HERNON®
High Performance Adhesives and Sealants
ISO 9001 Registered

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Technical Data Sheet
Voice Coil Bonder 360

Product Description

Hernon® Voice Coil Bonder 360 is a single component, black, heat cure adhesive formulated for bonding and coating voice coil components and high temperature lamination. The cured bond withstands temperatures exceeding 600ºF (316ºC).

Product Benefits

- Single component
- Excellent resistance to high temperature, chemicals, and water
- Flexible, thermal shock resistant bond
- Excellent adhesion
- High strength at room temperature and elevated temperatures.

Typical Applications

- Coating of Aluminum, copper-clad and copper wire coils.
- Coating of form materials including Kapton® H, HN, HPPST AND MTB, fiberglass composite, aluminum and Nomex®.

Typical Properties (Uncured)

Property	Value
Base	Nitrile Phenolic
Solvent	Methyl ethyl ketone
Appearance	Black liquid
Viscosity @ 25ºC, cP	4,000 to 6000[1]
Specific gravity	0.94
Flash point	See MSDS

[1] Viscosity may increase over time. It may be necessary to add a small amount of solvent to adjust the viscosity of aged material.

Typical Properties (Cured)

Peel Strength
Peel strengths of 9 piw have been obtained bonding Kapton® film to steel and aluminum.

Typical Environmental Resistance

Lap-shear strength, ISO 4587
Steel (grit-blasted)

Heat Aging at 500ºF
Aged for time indicated, tested at 22ºC.

Exposure Time	Shear Strength, N/mm² (psi)
Initial strength	25.9 (3750)
1 Day	12.0 (1740)
2 Days	9.1 (1313)
4 Days	9.0 (1299)
8 Days	7.9 (1151)

Heat Aging at 550ºF
Aged for time indicated, tested at 22ºC.

Exposure Time	Shear Strength, N/mm² (psi)
Initial strength	25.9 (3750)
8 Hours	9.1(1320)
16 Hours	12.6 (1820)
24 Hours	9.8 (1416)
32 Hours	11.7 (1692)
48 Hours	13.0 (1890)

General Information

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Directions for use
Application

1. Clean bonding surfaces.
2. Coat with adhesive on surfaces. The dry film thickness should be 0.008 to 0.015 in. (0.20 to 0.38 mm), 0.025 to 0.045 in. wet (0.635 to 1.14 mm) depending on the coverage pattern used.

   Note: Humidity affects solvent evaporation rates. This can cause a drying problem during summer months. Normal drying cycles may require seasonal adjustments to provide adequate drying.
3. Former: Apply **Voice Coil Bonder 360** to the former surfaces to be bonded. Allow the adhesive to become “tack free” at room temperature for approximately 10 minutes (Warm air circulation will speed up the “tack free time”). Place the parts in an oven for 20 minutes at 82.3ºC. Afterwards, parts can be stored in a dry environment for future winding.

4. Wire: The wire manufacturer specifies the thickness of the insulation coating. As a general rule, the thickness of **Voice Coil Bonder 360** should be the same as the thickness of the wire insulation. Thinner wires would have a thinner insulation; therefore the **Voice Coil Bonder 360** coating would also be less. After applying the adhesive, run the wire for ± 30 seconds through the oven at 82.3ºC until it becomes tack free. Assure that the wire is not kept in the oven too long, otherwise cross-linking will occur. Test: If acetone or MEK is applied on the wire, it should get tacky again. If this does not happen, the exposure in the oven was too long and cross-linking already occurred. Afterwards the wire can be stored for future winding.
5. Reactivate **Voice Coil Bonder 360** on the wire and the former by passing it through a sponge saturated with acetone or MEK. The adhesive will get "tacky" again.
6. Wind the tacky coated wire on the former and place in the oven for 20 minutes at 82.3ºC, followed by 204ºC for 45 minutes to achieve cross-linking. Afterwards, allow relaxation and outgassing of the completed bobbin by final oven cure at 65ºC for 12 hours. This procedure will prevent blistering when high temperature is applied.
7. Heavier Gauge Wire increases the cross-linking in the oven.
8. Dilution: Voice Coil Bonder can be diluted as necessary to achieve the desired viscosity the percentage of dilution is as follows:

   - MEK – unlimited
   - Acetone – unlimited
   - Alcohol – Less than 25%

Curing

1. **Voice Coil Bonder 360** can be cured using an oven. Oven-type heating unit, whether infrared, gas or electric, should maintain even temperature and have adequate air circulation. Pressure jigs are used to force the gas and vapors out of the adhesive during bonding. If there is not enough pressure or full contact the bond will be weak and spongy.
2. A minimum cure cycle of 30 minutes at 400°F is recommended.
3. For fixturing purposes solvent reactivation may be possible by using acetone, MEK or butyl acetate. For some applications, this adhesive may be applied to one part only.

Clean up

Prior to cure, the adhesive can be removed with MEK. Work should be done in a well-ventilated area.

Following cure, the adhesive will be resistant to basically all solvents. The only practical means of cleaning a cured adhesive is with some type of abrasion.

Storage

Voice Coil Bonder 360 should be stored in a cool, dry location in unopened containers at a temperature between 40ºF to 60ºF (4ºC to 16ºC) unless otherwise labeled. Optimal storage is at the lower half of this temperature range. To prevent contamination of unused material, do not return any material to its original container.

Dispensing Equipment

Hernon® offers a complete line of semi and fully automated dispensing equipment. Contact **Hernon® Sales** for additional information.