

# BOND-B WIRE INSULATIONS AND COATINGS

DATENBLATT

Bond-B is a thermoplastic polyvinyl butyral. That is, it softens and flows with the application of heat.

## BONDING INSTRUCTIONS

Bond-B is typically applied as an overcoat over a polyester or polyesterimide 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. Bond-B should be considered reversible in that a return to high temperature will again soften the coating.

Bond-B softens between 100 and 120°C (212-248°F). Full bond strength can be achieved after ten minutes at 120°C. 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 the time that the wire is at temperature. Ovens or forced hot air stations will require additional time and/or high temperatures to bring the magnet wire up to bonding temperature. Motor laminations for example, represent a large heat sink that will greatly extend bonding time.

Resistance heating of the windings by the application of current is a more efficient and preferred method of bonding. Wire temperatures up to 200°C (392°F) can be tolerated for up to a few minutes with minimal outgassing.

## SERVICE TEMPERATURE

The bond strength of bonded windings decreases as a function of temperature. Bond-B will retain approximately 5-10% of its room temperature bond strength at 90-100°C (194-212°F). Service testing should be performed to verify the adequacy of the winding construction and the bonding process.

## 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. Motor size wire applications must be carefully evaluated to determine whether bondable wire is appropriate.

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