

EASY-FLO[®] 053 **(BRAZE[™] 053)**

NOMINAL COMPOSITION

Silver	5.0% ± 0.5%
Cadmium	Remainder
Other Elements (Total)	0.15% Max

PHYSICAL PROPERTIES

Color	Gray
Melting Point (Solidus)	640°F (340°C)
Flow Point (Liquidus)	740°F (395°C)
Soldering Temperature Range	740°F - 840°F (395°C - 450°C)
Specific Gravity	8.73
Density (Troy oz/in ³)	4.60
Electrical Conductivity (%IACS) ⁽¹⁾	22.0
Electrical Resistivity (Microhm-cm)	7.90

⁽¹⁾ IACS = International Annealed Copper Standard

PRODUCT USES

Easy-Flo 053 has been used in applications where soft solder alloys with higher melting points are required but the strength of standard silver brazing filler metals is not required. An example of this would include joining of thermostatic bellows where the operating temperature is too high for soft solders and the bellows must be joined below their annealing temperature. A large use of this alloy has been on small electric motors for soldering copper leads, which would fail on overheating if soft soldered with standard tin lead or tin silver soft solders. Another use has been in soldering of gun parts, replacing standard soft solders. In this case the advantages are strength at higher temperatures in comparison to standard soft solders. This alloy showed adequate corrosion resistance to alkaline solutions used in blackening of gun barrels. Because of the high cadmium content of the filler metal, it should not be used for joining food containers.

SOLDERING CHARACTERISTICS

The flow point of Easy-Flo 053 is intermediate between soft solders and standard silver brazing filler metals. As a result, a special flux-Handy[®] Flux Type TEC (a liquid flux) - has been developed for use with this filler metal, because the active temperature range of soft solder fluxes is too low while that of the silver brazing fluxes is too high. Easy-Flo 053, when used with Handy[®] Flux Type TEC, will join such metals as copper, brass and steels.

FLUX REMOVAL

TEC flux is corrosive and must be removed after soldering. Water rinsing is not adequate for removal of this flux. The following is recommended for the removal of TEC flux:

- a. Hot water rinse
- b. 5% phosphoric-warm bath or 2% hydrochloric-warm bath
- c. Hot water rinse
- d. Neutralize-baking soda or soda ash
- e. Hot water rinse

PROPERTIES OF BRAZED JOINTS

The properties of a soldered joint are dependent upon numerous factors including base metal properties, joint design, metallurgical interaction between the base metal and the filler metal. Shear strengths, at room and elevated temperatures, have been determined with double shear lap joints (tuning fork type) to compare this filler metal when used to join copper, 70-30 brass, and 1020 steel. It is noted that this filler metal demonstrates shear strengths almost three times that of 50Pb/50Sn soft solder.

CORROSION RESISTANCE

In a 240 hour salt spray test there is little loss of bond strength in copper-to-copper joints or Type 304-to-304 stainless steel joints. Under these conditions, however, there is slight degradation of joints made of 430 stainless steel. Where corrosion resistance is required, it is recommended that the suitability of Easy-Flo 053 for the actual environment be determined by the user

AVAILABLE FORMS

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

SPECIFICATIONS

Easy-Flo 053 alloy conforms to the following specifications: N/A

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 32-053.

SAFETY INFORMATION

Easy-Flo 053 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.

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