

Handy Flo® 110, Handy Flo® 111 DF 110, DF 111

GENERAL DESCRIPTION

Handy Flo 110 is a general purpose fluxing system, which has been specially formulated for dispensing applications using automated dispensing equipment. When used with appropriate silver bearing braze filler metal, Handy Flo 110 will provide sufficient fluxing action to join most ferrous and non-ferrous metals providing high strength and hermetically sealed joints. This system is recommended for automated brazing operations that require flux deposit to remain in place and not flake off or blow off the assembly during initial stages of heating operation. This product has been used in applications where controlled amount of flux is needed each time the product is applied.

This system is recommended for use in most brazing applications including torch, induction, resistance and air furnace heating methods. Handy Flo 110 is not recommended for use in a vacuum or controlled atmosphere furnace brazing operations. It does not require drying prior to brazing and it will remain in place and not flake off or blow off assemblies during the brazing process. HF 110, when heated under a nitrogen atmosphere to a temperature of 825°F (440°C), shows 100% binder weight loss in tests using thermal gravimetric analysis. HF 111, when heated under a nitrogen atmosphere to a temperature of 950°F (510°C), shows 100% binder weight loss in tests using thermal gravimetric analysis.

Handy Flo 111 is a boron containing version of Handy Flo 110. The Handy Flo series are generally used in paste formulations containing braze filler metal, whereas DF 110 & DF 111 are dispensable versions of Handy Flo 110 and Handy Flo 111 distributed as flux formulations only without the braze filler metal content.

PRODUCT APPLICATION

Handy Flo 110 is recommended for use with braze filler metals that flow between 1100°F - 1500°F (593°C - 815°C). This product is recommended for use with many of the common Silvaloy® formulations which include silver, copper, zinc and tin or nickel, and Easy-Flo® alloy formulations which include silver, copper, zinc and cadmium. Handy Flo 110 has been used in various applications including electronic/electrical, automotive, plumbing, and construction industries. Handy Flo 111 includes an addition of boron and provides an additional 100°F (38°C) of surface protection up to 1600°F (871°C). Handy Flo 111 is recommended for joining of stainless steels, carbides, malleable iron or other hard to braze base metals, or where assemblies are exposed to longer heating cycles.

BRAZING CHARACTERISTICS

Handy Flo 110, Handy Flo 111, DF 110 and DF 111 will exhibit restrictive slump characteristics and can be used on vertical joints. This product exhibits restrictive properties when molten making it beneficial for small parts where excessive flow is detrimental. These products are corrosive and a post-braze cleaning or rinsing operation is required. The flux residue is easily dissolved in hot water at temperatures of 120°F (49°C) or higher.

WARRANTY & STORAGE

Lucas-Milhaupt, Inc. warrants their Brazing and Soldering Paste products for 90 days from the date of shipment if stored in the original unopened container. Optimal storage conditions would be 65°F (18°C) - 75°F (24°C), clean and dry. It is recommended that the paste products are stored away from direct heat. Paste may require mixing to regain a homogenous mixture before application.

The 90 day warranty should not be interpreted as the shelf or useful life of the product. The paste products may be used well beyond the 90 day warranty, unless customer testing or production results indicate unsatisfactory performance of the product.

AVAILABLE PACKAGING

Handy Flo and DF products are available in various size syringes, jars and cartridges. Paste may also be obtained in large containers prepackaged for immediate pneumatic dispensing operations.

SPECIFICATIONS

Handy Flo 110 conforms to the following specifications: N/A

Handy Flo 111 conforms to the following specifications: N/A

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 83-110,83-111.

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 Flo 110/DF 110 or Handy Flo 11/DF 111.

WARRANTY CLAUSE

Lucas-Milhaupt, Inc. believes the information contained herein to be reliable. However, the information is given by Lucas-Milhaupt, Inc. without charge and the user shall use such information at its own discretion and risk. This information is provided on an "AS IS" AND "AS AVAILABLE" basis and Lucas-Milhaupt, Inc. specifically disclaims warranties of any kind, either express or implied, including, but not limited to, warranties of title or implied warranties of merchantability or fitness for a particular purpose. No oral advice or written or electronically delivered information given by Lucas-Milhaupt, Inc. or any of its officers, directors, employees, or agents shall create any warranty. Lucas-Milhaupt, Inc. assumes no responsibility for results obtained or damages incurred from the use of such information in whole or in part.