

## **EASY-FLO® 3** **(SILVALOY® 50N)**

### ***NOMINAL COMPOSITION***

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Silver	50.0% ± 1.0%
Copper	15.5% ± 1.0%
Zinc	15.5% ± 2.0%
Cadmium	16.0% ± 1.0%
Nickel	3.0% ± 0.5%
Other Elements (Total)	0.15% Max

### ***PHYSICAL PROPERTIES***

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Color	Light Yellow
Melting Point (Solidus)	1170°F (632°C)
Flow Point (Liquidus)	1270°F (688°C)
Brazing Temperature Range	1270°F - 1400°F (688°C - 760°C)
Specific Gravity	9.21
Density (Troy oz/in <sup>3</sup> )	4.85
Electrical Conductivity (%IACS) <sup>(1)</sup>	18.0
Electrical Resistivity (Microhm-cm)	9.58

<sup>(1)</sup> IACS = International Annealed Copper Standard

### ***PRODUCT USES***

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Easy-Flo 3 is recommended for use on stainless steels subject to chloride corrosion, such as marine hardware, fishing tackle, and some dairy equipment cleaned with bleaching solutions and other equipment exposed to chlorinated water. While Easy-Flo is used successfully on many stainless steel assemblies where corrosion in service is not severe, it is better and safer to use Easy-Flo 3 for all stainless steel joints where the end use is not known. Easy-Flo 3 should not be used where the joints are exposed to direct contact with food, because of its cadmium content. Easy-Flo 3 is used extensively in brazing tungsten carbide inserts for wood and metal cutting, and for mining tools. Easy-Flo 3 is recommended for the brazing of aluminum bronze to steel as the nickel content offsets the harmful effect of diffusion of aluminum into the brazing alloy.

### ***BRAZING CHARACTERISTICS***

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Easy-Flo 3 differs from most other silver brazing filler metals in that it is rather sluggish even at temperatures above its flow point. For this reason it will fill larger gaps than more fluid alloys and may be used where clearances between joint surfaces cannot be kept within the tolerances normally recommended. This characteristic of Easy-Flo 3 also makes it easier to produce larger fillets where fillets are required for appearance or for affecting the distribution of stresses in an assembly. Easy-Flo 3 has a tendency to liquate (i.e. separate into low and high melting constituents) and is preferably used where the assembly is to be heated rapidly through the melting range of the filler metal. It is not a good alloy for furnace brazing where it has to be pre-placed externally on the assembly, but may be used successfully for furnace brazing where it can be pre-placed internally in the joint area in the form of shims or rings, and where heating is rapid. Handy® Flux is normally used with Easy-Flo 3, but on some of the more refractory alloys, such as some stainless steels, Handy® Flux Type B-1 will assist in producing better wetting of the joint surfaces.

# Technical Data Sheet

## ***PROPERTIES OF BRAZED JOINTS***

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The strength of butt joints made with Easy-Flo 3 is comparable to that obtained with Easy-Flo. Butt joints on copper have tensile strengths of 33,000 to 35,000 lbs/in<sup>2</sup>; on brass 35,000 to 45,000 lbs/in<sup>2</sup>; on steels 50,000 to over 100,000 lbs/in<sup>2</sup> depending the strength of the steel and thickness of the filler metal layer. The shear strength of joints on steel varies from 25,000 to 50,000 lbs/in<sup>2</sup>. For design purposes, it is safer to use the lower figure because of variables in brazing procedures. Shear strength on tungsten carbide is also approximately 25,000 lbs/in<sup>2</sup>. Above 400°F (205°C) the strength of Easy-Flo 3 joints falls off rapidly and at 600°F (315°C) the strength in short time tensile tests is approximately 50% of the strength at room temperature.

## ***AVAILABLE FORMS***

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

## ***SPECIFICATIONS***

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Easy-Flo 3 alloy conforms to the following specifications:

- American Welding Society (AWS) A5.8/A5.8M BAg-3
- ASME Boiler & Pressure Vessel Code, Sec II-C, SFA-5.8 BAg-3
- Society of Automotive Engineers (SAE) / AMS 4771
- Federal Specification QQ-B-654 GR V
- International Organization for Standardization (ISO) 17672 Ag 351
- British Standard (BS) EN 1044 Ag 351

## ***APPLICABLE PRODUCT CODE(S)***

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The applicable Lucas-Milhaupt product code(s) for this technical data sheet: A00000008, Legacy Codes: 31-503, 1735.

## ***SAFETY INFORMATION***

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Easy-Flo 3 contains cadmium. Cadmium fumes are poisonous. This alloy should be used only in well-ventilated spaces with air movement which will carry brazing fumes away from the worker's face. Refer to ANSI Z49.1 entitled "Safety in Welding and Cutting", and the Lucas-Milhaupt Material Safety Data Sheet for detailed information.

## ***WARRANTY CLAUSE***

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