metco
joining & cladding

# Material Product Data Sheet
## Amdry High Temperature Braze Pastes

**Products: CNT, CNG**

### 1 Introduction
Metco Joining & Cladding high-temperature, flux-free Amdry™ Braze Paste is comprised of cobalt, nickel, or iron based brazing alloys, mixed with a neutral binder to hold our fine, dry atomized powders in a controlled-consistency condition.

Amdry Braze Paste is available in two forms of binders:
- CNT fast drying organic base
- CNG slow drying organic base

The use of pre-mixed braze paste eliminates in-plant mixing and packaging time by application operators, saving production time and cost. Amdry Braze Pastes are dark gray in color with a viscous consistency. Any one of the paste forms can be used in a production application which requires brazing paste.

The amount of binder ranges between 10 and 14 percent by weight, which results in a consistent, easily extruded braze paste. The adhesive quality of the paste holds the braze filler metal in place until brazed. Highly controlled, batch-to-batch binder to metal ratio ensures excellent braze joint repeatability.

### 1.1 Typical Use and Applications
Amdry Braze Paste is excellent for:
- High production items such as tubes, fittings and flanges
- Honeycomb assembly repairs
- Long sheet metal component seams
- Crack repair on turbine engine airfoils

Long nozzles and needles are available from others for use on paste application equipment that allow placement of paste on small areas, into deep gaps or on assemblies with complex geometries.

| Quick Facts | |
|---|---|
| Purpose | Joining |
| Process | Braze |
| Gap Size | Any |
| Shelf Life | 24 months from date of manufacture |


Available paste package sizes from left to right: 4 lb (approx. 1.8 kg jar, 8 oz (approx. 227 g) cartridge, 20 oz (approx. 0.57 kg), 3.5 oz (approx. 100 g) syringe.

## 2 Material Information

### 2.1 Specifications

| | CNT Paste | CNG Paste |
|---|---|---|
| Base | Organic-based | Organic-based |
| Substrate preparation | Refer to the applicable product data sheet for the braze filler metal used | |
| Drying time before brazing* | Fast, 2 to 4 hours | Slow, 18 to 24 hours |
| Placement remarks | For incorrect placement before brazing, wash from part with water or solvent cleaner | Thin with deionized water if necessary. |

* Drying time for all pastes can be reduced by furnace or oven drying between 50 to 95 °C (125 to 200 °F).

### 2.2 Application Information

- Pastes can be applied by hand, using a semi-automated applicator or in a fully-automated or robotic system.
- 228 g (8 oz) and 0.565 g (20 oz) cartridges are designed to be used in a Semco air gun or similar system. They can also be used to fill smaller syringes.
- 225 g (8 oz) syringes are available on request. These employ a “Luer-lock” style tip that can be used with many types of paste dispensing equipment or for transfer into other containers with Luer-lock adapters.
- A wide variety of nozzle and needle sizes are available from application manufacturers to customize the deposit size of the paste.
- Care should be taken in the choice of needle to insure the size is sufficient to accommodate the powder particle size to prevent clogging during application.

### 2.3 Key Selection Criteria

- For most applications, CNT paste is preferred because of its quick drying time and very low residue.
- Choose CNG paste for processes where parts will be sitting for long periods of time after braze alloy application prior to brazing. CNG paste maintains a putty-like consistency when dry which helps the paste to stay in place during movement of the parts.

### 2.4 Related Products

- Customized Amdry Braze Tape or Preforms can be considered when minimal waste and the highest level of consistency is required. These products also contain significantly lower binder content, which can reduce overall hold times for outgassing.

## 3 Braze Processing Information

### 3.1 Key Processing Information

The following hold time and temperature information is recommended to insure complete vaporization of paste organics and solvents, and to prevent the possibility of moisture entrapment in the paste deposit. Trapped moisture will boil and burst from the paste bead, leaving a void and unwanted splattering on adjacent surfaces and parts. All hold times listed in below for CNT and CNG braze pastes are starting points and should be adjusted based on the size of the parts, furnace load and quantity of filler metal used.

### 3.2 Post Brazing

- CNT and CNG braze pastes leave minimal to no residue after brazing. Should any residue remain, it is neither corrosive nor hygroscopic and need not be removed

**Hold Times**

| | |
|---|---|
| Hold time for outgassing | Minimum of one hold for 15 to 20 min |
| Hold temperature | 260 – 540 °C (500 – 1000 °F) |
| Hold at desired vacuum level | 5 to 10 min, or until vacuum level recovers |
| Braze cycle remarks | Most organics vaporized and removed during furnace rough pumping |

## 4 Commercial Information

### 4.1 Ordering Information and Availability

Individual product listings in the Braze Materials Guide and in the applicable braze filler metal data sheet indicate availability of the most popular product offerings; however, package size and binder combinations not listed are available as a special order.

Please allow one to two weeks for packaging of stock paste products. For special order paste products, the initial lead time is typically four weeks.

### 4.2 Packaging Options

| Package Type | Size (by Weight) | |
|---|---|---|
| Jars (Bulk Pack) | 1.8 kg | 4 lbs |
| Cartridges | 565 g | 20 oz |
| | 227 g | 8 oz |
| Syringes | 100 g | 3.5 oz |

All paste product are identified with the alloy lot number, paste batch number and date of manufacture.

### 4.3 Shelf Life

Braze paste products have 24 month shelf life when properly stored. During the serviceable lifetime of the paste product, the braze filler metal remains suspended in the gel and the binder remains thick with little or no seepage.

### 4.4 Handling and Storage Recommendations

- Store at temperatures of 7 to 24 °C (45 to 75 °F), if possible.
- Do not freeze.
- Do not store above 27 °C (80 °F).
- If paste product is refrigerated, watch for condensation. Allow paste product to come to room temperature before application.
- Do not use product if paste breakdown has occurred; i.e. separation of the paste gel from the filler metal powder. This will cause the product to be too thick to properly extrude causing unsatisfactory braze results.
- If the shelf life has expired, a visual examination and braze test should be performed prior to use.

### 4.5 Safety Recommendations

See the SDS (Safety Data Sheet) in the version localized for the country where the material will be used. SDS are available from the Metco Joining & Cladding web site at www.metcojoiningcladding.com (Resources – Safety Data Sheets) and are also referenced on the braze filler metal product data sheet.