

Cemguard HB-500

Inorganic Hybrid Coating



CEMKRETE

Description

Cemguard HB-500 is a Hybrid Inorganic/Organic Nano Lithium. This high performance by solvent-based formulation is designed for use as both an interior and or exterior industrial floor applications and comes in standard colors which are Clear, Grey, Reddish Brown, Green and Yellow, other colors on request. The unique treatment is extremely low in VOC's (less than 50 grams per liter) environmentally friendly (Green Leaf and can qualify for LEED points) and has a very low polymer odor.

Cemguard HB-500 is an ideal solution for new concrete floor construction and maintenance projects that require superior protection against abrasion, corrosion, and chemical abuse while minimizing losses due to downtime.

Cemguard HB-500 dries to a very hard, colored semi-gloss depending on surface porosity and the easy of re-coatability.

Cemguard HB-500 offers durability, quality and fast installation. That means lasting protection of product applied. This rapid curing, non-yellowing treatment provides long-lasting surface protection, beauty, ease of maintenance and perfect system for protecting concrete floors.

Characteristics

1. Excellent abrasion resistance due to high strength of membrane – High solid, High pigment load
2. Excellent water, alkali, acid, chemical and solvent resistance – Discoloration, Blistering resistance
3. Excellent staining resistance owing to high water, oil repellent - Easy water clean up
4. Increasing durability of concrete & other substrate – High adhesion
5. Good adhesion and durability to various substrate (Concrete, SL, Epoxy, Tile, PVC, steel)
6. Excellent workability with quick reaction & hardening – Save 1-2 Days of apply time and cost
7. Safe – No noxious fumes, odors, or vapors. Anti-flammable membrane (Heat resistance)
8. Eco-friendly product - very low VOC's solvent free, residue does not bio-accumulate in wildlife
9. High slip resistance & low friction sound (Possible non-slip coating with aggregate)

Test of Characteristics

Excellent staining resistance owing to high water, oil repellent

These compounds were checked at regular intervals up to 24 hours to determine the amount of penetration/staining after cleaning with a non-abrasive, neutral pH cleaner. After cleaning, the stain was evaluated according to the following scale.

0 = No change in stain, very visible

5 = Stain lighter, but still very visible

10 = Stain completely removed, no visible signs remaining

	30 min	1 Hr	1.5 Hrs	24 Hrs
Balsamic Vinegar	10	10	8	8
Red Wine	10	10	9	9
Motor Oil	10	10	10	10
Transmission Fluid	10	10	10	10
Skydrol	10	10	10	6

Test of Characteristics

Effective of HB-500 improving for bond strength under high moisture substrate conditions comparing to epoxy coatings



Accelerate test that each specimens immerse in the water 3/4 depth of specimen thickness. Water temperature keep 35 °C, ambient temperature is 20°C, 5 weeks.

* Test in Malaysia Laboratory

	Moisture of each surface by TRAMEX		
Concrete Moisture	Above 6		
Under Coat	4.6	4.6	4.6
Top Coat	Epoxy Self Leveling	Epoxy Solvent Paint	HB-500
	After Accelerated Test (5 Weeks)		
Pull off Test	21.3 N/mm ² C.F * ¹	==	==
Peel off Test	A.F * ²	==	==
Crosscut Test * ³	==	4/9	9/9
	Blister	Blister	Good

*1) Concrete substrate failure

*2) Peel off

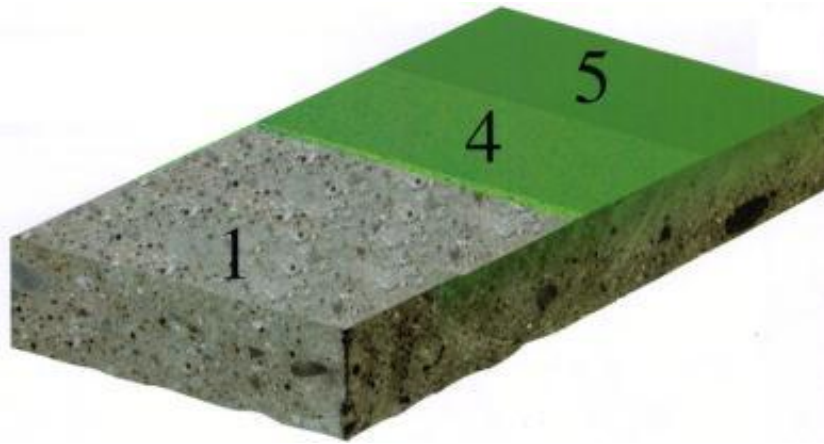
*3) Number of peel of cube in 9 cubes

Uses

- Multiplex and Residential complex where require fire resistance and anti-flammable property such as underground parking lot, shopping mall, station building, terminal, museum, computer center, public of offices
- Floor of plant such as food processing facilities, refineries, pulp and paper mills, wastewater treatment facilities, chemical processing
- Heavy load area such as offshore platforms, heliport, marine/port facilities, warehouse, material handling equipment
- Surface strengthening & aesthetic improving of PVC, epoxy floor, tile, marble, and concrete block



Cemguard HB-500 System for New Flooring

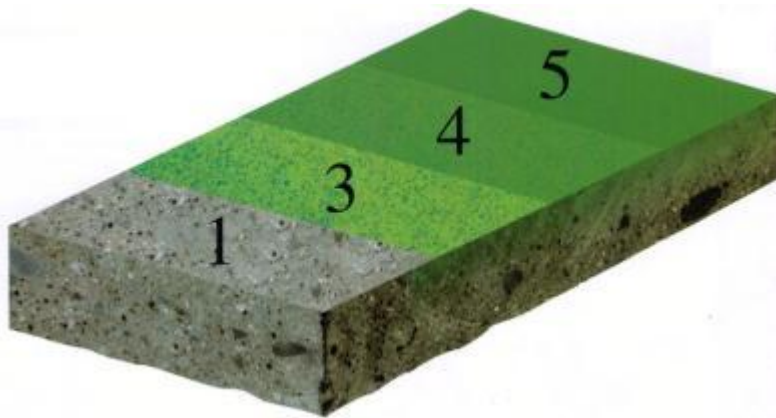


Coating on New Concrete

1. Concrete Substrate
4. Cemguard HB500 (the 1st coat)
5. Cemguard HB500 (the 2nd Coat)

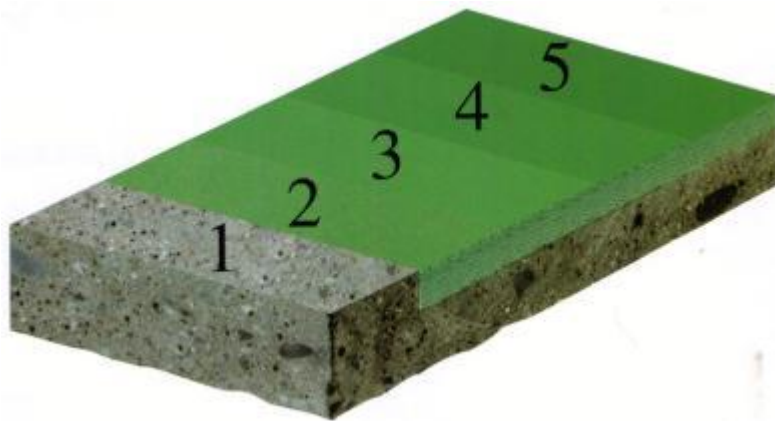
Need to coat twice totally. It takes full hardness 3 days and 3-4 hours per coat under 20 °C basis

Cemguard HB-500 System for Renovated Flooring



Coating on Floor Hardener

1. Concrete Substrate
3. Floor hardener
4. Cemguard HB500 (the 1st coat)
5. Cemguard HB500 (the 2nd Coat)



Coating on Organic Floor Coat

1. Concrete Substrate
2. Primer
3. Epoxy coating, Epoxy Self leveling, Polyurethane coating, PVC etc.
4. Cemguard HB500 (the 1st coat)
5. Cemguard HB500 (the 2nd Coat)

Technical Data

Drying time	10°C	20°C	30°C
Set to touch	6 hours	3 hours	2 hours
Dry-through	12 hours	8 hours	6 hours
Full hardness	5 Days	3 Days	2 Days
Finished condition	Semi-glossing		
Nonvolatile content	About 70%		
Coverage Rate	0.12 kg. on the basis of coating twice (It can be changed depending on substrate condition)		
Mixing ratio (Weighted)	(Clear) Main resin : Hardener = 11 : 4.14 (Colored) Main resin : Hardener = 11 : 7		
	(Non-slip) Mixture of main resin & hardener : Recommended aggregate = 100 : 5		
Color	Clear / Grey / Reddish brown / Green / Yellow		
Flashing point	23°C (under airtight condition)		
Packaging	Clear : 15.14 kg. Colored : 18 kg.	Storage	1 year

Comparison with other flooring materials

Property	Epoxy	Urethane	Surface hardener	Cemguard HB-500
Component	Bisphenol base epoxy resin + Amine base hardener	Isocyanate base resin + Polyol base hardner	Modified silicate base	Inorganic-organic compound based on silicate
Work flow	Surface treatment → Undercoat → Top coat	Surface treatment → Undercoat → Top coat	Surface treatment → Coat → Spreading → Cleaning	Surface treatment → Top coat
Membrane	YES	YES	NO	YES
Advantages	<ul style="list-style-type: none"> ✓ High performance of Hardness, impact resistance, abrasion resistance ✓ High performance of Chemical, acid, salt water, solvent, oil, water resistance ✓ Freely colored ✓ Good adhesion to substrate ✓ Easy maintenance 	<ul style="list-style-type: none"> ✓ High performance of Chemical, water resistance ✓ High performance of Acid, impact resistance ✓ Durability ✓ Elasticity 	<ul style="list-style-type: none"> ✓ Stimulating early curing of concrete ✓ Controlling dust release of concrete ✓ Reinforcing concrete surface ✓ Preventing against entering of moisture, chemical substances ✓ Improving durability of concrete 	<ul style="list-style-type: none"> ✓ Having both functions of surface hardener and coating agent ✓ Excellent in fire, chemical, abrasion resistance ✓ Staining resistance, excellent chemical, salt water, solvent, acid, oil, alkali, water resistance ✓ Water vapor permeability ✓ Freely colored ✓ Good adhesion to substrate ✓ Easy maintenance ✓ Eco-friendly product, low in VOC's solvent free
Disadvantages	<ul style="list-style-type: none"> ✓ Yellowing ✓ No water vapor permeability ✓ Poor adhesion to crystallizing polymer or non-polar polymer (PE, PP, Silicon, Acryl) ✓ Low fire resistance 	<ul style="list-style-type: none"> ✓ Lower adhesion relatively than Epoxy ✓ Poor scratch resistance, staining resistance than Epoxy due to soft membrane ✓ No water vapor permeability ✓ Low fire resistance 	<ul style="list-style-type: none"> ✓ Limited color(cement color) ✓ Poor staining resistance than Epoxy, Urethane ✓ Complicated work ✓ Expensive cost 	<ul style="list-style-type: none"> ✓ Mixing at jobsite due to 2 component type

Requiring performance for flooring materials

Performance	Epoxy	Urethane	Surface hardener	Cemguard HB-500
Adhesion	E	G	E	E
Abrasion resistance	G	P	E	E
Staining resistance	G	P	G	E
Scratch resistance	G	P	G	G
Fire resistance (Firing, flame spread)	P	P	E	E
Appearance (Leveling, color, roller marking, glossing)	E	G	B	E
Eco-friendly	B	B	E	G
Water vapor permeability	B	B	G	G
Chemical resistance (solvent)	E	G	P	E
Water resistance	G	G	B	E
Acid, Alkali resistance	G	G	B	E
Waterproofing	E	E	P	E
Anti-slip	P	P	E	G
Maintenance (cleaning, repair , durability)	G	B	B	E

✘ E : Excellent

G : Good

P : Plane

B : Bad

Application

Substrate Preparation

- Must be dry, free of surface contaminants, and in sound condition. Allow a minimum 7-14 days cure time for new concrete prior to preparation and application.
- Uneven concrete substrate, scratches and cracks are must be repaired the diamond polishing machine and fill in the polymer cement products for keeping flatness.



Application

- The 1st coat , **Cemguard HB-500** should be applied by polishing machine attached sponge brush must be coat keeping the consistency of coated color. Consumption is 0.06 kg./sqm. After 3-4 hours cured under 30 °C move to next coating stage.
- The 2nd coat, **Cemguard HB-500** should be applied by short hair roller. Consumption is 0.06 kg./sqm. After 3-4 hours cured under 30 °C can be bear traffic.



Remark : if color does not get consistency it is better to give one more coat.

Reference

Comapany / PROJECT	AREA
IMPACT Muang Thong Thani	100 Sqm.
Tessabal Samutprakarn Shcool	1,200 Sqm.
TDK / Rojana	291 Sqm.
AAL / Rojana	17,000 Sqm.
Omron / Rojana	1,080 Sqm.
HMT / Rojana	350 Sqm.
Jonan / Saraburi	4,800 Sqm.
NMB PH-8 Lopburi	150 Sqm.
Hanwa / Amata nakorn	534 Sqm.
TFT / Pin tong	1,670 Sqm.
OKI	108 Sqm.
AMATANAKORN	350 Sqm.
O.A.EI BANGPLEE	233 Sqm.
MITSUBISHI TURBO / THAI SHIMIZU /AMATA	57,319 Sqm.

