

CUSTOM ENGINEERED PROTECTION FOR ADVANCED ELECTRONICS

KOHESI BOND POTTING & ENCAPSULATION COMPOUNDS


KOHESI BOND
Custom Engineered Adhesives



What is Potting & Encapsulation?

Potting and encapsulation are manufacturing processes where a liquid resin is poured over an electronic assembly to fully embed the printed circuit board (PCB) with its components in a protective shell.

Potting specifically refers to a process where the electronic assembly is placed inside a housing or a case or a "pot," which is then filled with the liquid resin. This pot remains as part of the finished component.

Encapsulation, is a process where the complete electronic assembly is coated with a thick layer of resin, potentially by dipping it into a mold, and the mold is subsequently removed. Alternatively, an epoxy encapsulant can be directly poured onto individual components for encapsulation.

These processes are critical for safeguarding sensitive electronic components from a multitude of threats that can lead to premature failure and compromise system reliability:

- **Moisture & Humidity:** Preventing corrosion and electrical shorts.
- **Thermal Shock & Cycling:** Reducing stress caused by temperature fluctuations.
- **Vibration & Mechanical Impact:** Enhancing structural integrity under dynamic conditions.
- **Chemical Exposure:** Resisting degradation from harsh substances and solvents.
- **Dust & Contamination:** Maintaining clean, reliable operation in critical applications.



Superior Adhesion



Excellent Chemical
Resistance



High-temperature
Resistance



Robust Mechanical
Strength



Superb Moisture
Resistance



High Dielectric
Properties

Why Choose Kohesi Bond Potting & Encapsulation Compounds?

Kohesi Bond's potting compounds exhibit a range of outstanding characteristics that make them a preferred choice for protecting sensitive electronic assemblies:

- ✔ **Superior Adhesion:** Our advanced potting compounds are renowned for their exceptional ability to adhere strongly to a wide variety of substrates commonly encountered in electronic assemblies. These include metals such as aluminum, copper, and steel; ceramics and glass; and many types of plastics.
- ✔ **High-Temperature Resistance:** Our potting compounds are designed to excel in high-temperature environments, protecting electronic devices that generate significant heat or operate in hot ambient conditions. Some of our specialized high-temperature formulations can reliably withstand continuous temperatures of 180°C, 200°C, or even higher.
- ✔ **Excellent Chemical & Moisture Resistance:** Our superior potting compounds offer exceptional resistance to a wide range of chemicals, including solvents, oils, fuels, acids, and bases. They also create a durable, impermeable barrier against moisture, high humidity, and even direct water immersion. This protects sensitive electronic components from chemical attack, degradation, and corrosion, ensuring their longevity and performance in harsh industrial applications.
- ✔ **Robust Mechanical Strength:** Our potting compounds are renowned for their exceptional mechanical strength and rigidity. They provide robust structural support to encapsulated components and assemblies, protecting delicate solder joints, fragile wire bonds, and sensitive parts from physical damage due to shock, vibration, or direct impact.
- ✔ **High Dielectric Properties:** Our potting compounds are excellent electrical insulators, boasting high dielectric strength and volume resistivity. These properties are crucial for preventing short circuits, electrical arcing (even in high-voltage applications), and unwanted electrical interference within electronic assemblies.

Thermally Conductive Potting Compounds



High-power electronic components and densely packed circuits generate significant heat, leading to performance degradation and reduced lifespan if not managed.

Kohesi Bond's thermally conductive potting compounds efficiently transfer this heat away from sensitive electronics to a heat sink or the environment. This ensures stable operating temperatures, enhancing reliability and longevity. Our custom formulations offer thermal conductivity from 0.8 W/m·K to 3.0 W/m·K and beyond.

Why Thermal Conductivity Matters:

- **Prevent Overheating:** High operating temperatures can cause components to fail, leading to costly repairs or replacements.
- **Extend Component Lifespan:** By maintaining optimal temperatures, thermally conductive potting compounds reduce thermal stress on delicate parts.
- **Improve Performance:** Components operate more efficiently and reliably within their specified temperature ranges, preventing thermal throttling.
- **Enable Miniaturization:** Effective heat dissipation allows for denser component packing, facilitating smaller and more powerful designs.
- **Enhance Safety:** Prevents thermal runaway in high-power applications, reducing fire risks.

Flame Retardant Potting Compounds

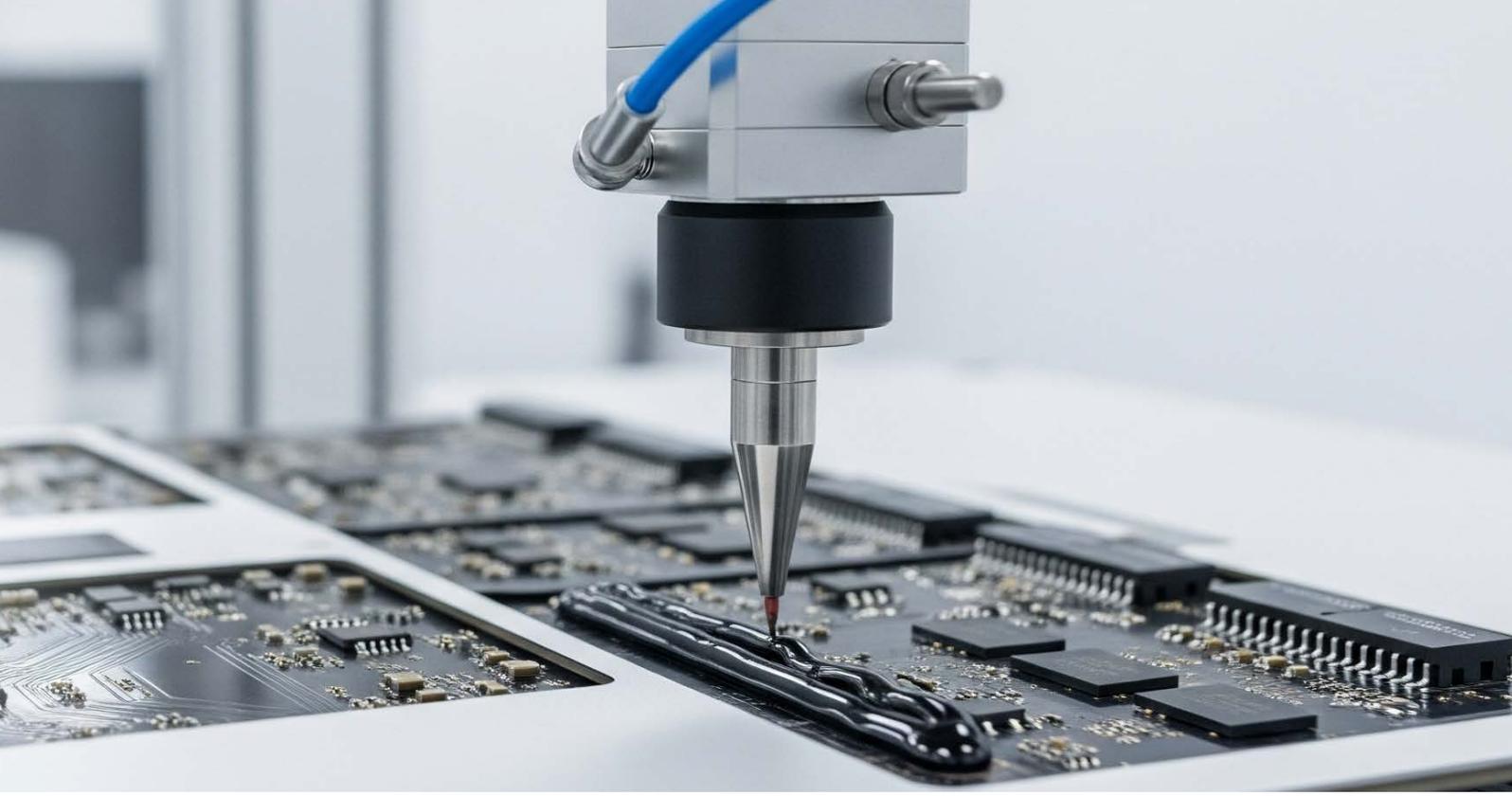
Ensuring the safety and compliance of electronic devices is paramount. In environments where there's a risk of ignition or fire propagation, flame retardant potting compounds are indispensable. These specialized formulations are engineered to inhibit the spread of fire, protecting both the electronic assembly and the surrounding environment.

Kohesi Bond's non-halogenated flame retardant potting compounds are designed to meet stringent safety standards, providing an essential layer of protection for critical electronic applications.



Why Flame Retardancy is Critical:

- **Enhanced Safety:** Prevents fire initiation and propagation, protecting users and property.
- **Regulatory Compliance:** Essential for meeting international safety standards like UL94.
- **Reduced Damage:** Minimizes the extent of damage in the event of a fire, potentially preserving other components or systems.
- **Increased Reliability:** Contributes to the overall robustness and safety profile of the electronic device.



Engineered for Excellence. Trusted for Performance.

Kohesi Bond's first-rate potting compounds are ideal for a diverse range of demanding industrial applications, including:

Electronics

- Power Supplies & Converters
- Sensors (Industrial, IoT)
- Relays & Solenoids
- Printed Circuit Board (PCB) Assembly
- Connectors & Cable Assemblies

Aerospace & Defense

- Avionics & Flight Control Systems
- Radar & Communication Systems
- Missile & Satellite Components
- UAV (Drone) Electronics

Oil & Gas

- Downhole Sensors & Logging Tools
- Pipeline Monitoring Systems
- Explosion-Proof Enclosures
- Flow Meters & Actuators

Medical

- Implantable Devices
- Diagnostic Equipment
- Surgical Tools (Handheld/Robotic)
- Wearable Medical Devices

Automotive

- Electronic Control Units (ECUs)
- Sensors (e.g., ABS, Oxygen, Pressure)
- LED Lighting Modules
- ADAS (Advanced Driver-Assistance Systems)
- Ignition Coils & Transformers

EV Battery

- Battery Management Systems (BMS)
- Battery Modules & Packs
- On-Board Chargers & Inverters
- High-Voltage Connectors

Optical

- Industrial Controls & PLCs
- Photovoltaic (Solar) Components
- Optical Sensors & Detectors
- Fiber Optic Connectors

OEM

- LED Encapsulation (Lighting & Displays)
- Appliance Electronics
- Smart Meters & Utility Devices
- Power Tools & Outdoor Equipment

Kohesi Bond Selector Guide for Potting & Encapsulation

Kohesi Bond Product	Number of Components	Property Highlight	Serviceable Temperature	Shore Hardness	Thermal Conductivity	Flame Retardancy
GENERAL POTTING COMPOUNDS						
KB 10230	Two	Low Exotherm	-65°C to +150°C	> 70 Shore D	-	-
KB 1031 LV (S)	Two	Excellent Flow	-55°C to +120°C	> 70 Shore D	-	-
KB 1040	Two	Excellent Flow	-50°C to +120°C	> 75 Shore D	-	-
KB 1040-2	Two	Superior Strength	4K to +150°C	> 75 Shore D	-	-
KB 10473 FL	Two	High Flexibility	4K to +120°C	25-35 Shore D	-	-
KB 1048	Two	Chemical Resistant	-50°C to +120°C	> 80 Shore D	-	-
KB 1048 FL	Two	High Flexibility	-73°C to +120°C	60-70 Shore A	-	-
KB 1061 F	Two	Snap Curing	4K to +120°C	> 70 Shore D	-	-
KB 1151 S-1	Two	Solvent Resistant	-50°C to +150°C	> 75 Shore D	-	-
KB 1427 HT	Two	Very High Tg	-60°C to +340°C	> 80 Shore D	-	-
KB 1452 LV	Two	High Tg	-50°C to +200°C	> 75 Shore D	-	-
KB 1820 FC	One	Fast Curing	-70°C to +200°C	> 80 Shore D	-	-
KB 2832 PI	One	Very High Tg	-60°C to +450°C	> 70 Shore D	-	-
TUF 1452 HT-2	Two	High Toughness	-60°C to +220°C	> 70 Shore D	-	-
TUF 1613 HT-GT	One	Glob Top	-70°C to +200°C	> 75 Shore D	-	-
THERMALLY CONDUCTIVE POTTING COMPOUNDS						
KB 1030 AOLV	Two	Excellent Flow	-65°C to +150°C	> 75 Shore D	√	-
KB 1039 CRLP-AO	Two	High Strength	4K to +135°C	> 75 Shore D	√	-
KB 1040 AN-1	Two	High Thermal Cond.	-50°C to +120°C	> 85 Shore D	√	-
KB 1040 AO	Two	High Strength	-50°C to +120°C	> 80 Shore D	√	-
KB 1040 CTE-LO	Two	Low CTE	4K to +120°C	> 85 Shore D	√	-
KB 10473 FLAO	Two	High Flexibility	4K to +120°C	35-45 Shore D	√	-
KB 1048 FLAO	Two	High Flexibility	-73°C to +120°C	> 30 Shore D	√	-
KB 1061 FAO	Two	Snap Curing	4K to +120°C	> 70 Shore D	√	-
KB 1452 HT-2AOLV	Two	High Tg	-70°C to +200°C	> 80 Shore D	√	-
TUF 1040 AOHT	Two	High Toughness	-50°C to +120°C	> 85 Shore D	√	-
FLAME RETARDANT POTTING COMPOUNDS						
KB 10230 TFR	Two	Excellent Flow	-65°C to +150°C	> 70 Shore D	√	√
KB 1031 LV-TFR	Two	High Strength	-55°C to +120°C	> 70 Shore D	√	√
KB 1040 LV-1TFR	Two	High Strength	-50°C to +120°C	> 75 Shore D	√	√
KB 10473 TFR	Two	High Flexibility	4K to +120°C	> 20 Shore D	√	√
KB 1452 LV-TFR	Two	High Tg	-70°C to +200°C	> 80 Shore D	√	√

Tg = Glass Transition Temperature CTE = Coefficient of Thermal Expansion

Unleash the power of Custom Engineered

POTTING & ENCAPSULATION COMPOUNDS

Kohesi Bond's cutting-edge potting and encapsulation compounds provide superior protection for sensitive electronic and PCB components, ensuring exceptional reliability and longevity in demanding environments. Our advanced formulations shield against moisture, thermal shock, mechanical stress, and harsh chemicals, safeguarding critical electronics from failure. Engineered for precision and durability, our solutions enhance performance while extending the operational lifespan of your devices. Backed by rigorous quality standards and a commitment to innovation, Kohesi Bond delivers high-performance solutions tailored to meet the stringent demands of modern industries. Elevate the reliability of your electronics with Kohesi Bond's industry-leading potting and encapsulation solutions.

Contact us today to find the perfect solution for your application!





**Shaping the Future of
Electronic Protection**



Speak to our Experts!

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