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www.limestrongartisan.com

Limestrong™ Use Instructions

T A D E L A K T (WET USE/FUNCTIONAL)

THROUGHOUT THIS GUIDE, **tadelakt** will be used as both a noun and a verb, referring to the plaster finish and to the technique. *As a finish*, tadelakt is a lime plaster sealed with olive soap and burnished, resulting in a water repellent surface. *As a technique*, tadelakt is the knowledge, skill, and ability to craft this water repellent lime plaster finish.

Tadelakt can be either a *decorative* or *functional* finish plaster. **Tadelakt is a decorative finish when its water repellent quality is not important**—applied to standard walls, feature walls, and fireplace surrounds (SEE *Limestrong Tadelakt Dry Use/Decorative Guide*). **Tadelakt is a functional finish when its water repellent quality is necessary**, specifically when used in bathrooms, shower stalls, and for kitchen backsplashes.

PACKAGING and COVERAGE

Limestrong Tadelakt™ is packaged in 32 lb. bags—enough to mix with 2.1 gallons (8 liters) of water in a common 5 gallon bucket to make one batch. Coverage per bag is approximately 100 square feet per bag when applied for wet area use.

PRECAUTIONS

Precaution: Practice. Successful tadelakt must be learned through practiced experience. While this guide provides a foundation of best-practice preparation and application information, it is no substitute for acquiring the valuable hands-on experience that is only learned through practice.

If a plasterer with no tadelakt experience wishes to attempt the process, we highly recommended several practice test applications to become familiar with the techniques and the timing.

Precaution: Successful Tadelakt. Successful tadelakt is a result of experiential understanding of proper substrate preparation, basecoat application, finish coat application, and the drying and sealing processes, including:

- Understanding of durable and water repellent substrates
- Application of a solid and flat basecoat using our Limestrong BASE™
- Using the proper number of finish coats, applying them in the proper sequence and at the right times
- Closing the finish during initial application
- Smoothing and polishing within the correct timing window
- Proper timing and application of the soap finish
- Knowing when to apply wax

Precaution: Variability and Inconsistencies. Tadelakt is both a natural material and a hand-applied technique—there will be variations and inconsistencies in the finish, depending on ambient conditions and the experience of the plasterer. As such, we recommend preparing the expectations of the client or end user for the likelihood of inconsistencies. While most clients will see and experience inconsistencies as character that complements the natural beauty of the material, other clients, if not properly educated in what to expect, may see the variabilities in their tadelakt finish as unacceptable flaws.

The variations and inconsistencies in a tadelakt finish are often outside of the control of the plasterer, especially as one is learning. When deciding if tadelakt is the right choice for you or your client, it is important to keep these potential inconsistencies in mind:

- Color variation/mottling (more pronounced in darker colors)
- Hairline cracks (often only visible when wet)
- Walls darken when wet
- Staining on horizontal surfaces.

Also educate the client or end user on the proper care and necessary maintenance of a tadelakt finish—see the CARE AND MAINTENANCE information in this guide.

Precaution: Adequate Drainage. Tadelakt is *not* a good choice in areas where standing water or pooling could happen. All horizontal surfaces must have adequate drainage so that water does not stand on the surface for long periods of time.

SUBSTRATE PREPARATION

Substrate Prep: Backerboard. Assuming a framed wall is in place, installing a waterproof backer board is the first step.

Water and color pigment amount CALCULATORS available online at:
limestrongartisan.com/calculators.html

Recommended TOOLS: limestrongartisan.com/

We recommend a 1/4- or 1/2-inch Hardie Backer® brand for its density, flatness, absorption, and ease to cut and work with. Other common brand options are the Durock® and Dens Shield® tile backer brands; however, we recommend avoiding all gypsum-core drywall products, as they are less waterproof.

Substrate Prep: Tape the Joints. Once the backer is installed, all the joints, including inside and outside corners, must be taped with fiberglass mesh tape that is approved for stucco or tile installation. This tape is heavier than drywall mesh tape and is alkali-resistant to avoid breaking down over time in humid environments. The tape is self-adhesive and will stick to the backerboard. The normal width for this tape is 2 inches. If you can find it wider (3 or 4 inch), it makes taping the outside corners significantly easier.

Substrate Prep: Set the Tape. The mesh tape needs to receive an initial thin coat with a flexible, crack-prevention thinset mortar, like Custom Building Product's Flexbond®. This step serves to adhere the tape to the backerboard, fill any gaps or holes in the backerboard, and provides a strong, flexible joint that should not crack. All mesh tape, including inside and outside corners, should be prepared in this way. As an extra precaution, a small piece of mesh tape can be placed over all the screws and set with Flexbond®.

Substrate Prep: Install Waterproof Membrane. After the Flexbond® has dried overnight, it is time to install a liquid-applied waterproofing membrane. There are several available products made for the tile industry, such as RedGard® by Custom Building Products. We won't cover the particulars of installing the system here because extensive instructions are available on the product website. Follow the instructions carefully and make sure this step is done properly.

Substrate Prep: Scratch (Key) Coat. Once the waterproofing membrane has cured fully, a thin "scratch coat" of fortified tile mortar is applied with a notched trowel with 1/8-inch V grooves. For this step, use the same Flexbond® (or equivalent product) used for setting the tape. Apply the scratch coat tightly in a horizontal pattern to achieve a thick, even coat over all surfaces. This step provides a solid base on which to apply the Limestrong BASE™ basecoat layer. Approximate coverage is 200 square feet per 50 lb bag.

Substrate Prep: Scraping. The scratch/key coat should be left to dry overnight. Once dry, use a scraper and sandpaper to detail the key coat. Scrape down any blobs or high spots, especially on the inside and outside corners. 36 grit sandpaper works well to tune-up the outside corners.

BASECOAT APPLICATION

The basecoat needs to be as flat and as even as is possible. The tadelakt finish goes on thin and *cannot be used to fill voids*, so take the time to craft a quality basecoat. High spots and ridges in the base coat can telegraph through the finish and show up as darker "texture" in the finished tadelakt surface.

Basecoat Application: Mix. Mix Limestrong BASE™ plaster with water according to the directions (approximate coverage: 75 sf per bag). Mix to a stiff, peanut-butter-like consistency.

Basecoat Application: First coat. Using a square trowel to produce a flat surface, apply the plaster basecoat as evenly as possible. Apply until you can't see any of the key coat texture underneath—a bit more than grain height. Aim for an even, 1/8-inch-plus thickness with minimal high and low areas and minimal trowel lines. *Allow the first coat to dry overnight.*

Basecoat Application: Second coat. Using a square trowel to produce a flat surface, apply the **second coat** as evenly as possible. Aim for an even, 1/8-inch-plus thickness with minimal high and low areas and minimal trowel lines. depending on ambient conditions. A fan can be useful at this stage to augment slow drying conditions.

Basecoat Application: Sponge Float. Once the basecoat is dry enough, take an absorbent stucco sponge float (green), dampen with water, and gently rub the surface to re-hydrate the material. Ideally, you should be able to rub away any trowel marks, just barely moving the plaster on the surface. If you're making a mess of it, that's a sign the basecoat is not dry enough.

Basecoat Application: Rubber Float. Soon after floating the surface with the sponge, go back over it with a firm neoprene/rubber tile float. Use a gentle circular motion and pay attention: if there are areas that are too wet and are being disturbed by this process, avoid them—come back to them when they have dried more.

This step serves to flatten and *densify* the surface. If there are low spots, try to fill them in with more material. Scrub down high spots with the float.

Basecoat Application: Trowel Knock Down. The last step in the basecoat process is to gently pass a square steel trowel over the whole surface to embed any grains of sand that might be sticking up. Fill any holes or voids by smoothing over with the trowel. This should be a gentle, quick pass. At this point, the plaster should be firm enough that the trowel does not disturb the surface.

FINISH COAT APPLICATION

Finish Coat Application: Mixing. Mixing the tadelakt finish plaster is the same as mixing all of our Limestrong plaster materials. Add 8 liters of water to a 5 gallon bucket. Add colorant/pigment (dry or liquid) to water and mix vigorously for one minute. If using dry pigment, it is *highly recommended* to pour the pigment-water mix through a fine paint strainer to minimize the potential for pigment bursts.

Add 1/3 of the dry plaster to the pigmented water. Using a 1/2-inch electric drill and a mixing paddle, mix well, scraping the sides of the bucket and cleaning the mix-paddle to ensure no dry powder remains. Add the next 1/3 of the bag and repeat. Slowly add and mix in the final 1/3 until all powder is incorporated. Once all of the dry powder has been saturated, mix vigorously for 3 minutes, *minimum*. This long, thorough mixing time will ensure full pigment dispersion and minimize unmixed particles. As needed, add water to adjust consistency.

Finish Coat Application: Scraping. The basecoat needs to have fully dried—at least overnight. Take a scraper, like a 6-inch drywall knife, and gently knock down any protruding ridges, chunks in corners, and large sand grains that might be present on the surface. Outside corners should be gently smoothed and tuned-up with coarse-grit sand paper.

Finish Coat Application: Key Information.

- Unlike some other systems, the Limestrong Tadelakt process does not require wetting the basecoat before application—the finish is applied directly to the fully-dry basecoat.
- The first tadelakt coat will dry quickly due to the high absorption rate of the dry basecoat. This is both normal and necessary for successful application. A skilled plasterer who is proficient with the tools will move very quickly at this point, laying down the ideal thickness with a minimum of trowel lines and ridges. Unskilled applicators typically struggle with this step.
- Having a thorough understanding of the absorption (suction) role the basecoat plays in the process is critical to the success of the finish. This is where timing-savvy comes into play: *for every step there is an ideal window of time*. Understand that it never happens the same way twice, and can only be learned through experience.

Also be aware that any textures or undulations created when applying the first coat could telegraph through the final finish and show up as darker areas.

The finish should be applied in multiple thin layers using a wet-on-wet, or double-back, technique. On large surfaces, this is best accomplished with two (or more) applicators working in tandem, one following the other.

Finish Coat Application: First Coat. Apply the first coat liberally, but just beyond grain height. Work quickly and feather the material out at the edges, taking care not to leave any hard trowel lines or ridges. It is best to spread the material from wet to dry, feathering out in a random, cloud-like pattern.

Finish Coat Application: Second Coat. As the moisture from the first finish coat is sucked into the dry basecoat, *immediately* begin to apply a second coat (double back) on top of the still-moist first coat.

This second coat can be applied more liberally, using more material. The eventual goal is to apply enough material that the basecoat becomes saturated from absorbing all of the water from the newly applied plaster.

Finish Coat Application: Third Coat. The third coat is applied in the same way as the second. At this point, the wall is still absorbing moisture, but at a slower rate. It is up to the applicator to judge how much more plaster should be applied at this stage. If the wall is still absorbing strongly, and the plaster is drying quickly, a thicker layer is applied. If the plaster is staying wet, it should be applied thinner. At every stage, great care must be taken to avoid creating ridges and trowel lines.

Finish Coat Application: Fourth Coat. The fourth and final coat should be applied tighter than the previous three. At this point, the wall is wet enough that the base is no longer absorbing strongly. At this stage, the applicator can expect to move the plaster around and create a very even and smooth surface. Some “cream” or “fat” will be collected on the trowel—this should be constantly re-applied to the surface, filling and smoothing micro-holes and low areas. Take care to create as perfect a surface as possible.

Finish Coat Application: Smoothing. The next stage in the process requires working within the drying-time window to create a smooth and “closed” surface. *This stage is crucial to achieve a non-porous, water-repellent surface.*

Using a high quality, semi-flexible trowel, smooth the finish using light-to-moderate pressure while holding a low

trowel-angle. This should be done using several passes, applying more pressure as the surface dries. Use your free hand to gently touch the plaster, feeling for rough areas that need smoothing. Spray a very light mist of water on the surface if you feel any dragging or pulling as you work the trowel.

Finish Coat Application: Burnishing/Polishing. The very last smoothing pass should be done with a soft, flexible “bondo spreader” type of plastic tool used by the auto body industry. It should be held very flat and used to apply direct pressure. A highly polished surface can be achieved using such a tool. For a more traditional tadelakt finish, polishing stones can be used. Keep in mind stone finishing will result in a less uniform, more undulating surface. There is also a higher chance of color variation from uneven and overcompression.

Finish Coat Application: Soaping. Plan to apply the olive oil soap the same day the plaster finish is applied. There is a very specific time-window in which to apply the soap—too early and the soap will mix with the still-wet lime and create cloudy, blotchy discoloration; too late and the water repellent qualities provided by the soap will be compromised.

The best way to decide when to apply soap is to gently feel the wall with your hand. If there are areas that feel still-wet sticky, it is too early; the wall needs to dry more. If the color of plaster appears to be lightening, it is beginning to become too dry. The timing for this step is affected by ambient conditions and will happen differently every time. Diligent attention, experience, and an understanding of the process is the only way to ensure a good result. The most common mistake is applying the soap too early, which will result in a discoloration that cannot be repaired.

For a tadelakt finish, the Limestrong Soap Finish should be applied at a richer concentration: dilute the LimeStrong Soap concentrate with six-parts water (warm water is best) and gently mix. Apply the diluted soap solution to small areas at a time—a quality brush, roller or spray bottle works best.

Start at the bottom of the wall and work toward the top, avoiding drips and runs. Use a clean, flexible trowel to distribute the liquid soap around the wall. Keep a clean rag handy to wipe excess soap from the trowel.

Once the soap has been worked in, use a small, stiff finishing trowel to further burnish the surface. The soap should be applied several more times as the tadelakt finish is drying. Use caution! Too much pressure too late with a steel trowel can create dark-looking “burn marks.”

Finish Coat Application: Waxing. In areas that will receive regular water, it is *highly recommended* that you apply a protective coating of wax.

Allow the tadelakt finish to dry and cure for a minimum of five (5) days.

Apply the wax with a soft rag in a thin layer. Allow a short time for the wax to tack up, then buff to a shine with a soft cloth. For a more matte finish, skip the buffing step. Apply two coats of wax, allowing for several hours of drying time between coats.

We have found all three of the following wax products to work quite well:

- Howards Paste Wax (www.howardproducts.com)
- Kredezeit Punic Wax (www.mikewye.co.uk)
- Kremer Cere Stucco Soap (kremerpigments.com)

Finish Coat Application: Curing. Tadelakt finishes must be allowed to cure and harden for a minimum of 28 days, with adequate air flow in the room.

CARE AND MAINTENANCE

In terms of care, cleaning, and routine maintenance, tadelakt surfaces should be put into the same care-category as limestone, marble, or a fine wood surface.

Cleaning. Clean tadelakt surfaces using mild, vegetable-based soaps. Strictly avoid acidic cleaners, as acidic substances will etch the lime-based tadelakt surface and destroy the beauty.

A diluted solution of our Limestrong Soap™ will work well for routine cleaning—dilute at least three-parts water to one-part soap concentrate.

Staining. Tadelakt-finished surfaces are permeable, and can absorb and stain from oils, acidic juices, and richly colored liquids (like wines). To reduce staining, avoid setting items like shampoo bottles, bars of soap, and drink cups directly on the tadelakt surface. These items can cause stains and rings if left on the surface for an extended period of time.

It is natural for water to darken and streak the tadelakt finish until it has had time to dry out.

To remove stains, a poultice-based stain remover developed to use on limestone or marble has been known to work.

Damage. Tadelakt is a hard finish, but can be nicked or chipped, especially on the outside corners.

Small surface repairs can restore water-repellent functionality, but will likely be noticeable. If a large area is damaged, most likely the entire wall will need re-finished.