



DURATOP HP™

DS-177.6-0116

A product brand of LATICRETE International, Inc.



1. PRODUCT NAME

DURATOP HP™

2. MANUFACTURER

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3. PRODUCT DESCRIPTION

DURATOP HP is a flowable, natural metamorphic aggregate which produces a highly abrasion and chemical resistant solution for abusive impact and concrete floor wear conditions. DURATOP HP consists of a blend of abrasive-resistant aggregates of silica oxide, aluminum oxide and iron oxide along with a blend of cement which helps to assure a dense, tough floor that is resistant to impact and abrasive wear and allows for return to service in as little as 48 hours. DURATOP HP floors are also resistant to the destructive attacks of mild organic acids, alkalis, oils and are rust free. DURATOP HP is more wear resistant than 6000 psi (41.4 MPa) 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.

Uses

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 has unique non-rusting formula is ideal for outside loading docks and the wet environment in industrial plants using chemicals.

Advantages

- Fast turnaround for weekend repairs
- More wear resistant than 6,000 psi (41.4 MPa) concrete
- Major cost savings over iron toppings
- Resists severe single point impacts
- High density-resists industrial contaminants
- Rust-free service – inside or outside applications

Suitable Substrates

- Existing Concrete

Packaging

55 lb (25 kg) bag
3,000 lbs (1364 kg) super sack

Approximate Coverage

| Nominal Thickness | Approximate Coverage |
|-------------------|--|
| 1" (25 mm) | 12 lbs/ft ² (58.7 kg/m ²) |

Shelf Life

DURATOP HP 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.

Limitations

- ACI Manual of Concrete Practices is to be followed
- To avoid surface carbonation during cold weather application of DURATOP HP, do not use un-vented fossil—fuel heaters. The temperature should be between 50°F and 90°F (10°C and 32°C) at the time of placement.
- Do not add accelerators or other admixtures to DURATOP HP
- Minimum depth is 1/2" (12 mm)

Cautions

- Refer to Safety Data Sheet (SDS) before using
- Protect finished work from traffic until fully cured
- Contains portland cement and silica sand
- May irritate eyes and skin. Avoid contact with eyes or prolonged contact with skin. In case of contact, flush thoroughly with water.
- Do not take internally
- Silica sand may cause cancer or serious lung problems. Avoid breathing dust. Wear a respirator in dusty areas
- Keep out of reach of children

Mock-ups and field test areas are required in order to validate performance and appearance related characteristics (including but not limited to color, inherent surface variations, wear, anti-dusting, abrasion resistance, chemical resistance, stain resistance, coefficient of friction) to ensure system performance as specified for the intended use, and to determine approval of the decorative flooring system.

4. TECHNICAL DATA

Physical and Working Properties

| Aggregate | |
|---|---|
| Aggregate Type | Al ₂ O ₃ SiO ₂ Fe ₂ O ₃ |
| Hardness | 7.5 (Mohs scale) |
| DURATOP HP™ | |
| Impact Resistance (ACI 544 2) | 7 days: no cracking 28 days: no cracking |
| Compressive Strength | 1 day: 3000 psi (20.7 MPa) 2 days: 5000 psi (34.5 MPa) 3 days: 7000 psi (48.3 MPa) 28 days: 10500 psi (72.4 MPa) |
| Abrasion ASTM C 944 | Depth 60 min – ln.0.0059 |
| Length Change ASTM C157 | 28 days: -0.045% |
| Permeability ASTM C 1202; AASHTO-T-277 | Coulombs passed: 536 |
| Fusion Temperatures | Initial Deformation: 2850°F (1565°C) Fluid: 2960°F (1627°C) |

Specifications are subject to change without notification. Technical data shown in product data sheets are typical but reflect laboratory test procedures conducted in laboratory conditions. Actual field performance and test results will depend on installation methods and site conditions. Field test results will vary due to critical job site factors. All recommendations, statements and technical data contained in this data sheet 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. Satisfactory results depend upon many factors beyond the control of LATICRETE International, Inc. User shall rely on their 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 their direct use, indirect use or consequential to their use of the product. LATICRETE shall not be liable to the buyer or any third party for any injury, loss or damage directly or indirectly resulting from use or inability to use the product.

5. 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 (2.4-2.8 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- 41 gal (129 L-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°F and 90°F (10°C and 32°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 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 (27.6 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" (6 mm) 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. DURATOP HP should be placed approximately 1/8" (3 mm) 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 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 (27.6 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" (125 mm). During the placement of the substrate concrete and the topping unvented fossil-fuel heaters should not be used. Fossil fuel heaters must be properly vented to avoid exposure to noxious fumes and carbonation.

Placement and Preparation of Plastic Substrate Concrete:

Place the concrete and strike off using a vibratory screed. Bull float immediately after strike off and before bleed water appears. After concrete bleed water has dissipated, darby (jitterbug) surface to produce a mortar bed approximately 1/4" (6 mm) 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" (3 mm).

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 DURATOP HP is 3/4" (19 mm). Operate the vibratory screed at 1/4 speed.

Placement over Plastic Concrete:

Place DURATOP HP on the surface of the concrete immediately ahead of the vibratory screed. Care should be taken not to exceed the screed's capacity. The DURATOP HP should be approximately 1/8" (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 DURATOP HP. 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.

6. AVAILABILITY AND COST

Availability

L&M™ and LATICRETE® materials are available worldwide.

For Distributor Information, Call:

Toll Free: 1.800.243.4788

Telephone: +1.203.393.0010

For on-line distributor information, visit LATICRETE at

www.laticrete.com.

Cost

Contact a LATICRETE Distributor in your area.

7. WARRANTY

See 10. FILING SYSTEM:

DS 230.13: LATICRETE Product Warranty

8. MAINTENANCE

Non-finish LATICRETE and LATAPOXY® installation materials require no maintenance but installation performance and durability may depend on properly maintaining products supplied by other manufacturers.

9. TECHNICAL SERVICES

Technical Assistance

Information is available by calling the LATICRETE Technical Service Hotline:

Toll Free: 800.362.3331

Telephone: +1.203.393.0010, ext. 235

Fax: +1.203.393.1948

Technical and Safety Literature

To acquire technical and safety literature, please visit our website at www.laticrete.com.

10. FILING SYSTEM

Additional product information is available on our website at www.laticrete.com. The following is a list of related documents:

DS 230.13: LATICRETE Product Warranty

DS 176.1: EPOBOND™

DS 176.2: EVERBOND™

DS 176.5: JOINT TITE 750™