

Handy Flo[®] 411

GENERAL DESCRIPTION

Handy Flo 411 is a fluxless binder system used in controlled atmosphere furnace brazing of steel and stainless steel assemblies. This system is recommended for use in dry atmospheres having dew point of -40°F to -60°F in atmospheres such as nitrogen, hydrogen, dissociated ammonia and vacuum with minimum vacuum level of 10⁻⁴ Torr. Handy Flo 411 has been formulated for dispensing applications using automated dispensing equipment utilizing syringes and/or cartridges.

PRODUCT APPLICATION

Handy Flo 411 is recommended for use with braze filler metals that flow above 1600°F (871°C) and include: pure copper, nickel base, bronze, copper-nickel and copper/cuprous oxide type alloys.

BRAZING CHARACTERISTICS

Handy Flo 411 offers excellent vertical slump characteristics. The paste deposit will remain in place and will not spatter during the initial stages of the heating process. Handy Flo 411 dries relatively quickly, and the binder will not flake off the parts prior to heating operation which allows pre-pasting of assemblies several hours prior to brazing. While similar to Handy Flo 410, Handy Flo 411 offers improved adhesion to parts especially once dried which further improves the non-flaking characteristic of the binder. Handy Flo 411 is a relatively clean burning system depending on the atmospheric conditions, though in some cases such as very dry atmospheres or in the absence of carbide forming elements, a small amount of residue may remain post braze which is easily removed with a clean cloth.

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 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 411 conforms to the following specifications: N/A

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 83-411

SAFETY INFORMATION

The operation and maintenance of brazing equipment or facility should conform to the provisions of American

SAFETY INFORMATION (CONT.)

National Standard (ANSI) Z49.1, "Safety in Welding and Cutting". For more complete information, refer to the Material Safety Data Sheet for Handy Flo 410 or Handy Flo 420.

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.