



Belmont
M E T A L S I N C.

330 Belmont Avenue Brooklyn, N.Y. 11207
(718) 342-4900 FAX: (718) 342-0175

DATA SHEET

L-1013

BELMONT MITER-AL-BRAZE (MAB) ROD

Belmont MAB Rod, an effective and efficient joining material, is available in two grades: No. I Regular and No. II Hi-Test.

No. II Hi-Test was developed to provide extra ductility. No. I Regular is harder and stronger. Most users find No. I Regular to be effective for general purposes. No. II Hi-Test has often been used by aluminum window manufacturers to join mitered corners, where some bending is required during installation. Feel free to consult with us regarding the ductility vs. hardness/strength tradeoff. See the reverse for general application instructions.

PHYSICAL AND MECHANICAL PROPERTIES

	MAB No. I <u>Regular</u>	MAB No. II <u>Hi-Test</u>
Tensile Str, lbs/sq. in.	37,800	33,000
Compression Str, lbs/sq. in.	60,000-75,000	60,000-65,000
Shear Str, lbs/sq. in.	34,000	30,000
Charpy Impact Str, lbs/sq. in.	4 ft/lb to break 1/4" bar	7.5
Hardness (Brinell)	100	85
Ductility	Good	Excellent
Melting Pt. (°F)	720	730
Specific Gravity	6.7	6.5
Density(lbs/cu. In.)	0.25	0.23
Elongation (in 2")	3%	8%
Coefficient of Linear Expansion	15.4x10 ⁻⁶ /°F	----
Electrical Conduc.	24.9% of Cu	27.0% of Cu
Thermal Conduc.	0.24 cal/cu. Cm/°C	----

(Note:) While data in the above table is based on the best available information, actual results may vary due to end-use conditions. The data is intended to serve only as an aid in product selection

FORMS AND PACKAGING

Stock sizes are 1/8" x 18" rod and 3/16" x 18" rod for MAB Regular, and 1/8" x 18" rod for MAB Hi-Test. Either alloy can be produced in 3/32" x 18" and 1/4" x 15" sizes, as well as in other lengths. Both alloy types are shipped in 50 lb cartons.

Belmont: The Non Ferrous Specialists
For maximum variety in non ferrous metals, alloys, formulations, and shapes.
Custom shapes and compositions available.

APPLICATION INSTRUCTIONS FOR BELMONT MAB ROD

Basic Considerations: The strength of an MAB joint in many cases is as great as that of a brazed joint. However, since Miter-Al-Braze joining is technically a soldering procedure, aluminum alloys with little or no magnesium content will join more easily than those with more than 1.5-2% magnesium.

Equipment:

With a melting temperature of 720° (382°C), MAB Rod is usually applied with a torch. Where oxygen and a fuel gas are in separate tanks, the flame should be neutral or reducing. An oxidizing flame will inhibit the wetting process.

On light work, a propane torch can be used.

Recommended Procedure:

After securing the aluminum sections in a holding jig, apply heat to the joint area until it reaches the point where it will melt the MAB Rod upon touching without playing the torch on the rod. Then, with the flame directed away from the MAB Rod, scratch the area to be wetted with the MAB Rod until it is apparent that the metal from the MAB Rod wets the aluminum. Use of a wire brush or steel tool for scratching is acceptable.

No flux is used in the above method, as the aluminum oxide on the application surface is broken down via the friction from scratching. Effective joints are made by bridging, not penetration. Since the MAB Rod is stronger than the aluminum, the joints will be stronger than the surrounding area.

Alternative Procedure:

Belmont MAB Rod can also be used with a reactive high-temperature soldering flux, such as Alcoa 66A, 67, or equivalent. While this method will give MAB penetration into the joint and eliminate the need for scratching, these fluxes are very corrosive. The fluxes and their residues must be removed from the work, and the unsightly stains they produce are often not removable. Thus, the friction (scratching) method is recommended for breaking down the aluminum oxide on the application surface, as opposed to the use of a flux.

Precautions:

Experienced welders and brazers must recognize special techniques for using MAB Rod. Do not direct the flame onto the rod. Let the heat from the aluminum surface melt the rod as you use it to scratch the surface. Use the MAB alloy to build a bridge across the joint; do not try for penetration into the joint. The resulting bridge will be stronger than the surrounding aluminum. If you anchor the bridge on both sides of the joint via scratching, it will do the job.

Belmont technical specialists would be happy to discuss your specific applications, including selecting the appropriate MAB alloy and its use.