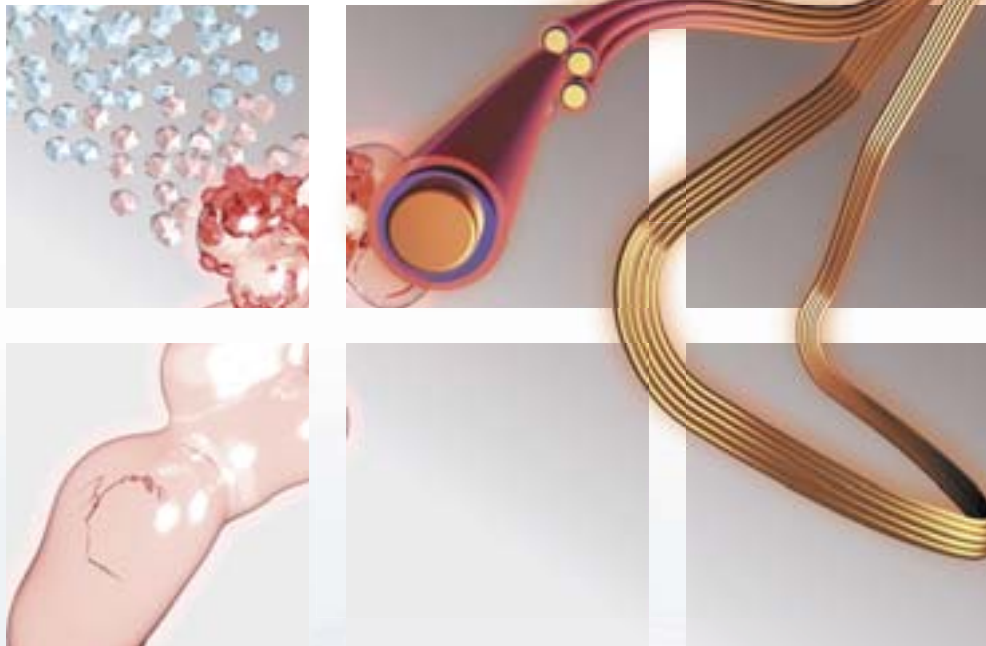




Copolyamides and Copolyesters
Hotmelt Adhesives



SELF-BONDING VARNISHES

Varnishes

Self-Bonding Varnishes

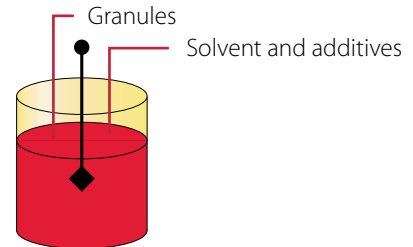
Self-baking varnishes are used primarily to produce coreless self-contained deflection yokes for the electronics industry. They contain a thermoplastic adhesive, such as special, dissolved VESTAMELT copolyamides. To manufacture the deflection yokes, the wires are first coated with the coating. After the solvent has been removed, the deflection yokes are shaped and thermally bonded. The deflection yokes are used in components that require high dimensional stability and durability.

Several layers of self-baking varnish are applied over an existing base insulation on the coated wire. The shaped deflection yokes are thermally fused by tempering in a heating furnace and by inductive heating through current impulse. The "baked coating" melts during this step, which is called "baking." The thermoplastic contained in the coating layers bonds any spaces between the windings. The polymer then solidifies, fusing all windings together and preventing deformation of the winding.

When the copolyamides are manufactured, it is possible to select combinations of the monomers in order to affect the solubility, softening point, water absorption, thermal expansion, and melting viscosity as desired. It is also possible to post-modify copolyamides slightly. By adding blocked polyisocyanate for example, it is possible to initiate a cross-linking reaction when the coated wire is baked, producing a higher resoftening temperature and resulting in very low water absorption in the baked self-bonding varnish.

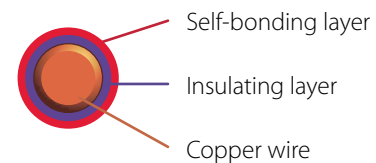
Production of coating

- Cresols as base solvent
- Additives (flow-control agents)
- Copolyamide as adhesive
 - 6–8%: thin wires,
 - 10–20%: standard



Coating

- By means of a nozzle for thick wires
- By means of felt for thin wires
- 7 to 14 passes for insulation
- 3 to 6 passes for adhesive coating
- Rate 160 to 1500 m/min

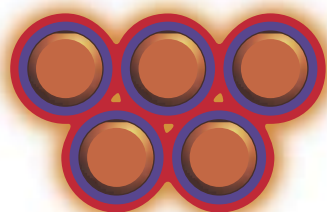


Baking process

- Bonding copper wires to manufacture carrier-free deflection yokes (computer monitors, TVs, audio, video, subfractional horsepower motors, etc.)
- Copper wires, diameter 0.05 to 1.0 mm
- Insulation based on PE, PAI, PEI, etc.
- Adhesive based on copolyamides

Requirements on bonded deflection yokes

- Coating must quickly become tack-free
- High adhesion at low processing temperatures
- High dimensional stability up to 120 °C
- High resistance to the effects of humidity
- Electrical safety (short-circuit test)



VESTAMELT copolyamides

VESTAMELT	Properties, Suitability
451	Low melting point, low melt viscosity, for thin wires, e.g., in earphones
471	Low melting point, higher melt viscosity than VESTAMELT 451, for flat coils, e.g., in video cameras and audio players
X4685	High melting point, high melt adhesion strength, soluble in alcohols, for deflection yokes in TV sets and monitors
X7079	Good adhesion strength, easy to process, for deflection yokes in TV sets and monitors
X1010	Very high melting point, high resistance to temperature, soluble in alcohols, as additive for self-bonding varnish

Further copolyamides and polyamide grades (VESTAMID®) on request.

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For more information please contact our local office or the Marketing or Technical Marketing Department in Marl.

Degussa AG
High Performance Polymers
45764 MARL
GERMANY

Marketing
Phone +49 2365 49-4322
Fax +49 2365 49-6305
e-mail: hans-willi.losensky@degussa.com

Technical Marketing
Phone +49 2365 49-4684
Fax +49 2365 49-5103
e-mail: andreas.pawlik@degussa.com

www.vestamelt.com