Trowel Spray Overlay

BAG MIXES

Technical Data

Durável TSO is a heavy-duty decorative cement overlay used to improve the appearance of old and new concrete. Durável TSO is a self-bonding, add-water-only mix made with white Portland-limestone cement. It can be colored in the field with Overlay Color Packs.

Durável TSO is easy to use and can be applied with standard concrete tools such as squeegees, trowels, or a hopper gun. Spray texture options include knockdown finishes, multicolor pebble finishes, and stencil patterns.

Hand trowels can also be used to create decorative surfaces that look like real stone, slate, or wood.

Additional color can be added with In-Fluence water-based concrete stain for enhanced decorative results.

Durável TSO uses single-component technology and is designed for strong compressive, flexural, and tensile strength. This helps provide durability, adhesion, and ease of use. Durável TSO is suitable for residential and commercial traffic, including light vehicle traffic.

The single-component bag mixes are available in warm weather and cool weather formulas.

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 concrete has been properly profiled and prepared, any major damage such as spalling, pits, or deep defects should be filled first with a base coat of Durável TRO or FSR. Refer to the Durável TRO or FSR Technical Data Sheet for more information.

When used as a smoothing base coat over repaired or smooth surfaces, typical coverage is about 150 to 200 square feet per bag.

Coverage for textured finishes will vary depending on the texture and design. Typical coverage is 120 to 200 square feet per bag.

FOR PROFESSIONAL USE ONLY

Directions for Use:

Substrate Preparation:

SOUND: Concrete that is failing because of poor placement or severe environmental damage should be replaced, not repaired. Cracks and joints should always be considered moving areas. They may continue to move after the overlay or repair mortar is installed, which can cause the repair or overlay to crack.

Expansion and contraction joints must always be honored because they allow movement in the concrete slab. Do not cover or fill them with repair mortar. Large holes and deep divots should be filled in layers, also called lifts. Flexible joint sealant should only be installed after the repair mortar has been placed and fully cured. Before the project begins, explain this to the client so they understand what to expect. When the repair mortar is properly bonded, it will move with the concrete underneath it.

CURED: All concrete must be cured long enough for proper hydration. The recommended cure time is 28 days, depending on temperature and humidity. Concrete may cure faster or slower based on jobsite conditions. Always make sure the concrete is properly cured before applying repair mortar or coatings.

CLEAN: Surfaces must be clean and able to absorb water before they are filled or repaired. Remove all contaminants from the surface, including dust, dirt, oil, grease, paint, glue, sealers, curing compounds, release agents, efflorescence, chemicals, rust, or algae. If grinding is used for surface preparation, clean the concrete first. This helps prevent contaminants from being pushed deeper into the concrete during grinding. After grinding or any other mechanical preparation, clean the surface completely and remove all dust.

PROFILED: Acid etching should not be used on smooth or power-troweled concrete surfaces. Perform a water drop test to make sure the concrete is porous enough. Water should quickly soak into the surface and darken the concrete. If the water beads on the surface for more than 15 seconds, the concrete is not porous enough. It must be mechanically profiled by shot blasting or diamond grinding. For proper bonding, the concrete surface must be prepared to a CSP-2 or CSP-3 profile.

ENVIRONMENTAL CONDITIONS: The substrate temperature during application and curing must be between 45°F and 90°F (7°C and 32°C). Excessive wind and/or direct sun exposure may adversely affect hydration and curing. Schedule exterior applications to protect the mortar from rain for a minimum of two hours after application has been completed.

Mixing Instructions:

Mix one bag at a time in a clean 5-gallon pail using a helical mixing blade. Add 4.0 to 5.5 quarts of water per bag. Water demand may change depending on temperature, humidity, and application method. For best results and longest working time, use clean, cold water. Run hot water out of hoses before use, or fill buckets at the beginning of the day so all mixes are the same temperature. Keep bags cool and out of direct sunlight. Always measure the water into the mixing pail first so each batch is consistent. When using an Overlay Color Pack, add the color pack to the water first and mix it thoroughly before adding the bagged mix material.

While mixing slowly, add the bag contents into the pail. Blend until the material is smooth and free of lumps. As you mix, scrape the sides and bottom of the pail to make sure all dry material is fully blended in. Once all powder is wet, continue mixing for 2 minutes to fully blend the product.

Apply the mixed material promptly. When possible, keep it out of direct sunlight to help extend working time.

If the product stiffens in the bucket, mix it again with the drill and mixing blade. Do not add more water. If mixing it again does not make it workable, discard the material.

The amount of water used will depend on the application:

For a base coat, use more water to help flatten the surface. This is typically 5.0 to 5.5 quarts per bag.

For sprayed coats, use about 4.5 to 5.0 quarts per bag, depending on the texture.

For hand troweling, use about 4.0 to 4.5 quarts per bag..

Tinting Instructions:

Durável TSO is made with white cement. When using an Overlay Color Pack, add one color pack to the mix water and blend thoroughly before adding the bagged mix material.

Application Instructions:

When Troweling: Pre-wet the concrete surface to Saturated Surface Damp, also called SSD. The concrete should be damp, but there should not be standing water on the surface. Continue wetting the surface as needed during application so it does not dry out too quickly. Pour the mixed Durável TSO directly onto the prepared concrete in ribbons across the immediate work area. Spread it evenly with trowels and/or squeegees to create the desired texture. Under normal conditions, the mixed material has about a 30-minute pot life, so the entire bucket does not need to be poured out at once.

When Spraying: Keep the concrete surface dry. Mask and protect nearby surfaces to help control overspray. Use a hopper gun with compressed air to spray the product to the desired texture. The air compressor should produce 5.0 CFM or higher for consistent application. Set the air pressure to about 40 psi, then adjust the air volume at the hopper gun as needed. Adjust the water amount, air volume, and hopper gun nozzle size to achieve the desired texture. Coverage is typically 120 to 200 square feet per bag, depending on the texture applied.

Do not use Durável TSO in areas that will stay permanently underwater.

Tips and Precautions:

Staging Area – Set up a staging area next to the work space. Use this area to change into clean shoes or spike shoes before walking on the prepared surface. This helps prevent dirt, dust, or other contaminants from being tracked onto the clean concrete.

Mixing Location – Set up the mixing station in a shaded area whenever possible. This is better for both the product and the installer. Keep bags out of direct sunlight so they do not get too hot. Hot material can cause the same problems as using hot water, such as reduced working time. Use shade from trees, buildings, or a pop-up tent when available. Do not mix in the middle of a hot concrete or asphalt surface. In cooler weather, the bags may be placed in the sun before mixing to help warm the material. This can help the product dry faster after it is placed on the concrete.

Surface Temperatures – Working on the correct concrete temperature is critical for a successful installation. Most overlays and repair mortars should be applied when the substrate temperature is between 50°F and 90°F. This means the temperature of the concrete, not the air. These products need time to soak into the porous concrete surface and create a strong chemical and mechanical bond. When the concrete surface is above 90°F, the product can set and dry too quickly.

If it dries too fast, it may not have enough time to bond properly, which can lead to early failure. On hot days, start work early and stop when the concrete becomes too hot. In cooler weather, the concrete temperature can drop below 50°F. Cold concrete can hold too much moisture and may prevent the overlay or repair mortar from soaking in and bonding properly. 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 concrete temperature is rising above 50°F. Stop work early enough so the product can fully dry before the air temperature drops below freezing..

Water Temperature – Consistent water temperature is important for a successful installation. One common mistake is using water from a hose that has been sitting in the sun. The water inside the hose can become very hot. Hot water will greatly reduce working time and may cause the product to start setting up in the bucket. Before using hose water, run the water for about 60 seconds to help bring it to a consistent temperature. A good practice is to fill several clean buckets with water before the installation begins. This helps avoid using hot hose water during the job. Using bucket water that is all near the same temperature helps keep each mix consistent.

Measure Water Accurately – Use a graduated measuring container to make sure the same amount of water is used in every batch. Consistent water measurement helps keep the mix and color consistent from batch to batch. Measure the water on a level surface. A bucket turned upside down can work as a flat surface if needed. Measure in the same place and in the same way each time. For even better consistency, make a dedicated measuring pail. Cut a drain hole in the side of a 5-gallon pail at the correct water level. This makes it much harder to add too much water to the mix.

Proper Mixing – The best tool for mixing cement overlays and repair mortars is a helical mixing paddle attached to a 1/2-inch drill or a two-handled mortar mixer. Always add the measured water to the mixing bucket first. If an Overlay Color Pack is being used, add it to the water and blend it before adding the bagged mix. A strong mixer should be able to wet out a full bag in less than one minute. Once the powder is fully wet, scrape the sides and bottom of the bucket with the mixing paddle or a margin trowel. This helps loosen any dry material stuck to the bucket. After that, continue mixing for 2 more minutes to make sure all components are fully blended.

SSD Means Saturated, Surface Damp – When applying a mix with a trowel or squeegee, the concrete surface must be SSD. This means the concrete should be damp and saturated, but there should not be puddles on the surface. If the surface looks shiny, it is too wet. If the surface starts to lighten in color, it is too dry and more water should be applied. A good practice is to fully wet the concrete with a hose and spray nozzle before applying the product. If puddles form, use a squeegee to spread the water out. Keep a pump sprayer nearby during the installation and continue to dampen the surface as needed. Maintaining SSD helps the coating bond properly. It also helps prevent the mix from drying too quickly or balling up under the tools.

Do Not Add Water – After the mix is blended and you have started placing it on the surface, do not add more water if it becomes stiff in the bucket. Adding water after the chemical reaction has started can speed up hardening and may weaken the product. If you mix a bag and immediately see that more water is needed, that is the correct time to add it. Do not wait until the product has already been used for a while. If the mix starts to stiffen in the bucket, spin it again with the mixing paddle. This may loosen the material and give you a little more working time. If the mix stays stiff, discard it and mix a new bag. Do not force material that has started to set onto the surface.

Application – Only pour out what can be used on the surface within 2 to 3 minutes. Unlike epoxy, cement overlay products can stay in the mixing bucket while you work. You do not need to pour the entire bucket out at once. Putting too much material on the ground at one time can cause it to be worked too much. As the wet overlay or repair mortar is pulled across the surface, it begins to soak into the concrete. If too much material is placed at once, it may get moved back and

forth too many times. When this happens, the mix can turn into a paste that is mostly aggregate. If this occurs, 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:

When applied outside Durável TSO must be finished with DV-30, DV-WB, Colour Seal, Colour Seal WB, or another compatible single-component acrylic concrete sealer. Interior applications may be finished with acrylic sealer or water base polyurethane. Follow the maintenance instructions for the selected sealer.

Cured Physical Properties:

The concrete industry switched from Portland Cement to Portland Limestone Cement (ie Type IL) in late 2022. All Durável cementitious mixes are formulated with PLC, and all data listed is from tests performed on current formulas. Use caution when comparing performance data to other products that may be out of date. See https://www.duravel.com/portland-cement-now-portland-limestone-cement-plc/ for more information about PLC.

Initial Set: ASTM C-266, 270 to 300 minutes (varies with temperature)

Final Set: ASTM C-266, 300 to 330 minutes (varies with temperature)

Compressive Strength: ASTM C-109, 3735 psi at 7 days (25,752 kPa)

Flexural Strength: ASTM C-580, 1715 psi at 7 days (11,825 kPa)

Tensile Strength: ASTM C-307, 824 psi at 7 days (5,681 kPa)

Tensile Bond Strength: ASTM C-1583, 362 psi at 7 days (substrate failure)

Abrasion Resistance: ASTM 4060, at 7 days 1.25g loss

Freeze-Thaw Cycling: ASTM C-666M, 50 cycles PASS

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