

## BOND MA

# WIRE INSULATIONS AND COATINGS

### DATASHEET

Bond MA is a thermoplastic polyamide; that is, it softens and flows with the application of heat.

#### BONDING INSTRUCTIONS

Bond MA is typically applied as an overcoat over a Polyurethane or Polyester basecoat to make a bondable magnet wire. Such wire bonds to itself when heat softens the overcoat on adjacent turns and it flows together. Upon cooling, the overcoat hardens, locking the turns in place. Bonding of wire coated with Bond MA should be considered reversible in that a return to high temperature will again soften the coating.

Bond MA softens between 160 and 170°C (320-338°F). Full bond strength can be achieved after one hour at 170°C (338°F). Additional time or higher temperatures may increase the effective bonding area between conductors, giving a modest increase in performance.

The bonding cycle above refers to time that the wire is at temperature. Ovens or forced hot air stations may require additional time or higher temperatures to bring the magnet wire up to the required bonding temperature.

Bonding of the wire can be accomplished by resistance heating after winding or by heating in an oven. Bonding is also possible by application of hot air or solvents (such as methyl alcohol) to the wire during winding. For optimal results these coils should then be post baked after winding at 170°C (338°F) for one hour.

#### LIMITATIONS OF BONDABLE WIRE

Note that bondable magnet wire is ineffective across gaps in a winding, nor will it bond well unless adjacent conductors are in intimate contact. Fine wire and precision wound coils can take the most advantage of bondable technology.

#### SERVICE TEMPERATURE

The bond strength of the bonded windings decreases as a function of temperature. Bond MA will retain approximately 5-10% of its room temperature strength at 155-165°C (311-329°F). Service testing should be performed to verify the adequacy of the winding construction and the bonding process.

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Disclaimer: Recommendations are for guidance only, and the suitability of a material for a specific application can be confirmed only when we know the actual service conditions. Continuous development may necessitate changes in technical data without notice. This datasheet is only valid for Kanthal materials.