Protect your floor from impact, abrasion and chemicals with

EmeryTop 400

The World's Toughest Floor.

L&M™ Construction Chemicals

A product brand of LATICRETE International, Inc.

LATICRETE®

Protect your floor against abrasion, impact and chemicals with EmeryTop 400.

The world's toughest floor.

EmeryTop 400 is made of some of the toughest stuff on earth: Emery. It's the same material that's used to grind and sharpen steel. But EmeryTop 400 is more than just a mineral aggregate. Our high grade emery aggregates are made of natural corundum and contain an industry high of 58% aluminum oxide for extreme abrasion resistance. In addition, you'll find a high percentage of ferric oxide as a stable polyhedral isostructural mineral. This iron component of EmeryTop 400 has been completely and naturally oxygenated, making it strong like iron but impossible to rust. The result: EmeryTop 400 floors have outstanding impact resistance.

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EmeryTop 400's innovative, project-proven formula chemically reinforces the cement paste which surrounds the emery aggregate and protects your floors against chemical attack. This protection makes the difference in service life of an industrial floor topping. In fact, you're likely to get twice the service life or more with an EmeryTop 400 surface as compared with an iron topping surface, and 3 to 4 times more life over standard 4,000 psi concrete.

Three attacks. Three defenses.

There are three kinds of attack—abrasion, impact and chemical—which destroy heavy-use solid waste and industrial floors every day. Only EmeryTop 400 offers the unparalleled protection to slow these attacks. That means at least doubling the service life of your floor surface when compared against concrete and other heavy-duty high-strength toppings.

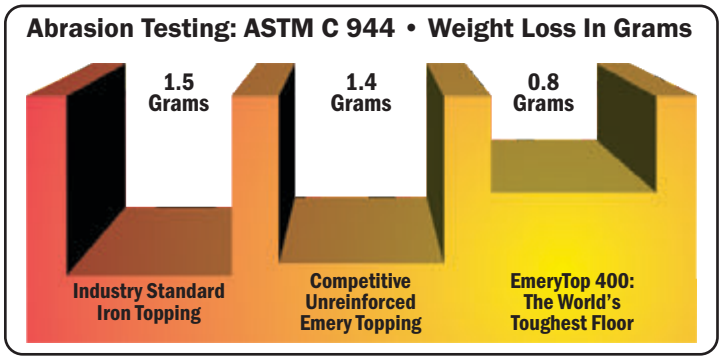
Abrasion:

The constant scraping of your floor's surface is, perhaps, the most incessant of the challenges you need to protect against. Day after day, the uppermost surface, the Near Surface Wear Zone of your floor, is being beaten and worn away, almost invisibly—until it's too late. Once the wear surface is gone, all that's left is loosely bound aggregate and cement paste.

Now, vulnerable to impact and contaminates, the unprotected floor surface faces rapid surface deterioration, costly and time consuming replacement, and the very real risk of having to halt operations.

FACT: EmeryTop 400 Protects Against Abrasion.

In this first test, EmeryTop 400 is compared to a competitive, unreinforced emery aggregate topping and to a popular, industry standard iron topping. They were tested to determine relative abrasion resistance in accordance with the familiar ASTM C 944 test, utilizing rotating cutter wheels to simulate rapid abrasion. **Under identical laboratory conditions, EmeryTop 400 proved to be nearly twice as resistant to abrasion as the other leading brands:**



Nothing easier. Nothing tougher.

Everything about EmeryTop 400 is tough—except installation.

Protecting a concrete floor that is subject to daily abuse used to be a long, tedious, and expensive proposition. What's worse, most concrete floor toppings and floor coverings won't last long under heavy contamination, abrasion or impact.

That was then. But this is now—so you can have the best protection available for your concrete floor with less cost, reduced downtime, and longer, better performance. Compared to other options, **EmeryTop 400**'s installation is quick and easy. But the protection it offers is long-term and tough.

Look at the independent test data. Then call us for real-world case studies. We'll show you precisely how your floor can hold up for years under any abuse you want to throw at it.

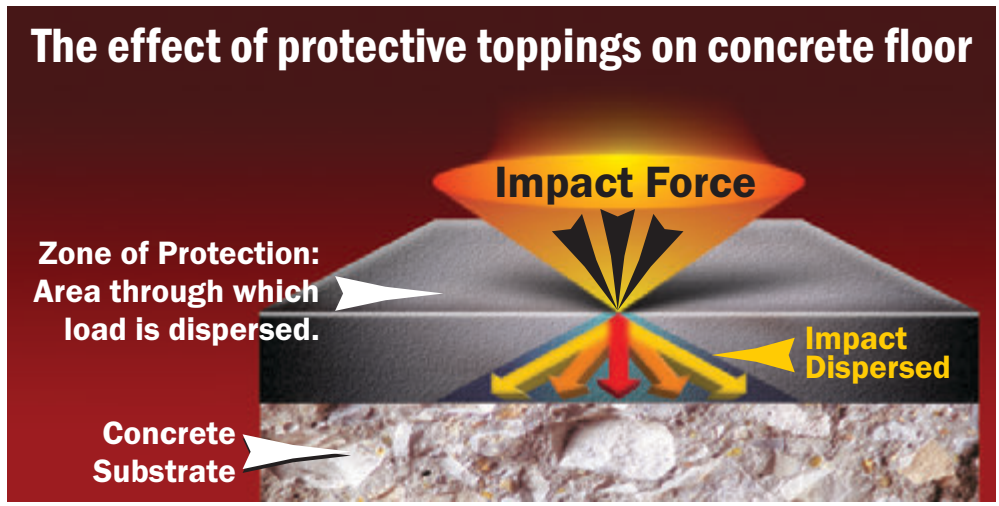
Impact:

Constant blows and repetitive strikes from heavy machinery threaten to crack even the thickest transfer station and industrial concrete floors. EmeryTop 400 is the first line of defense. In this important test, EmeryTop 400 was compared with a popular iron topping using the ACI 544.2 impact resistance testing procedure. It proved to be equally impact resistant as the iron topping.

Impact Resistance ACI 544.2		
Test Age	**EmeryTop 400**	**Iron Topping**
7 Days	No Cracking After 4,500 Blows	Virtually the Same as EmeryTop 400
90 Days	No Cracking After 4,500 Blows	Virtually the Same as EmeryTop 400

The Zone of Protection: Protect your floor from impact with EmeryTop 400

This category of protection includes toppings. Products of this type must not only protect the near-surface wear zone from abrasion but also protect the underlying concrete from impact and point loads. In order to protect industrial floors from impact and point loads the protective material must produce a zone of protection.



To understand how this zone of protection works we must first understand the physics by which a load travels through a material. When an impact or point load contacts the surface of a material, the area over which the load is very small. As the load travels through the material the area becomes larger as the load increases its depth of travel through the surface.

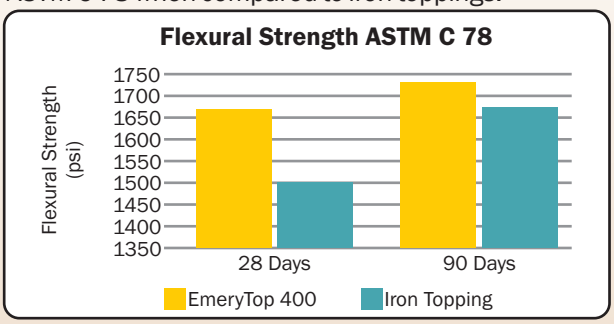
The pattern of travel takes on the shape of a right circular cone, with the base being the area over which the load is dispersed at a given depth into the substrate material and the upper point being the initial point of contact.

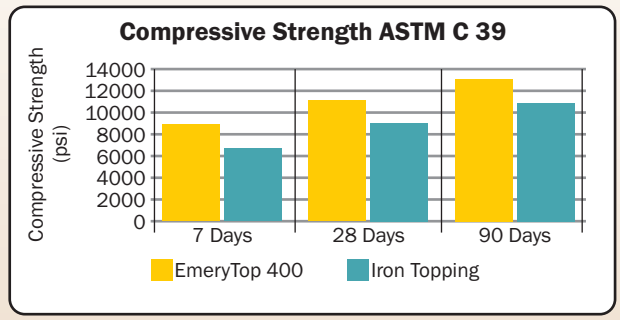
Materials that produce a zone of protection are placed over either hardened or plastic concrete as a topping. The thickness of the topping generally ranges from 3/4 to 2 inches (20-50 mm), sometimes more. The thicker the topping, the greater the area over which the load can be dispersed, and the less effect the impacting or point load will have on the concrete below.

Greater strength. Greater protection.

Weight and movement are a dangerous combination for concrete. Constant movement of loads from vehicles, load-bearing transfers, and patterned traffic areas add stress to unprotected concrete surfaces and the vulnerable concrete mass below. EmeryTop 400 gets between the load and the concrete to protect from weight and movement with more compressive strength for greater protection and longer floor performance.

EmeryTop 400 tested at greater compressive strength under ASTM C 39 and at greater flexural strength under ASTM C 78 when compared to iron toppings.





EmeryTop 400 is ready for whatever wants to eat away at your floor, your safety, and your investment.

Chemical Attack:

In most high strength toppings, the cement paste is usually the first component to submit to chemical attack and begin to fail. After a relatively short period of time, the cement paste of either a concrete floor or of a cement based topping will begin to weaken and erode, losing its grip on the high strength aggregates and creating a weakened condition called micropitting.

While initially difficult to detect, given the dirty environment that exists in most industrial and solid waste facility floors, micropitting becomes readily apparent as large areas of the floor surface deteriorate off the concrete substrate.

EmeryTop 400 floors are uniquely protected against chemical attack through chemical strengthening and densifying of the cement paste. No other product can boast of the dramatic benefits that this feature provides the owner of an EmeryTop 400 floor.

This internal sealing and strengthening of the topping greatly slows the rate of chemical penetration, resulting in a dramatic increase of the floor's life cycle. Independent tests show that EmeryTop 400 has been tested for resistance to contaminant penetration in accordance with ASTM C 1202, and shows a significantly lower corrosion rate (when measured in coulombs) when compared to high strength iron toppings.

EmeryTop 400: Proven Chemical Resistance

Chloride Ion Penetration Age of Sample 90 Days • ASTM C 1202		
	EmeryTop 400	**Iron Topping**
Coulombs Passed	220	2,787
Penetrability of Chloride Ions	Very Low	Moderate
Resistivity ohm-cm	93,780	10,600

ASTM C 1202 Table 1 • Chloride Ion Penetration Based on Charge Passed	
Charges Passed (coulombs)	**Chloride Ion Penetration**
>4000	High
2000 – 4000	Moderate
1000 – 2000	Low
100 – 1000	Very Low
<100	Negligible

EmeryTop 400: Structurally Stable

Length Change: ASTM C 157
% of Drying Shrinkage After 90 Days

EMERYTOP 400: 0.07%

IRON TOPPING: 0.178%

Modulus of Elasticity: ASTM C 469:
Modulus of Elasticity After 28 Days

EMERYTOP 400: 6.00 E +06

CONCRETE: 4.5E +06

IRON TOPPING: 3.5E +06

Half the cost. Twice the life.

By most estimates, EmeryTop 400 can actually save a facility owner significant costs over time, both in reduced material costs and extended life expectancy. The savings happen in three ways.

1. Better yield and coverage rate

To properly protect a floor, normally about an inch of topping is specified. Let's compare material weights for similar protection:

- Iron toppings: 18.7 lbs per sq. ft. at 1" depth. (224 lbs/cu. ft.)
- EmeryTop 400: Just 14 lbs per sq. ft. at 1" depth. (168 lbs/cu. ft.)

That's a 25% material savings with EmeryTop 400.
Bottom line? Buy Less. Pay Less. Get better protection.

2. Double the service life

Abrasion testing indicates that EmeryTop 400 has approximately twice the service life as that of an iron topping. Chemical testing shows that it more effectively slows the rate of chemical penetration when compared with iron-topped floors. Impact testing proves that EmeryTop 400 is at least as impact resistant as an iron topping.

3. Ease of application.

Iron toppings are prone to delamination caused by placement difficulties and its inherent drying shrinkage. Iron toppings are required to be anchored to hardened concrete with short nails (anchor pins) and must be glued to the concrete substrate using an epoxy bonding agent.

In contrast, whether EmeryTop 400 is being installed over freshly placed or hardened concrete, it utilizes a low cost, easy to follow bonding procedure which ensures proper and natural, stress-free bonding of the topping to the base slab. Installing contractors also find the placement of this flowable product easy. This means savings for the contractor and the owner.

Let the EmeryTop 400 Advantages Work for You

- Lower Life-Cycle Cost
- Greater Abrasion Resistance
- High Energy-Absorbtion/Impact Resistance
- Non-Rusting = Longer Life
- Greater Yield = Less Material, Lower Cost
- Modulus of Elasticity Compatible with Concrete
- Low-Shrinkage = Better Bond
- Placed and Finished Like Concrete

EmeryTop 400

The World's Toughest Floor.

Abrasion, Impact and Chemicals don't stand a chance against EmeryTop 400. Call us for immediate action.

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