DURÁVEL®
Products for Professionals

TSO™

Trowel Spray Overlay

BAG MIXES

Technical Data

Durável TSO is a heavy-duty decorative texture cement overlay coating which is designed to beautify old and new concrete. Durável TSO is a self-bonding add water only white Portland-Limestone cement-based mix that can be integrally colored in the field with Overlay Color Packs. Durável TSO is easy to use and is applied using conventional concrete tools such as squeegees, trowels, or a hopper gun to create textures and finishes. Spray texture options include knockdown, multicolor pebble finishes, and pattern stencil finishes. Hand trowels can be used to create extraordinary surfaces that can replicate real stone, slate or even wood. Add secondary colors with water base In-Fluence concrete stain for enhanced decorative results. Using the latest single component technologies Durável TSO leads the industry in the combination of compressive, flexural, and tensile strengths for superior durability, adhesion, and ease of use. Durával TSO will handle all residential and commercial traffic, including light vehicular traffic. The single-component bag mixes are available in two formulations: warm weather and cool weather.

Typical Uses:

- **Exterior and Indoor Pool Decks**
- **Driveways and Walkways**
- **Patios and Balconies**
- **Commercial and Residential Properties**

Product Advantages :

- **Range of Color and Texture Options**
- **Trowel and Spray Textures**
- **User Friendly Just-Add-Water**
- **Warm and Cool Weather Formulas**

50 lb (22.7 kg) bags (approx. 0.46 CF)

Warm and Cool Weather Formulas

Water Demand 4.0 to 5.5 Qt

Pot Life 30 minutes (70 deg F)
Initial Set 2 to 6 hours
Full Cure 28 days

Application range 45 to 90 deg. F

Coverage:

After the substrate is properly profiled and prepared any significant damage such as spalling or pits should be pre-filled with a base coat of Durável TRO. Refer to TRO Technical Data Sheet for further information. Typical application rate as smoothing base coat over repaired or smooth surfaces is 150 to 200 square feet per bag. Coverage for textures varies from 120 to 200 square feet per bag depending on texture preference and design.

Directions for Use:

Substrate Preparation:

SOUND: Concrete that is failing due to poor placement or extensive environmental abuse should be replaced, not repaired. Cracks and joints in concrete should always be treated as moving, with the possibility they will continue moving after the overlay or repair mortar is placed leading to cracking of the overlay. Expansion and contraction joints must always be honored since they allow movement in the slab. Large holes and divots in the surface should be filled in lifts, or with a suitable material. Flexible joint sealant should only be applied after the overlay is completed and cured.

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Expectations should be set with the client prior to commencement of the project so they understand that the overlay, when bonded properly, will move as the concrete substrate moves.

CURED: All concrete must be sufficiently cured to allow for proper hydration. The recommended cure time is 28 days, depending on temperature and humidity.

CLEAN: Surfaces to be overlayed should be free of contaminants and readily accept water. All potential contaminants on the surface must be removed, including but not limited to: dust, dirt, oil, grease, paints, glues, sealers, curing agents, releases, efflorescence, chemical contaminants, rust, or algae. Even if grinding is the selected method for preparation, it is critical to clean the surface first to keep from pushing contaminants into the pores of the concrete during the grinding process. Surfaces must be completely cleaned after the mechanical preparation process; remove all dust.

PROFILED: Acid etching is not an acceptable option for smooth or power troweled concrete surfaces. A water drop test should be performed to make sure water quickly penetrates the surface and darkens it. If water beads on the surface for longer than 15 seconds the concrete is not porous enough and must be mechanically profiled by shot blasting or diamond grinding. Concrete must be profiled to a CSP-2 or CSP-3 for proper bonding.

ENVIRONMENTAL CONDITIONS: The substrate temperature during application and curing must be between 45 and 90 deg. F (7 and 32 C). Excessive wind and/or sun exposure may adversely affect hydration and cure. Schedule exterior work to protect overlay from rain for twelve hours after application is completed.

Mixing Instructions:

Mix single bags in clean 5-gallon pails with a helical mixing blade. Add 4.0 to 5.5 quarts of water per bag of mix; water demand varies with environmental conditions and application technique. For best results and longest pot life use clean, cold water. Run hot water out of hoses prior to use or fill buckets with water at the beginning of the day so all the mixes are at the same temperature. Keep bags cool and do not store them in direct sunlight. Always measure water into mixing vessel so that each mix is consistent. When applicable, add the contents of one Overlay Color Pack to the water and thoroughly blend prior to adding the bag mix material. While slowly mixing add the bag contents to the mixing bucket then blend to a lump-free consistency. Make sure to scrape any unmixed product from the sides and bottom of the mixing vessel as you work. Once all powder is wetted out continue to mix for 2 minutes to ensure a complete blend of the product. Blended material should be applied promptly and kept out of direct sunlight (if possible) to extend working time. If the product stiffens in the bucket, spin the product with the mixer. Do NOT add more water! Dispose of the product if spinning it again does not make it workable.

The base coat is intended to flatten the surface and requires a greater amount of water, typically 5.0 to 5.5 quarts per bag. Sprayed coats require 4.5 to 5.0 quarts depending on the texture. When hand troweling add 4.0 to 4.5 quarts of water.

Tinting Instructions:

Durável TSO is manufactured with white cement. Add one Overlay Color Pack to the mix water and blend thoroughly before adding the bag mix.

Application Instructions:

When Troweling: Pre-wet the concrete substrate to Saturated Surface Damp (SSD) and continue wetting surface as needed during product application. Pour blended Durável TSO product directly onto the substrate in ribbons over the immediate work area then spread evenly with trowels and/or squeegees to the desired texture. Under normal conditions the mixed product has a +/- thirty-minute pot life, so it is not necessary to pour out the entire mix at once.

When Spraying: Keep the substrate dry. Mask off and protect adjacent surfaces to reduce the impact of overspray. Use a hopper gun supplied with compressed air to apply the product to the desired texture. The air compressor should produce 5.0 CFM or higher for a consistent application. Regulate the air pressure to 40 psi and adjust the air volume at the hopper gun. Experiment with the mix water volume, air volume, and the hopper gun nozzle size to achieve the desired texture. Coverage ranges from 120 to 200 square feet per bag depending on texture applied.

Do not apply Durável TSO in locations which are permanently submerged.

Tips and Precautions:

Staging Area – Set up a staging space next to the work area where you can change into clean shoes and spikes. This keeps you from tracking contaminants onto the prepared substrate.

Mixing Location – Setting up a mixing station in a shaded area is best for the product and for the worker. Keeping the bags out of the sun helps keep them from getting too hot, which could cause the same problems as using hot water. Stay in the shadows of trees, buildings, or a pop-up tent. Don't mix in the middle of a concrete or asphalt pad! In the cooler months you can allow the bags to warm in the sun to help decrease the drying time of the product once placed on the ground.

Surface Temperatures – Working on the right substrate temperature is critical to success. Most overlays and repair mortars have a working temperature range from 50 to 90 degrees F for the substrate, not the air temperature. These systems need time to dwell and soak into the porous surface and create a secure chemical and mechanical bond. When the surface temperature is above 90 degrees the product will set and dry faster; the faster the coating dries, the less time it has to properly bond to the surface, which can lead to early failure. On hot days start your work early and stop when the concrete gets too hot. In cooler weather substrate temperatures can drop below 50 degrees. Cold concrete can hold too much moisture and inhibit the overlay or repair mortar from soaking in and bonding. If the product does not fully dry before the sun sets, freezing temperatures or frost can cause the coating to freeze and fail. When working in cooler temperatures, wait until the substrate temperature is rising above 50 degrees stop work in time for the product to completely dry before the air temperature drops below freezing.

Water Temperature – Having consistent water temperature is important to a successful installation. One of the most common mistakes installers make is when using hose water. When a hose sits out in the sun the water in that line gets HOT! Hot water will greatly reduce your working time, and the product can even start to set up in the bucket. Each time you use a hose first run the water for 60 seconds to get a consistent temperature water for each batch. One trick that works well is to set aside several clean empty buckets when you are setting up to blend. Fill enough buckets with water so no hose water is needed during the installation. This way each mix made from the bucket water will be at or near the same temperature.

Measure Water Accurately – Use a graduated measuring container to make sure the same amount of water is mixed in each batch every time to give you consistency in the mixes and color. Measure the water on a level surface, like a bucket

turned upside down and made a flat as possible, then measure in the same place each time. For even better consistency make a dedicated measuring pail: cut a drain hole in the side of a 5-gallon pail to set the water level, making it impossible to put too much water in the mix.

Proper Mixing – The best paddle for mixing cement overlays and repair mortars is a helical paddle attached to a 1/2" drill or a two-handled mixer designed for mortar mixing. Always put the measured water in the mixing bucket first, then the overlay color pack (if used), then add the bag mix. A good strong mixer can wet out a full bag in less than a minute. Once the product is wetted out, sweep the sides and bottom of the bucket with the mixing paddle or margin trowel to loosen any dry material stuck to the bucket, then mix the product for two more minutes to ensure a thorough mixing of all the components.

SSD Means Saturated, Surface Damp – When you use a trowel or squeegee to apply a mix the concrete must be Saturated Surface Damp (SSD). This is the practice of saturating the concrete substrate and keeping it that way as each bag is applied to the surface. SSD is wetting the concrete but not allowing puddles to form on the surface. If the surface is shiny, it is too wet. If the surface starts to lighten in color, it is too dry and more water needs to be applied. One of the best practices is to completely saturate the surface to be coated with a spray nozzle from a hose. If puddles form, use your squeegee to spread the water out. Keep a pump sprayer handy at all times and continue to dampen the surface as you go. This will help the coating adhere to the surface properly, and not dry out too quickly and ball up under your tools.

Do Not Add Water – After the mix is blended and you're in the process of placing product on the surface, do not take it back and add more water if it gets stiff in the bucket. This will just accelerate the hardening of the product in that pail since the chemical reaction has already started. If you mix a bag of product and immediately realize that you need to add water, that is the correct time to add it. Waiting till you have been using it for a while is not! These mixes can be loosened up in the bucket by spinning it with the mixing paddle. This will provide a bit more time. If the mix stays stiff, discard it and make a new bag. Do not force product that has started to set onto the surface!

Application – Only pour out of the bucket what can be use on the ground in two to three minutes. Unlike epoxy, cement overlay products can rest in the mixing bucket. Putting too much material on the ground at one time can lead it to be worked too many times. The wet overlay or repair mortar is drawn into the substrate as it is being pulled across the work surface. If too much product is placed on the ground at one time, it can get worked back and forth and turn into a paste of mostly aggregate. If that happens remove the paste from the surface – do not add water!

Clean Up:

Clean tools and mixing vessels with water. Capture runoff as necessary to protect downstream surfaces. Remove wet material from adjacent surfaces before it dries. Dried material may be loosened with Concrete Eraser or light acids; test an inconspicuous spot to ensure that the surface is not damaged by the cleaning process.

Maintenance:

Durável SOM must be finished and protected with Duravel DV-30 or other clear sealer. Follow the maintenance interval instructions for the selected sealer listed on its TDS.

Slip Resistance Disclaimer:

Notice: The Occupational Safety and Health Administration (OSHA) and the American Disabilities Act (ADA) have set enforceable standards for slip-fall protection on walking surfaces. The ADA standards are the more stringent and require a minimum coefficient of friction (CoF) on level walking surfaces of 0.6 and on ramped walking surfaces of 0.8. The system applicator/ end user assumes all responsibility to provide a flooring system that meets all current safety standards. Neither Durável nor its selling agents will be responsible for any injury that may be incurred in a slip-fall accident. Furthermore, Durável recommends the use of slip-resistant aggregate in all coatings or floor systems that could possibly be exposed to wet conditions or become contaminated with oils, grease, or other potential lubricants.

Storage:

Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from moisture.

Disposal:

Recycle and/or dispose of contents and containers in accordance with local, regional, national, and international regulations.

Shelf Life:

Up to one year from original manufacture date when stored in its original, unopened container at room temperature. May be extended with reasonable care.

Limitations:

This product is not intended for public use and is intended for use by qualified contractors and installers with proper experience and training in the use of these products, and that have read the complete safety data sheet. Apply product only when substrate and ambient temperatures are within the accepted range.

Warranty:

IMPORTANT!

Before using any Durável product, read and understand its accompanying Safety Data Sheet & Application Instructions for important safety information.

STANDARD TERMS AND CONDITIONS OF SALE, INCLUDING STANDARD WARRANTY APPLY – VISIT Durável.com FOR THE LATEST VERSION.

Disclaimer:

The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material

designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Durável assumes no responsibility for injury to vendee or third party person proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, Durável assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety precautions are followed.

Safety Instructions:

For Professional Use Only

Keep Out of Reach of Children and Animals

Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation. May cause cancer by inhalation. Causes damage to lungs through prolonged or repeated exposure by inhalation.

Obtain, read and follow all safety instructions before use. Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash hands and exposed skin thoroughly after handling. Wash hands thoroughly after handling. Do not touch eyes. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/ protective clothing/ eye protection/ face protection.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN: wash with plenty of water and soap. IF ON SKIN: Take off Immediately all contaminated clothing. Immediately rinse with water for several minutes. If skin irritation or rash occurs: Get medical help. Take off immediately all contaminated clothing and wash it before reuse. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get emergency medical help immediately. Get medical help if you feel unwell. IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Get emergency medical help.

PROP65 WARNING: This product contains chemicals known to the state of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Always Review SDS & Technical Data Prior to Use