



A pre-mix of Nicrobraz filler metal powder and Nicrobraz Flux.

Nicrobraz® Flux-Powder Paste

For Brazing Stainless Steels
and Nickel and Cobalt Alloys
Without the Protection of
Low Dew-Point Furnace
Atmospheres

Description:

Nicrobraz Flux-Powder Paste is a homogenous mixture of Nicrobraz Flux and powdered Nicrobraz filler metal. Any of the Nicrobraz filler metal grades may be used, but there are two that are recommended for most applications: Nicrobraz L.M. for its low melting point 1830°F (1000°C), and Nicrorbaz 135 for its low hardness, although it has a higher melting point 1935°F (1055°C). For more information on all Nicrobraz filler metals, see Brazing Filler Metal Selector Chart.

Torch and Induction Braze

The flux present in Nicrobraz Flux-Powder Paste makes possible - by simply torch or induction heating methods - the joining of heat and corrosion resistant base metals (stainless steels, nickel-based, cobalt-based, and similar alloys). Nicrobraz Flux-Powder Paste is also used in torch and induction brazing of joints on dissimilar metals, low alloy steels, and carbon steels. Nicrobraz Flux, the key ingredient, gives control of oxidation during brazing at high temperatures. For additional information concerning Nicrobraz Flux, see Nicrobraz Flux Technical Data Sheet.

Other Braze Methods

Nicrorbaz Flux-Powder Paste also offers the advantage of preventing oxidation when brazing in exothermic furnace atmospheres, as well as when

brazing in other types of furnace atmospheres where the dew point is too high to permit oxidation-free brazing of stainless metals.

Composition:

Two standard flux- filler metal ratios are offered:

- Type B (Std.) has 50% filler metal (by weight)
- Type C has 75% filler metal (by weight)

Other ratios may be used. The paste may be diluted with water to suit various application methods (brushing, dipping, mechanical application). However, too much dilution may cause separation of filler metal and flux.

Forms Available:

Available From Stock: All Nicrobraz filler metals and Nicrobraz Flux are readily available for hand mixing by the user.

Available On Order: Pre-mixed Nicrobraz Flux-Powder Paste in production size lots. Minimum orders are:

- Type B - 1 case (twelve 1-kg. plastic jars per case)
- Type C - 1 case (twelve 1.5-kg. plastic jars per case)

Recommended Torch Brazing Procedures:

(1) Apply the paste to the work by brushing, dipping, or mechanical application. Apply liberal quantities to the edges of the joint to insure that there is sufficient filler metal to fill the joint.

(2) Dry the paste thoroughly to remove water. This may be accomplished by air drying or oven drying, or by using the torch carefully.

(3) Apply Nicrobraz Flux to adjacent surfaces (and reverse side) that are to be kept oxide-free. Do not overheat flux or hold at heat too long; this may result in an oxide-flux mixture difficult to remove. After brazing or quenching, the flux residue may be removed with water (hot or cold), steam and hot water, or with commercial flux remover. (The choice depends on the speed of removal desired.)

(4) Heat the joint uniformly across its width and move along joint line. Brazing requires a temperature of 1800 - 2200°F (981 - 1203°C), depending on type of Nicrobraz filler metal present in the paste. Do not apply heat directly on top of the paste. Start by heating the base metal at the beginning of the joint. Move slowly along, as the filler metal melts.

(5) If desired, the torch brazed joints can usually be taken apart with relative ease by fluxing again and reheating to a temperature slightly higher than the initial brazing temperature. If the joint initially is heated to a very high temperature and for a long period of time, however, the joint is not likely to exhibit this characteristic.

Flow Problems - Suggested Answers:

(1) Filler metal not melting: Insufficient brazing heat.

(2) Filler metal not flowing out: Insufficient heat in base metal. Base metal not clean, or flux oxidized because heated too long.

(3) Filler metal and flux blowing off: Torch flame velocity is too high because torch flame is too large or becomes over-heated before base metal comes up to brazing temperature.

Recommended Uses:

(1) To torch braze stainless assemblies requiring a filler metal able to provide good joint strength for high temperature use.

(2) To braze thin sections (whether stainless or non-stainless) where welding is not practical, and some distortion is acceptable.

(3) To braze assemblies of so complex a design (whether stainless or no-stainless) that welding is not practical or is too costly.

(4) To braze by torch or induction heating (rather than by brazing in a special atmosphere furnace) where design, size, or cost considerations so dictate.

(5) To braze dissimilar base metals such as copper tubes or sheets (or copper nickel alloys) to stainless steel.

Caution - Contains Fluorides

This flux when heated gives off fumes which may irritate skin, nose, and throat.

1. Avoid fumes - use in well ventilated spaces.
2. Avoid contact of the flux with eyes and skin.
3. Do not take internally.
4. Read product label.

Example of Use:

Torch brazing with Nicrobraz Flux-Powder Paste provides many new and better ways to join stainless alloy parts. For example, when a major aircraft manufacturer used argon-shielded arc welding to temporarily hold a part for furnace brazing, it was found to be causing excessive damage to the part. The problem was solved by torch brazing using Nicrobraz Flux-Powder Paste.

The problem arose in the manufacture of a Pilot static tube, an instrument used to measure air velocity. Production of the instrument called for special atmosphere furnace brazing of an assembly, one part of which was a thin-walled tube (0.0050-in. ID). Tack welding to hold the tube in position for the furnace operation was tried, but it frequently caused the tube to be burned through. The manufacturer decided to abandon the attempt to furnace braze the thin walled tube along with the other parts of the assembly. Instead, the thin-walled tube was torch brazed after the main assembly was furnace brazed. Nicrobraz L.M. Flux-Powder Paste was used, and the manufacturer reports that the torch brazed joint is entirely satisfactory.

Safety:

When handling metal powder alloys, avoid inhalation or contact with the skin or eyes. Conduct application operations in a properly ventilated area. For more information, consult, OSHA Safety and Health Standards available from U. S. Government Printing Office, Superintendent of Documents, P. O. Box 371054, Pittsburgh, PA 15250, and the manufacturer's Material Safety Data Sheet (MSDS). Read and understand the manufacturer's material safety data sheet before use.

The information provided herein is given as a guideline to follow. It is the responsibility of the end user to establish the process information most suitable for their specific application(s).

Wall Colmonoy Limited (UK) assumes no responsibility for failure due to misuse or improper application of this product, or for any incidental damages arising out of the use of this material.

updated March 2014