need for a separate fluxing operation, which can result in a significant increase in productivity while minimizing flux exposure to your personnel and plant equipment.

GENERAL DESCRIPTION

Handy One is a trademark for a family of flux-cored brazing materials that offers numerous advantages compared to traditional metal joining methods. It consists of a filler metal in strip form that is rolled around a powdered flux. Formulations currently exist for silver (and aluminum based) brazing filler metals and it is available on spools, coils or rods for wire feed applications and as preformed rings and shapes for automated production lines.

Some of the primary advantages of Handy One cored wire include:

- It simplifies the brazing process by eliminating the manual fluxing operation; this also reduces flux exposure to your brazing personnel.
- Joint quality and throughput can be improved due to the consistent application of flux and filler metal.
- Reduces heating time and secondary post braze operations, increasing productivity and throughput
- Improved strength due to a reduction in flux inclusions at the joint interface
- Reduces the flux in your wastewater effluent by as much as 75%
- Multiple formulations exist for a variety of base metals, joint designs and heating methods.

These materials will join ferrous and non-ferrous metals including steel, stainless steel, copper, brass and bronze.

NOMINAL COMPOSITION

Silver	50.0% ± 1.0%
Copper	20.0% ± 1.0%
Zinc	28.0% ± 2.0%
Nickel	2.0% ± 0.5%
Other Elements (Total)	0.15% Max

PHYSICAL PROPERTIES

Color	Yellow White
Melting Point (Solidus)	1220°F (660°C)
Flow Point (Liquidus)	1305°F (705°C)
Brazing Temperature Range	1305°F - 1550°F (705°C - 843°C)
Specific Gravity	9.17
Density (Troy oz/in ³)	4.83
Electrical Conductivity (%IACS) ⁽¹⁾	15.0
Electrical Resistivity (Microhm-cm)	11.9

⁽¹⁾ IACS = International Annealed Copper Standard



Technical Data Sheet

PRODUCT USES

Silvaloy 505 readily wets nickel and iron base alloys. It is recommended for joining 300 Series stainless steel and will retard interface corrosion in most exposures for which the base metals are suitable. However, for joints on cupro-nickel exposed to salt water at elevated temperatures, zinc-free alloys such as Silvaloy 559, 603, or 630 should be used to avoid joint failure by dezincification. Because this alloy is cadmium-free, it can be safely used on food handling equipment and hospital utensils. The presence of nickel in Silvaloy 505 aids in the joining of small tungsten carbide inserts in cutting tools. In addition, it offsets joint interface brittleness caused by diffusion of aluminum into the brazing alloy, when joining aluminum-bronze to steel.

BRAZING CHARACTERISTICS

Silvaloy 505 is very fluid at its flow point and will quickly fill long, narrow joints. Because it has the tendency to liquefy (i.e., separate into low and high melting constituents) when heated slowly, this alloy should be heated quickly through its melting range. Its low flow point will minimize oxidation of the stainless steel during brazing.

PROPERTIES OF BRAZED JOINTS

The properties of a brazed joint are dependent upon numerous factors including base metal properties, joint design, metallurgical interaction between the base metal and the filler metal. In tests at room temperature, torch brazed “wiped” butt joints yielded the following average results:

	Tensile Strength (lbs/in ²)	Elongation (% in 2 in.)
18-8 Stainless Steel (Annealed)	69,500 - 88,000	1.00 - 9.00
1029 Carbon Steel (Cold Worked)	66,000 - 73,300	15.0 - 25.0

PROPERTIES OF BRAZED JOINTS

Lucas-Milhaupt, Inc has several different fluxes available depending upon the material form (wire or preformed shape) as well as base metals and heating methods utilized.

- **Restrictive Flux** – protects the parts being joined, yet restricts the flow of the filler metal, enabling the building of fillets and minimizing post braze secondary operations. This flux is recommended for most hand feed or wire feed applications. Flux content is typically 12% (±3%) of the total weight.
- **Free Flowing Flux** – This very fluid flux provides excellent protection of your parts and facilitates filler metal flow. Recommended for preformed ring applications, it is typically 18% (±3%) of the total weight.
- **Heat Resistant Flux** – Boron modified flux for large mass assemblies or long heating cycles. It is also typically 18% (±3%) of the total weight and also recommended for preformed ring applications.

Please Note: Flux percentages may vary depending upon material size and finished form, please contact Lucas Milhaupt’s Technical Services Department for specific product and process parameters.



AVAILABLE FORMS

Wire, rod, engineered preforms, specialty preforms per customer specification.

SPECIFICATIONS

Silvaloy 505 alloy conforms to the following specifications:

- American Welding Society (AWS) A5.8/A5.8M BAg-24
- Society of Automotive Engineers (SAE) / AMS 4788

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 30-505; 30-506; 30-507; 30-508; 30-509; 30-510; 30-511; 30-512

Distribution P/N: 99084, 99076.

SAFETY INFORMATION

The operation and maintenance of brazing equipment or facility should conform to the provisions of American National Standard (ANSI) Z49.1, "Safety in Welding and Cutting". For more complete information refer to the Material Safety Data Sheet for Handy One Silvaloy 505.

WARRANTY CLAUSE

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