ALUMINUM BOAT LEAK SEALER

- Two-part, thixotropic epoxy adhesive
- Cured leak sealer flexes to prevent recurring leaks caused by stresses on the boat
- Waterproof leak sealer provides fast, simple repairs to leaking aluminum boat rivets and seams
- Extra tolerant to dynamic stresses from contraction, expansion, vibration, and shock
- Each cartridge comes with two static mixing tips
- Comes in a 250ml cartridge that fits most standard caulk guns

TotalBoat Aluminum Boat Leak Sealer repairs leaking rivets, cracks, and seams on aluminum boats. This two-part epoxy sealer comes in a convenient cartridge with a mixing tip that dispenses the exact 1:1 ratio with no measuring, mixing, or mess. Cured resin flexes to prevent recurring leaks. Works on properly prepared aluminum surfaces.

CLEANER/SURFACE PREPARATION: Acetone, denatured alcohol, TotalBoat Eco Solvent

CLEANUP: Denatured alcohol or acetone. Once cured, it must be removed mechanically.

THINNER/REDUCER: Do not thin Aluminum Boat Leak Sealer.

MOLD RELEASE AGENTS: Mold release paste wax, aerosol mold release agents.

PRIMER: No primers are necessary; etching with TotalBoat Aluminum Boat Etch Wash is highly recommended on bare aluminum substrates.

APPLICATIONS: Bonding, structural epoxy adhesive, filleting, small gap filling, bonds where dynamic stresses are present, adhesive for substrates that are generally tough to bond.

ACCEPTABLE SUBSTRATES: Aluminum, fiberglass, epoxy, wood, properly prepared metals

CAULK GUN (REQUIRED FOR USE): 250ml cartridges fit most standard caulk guns that allow for an offset nozzle. Guns that only have a small, centered hole for the nozzle will not work. An 8:1 mechanical advantage, or higher is strongly recommended.

SAFETY AND PERSONAL PROTECTIVE EQUIPMENT:

Always use proper safety equipment, clothing, and PPE in accordance with the Safety Data Sheet for TotalBoat Aluminum Boat Leak Sealer.

EXOTHERMIC REACTION!

The cure of TotalBoat Aluminum Boat Leak Sealer is an exothermic reaction and will generate heat. Though Aluminum Boat Leak Sealer is generally applied in thin films or smaller applications, it is not uncommon for a larger mass of mixed Aluminum Boat Leak Sealer to reach 200°F or higher during the cure cycle.

SURFACE PREPARATION:

All surfaces need to be free of any potential contaminants. Surface contamination will reduce, or compromise Aluminum Boat Leak Sealer's bond strength to any substrate. If any surfaces are to be sanded before applying Aluminum Boat Leak Sealer, always remove all surface contaminants prior to sanding or abrading the surface. Contaminants can include dust, dirt, grease, moisture, water, oil, or wax. Though Aluminum Boat Leak Sealer will bond under high humidity conditions and to damp materials, the strongest bonds occur when the humidity level is low and all substrates are dry, with low moisture content.

- **IMPORTANT!** Only use clean cotton rags for surface preparation. Synthetic rags can leave a film of contamination if they come in contact with some solvents.

ALUMINUM:

- Remove all surface contamination by wiping the surface with a clean cotton rag dampened with one of the surface preparation solvents. Allow the surface to dry completely.
- The aluminum surface should either be abraded with 80-grit sandpaper or a grinder immediately before bonding, or etched with TotalBoat Aluminum Boat Etch Wash, as directed.
- If the surface is abraded, remove all sanding residue and wipe the surface clean with one of the specified solvent wipes, then allow to dry before bonding.
- If the surface is to be etched, ensure that the surface has dried completely before applying Aluminum Boat Leak Sealer.
- Apply Aluminum Boat Leak Sealer within 1 hour of the surface preparation.

FIBERGLASS:

- Fiberglass substrates (commonly composed of polyester resin-saturated fiberglass) may have wax or amine blush on the surface, depending on the resin system used, and application methods.
- Any amine blush needs to be removed with fresh, warm water and a mild soap.
- Dry the surface completely. Any waxes need to be completely removed with a dewaxing product.

- After the surface has been cleaned of all potential surface contamination, grind the surface, or abrade it with 80-grit (or coarser) sandpaper and remove all sanding residue. Then wipe with a clean cotton rag dampened with one of the specified surface preparation solvents. This will provide a rough surface for Aluminum Boat Leak Sealer to achieve the best mechanical bond.
- Allow the surface to dry completely before applying Aluminum Boat Leak Sealer.

EPOXY:

- The cure of epoxy materials can create an amine blush on the surface of the cured material, even if the epoxy being used is considered 'non-blushing'.
- Remove any potential amine blush by washing the surface with fresh, warm water and a mild soap. Dry the surface completely.
- Wipe the surface with a clean, dry cotton rag dampened with one of the specified surface preparation solvents.
- After the surface has been cleaned of all potential surface contamination, grind the surface, or abrade it with 80-grit (or coarser) sandpaper and remove all sanding residue. Then wipe with a clean cotton rag dampened with one of the specified surface preparation solvents. This will provide a rough surface for Aluminum Boat Leak Sealer to achieve the best mechanical bond.
- Allow the surface to dry completely before applying Aluminum Boat Leak Sealer.

WOOD:

- Remove all surface contamination by wiping the surface with a clean rag dampened with one of the surface preparation solvents.
- Oily hardwoods and white oak should be wiped with acetone if possible, during the surface preparation steps.
- Allow any solvents to evaporate completely.
- Abrade the area of the wood that is to be bonded with 80-grit (or coarser) sandpaper.
- Remove all sanding residue and wipe the surface clean using one of the specified solvent wipes.
- Allow the surface to dry completely before applying Aluminum Boat Leak Sealer.

OTHER METALS:

Steel/Iron:

- Remove all surface contamination by wiping the surface with a clean rag dampened with one of the surface preparation solvents.
- Grind or sand the surface with 80-grit or coarser sandpaper, leaving it shiny and rough. Remove all sanding residue and wipe the surface again with a clean cotton rag dampened with the surface preparation solvent.
- Applying TotalBoat Rust Primer, as directed, is recommended, but not required. It will help to prevent further development of rust and optimize the bond.
- Allow the surface to dry completely before applying Aluminum Boat Leak Sealer.

Stainless Steel:

- Remove all surface contamination by wiping the surface with a clean cotton rag dampened with one of the surface preparation solvents. Allow the surface to dry completely.
- Grinding or sanding the surface that will be bonded with Aluminum Boat Leak Sealer with 80-grit (or coarser) sandpaper can help maximize the bond strength. If the surface is abraded, remove all sanding residue and wipe the surface with a clean cotton rag dampened with the surface preparation solvent.
- Allow the surface to dry completely before applying Aluminum Boat Leak Sealer.

Lead: SAFETY ALERT! Always take extreme care and use the required Personal Protective Equipment when working with lead.

- Remove all surface contamination by wiping the surface with a clean rag dampened with one of the surface preparation solvents.
- Grind or sand the surface with 80-grit or coarser sandpaper, leaving it shiny and rough.
- Work quickly, and only do a small area at a time, because lead oxidizes very quickly and will turn dull in just minutes, leaving a poor surface for bonding. Remove any sanding residue and wipe the surface clean again with the surface prep solvent.
- Allow the solvent to evaporate and apply Aluminum Boat Leak Sealer immediately. If Aluminum Boat Leak Sealer is not applied within a few minutes, repeat the surface preparation.

APPLICATIONS:

Sealing Leaky Seams/Rivets on Aluminum: When sealing leaky seams or rivets, the surface where the repair is should be dry, and the surface preparation should extend 1" around all repair areas. Once the surface preparation is complete, apply a thin film of Aluminum Boat Leak Sealer around the repair area, working it in and around any rivets or seams. Smooth the epoxy as desired, ensuring a thin, even distribution of the epoxy across the prepared metal area. Once cured, it can be sanded or painted, if desired. Allow to cure a minimum of 24-48 hours, at normal curing temperatures, before use or submersion.

Adhesive/Bonding: Aluminum Boat Leak Sealer's strength, flexibility, and thixotropic properties make it an extremely dynamic adhesive for a wide variety of bonding applications

and substrates. Aluminum Boat Leak Sealer forms a waterproof bond and is safe to use below the waterline or for structural applications, when the cured physical properties of Aluminum Boat Leak Sealer are adequate.

Gap Filling: Aluminum Boat Leak Sealer can be used as an epoxy gap-filling material for gaps up to ½" in thickness. For any gaps wider than ½", apply Aluminum Boat Leak Sealer in layers, allowing the epoxy to become firm but slightly tacky with each coat, before applying the next one, or allow it to cure completely, sand the surface, and apply the next coat.

DISPENSING & MIXING:

Application Conditions: TotalBoat Aluminum Boat Leak Sealer should only be dispensed when the ambient temperature, temperature of the epoxy itself, and the temperature of the substrate being bonded, are above 40°F. For optimal bond strength, the relative humidity should not exceed 90% for the first 24 hours of the cure process. Curing Aluminum Boat Leak Sealer outside of these conditions may slow the rate of cure, or compromise some physical properties of the cured epoxy.

Warming the Cartridge: In cooler ambient conditions below 65°F, it is recommended to warm the cartridge to 75-90°F before use, as the liquid components in the cartridge can become very thick and difficult to dispense easily. Caulk guns with 8:1 or 10:1 mechanical advantage may not provide enough force to easily dispense Aluminum Boat Leak Sealer under cool conditions, without warming the cartridge first.

Caulk Gun:

Use an appropriate caulk gun to dispense Aluminum Boat Leak Sealer. For ease of application, ensure that the caulk gun meets the minimum recommended mechanical advantage. The caulk gun must allow for the tip to be offset of the center of the cartridge.

Mix Ratio:

The mix ratio of Aluminum Boat Leak Sealer is 1:1 (resin:hardener). Aluminum Boat Leak Sealer cartridges are constructed with the internal mechanics to automatically dispense at the rate of 1 part resin for every 1 part of hardener.

Static Mixing Tips:

- Aluminum Boat Leak Sealer can be dispensed with or without the static mixing tip threaded on the cartridge. The static mixing tip blends the two components as they come out of the cartridge, ensuring that the bead of epoxy that is dispensed from the tip is completely mixed and ready for use.
- The tip of the static mixing tip can be trimmed to the desired diameter.
- Unscrew the threaded cap, remove the plug from the Aluminum Boat Leak Sealer cartridge, and thread on a new static mixing tip.
- Dispense 3-4" of bead as WASTE MATERIAL. DO NOT use the first few inches, as it may be resin or hardener rich.
- After use, do not attempt to clean or reuse static mixing tips.
- Allow the epoxy to cure in the tip, on the cartridge. Simply replace the static mixing tip when the cartridge is used the next time.

Dispensing Without a Static Mixing Tip:

- Remove the threaded cap.
- It is strongly advised to use a marker or some other method to indicate the orientation of the plug if it is to be put back on the cartridge later.
- Ensure that the epoxy is mixed thoroughly, until it has an even color and texture.

CURING:

Cure rates are dictated by the ambient temperature, the temperature of the substrate, and the mass of epoxy that was applied. The gel time of Aluminum Boat Leak Sealer in a thin bead or film is roughly 50 minutes at 77°F; it can be sanded, or used for light-duty applications, in roughly 24 hours. Full cure is roughly 5-7 days. Warmer conditions will shorten these cure times, while cooler conditions will extend them.

Clamping: The recommended clamp time for Aluminum Boat Leak Sealer is at least 3-4 hours @ 72°F (or warmer). The natural tendency is to clamp with a lot of pressure, but this method squeezes all of the epoxy out of the glue joint, making the joint weak. Take extra care not to over-clamp items, and ensure that there is a thin film of Aluminum Boat Leak Sealer between all items being bonded.

PRODUCT STORAGE:

- Store Aluminum Boat Leak Sealer between 60-90°F, sealed tightly, in a dry place, before and after use.
- Do not store Aluminum Boat Leak Sealer on the floor or near windows/doors that may expose the cartridge to cooler conditions.
- Storing Aluminum Boat Leak Sealer at cooler conditions, or exposing the epoxy in the cartridge to dust and humidity, can increase the risk of crystallization.
- If the original plug for the cartridge is to be put back on the cartridge after use, take extreme care not to put the resin plug on the hardener side, or vice versa. Marking the plug before removing it the first time can help prevent this.
- For applications where a static mixing tip is used, leave the static mixing tip on the cartridge after use, and allow the epoxy to cure in the tip. The epoxy will not adhere the mixing tip to the cartridge. The cured epoxy in the mixing tip will form a seal, protecting the epoxy inside the cartridge. It is not viable to try and clean out static mixing tips after use.

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When the product is used next, simply unscrew the static mixing tip that was on the cartridge and install a new, unused one.

CRYSTALLIZED EPOXY:

- Crystallization can occur in the liquid resin or hardener components of epoxy, and can present itself as a gritty texture, cloudiness, or as being much thicker in consistency than it should be.
- Epoxy that has crystallized should not be used until the crystallization has been resolved.
- Warming the liquid epoxy to 125-150°F will rectify the crystallization in the epoxy, turning it back to the consistency it is supposed to have, making it ready to use again.
- The most common way to warm an Aluminum Boat Leak Sealer cartridge is to place the cartridge into a sealable plastic bag, and insert it into a bowl or basin of warm water (not boiling). Change out the water, as needed. This may take 30-90 minutes, until all contents of the cartridge are at least 125°F.
- Following proper storage conditions is the best way to prevent crystallization.

APPLICATION DATA:	
Application / Epoxy Type:	Sealing, bonding, adhesive, filling
Application Film Thickness:	Thin film up to 1/2"
Application Temperature/RH:	Minimum of 40°F, 0-90% Relative Humidity
Working Time	75 minutes @ 77°F (thin film/bead)
Gel Time:	40 minutes @ 77°F (100g mass) (ASTM 2471)
Clamp Time:	3-4 hours (minimum) @ 72°F
Minimum Cure For Use (@ 77°F):	7-10 hours (low loads), 24 hours (high loads)
Full Cure Time:	5-7 days
Resin Density:	10.0 lbs./gallon @ 77°F
Hardener Density:	8.3 lbs./gallon @ 77°F
Mix Ratio (by Weight):	1.2A:1B (Calculated)
Mix Ratio (by Volume):	1A:1B (Calculated)
Mixed Viscosity:	Thixotropic (ASTM 2196)
Shelf Life:	At least 1 year (under proper storage conditions)

PHYSICAL DATA:	
Cured Color/Finish:	Buff/caramel
Components:	Two – Resin (Part A), Hardener (Part B)
Units:	250ml cartridges
UV Stable:	No
Tensile Strength:	5,330 psi (ASTM D638)
Tensile Modulus:	187,000 psi (ASTM D638)
Tensile Elongation:	23.8% (ASTM D638)
HDT (Room Temperature Cure):	134°F (ASTM D648)
HDT (Post Cure):	189°F (ASTM D648)
Compressive Strength:	7,200 psi (ASTM D695)
Flexural Strength:	8,800 psi (ASTM D792)
Flexural Modulus:	203,000 psi (ASTM D790)
Volumetric Yield/Coverage:	Roughly 81' of bead @ 1/8", or 244 sq. in. spread @ 1/16" thickness (not accounting for waste)
Volumetric Shrinkage:	3.50% (ASTM D792/D1475)
Cured Density:	1.14 g/cm^3
HDT (Room temperature Cure):	134°F (ASTM 648)
HDT (Post Cure):	189°F (ASTM 648)
Onset of Tg:	195°F (by DSC) (ASTM 3418)
Ultimate Tg:	213°F (by DSC) (ASTM 3418)
Hardness:	77 Shore D (ASTM D2240)