

Material Product Data Sheet

Amdry Binders for Brazing Applications

Products:

Amdry™ Binder MA60, Amdry Binder MA75

1 Introduction

Amdry Binder MA60 and Amdry Binder MA75 are aqueous-based, medium viscosity binders for high-temperature brazing applications. It is designed to be used with any kind of powdered brazing filler metals that will be brazed in a vacuum or atmosphere-controlled furnace.

Amdry Binders can be applied using commercially available spraying equipment to tenaciously adhere thin, uniform layers of brazing filler metal in place — even after the binder is completely volatilized at approximately 540 °C (1000 °F). It can also be mixed at 8 % to 13 % by weight with braze filler metal powders to create a slurry.

Since the binder is aqueous-based with minimal wetting and binding agents, it bonds 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.

The solid 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.

1.1 Typical Use and Applications

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

Quick Facts

Classification	Auxiliary, Binder
Appearance	Medium viscosity colloid
Viscosity	275 to 350 cP at room temperature
Boiling Point	≈ 100 °C (212 °F)
Purpose	Binder to facilitate powder brazing
Process	Brazing



2 Material Information

2.1 Chemical Composition and Physical Properties

Product	Chemical Composition	Volatile Organic Compounds (VOC)	Appearance	Viscosity	Air Drying Time ^a	Shelf Life ^b
Amdry Binder MA60	Proprietary	Isopropyl alcohol	Clear, viscous liquid	275 to 350 cP	60 min	2 yr
Amdry Binder MA75	Proprietary	None	Blue, viscous liquid	275 to 350 cP	75 min	2 yr

^a Approximate time at ambient temperatures

^b Unopened container stored at room temperature

2.2 Key Selection Criteria

- Choose Amdry Binder MA60 or Amdry Binder MA75 whenever necessary to bind or cement braze filler metals to a target surface for subsequent furnace brazing.
- Choose Amdry Binder MA60 when a faster drying time is needed. Parts processed Amdry Binder MA60 can be handled after 60 minutes of air drying time as a result of its alcohol content.
- Amdry Binder MA60 dries to a hard, tenaciously bonded layer due to its higher solids content
- Choose Amdry Binder MA75 when a binder without volatile organic compounds is desired.
- Drying time for Amdry Binder MA75 is slightly longer than Amdry Binder MA60. Parts processed with Amdry Binder MA75 can be handled after 75 minutes of air drying time.
- Amdry Binder MA75 has no alcoholic odor.
- The lower solids content of Amdry Binder MA75 dries to a softer, more flexible layer.
- The lower solids content of Amdry Binder MA75 reduces outgassing at the solids decomposition temperature compared to Amdry Binder MA 60.

2.3 Related Products

- Oerlikon Metco 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, Oerlikon Metco can custom-blend braze filler metals and standard or superalloy filler metals for specific applications and wide-gap joints.
- Oerlikon Metco 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 Amdry 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.
- Amdry binders perform best 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 Amdry binders 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 or within 15 minutes 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 MA60 or 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 MA60	1098725	1 l (approx. 1.1 qt)	Special Order	Global
Amdry Binder MA60	1098727	3 l (approx. 3.2 qt)	Special Order	Global
Amdry Binder MA60	1098728	100 l (approx. 105 qt)	Special Order	Global
Amdry Binder MA75	1301669	10 l (approx. 10.6 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 50-2070 (Safety Data Sheet) in the localized version applicable to the country where the material will be used. SDS are available from the Oerlikon Metco web site at www.oerlikon.com/metco (Resources – Safety Data Sheets).