

Material Product Data Sheet

Amdry Binders for Brazing Applications

Products:

**Amdry™ Binder MA75, Amdry Binder MA240,
Amdry Binder LA180**

1 Introduction

Amdry Binders are aqueous-based binders for high-temperature brazing applications. They do not contain volatile organic compounds and are designed for use with any kind of powdered brazing filler metals that will be brazed in a vacuum or atmosphere-controlled furnace.

Amdry Binder MA75 can be applied using commercially available spraying equipment at 8% to 16% by weight with a braze filler metal powders to create a slurry that tenaciously adheres thin, uniform layers of brazing filler metal in place — even after the binder is completely volatilized at approximately 540 °C (1000 °F).

The viscosity of Amdry Binder LA180 and Amdry Binder MA240 is optimized to provide good powder suspension and paste extrusion characteristics along with good performance in pressurized extrusion systems such as pressure pots, syringes. Material drying is controlled to optimize open time for ease of application without blocking screen apertures.

The solids content of our Amdry Binders is precisely controlled to assure consistent performance. Viscosity is controlled to allow thicker layers on vertical surfaces, and improve suspension of the filler metal powders.

Since these binders are aqueous-based with minimal wetting and binding agents, they bond well to the target surface and volatilizes readily without any contaminating residue. These features minimize outgassing during the braze cycle, thereby reducing the impact on the furnace pumping system while helping to ensure the wettability and flowability of the braze filler metal into the joint. The amount of outgassing will increase with increases in the amount of binder used and the number of parts in the furnace. Outgassing can be reduced by air-baking prior to furnace processing. However, this is seldom necessary.

Quick Facts

Classification	Auxiliary, Binder
Appearance	Colloid
Viscosity	See Section 2.1
Boiling Point	≈ 100 °C (212 °F)
Purpose	Binder to facilitate powder brazing
Process	Brazing



1.1 Typical Use and Applications

- Joints of large surface area
- Numerous joints in a mass production environment
- Honeycomb structures
- Heat exchanger plates

2 Material Information

2.1 Chemical Composition and Physical Properties

Product	Chemical Composition	Volatile Organic Compounds (VOC)	Appearance	Viscosity (Pa·s)	Recommended Blend Ratio (wt. %) ^a	Air Drying Time ^b	Shelf Life ^c
Amdry Binder MA75			Blue liquid	0.275 to 0.350	8 to 13	75 min	6 mo
Amdry Binder MA240	Proprietary	None	Violet liquid	80 to 140	11 to 14	180 to 240 min	2 yr
Amdry Binder LA180			White liquid	30 to 60	12 to 16	24 to 48 h ^{c, d}	2 yr

^a Binder to braze filler metal

^b Approximate time to fully dry at ambient temperatures

^c Unopened container stored at room temperature

^d Thin deposits with low surface area will dry to a soft coating capable of handling in approximately 1 to 1.5 hours. Heavier coatings, i.e., thickness greater than 0.25 mm (0.010 in) with considerable surface area will dry to a glossy wet sheen in approximately 3.5 to 4 hours.

2.2 Key Selection Criteria

- Choose Amdry Binder MA75, Amdry Binder MA240 or Amdry Binder LA180 when a binder without volatile organic compounds is desired.
- Amdry Binder MA75, Amdry Binder MA240 or Amdry Binder LA180 have no alcoholic odor.
- Choose Amdry Binder MA75 whenever necessary to bind or cement braze filler metals to a target surface for subsequent furnace brazing.
- Amdry Binder MA240 and Amdry Binder LA180 are recommended for applications where good paste extrusion characteristics are desired such as application by using pressure pots or syringes. These binders can also be used when applying by roller coating or screen printing.
- Parts processed with Amdry Binder MA75 can be handled after 75 minutes of air drying time.
- Parts processed with Amdry Binder MA240 can be handled after drying for 3 to 4 hours in ambient conditions.
- Amdry Binder LA180 and Amdry Binder MA240 are binders used for powder-to-paste conversion. Amdry Binder LA180 has a lower viscosity than Amdry Binder MA240 making it a better choice when additional working time is needed.

- Parts processed with less than 0.25 mm (0.010 in) of Amdry Binder LA180 can be handled after approximately 1 to 1.5 hours of drying time in ambient conditions. Heavier coatings will require approximately 3.5 to 4 hours drying time and will dry to a glossy wet sheen.
- The lower solids content of Amdry Binders dry to a soft, flexible layer.
- The low solids content of Amdry Binders reduces outgassing at the solids decomposition temperature.

2.3 Related Products

- Metco Joining & Cladding offers a wide range of high temperature braze filler metals preformulated as paste that can be applied directly to target joints.
- In addition to preformulated paste, Metco Joining & Cladding can custom-blend braze filler metals and standard or superalloy filler metals for specific applications and wide-gap joints.
- Metco Joining & Cladding can supply custom-sized braze tape, with or without adhesive using any of our braze filler metals or blends of our braze filler metals and standard or superalloy powders.

3 Braze Processing Information

3.1 General Binder Preparation and Application

- As these binders are colloidal in nature, shaking prior to use is generally unnecessary.
- A commercially available spray system is recommended for application of these binders or any kind of powdered braze alloy. The dry powder and the liquid binder are not mixed before spraying; instead each is fed into the system separately and combine upon exiting the nozzle.
- Best performance is obtained when target surfaces are clean, dry, free of oil, grease, dirt, corrosives, paint, mill scale and any other foreign matter.
- The amount of outgassing of from the binder depends on the amount of binder used and the number of parts in the

furnace. Outgassing can be reduced by air-baking prior to furnace processing. However, this is seldom necessary.

- A sprayed braze coating ≤ 0.38 mm (0.015 in) thick should be capable of being handled within the stated drying time if air-dried at ambient temperature. Faster handling times can be attained if air-baked at 50 to 80 °C (120 to 175 °F).
- For large surfaces such as heat exchanger plates or honeycomb structures, spraying Amdry Binder MA75 combined with a braze filler metal is a fast and efficient method of application. It is also beneficial for applying braze powders on parts having numerous joints such as wire mesh or filters. This method of application is significantly less expensive and faster than hand-placing the braze powder.

4 Commercial Information

4.1 Ordering Information and Availability

Product	Order No.	Package Size	Availability	Distribution
Amdry Binder MA75	1301669	10 l (approx. 10.6 qt)	Special Order	Global
Amdry Binder MA240	2278725	1 l (approx. 1.06 qt)	Special Order	Global
Amdry Binder LA180	2278723	3 l (approx. 3.17 qt)	Special Order	Global
Amdry Binder LA180	2276595	1 l (approx. 1.06 qt)	Special Order	Global

4.2 Handling Recommendations

- Store and handle with the same precautions as used for ordinary paints and thinners. Consult the SDS for specific safe handling instructions.
- Store in environmentally-controlled conditions.
- Avoid excessively hot or cold storage conditions.
- Ensure that opened containers of binder are tightly sealed when not in use.

4.3 Safety Recommendations

See the SDS (Safety Data Sheet) in the localized version applicable to 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).

Product	SDS Index Number
Amdry Binder MA75	50-2070
Amdry Binder MA240	50-2766
Amdry Binder LA180	50-2767

Information is subject to change without prior notice.