



THIXO LV

- Two-part low-viscosity epoxy adhesive
- Very high bond strength to a number of substrates
- Each cartridge comes with two static mixing tips
- Thixo LV can be used above or below the waterline
- It comes in 185ml cartridges that fit most standard caulk guns

TotalBoat Thixo LV is a high-strength, two-part, low-viscosity epoxy for laminating, filleting, and gluing. Its thin, lower viscosity formula is ideal for use as a general-purpose adhesive or a sealant. Included mixing tips ensure a perfect resin-to-hardener ratio. 185 ml cartridge fits most standard caulk guns.

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

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

THINNER/REDUCER: Do not thin Thixo LV.

MOLD RELEASE AGENTS: Mold release paste wax, or an appropriate mold release spray material.

PRIMER: No primers are necessary; etching with TotalBoat Aluminum Boat Etch Wash is highly recommended on bare aluminum substrates, and TotalBoat Rust Primer is recommended on ferrous steel applications.

APPLICATIONS: Bonding, structural epoxy adhesive, filleting, small gap filling, gluing, lamination

ACCEPTABLE SUBSTRATES: Fiberglass, wood, properly prepared metals, block, brick, concrete, glass, slate, tile, stone

CAULK GUN (REQUIRED FOR USE): 185ml 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 each product.

EXOTHERMIC REACTION!

The cure of TotalBoat Thixo LV is an exothermic reaction and will generate heat. Though Thixo LV is generally applied in thin films or smaller applications, it is not uncommon for a larger mass of mixed Thixo 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 Thixo LV's bond strength to any substrate. If any surfaces are to be sanded before applying Thixo, always remove all surface contaminants prior to sanding or abrading the surface. Contaminants can include dust, dirt, grease, moisture/ water, oil, or wax.

- **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.

FIBERGLASS:

- Fiberglass substrates may have wax or amine blush on the surface, depending on the resin system they're made with, 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 Thixo LV to achieve the best mechanical bond.

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 Thixo LV to achieve the best mechanical bond.

WOOD:

- Remove all surface contamination by wiping the surface with a 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.



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- 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.

METALS:

Steel/Iron:

- Remove all surface contamination by wiping the surface with a 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. This will help to prevent further development of rust and optimize the bond.
- Allow the surface preparation solvent to evaporate completely and apply Thixo LV.

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 (with 80-grit or coarser) the surface that will be bonded with Thixo 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 preparation solvent to evaporate completely and apply Thixo LV.

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 Thixo LV.
- Apply Thixo LV within 1 hour of the surface preparation.

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 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 surface preparation solvent to evaporate completely and apply Thixo LV. If Thixo LV is not applied within a few minutes, repeat the surface preparation.

Other Metals:

- Remove all surface contamination by wiping the surface with a 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.
- Allow the surface preparation solvent to evaporate completely and apply Thixo LV within 1 hour.

STONE:

- Stone materials should always be dry and free of any dirt, dust, or other residue.
- Do not attempt to bond stone that has recently been submerged in water for a long duration, if possible.
- Clean the stone by wiping with one of the appropriate surface prep solvents.
- Allow the surface preparation solvent to evaporate completely and apply Thixo LV.

MASONRY:

- Masonry can be bonded with Thixo, but, for best results, it is extremely important to ensure that the masonry has been left to dry for an extended period of time, before applying Thixo LV.
- Masonry can trap a lot of moisture, which can compromise the bond of Thixo during periods of dramatic pressure change, or enduring freezing-to-hot temperatures.
- Clean the surface of any dust, debris, or loose material.
- Sand or abrade the surface where the masonry is to be bonded. Remove any sanding residue and wipe with one of the recommended surface preparation solvents.
- Allow the surface preparation solvent to evaporate completely and apply Thixo LV.

CONCRETE:

- Remove any loose dust or debris from the surface that is to be bonded, as well as any other surface contamination.
- Do not attempt to bond new concrete, or concrete that is sweating or emitting a lot of moisture.



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- Sandblasting, or otherwise abrading the surface where it is to be bonded, will help provide a great base for a mechanical bond.
- Etching the concrete with a concrete etch material (as directed) will also prepare the surface to accept the epoxy, helping to generate a very strong bond.
- If the surface was etched, ensure that the surface is completely dry before applying Thixo LV.

GLASS:

- Remove all surface contamination by wiping the surface with a rag dampened with one of the surface preparation solvents – denatured alcohol is preferred for glass surfaces.
- Allow the surface preparation solvent to evaporate completely and apply Thixo LV.

APPLICATIONS:

Sealing Cracks: Thixo LV's naturally low viscosity make it a great material for sealing cracks, holes, or seams in any of the acceptable substrate materials.

Lamination: Thixo LV is the perfect viscosity, and has excellent strength characteristics to use as a glue to wet out fiberglass, carbon, or other fabric materials as reinforcement.

Adding Thickening Agents to Thixo LV: Adding thickening agents to Thixo LV can make it a desirable adhesive for many applications. Silica thickener (sag resistance, or an adhesive filler), microballoons (light weight filler and ease of sanding), wood flour (sag resistance, color tone, adhesive filler), milled glass fibers (high strength, structural filling applications), or any other specific materials that are required for unique applications can be added to mixed Thixo LV. Only use additives or thickeners that are compatible with epoxy, and the substrate. Work quickly when adding thickening agents, and do not add any thickening agents to unmixed Thixo LV.

Bonding: Adding an adhesive thickener such as colloidal silica thickener can give Thixo LV sag resistance, and resist being absorbed into porous materials. Add the silica until the desired viscosity or sag resistance is achieved. This can range from a gel material, to a thick putty. Cured Thixo LV is safe to use below the waterline, or for structural applications, when the cured physical properties are adequate.

Filleting: Colloidal silica, microballoons or wood flour can be added, or blended together to make fillets when bonding two items that are perpendicular, or at an angle, with Thixo LV. Apply the thickened epoxy between the two items that are to be bonded. Then when they are set in position, run an additional continuous bead of Thickened Thixo LV, roughly 1/8"-1/4" thick in the corner of the joint. A rounded tool, such as a wooden tongue depressor, can be run along this bead to evenly spread the epoxy with the

rounded profile, making it uniform and aesthetically clean looking. This fillet adds extra rigidity and stability by increasing the surface area of the bond.

Gap Filling: Thixo LV can be used as a crack sealer, or gap filling material on compatible substrates. Epoxy thickening agents can be mixed in with Thixo LV after being dispensed to help with sag resistance, or fill wider gaps. The maximum gap thickness that can be filled in an application of Thixo LV with thickening agents added is 1/2". For any gaps wider than 1/2", apply Thixo LV in multiple 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: Thixo should only be dispensed when the ambient temperature, temperature of the epoxy itself, and the temperature of the substrate being bonded are above 55°F, and the relative humidity does not exceed 90% for the first 24 hours of the cure process. Curing Thixo LV outside of these conditions may dramatically slow the rate of cure, or compromise some physical properties of the cured material. In cooler ambient conditions, it is recommended to warm the cartridge to 65-80°F before use for optimal flow characteristics and cure rates.

Caulk Gun:

Use an appropriate caulk gun to dispense Thixo LV. For ease of application, ensure that the caulk gun meets the minimum recommended mechanical advantage.

Mix Ratio:

The mix ratio of Thixo is 2:1 (resin:hardener). Thixo cartridges are constructed with the internal mechanics to automatically dispense at the rate of 2 parts resin, for every 1 part of hardener.

Static Mixing Tips:

- Thixo LV can be dispensed with or without the static mixing tip threaded on the cartridge. The static mixing tips blend 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 Thixo 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.



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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.
- The low viscosity nature of Thixo LV will allow it to flow out quickly, take precautions to be ready for this.
- The most common application is to dispense Thixo LV into a small mixing cup or palette where it can be mixed together before use.

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 Thixo LV in a thin bead or film is roughly 50 minutes at 77°F, and 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:

When used as an adhesive, the recommended clamp time for Thixo LV is 24 hours. 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 Thixo LV between all items being bonded.

PRODUCT STORAGE:

- Store Thixo LV between 60-90°F, sealed tightly, in a dry place, before and after use.
- Do not store Thixo LV on the floor, or near windows/doors that may expose the Thixo cartridge to cooler conditions.
- Storing Thixo LV under 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 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. 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, and making it ready to use again.
- The most common way to warm a Thixo LV cartridge is to insert the cartridge into a sealable plastic bag, and place 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:	Adhesive, sealing laminating, gluing, filling
Application Temperature/RH:	Minimum of 55°F, 0-90% Relative Humidity
Working Time	15-20 minutes @ 77°F (thin film/bead)
Gel Time:	10 minutes @ 77°F (150g mass) (ASTM 2471)
Minimum Cure For Use (@ 77°F):	24 hours (light duty), 72 hours (heavy duty)
Full Cure Time:	2-5 days @ 77°F
Resin Density:	9.4 lbs./gallon @ 77°F
Hardener Density:	8.6 lbs./gallon @ 77°F
Resin Viscosity:	2,300 cP @77°F (ASTM D2196)
Hardener Viscosity:	470 cP @77°F (ASTM D2196)
Mix Ratio (by Weight):	100A:46B (Calculated)
Mix Ratio (by Volume):	2A:1B (Calculated)
Sag Resistance:	None
Cured Density:	1.15 g/cm ³
Hardener Viscosity:	470 cP @77°F (ASTM D2196)
Shelf Life:	At least 1 year (under proper storage conditions)



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PHYSICAL DATA:

Cured Color/Finish:	Clear
Components:	Two – Resin (Part A), Hardener (Part B)
Units:	185ml
UV Stable:	No
Tensile Strength:	9,500 psi (ASTM D638)
Tensile Modulus:	458,000 psi (ASTM D638)
Tensile Elongation:	7.2% (ASTM D638)
HDT (Room Temperature Cure):	135°F (ASTM D648)
HDT (Post Cure):	146°F (ASTM D648)
Compressive Strength:	11,200 psi (ASTM D695)
Flexural Strength:	15,000 psi (ASTM D792)
Flexural Modulus:	415,000 psi (ASTM D790)
Volumetric Yield/Coverage:	Roughly 59' of bead @ 1/8", or 175 sq. in. spread @ 1/16" thickness (not accounting for waste)
Volumetric Shrinkage:	4.5% (ASTM D792/D1475)
Hardness:	85 Shore D (ASTM D2240)