



DURATOP HP™

Flowable Floor Topping for High Performance, Wear and Impact Resistant Heavy Duty Floors

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PRODUCT DESCRIPTION

For that needed abrasion resistant industrial floor topping we recommend **DURATOP HP**. This flowable natural metamorphic spinal aggregate produces a highly abrasion and chemical resistant solution for abusive impact and concrete floor wear conditions.

The high concentration of the very abrasive resistant aggregates consisting of silica oxide, aluminum oxide, and ferric oxide assure a dense, tough floor resistant to impact and abrasive wear with a blend of cement to return floors to service in 48 hours.

DURATOP HP floors are also resistant to the destructive attacks of mild organic acids, alkalies, oils and are rust free.

DURATOP HP is six times more wear resistant than 6000/psi concrete. **DURATOP HP** resists moisture deterioration and is harder and more abrasion resistant than other mineral aggregate toppings. Its unique formulation provides a substantial savings in material cost when compared to other toppings. In addition to superior performance, this flowable formulation can be placed and finished like concrete. These superior physical properties make **DURATOP HP** an excellent choice for heavy-duty industrial service Class 6 and 7 floors, as described by ACI in its Manual of Concrete Practice standard, ACI 302.1R.

Basic Use: **DURATOP HP** with its unique combination of aggregates, which reinforce concrete floors by developing dense, long lasting, abrasion and impact resistant surfaces to withstand medium to heavy wear conditions. Use it in key areas subject to heavy traffic, impact abrasion and continuous wear such as roll-off areas, foundries, loading docks, truck, tractor and auto installation and repair areas, bus terminals, smelters, machinery manufacturing plants and generating stations. **DURATOP HP's** unique non-rusting formula is ideal for outside loading docks and the wet environment in industrial plants using chemicals. The **DURATOP HP** aggregate due to its similar melt point to the cullet is ideal for use as the floor topping in areas where the refuse glass is transferred to the furnace and will maintain the integrity of the finished glass product.

FEATURES & BENEFITS

- Fast turn around for weekend shut downs.
- 6 times more wear resistant than 6,000/psi concrete.
- Major cost savings over iron toppings.
- Resists severe single point impacts.
- High density-resists industrial contaminants.
- Rust-free service – inside or outside applications
- Similar melt point as the cullet

ESTIMATING

DURATOP HP is available in two convenient sized bags, 55 lb. (25 kg.) or large disposable bulk bags of 3,000 lbs. (1364 kg.). Containers are identified with product name and batch code. Yield of 55 lb. (25 kg.) bag is .37 cu. ft. (0.01m³).

Coverage Rates: typical application depth ranges from 3/4 to 1 1/2 inches (19 – 38 mm). Topping depth of 3/4 inch (19 mm) thick requires approximately 10 pounds/square foot (50 kg/m sq.). The minimum recommended depth 3/4 inch (19 mm).

TECHNICAL DATA

Physical properties:

DURATOPHP

Aggregate only	SiO ₂
	Al ₂ O ₃
	Fe ₂ O ₃
Hardness, Mohs	7.5

Impact Resistance – ACI 544.2

7 days	100 required drops per test	No Cracking
28 days	100 required drops per test	No Cracking

Compressive Strength @3 qts./55 lbs.

	psi	(MPa)
1 day	3,000	(20)
2 days	5,000	(34)
3 days	7,000	(48)
28 days	10,500	(72)

DURATOPHP Physical Properties:

Abrasion – ASTM C779 (60 min. abrasion)	
Depth of Wear (inches)	0.0059
Length of Change ASTM C157	-0.045%
Permeability – ASTM C 1202	
Coulombs	536 (Very Low)
Fusion Temperatures	
Initial Deformation °F	2850
Fluid °F	2960

DURATOP HP



INSTALLATION

MIXING PROCEDURES FOR DURATOP HP

Mix in a paddle-type mortar mixer. First place all the water into the mixer, then add **DURATOP HP**. For maximum flow, mix 55 lbs. (25 kg) of **DURATOP HP** with 2.5-3 qts. (2.4L-2.8 L) water.

Mix a minimum of 5 minutes for high flow consistency. When a large volume of **DURATOP HP** is required, it may be purchased in bulk bags of 3,000 lb. (1364 kg) and mixed in a concrete mixer truck. For maximum flow, mix 3,000 lb. (1364 kg) with 34 to 41 gallons (129L to 155 L) water. Place the required water into the concrete mixer truck. Suspend the bulk bag over the charging funnel of the mixer truck, and load the dry material while the mixer truck is running at full charging speed. FOR MAXIMUM SLUMP mix for a minimum of 5 minutes (minimum of 65 revolutions at 10-15 revolutions per minute), then place. The temperature should be between 50 degrees F and 90 degrees F (10 degrees C and 32 degrees C) at the time of placement. In cold weather placement, heated mixing water may be used. The maximum water temperature should not be greater than 100 F (43 C). In hot, dry weather installations, mixing water may be chilled using block ice. Use L&M E-CON to protect surfaces from rapid drying.

TECHNIQUES FOR PLACEMENT OVER HARDENED CONCRETE

Hardened Concrete Substrate Requirements:

The substrate concrete must be structurally sound and have a minimum compressive strength of 4,000 psi (27 MPa). When calculating load carrying capabilities of the slab, the **DURATOP HP** thickness should be included. Cracks in the concrete substrate must be repaired before placement. If they are not repaired and their causes corrected, the **DURATOP HP** will crack in the same place and may delaminate. Refer to ACI 302.1R for guidance on requirements for structurally sound slabs.

Surface Preparation:

Base slab surface must comply with sections 3 & 4 of ACI 503.6R. The top surface of the base slab is abraded to expose the aggregate to a minimum profile of 1/4 inch amplitude between lowest and highest points of the surface. Use for either the application of latex bonding slurry or the epoxy bonding method.

Priming With Slurry Bond Coat:

To the properly prepared surface either the epoxy bond coat or the slurry bond coat primers will effectively bond the topping to the base slab.

Epoxy Bond Coat Method: Prime the base slab surface with **EPOBOND** following the mixing and application procedures described on the **EPOBOND** label. Should **EPOBOND** lose its tackiness before placement of the **DURATOP HP**, recoat the surface with **EPOBOND**.

Slurry Bond Coat Method: Soak the base slab with water to a saturated surface dry (SSD) condition. This is best achieved by water soaking the substrate for 12 hours just prior to applying the bonding slurry. Remove all surface water, leaving only a damp surface. Mix in equal volume of **EVERBOND** and dry Portland cement to a creamy, paint-like consistency. Broom the slurry into the damp surface, no more than 30 minutes before placement of the topping. **RE-PRIME** all areas that may dry **BEFORE** installation of the topping.

Placement over Hardened Concrete:

Using a roller or pipe screed, set the strike-off level of the vibratory screed to the specified final elevation of the concrete floor. Place the **DURATOP HP** over the wet **EVERBOND** slurry or **EPOBOND** primer, mix immediately ahead of the vibratory screed.

An alternative method of bonding **DURATOP HP** to hardened concrete is through L&M's **EPOBOND** system.

DURATOP HP should be placed approximately 1/8 inch (3mm) above the bottom of the screed. Strike off the product with a vibratory screed, which is essential for the initial consolidation of the topping. Use normal concrete finishing methods to finish the **DURATOP HP** surface. During power floating pass, use a mechanical toweling machine equipped with float shoes to keep topping open, allowing water evaporation and minimizing the danger of surface blisters. Power trowel to desired finish. Leave textured finish if extra non-slip performance is needed.

Joint Placement over Existing Hardened Concrete Substrate:

Joints in the base concrete and **DURATOP HP** must coincide. Joints placed in the topping must pass through its full thickness and into the base concrete to the depth and spacing required by ACI 302. After curing 60 days or more, fill control joints with L&M **JOINT TITE 750**.

Curing & Special Requirements:

Water cure the **DURATOP HP**. The area may be opened to full service in 48 hours, while continuing with the water cure for 7 days.

MONOLITHIC PLACEMENT OVER PLASTIC CONCRETE

Substrate Concrete Requirements:

The substrate concrete should be designed to develop a minimum of 4,000-psi (27 MPa) compressive strength. It must not contain calcium chlorides, stearates or other substances, which are corrosive. The air content of the substrate concrete shall be 3% maximum and the slump shall not be greater than 5 inches (125mm). During the placement of the substrate concrete and the topping unvented fossil-fuel heaters should not be used. Un-vented

fossil fuel heaters will cause carbonation of fresh concrete and the **DURATOPHP**.

Placement and Preparation of Plastic

Substrate Concrete:

Place the concrete and strike off using a vibratory screed. Bullfloat immediately after strike off and before bleed water appears. After concrete bleed water has dissipated, darby (jitterbug) surface to produce a mortar bed approximately ¼ in (5mm) thick, measured from the top of the coarse aggregate. Using a tining rake, lightly score the concrete surface at right angles to a depth of approximately 1/8 in. (3mm).

Raise the strike-off level of the vibratory screed to the specified final elevation of the concrete floor. Firmly attach the guides for the vibratory screed to the substrate and not on the plastic concrete surface. The minimum thickness of **DURATOPHP** is 3/4 inch (19mm). Operate the vibratory screed at ¼ speed.

Placement over Plastic Concrete:

Place **DURATOPHP** on the surface of the concrete immediately ahead of the vibratory screed. Care should be taken not to exceed the screed's capacity. The **DURATOPHP** should be approximately 1/8in. (3 mm) above the bottom of the screed. Strike off with vibratory screed. Measure topping depth frequently.

If, during placement, coarse aggregate from the plastic concrete starts to appear through the surface of the topping, lower the vibratory screed running speed or delay further placement until the concrete is less plastic.

Use normal concrete finishing methods to finish the surface of the **DURATOPHP**. During power floating pass, use power trowel with float shoes to keep topping open, allowing proper water evaporation to minimize the danger of surface blisters. Power trowel to desired finish. Leave textured finish if extra non-slip performance is needed.

Joint Placement on Monolithic Concrete

Pour:

Joints placed in **DURATOPHP** must pass through its full thickness and into the base concrete to the depth and spacing required by ACI 302.

Special Curing Requirements When Placed over Plastic Concrete:

After final finishing step water cure the topping. The area may be opened to full service in 48 hours while continuing with the water cure for 7 days.

FOR BEST RESULTS:

- ACI Manual of Concrete Practices are to be followed. To avoid surface carbonation during cold weather application of **DURATOPHP**, do not use un-vented fossil—fuel heaters. The temperature should be between 50 degrees F and 90 F (10 C and 32 C) at the time of placement.,
- Do not add accelerators or other admixtures to **DURATOPHP**. Avoid application in extreme weather.

- A pre-placement job conference is required with this product to carefully plan the installation.
- Minimum depth is ½ inch (13mm).

PRECAUTIONS

Contains Portland cement. Freshly mixed cement is highly alkaline and may cause skin injury. Avoid creating and inhaling dust. Provide ventilation and respiratory protection. Dust mask is recommended.

Please refer to Product Material Safety Data Sheet (MSDS) before using.

STORAGE/SHELF LIFE

DURATOPHP contains Portland cement. Bags are to be kept in cool, dry storage to prevent water damage. Shelf life is a minimum of one year in factory sealed bags.

WEBSITE

L&M's convenient internet website offers instant access to Tech Data Sheets, Material Safety Data Sheets, product updates, and other useful information. Visit www.lmcc.com and follow the easy steps. L&M is ready to respond to your concrete information needs - anytime - anywhere!

LIMITED WARRANTY

This product is warranted to be free of defects in material and workmanship, and conform to L&M Construction Chemicals ("L&M") quality control standards. All recommendations, statements and technical data herein are based on tests we believe to be reliable and correct, but accuracy and completeness of said tests are not guaranteed and are not to be construed as a warranty or guaranty of any kind, expressed or implied including but not limited to, an implied warranty of merchantability or an implied warranty of fitness for a particular purpose. Satisfactory results depend upon many factors beyond L&M's control. User shall rely on his or her own information and tests to determine suitability of the product for the intended use and user assumes all risk, loss, damage, expense and liability resulting from his or her direct use, indirect use or consequential to their use of the product. L&M shall not be liable to the buyer or any third person for any injury, loss or damage directly or indirectly resulting from use or inability to use the product. L&M's sole responsibility shall be to replace that portion of the product which proves to be defective. Any warranty claim must be made within six (6) months from the date of the claimed breach. This limited warranty applies only if the product was properly installed and used according to all instructions and was properly stored prior to use.

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