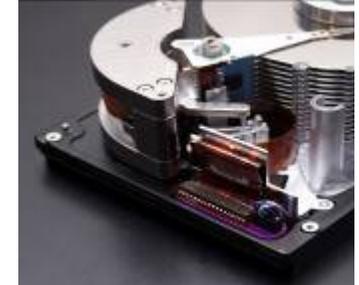
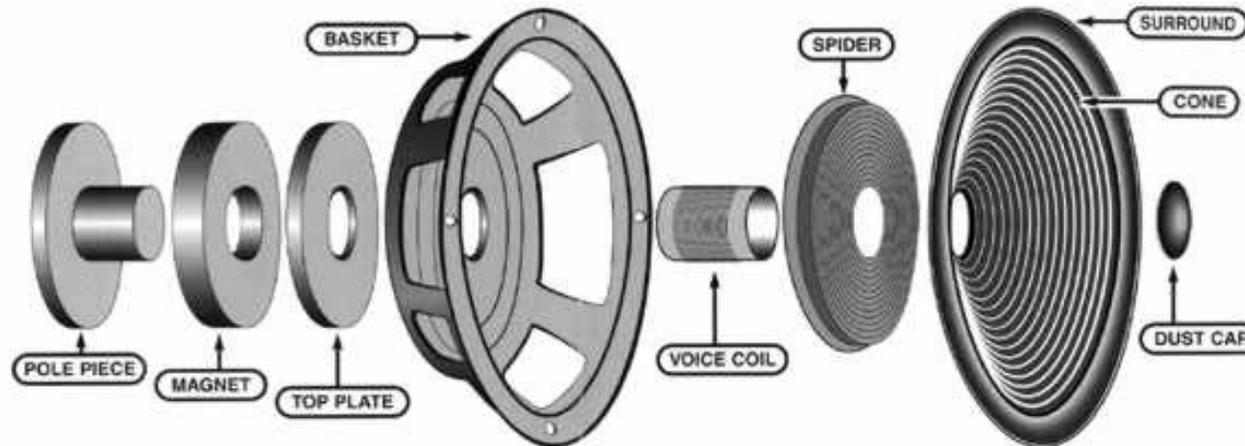
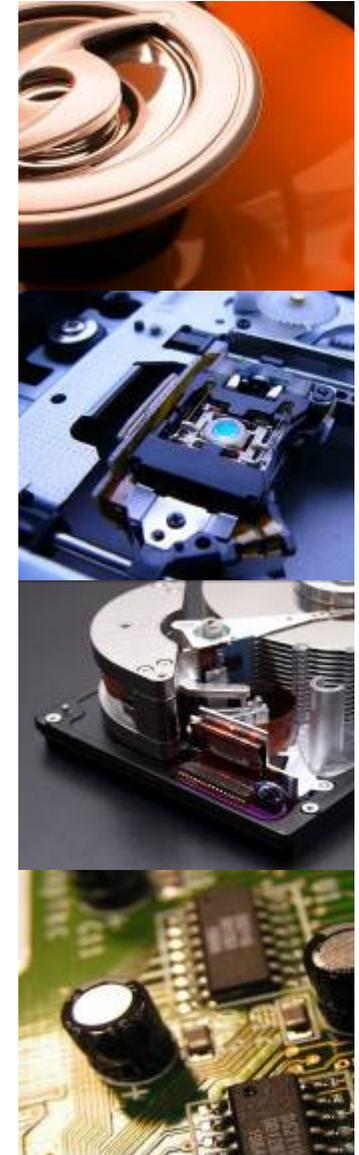
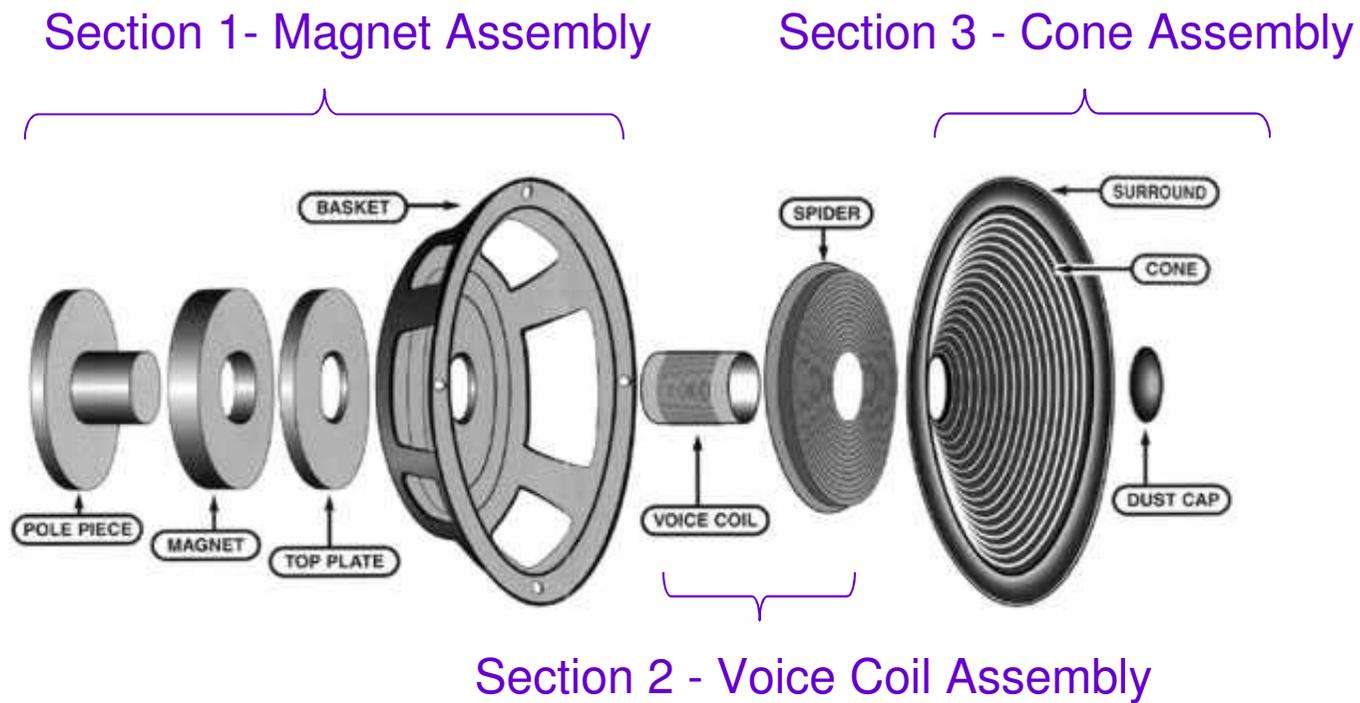


Fotopolymer solutions for acoustic speakers industry

Loud Speaker Assembly

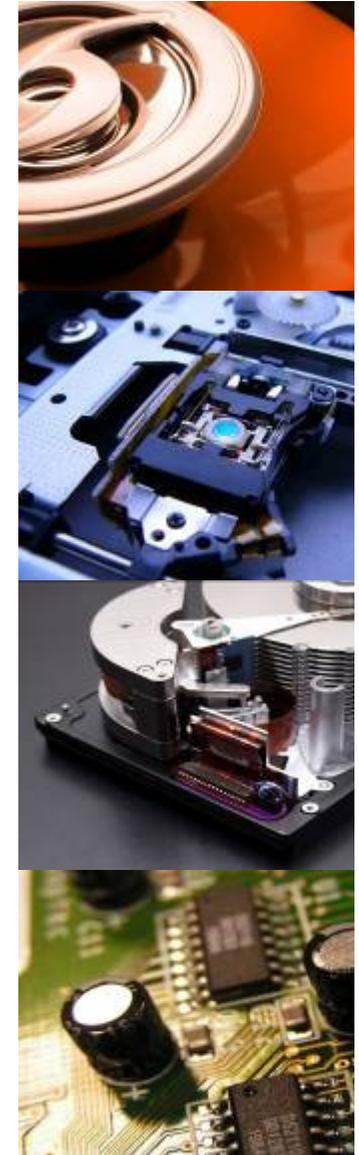
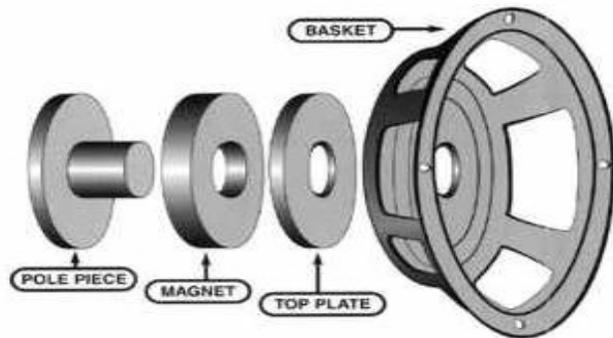


Typical Loud Speaker Assembly



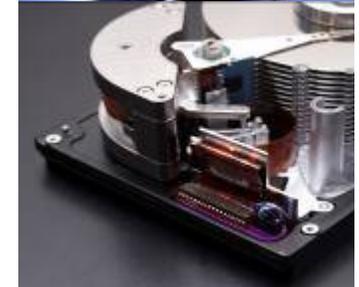
Section 1 - Magnet Assembly

- This section consists of the magnet and T-yoke assembly. The T yoke assembly include the pole piece or back plate and the top plate or washer.
- These parts are rigid, creating overlapping and close fitting bonding surfaces.
- **ENDURE** activator cure structural adhesives are best suited for such bonding.

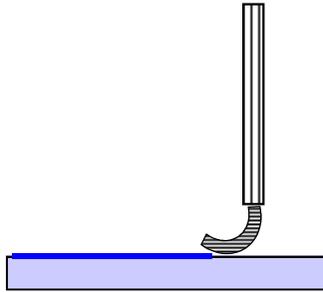


1. ENDURE series - Activator Cure Structural Adhesives

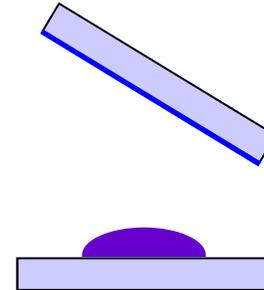
- Two component system consisting **ENDURE** structural adhesives and **START-UP** primers/activators
- Room temperature curing with no direct mixing required and no work life limitations
- Fast fixturing speed with functional strength in minutes
- Excellent shear, peel and impact strength
- High versatility with excellent bonding strength on a variety of materials
- Excellent chemical and environmental resistance



1. ENDURE series - Activator Cure Structural Adhesives

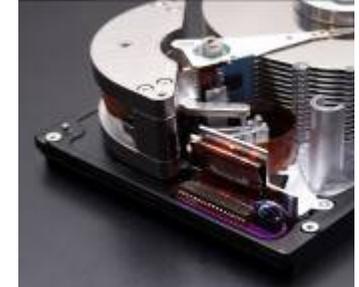


Apply primer/activator on first surface. Allow primer/activator to dry



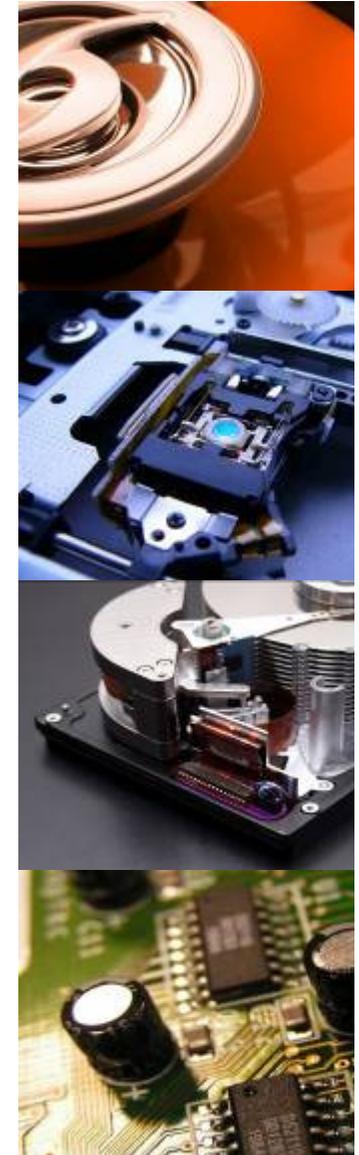
Apply adhesive on second surface. Adhesive starts curing when assembled with first surface.

- Simple and easy curing at room temperature without need for equipment and no pot life limitations
- Very fast fixturing speed for high production volumes
- Medium-high bonding strength
- Medium resistance to chemicals, moisture and temperature



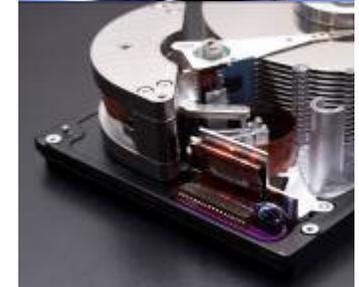
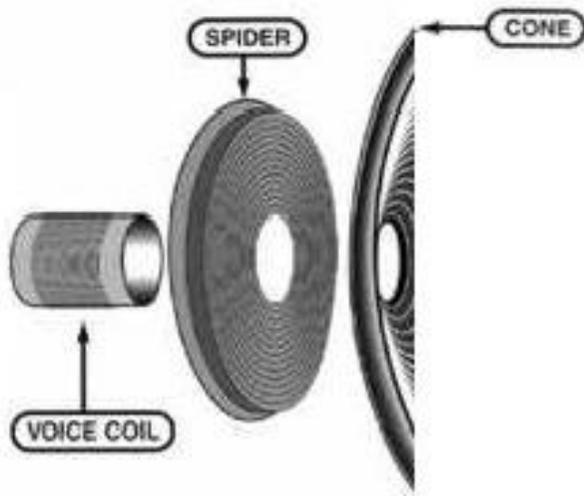
1. ENDURE series - Activator Cure Structural Adhesives

- **ENDURE ED-4218:** Very fast fixturing speed. High bonding strength.
- **ENDURE ED-4418:** Very fast fixturing speed. High bonding strength. High impact strength. For plated or passive surfaces
- **START-UP PRIMER SU-54:** Long on-part life
- **START-UP ACTIVATOR SU-73:** High bonding strength
- **START-UP PRIMER SU-51:** Non DG, Immediate priming.



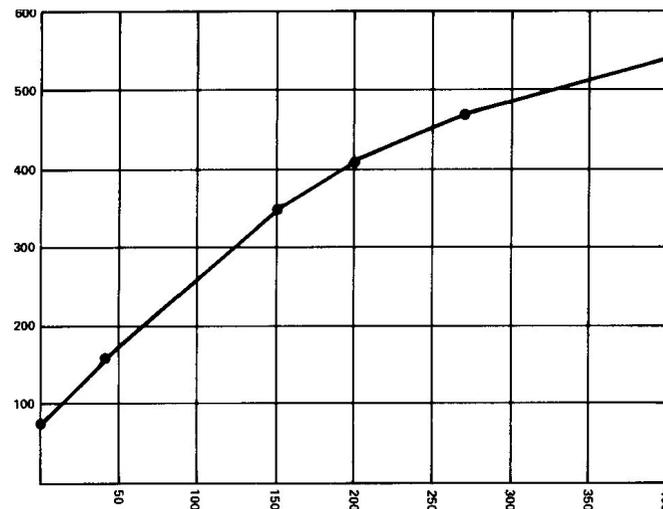
Section 2 - Voice Coil Assembly

- This section consists of the voice coil, spider and cone.
- This is the most critical section in the speaker assembly with two main applications. First application is the tacking of voice coil, spider and cone. Second application is the coating of voice coil windings.
- The voice coil generated acoustic vibrations according to the load input. However, extremely high heat and displacement are also generated by the load input. Therefore, the assembly need to withstand the main stresses.
- Thermal stress generated by the high power input on windings of voice coil.
- Dynamic stresses created from rapid vibration and large displacement of the voice coil.

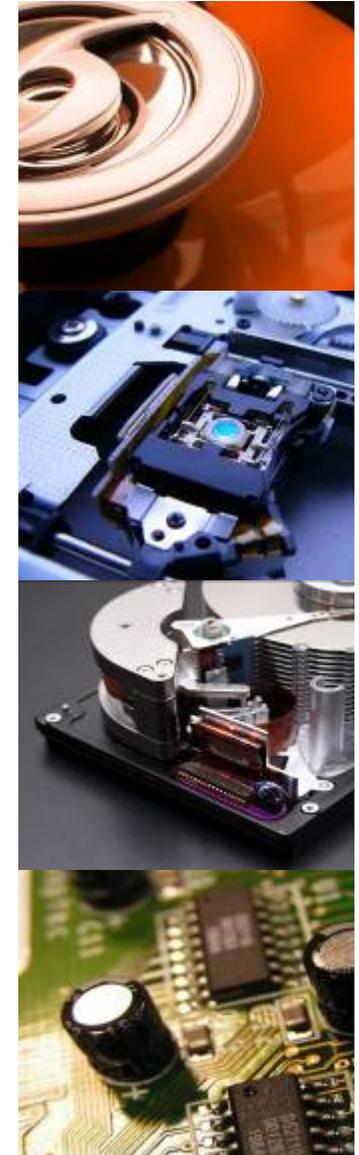


Section 2 - Voice Coil Assembly

- A 200 W speaker can generate a temperature rise of 204 °C at the voice coil. See chart below. **ENSURE** heat cure structure adhesives are recommended when high temperature resistance is required.
- **SECURE** UV cure structural adhesives are also suitable if high temperature resistance is not required. They also are suited for masking or dressing of lead wires from coils of small drivers to terminals.

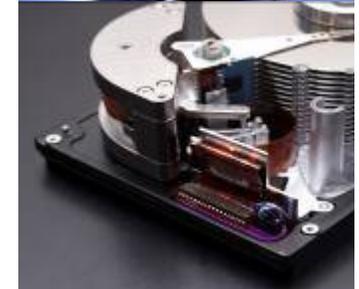


Temperature Rise in the voicecoil (°F) vs Watts of Loudspeaker (in EIA Spectrum)

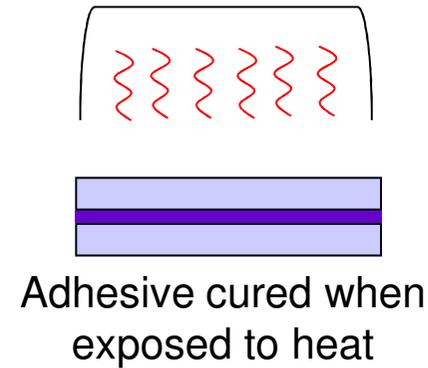
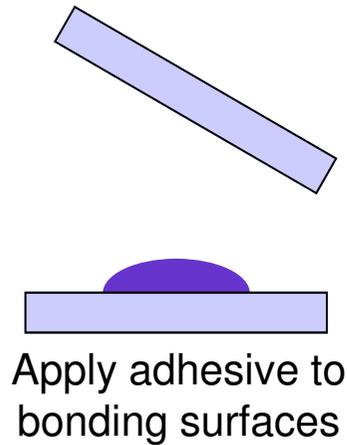


2.1. ENSURE series - Heat Cure Structural Adhesives

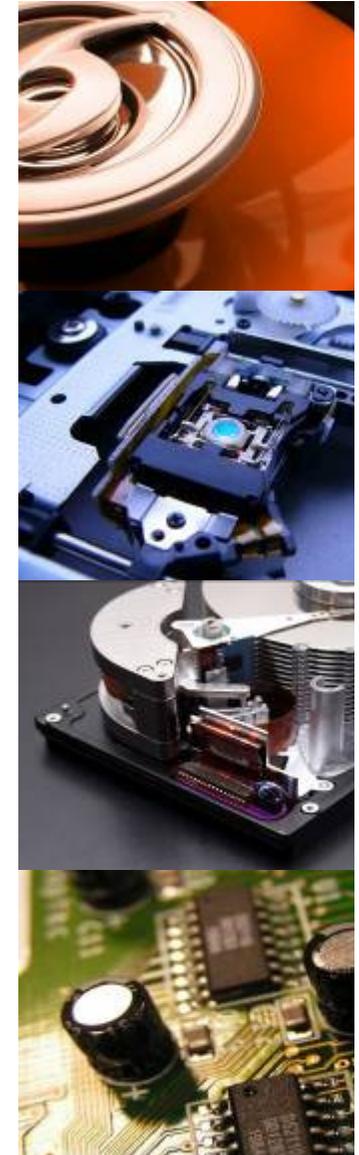
- Single component for easy dispensing
- Responsive and consistent curing enables assembly of components with varying bonding depth and with shaded bonding areas
- Excellent structural strength for structural reliability during service
- Excellent dimensional stability and low shrinkage for protection at high temperatures and against thermal cycling
- Excellent resistance to moisture and temperature



2.1. ENSURE series - Heat Cure Structural Adhesives

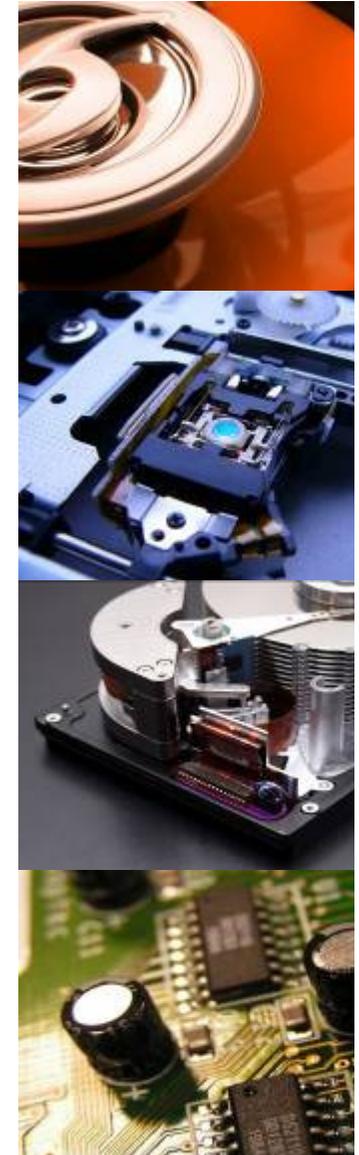


- Very high bonding strength on Kapton polyimide substrates
- Very high temperature resistance



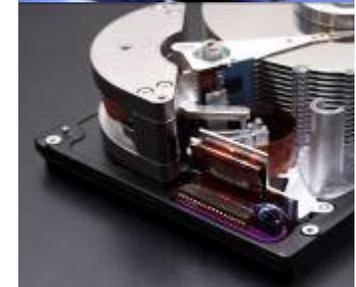
2.1. ENSURE series - Heat Cure Structural Adhesives

- **ENSURE EN-8361:** 130⁰C, 30 minutes curing. For voice coil, spider and cone tacking. Temperature resistance up to 200⁰C
- **ENSURE EN-8364:** 130⁰C, 30 minutes curing. For voice coil, spider and cone tacking. High bonding strength on Kapton polyimide film. Temperature resistance up to 200⁰C
- **ENSURE EN-8367:** For voice coil coating. Temperature resistance up to 250⁰C

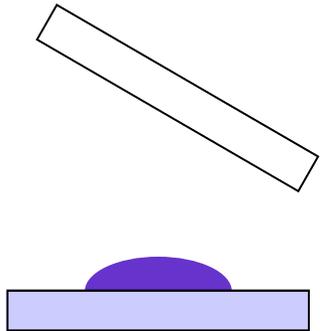


2.2. SECURE series - UV Cure Structural Adhesives

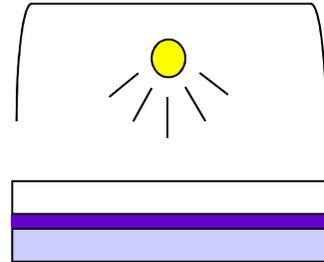
- Single component for easy dispensing with no mixing required
- Room temperature curing with no work life limitation
- Instant fixturing with functional strength in seconds
- Cure on demand capability allows automated assembly and increases production throughput
- Excellent toughen flexibility for high placement of substrates and temperature resistance.



2.2. SECURE series - UV Cure Structural Adhesives

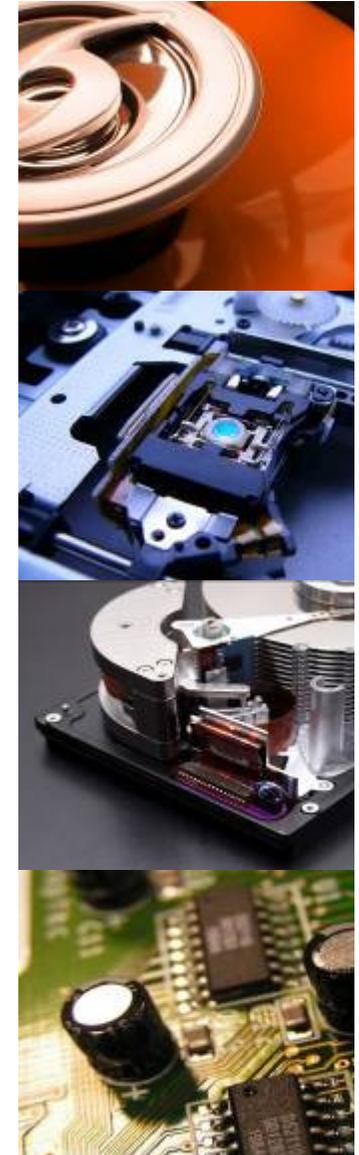


Adhesive must be exposed to light source



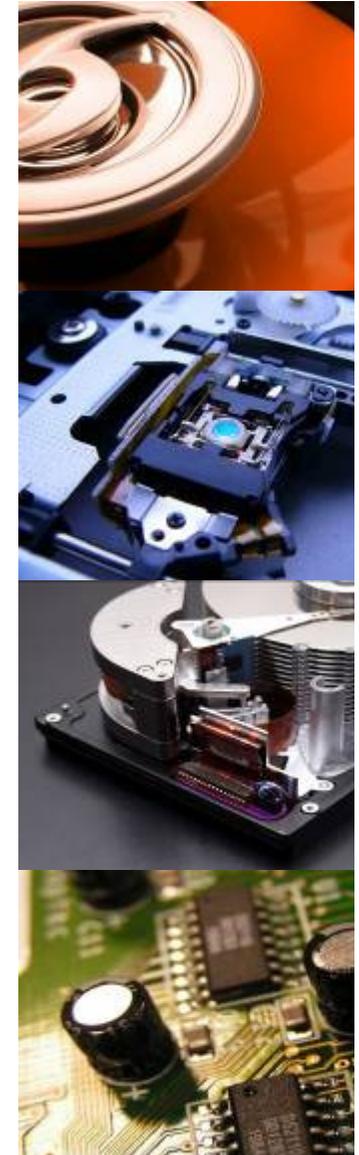
Adhesive cured when exposed to UV light

- Instant cure on demand capability
- Very high bonding strength
- High flexibility



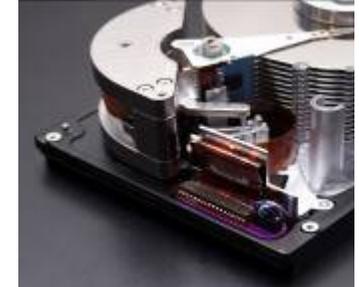
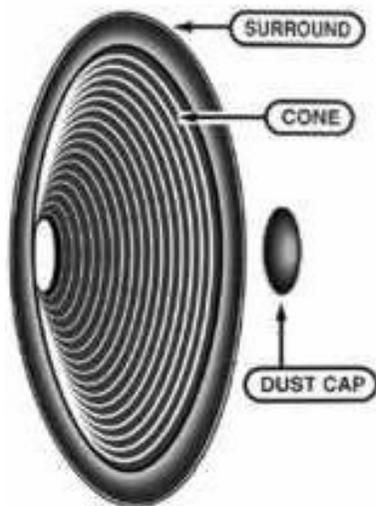
2.2. SECURE series - UV Cure Structural Adhesives

- **SECURE SE-8173:** High strength and rigidity. Fast fixturing and fast tack free surface cure. For termination of lead wires.
- **SECURE SE-8143:** Fast fixturing. High toughen flexibility. For termination of lead wires.
- **SECURE SE-8273:** High temperature resistance. High peel strength. For tacking of voice coil and spider.



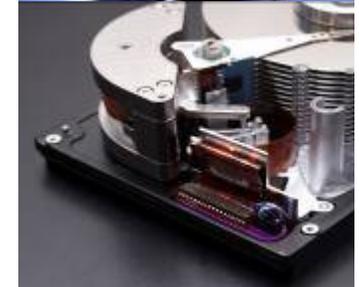
Section 3 - Cone Assembly

- This section consists of surround, frame, cone, dust cap and gasket.
- These parts used a variety of material from paper, felt, rubbers, thermoplastics to foam based materials. Some materials used attributed in flexible and porous bonding surfaces.
- The bonding areas for this section are long and wide.
- Therefore, fast fixturing adhesives such as **INSTANT** series that developed high bonding strength on a variety of substrates with minimal amount applied is preferred.

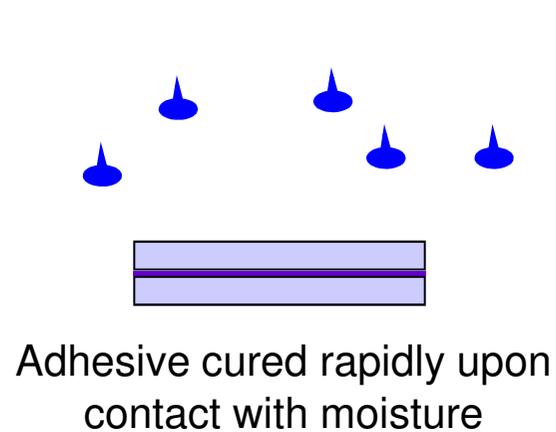
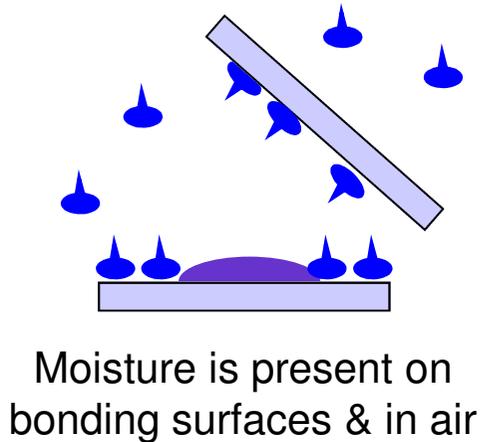


3. INSTANT series - Cyanoacrylate Adhesives

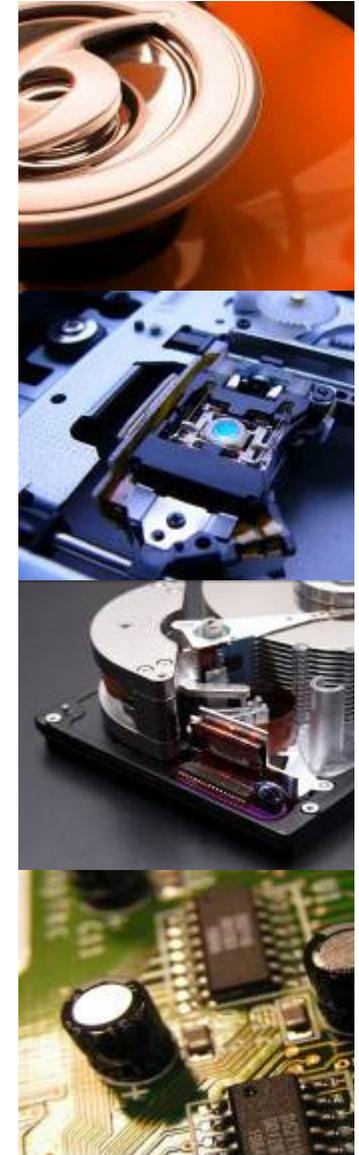
- Single component for easy dispensing with no mixing required
- Room temperature curing with no work life limitations
- Instant fixturing with functional strength in seconds
- Wide range of viscosity for bonding different bonding surfaces and assemblies
- High bonding strength on a variety of materials



3. INSTANT series - Cyanoacrylate Adhesives

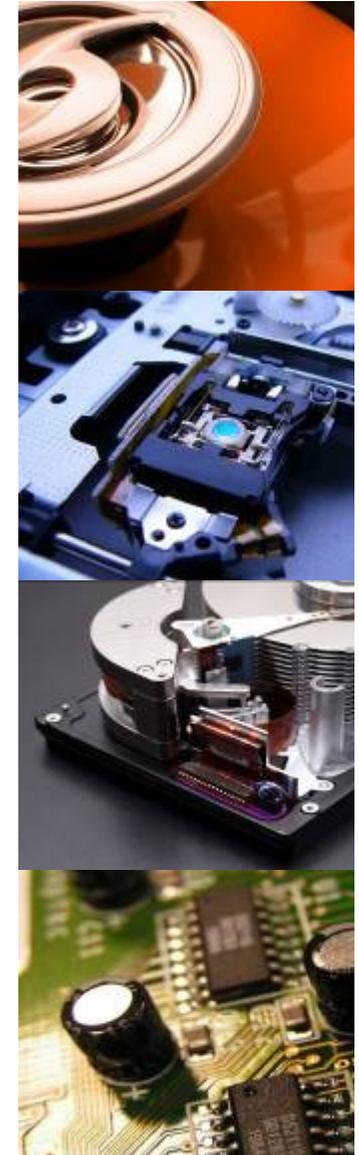


- **INSTANT** adhesives are sprayed with **SPEED-UP** accelerator to shorten fixturing time and reduce blooming.
- Full cure speed can be obtained faster than solvent cure or mix cure adhesives
- Very high bonding strength with minimal usage of adhesives as compared solvent or mix cure adhesives



3. INSTANT series - Cyanoacrylate Adhesives

- **INSTANT IN-AS-100:** General purpose bonding. Can fixtures in 10 seconds with SPEED-UP Accelerator SU-63.
- **INSTANT IN-TF-400:** High peel & impact strength. Can fixtures in 10 seconds with SPEED-UP Accelerator SU-63.
- **INSTANT IN-TF-4000:** High peel & impact strength. Can fixtures in 10 seconds with SPEED-UP Accelerator SU-63.
- **INSTANT IN-AS-GEL:** Non slag paste for porous surfaces or large gap fill.
- **SPEED-UP SU-63:** Speed up the curing of **INSTANT** adhesives. Heptane based. Suited for most rubber surrounds
- **START-UP SU-61:** Improve the adhesion of **INSTANT** adhesives on thermoplastic surrounds.





Fotopolymer Pte Ltd
211 Woodlands Avenue 9,
#07-84, Woodlands Spectrum II
Singapore 738960

+65 6756 2082 tel

+65 6756 2081 fax

enquiry@fotopolymer.com

www.fotopolymer.com

