

# HD-50™

## RAPID SETTING HEAVY DUTY FLOWABLE REPAIR MORTAR

### PRODUCT DESCRIPTION:

HD-50 is a fast setting, fiber reinforced, latex modified, heavy duty concrete repair mortar designed for areas where a rapid strength gain is required to minimize downtime. HD-50 is a cement based compound having similar characteristics to normal portland cement mixes and is bondable and compatible with portland cement concrete. It does not contain chlorides or magnesium phosphates.

HD-50 is a one component product requiring only water to mix and apply, simplifying restoration of concrete surfaces. Areas repaired with HD-50 can be opened to traffic within one hour because the compressive strength of the patch is already in excess of 2,000 psi.

### PURPOSE:

HD-50 is a rapid setting, cement based concrete mortar designed for the repair of heavy duty surfaces such as concrete highways, bridge decks, parking structures, airport runways, freezer rooms, industrial and warehouse floors, and loading docks.

HD-50 is a flowable material and is not designed for vertical and overhead patching, unless the repair is formed. HD-50 can be installed in weather as cold as 10°F (-12°C), provided cold weather instructions are followed.

### ADVANTAGES:

- Can be opened to use or traffic within 60 minutes.
- High compressive strength quickly – over 2,000 psi in one hour.
- Resists salt penetration and damage from freeze/thaw cycles.
- Contains no chlorides or magnesium phosphate (not a chemical concrete).
- Meets ASTM C-928; Specification for Very Rapid Hardening Cementitious Repair Materials.
- Can be applied in cold temperatures down to 10°F (-12°C), if cold weather instructions are followed.
- Non Corrosive.
- Bondable and compatible with portland cement concrete.
- Aggregate Extension – Up to 60% on repairs greater than 2 inches (5cm) deep.

### SPECIFICATIONS:

Meets ASTM C-928: As a Type R-3 mortar which includes the following tests:

### 1. Compressive Strength – ASTM C-109

	At 75°F (24°C)	At 40°F (4°C)	At 100°F (38°C)
1 Hour	2500 psi (17.2 MPa)	–	–
3 Hours	3500 psi (24.1 MPa)	2700 psi (18.5 MPa)	5100 psi (35.1 MPa)
1 Day	6145 psi (42.4 MPa)	6100 psi (42.0 MPa)	6300 psi (43.4 MPa)
7 Days	7370 psi (50.8 MPa)	6860 psi (47.3 MPa)	7300 psi (50.3 MPa)
28 Days	7990 psi (55.1 MPa)	7800 psi (53.8 MPa)	8500 psi (58.6 MPa)

### 2. Bond Strength ASTM C-882

1 day	1,950 psi (13.4 MPa)
7 days	2,250 psi (15.5 MPa)

### 3. Length Change of Hardened Cement Mortar and Concrete ASTM C-928

Change	Water Storage	Air Storage	Differential
28 Days	+ .051%	- .082%	.133%
ASTM C-928	Max. to .15%	Max. to -.15%	Max. .20%

### 4. Scaling Resistance (Freeze/Thaw) - ASTM C-672

Average of 3 specimens:  
Scaling Resistance - .71 lbs./ft<sup>2</sup> (3.5 kg/m<sup>2</sup>)  
ASTM C-928 Spec. - 1.0 lbs. /ft<sup>2</sup> (4.9 kg/m<sup>2</sup>)

### 5. Rapid Freeze/Thaw Test: ASTM C-666

At 300 Cycles - No loss.

### 6. Chloride Ion Permeability - ASTM C-1202

Elapsed Time - 360 minutes  
Chloride Permeability Rating - Very Low

### SURFACE PREPARATIONS:

For best results follow the ACI standards for concrete preparation, removing all residue, grease, dirt, oil, etc. from the surfaces to be in contact with the repair material. All loose concrete must be removed until firm substrate is exposed. Saw cut the perimeter of the repair to a maximum depth of 1/2" (1.3 cm). Best results will be obtained by saw cutting the area to be repaired, providing uniform depth, a high surface profile and firm bonding areas. Minimum repair depth of 1/2" (1.3 cm) is required. All surfaces to be repaired should be in a saturated surface dry (SSD) condition with no standing water on the surface. Using freshly mixed HD-50, scrub a thin layer onto the saturated-surface-dry (SSD) substrate with a stiff fiber brush and place the HD-50 before the scrub coat dries. In certain

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conditions the use of an approved bonding agent, i.e. J-40, J-58, may be required. Contact Technical Services for further information.

## PLACEMENT INSTRUCTIONS:

When mixing less than a full bag, always first agitate the bag so that a representative sample is obtained. HD-50 requires only water for mixing at the rate of 3.25 qts. (3L) per 50 lbs. (22.7 kg) of material. Place water into the mixing container and then add the repair material to the water. The product can be mixed with a mud paddle in a 5 gal. (18.9L) container, or can be mixed in a mortar mixer, preferably with rubber-tipped blades. Continue mixing until the material is free of lumps (approx. 3-5 minutes). Mix as close as possible to the area to be repaired. Do not allow material to build up on equipment and wash periodically with water. Do not re-temper the mixed material or use admixtures. Place immediately after mixing, working the material firmly into the sides and bottom to eliminate air pockets and assure maximum bond. Where practical, work from one side to the other and screed to the level of the surrounding concrete. Trowel the surface or provide a desired finish. Working time is 15 minutes. HD-50 should be extended up to 60% by weight with clean saturated-surface-dry (SSD) 3/8" (1.0 cm) pea gravel on patches deeper than 2" (5 cm). For aggregate extension greater than 60%, contact Dayton Superior. On hot or windy days, a moist cure for 1 hour is recommended, or apply one of Dayton Superior water based curing compounds, such as J-18 or J-11-W.

## HOT AND COLD WEATHER APPLICATIONS:

**COLD** - HD-50 can be applied in temperatures down to 10°F (-12°C), provided these instructions are followed. When applied in cold weather (below 40°F, 4°C), heat the surrounding concrete until warm to the touch. Warm the repair material and use approx. 90°F (33°C) mixing water. After placement, the repaired patch should be covered with a construction insulating blanket for a minimum 1-3 hours to keep material from freezing and to assure proper set and bond.

**HOT** - When placing the material in hot weather, cold water should be used as a mixing agent. Ambient and water temperatures will affect the setting time. Colder temperatures will extend the setting time, and warmer temperatures will shorten the setting time. At 70°F (21°C), the initial setting time is between 15 and 20 minutes. In applications where temps. are above 90°F (33°C) it is recommended the repair area be soaked with water, or use of an approved bonding agent like Dayton Superior Ad Bond (J-40) be applied to prevent the rapid loss of the moisture in the patch material. The repair area should be covered with wet burlap or one of Dayton Superior water based curing compounds, such as J-18 or J-11-W.



## YIELD:

.42 cubic ft. per 50 lb. (.012 m<sup>3</sup>/ 22.7 kg) bag  
.60 cubic ft. per 50 lb. (.017 m<sup>3</sup>/22.7 kg) bag with 60% extension (30 lbs. or 13.6 kg) with 3/8" (1 cm) pea gravel.

## PACKAGING:

50 lb. (22.7 kg) bags

## LIMITATIONS:

Do not attempt to retemper HD-50 after initial mixing. Do not add other cements or admixtures. HD-50 is a fast-setting product and mixing equipment should be cleaned with water at the earliest time. Shelf life of this material is approx. one year. Store on pallets in a cool, dry area and free from direct sunlight.

## WARNING:

Skin is sensitive to cement. Wearing protective gloves and goggles is recommended. Avoid contact with eyes. Avoid prolonged contact with skin. Contains portland cement. Wash exposed skin promptly with water. May cause skin irritation as well as cement burns. In case of eye contact, flush eyes repeatedly with clean water and contact a physician. Harmful if ingested. Read MSDS before using product.

## MANUFACTURER

Dayton Superior Corporation  
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Technical Services: 866-329-8724  
Website: [www.daytonsuperior.com](http://www.daytonsuperior.com)

## WARRANTY

Dayton Superior Corporation ("Dayton") warrants for 12 months from the date of manufacture or for the duration of the published product shelf life, whichever is less, that at the time of shipment by Dayton, the product is free of manufacturing defects and conforms to Dayton's product properties in force on the date of acceptance by Dayton of the order. Dayton shall only be liable under this warranty if the product has been applied, used, and stored in accordance with Dayton's instructions, especially surface preparation and installation, in force on the date of acceptance by Dayton of the order. The purchaser must examine the product when received and promptly notify Dayton in writing of any non-conformity before the product is used and no later than 30 days after such non-conformity is first discovered. If Dayton, in its sole discretion, determines that the product breached the above warranty, it will, in its sole discretion, replace the non-conforming product, refund the purchase price or issue a credit in the amount of the purchase price. This is the sole and exclusive remedy for breach of this warranty. Only a Dayton officer is authorized to modify this warranty. The information in this data sheet supersedes all other sales information received by the customer during the sales process. THE FOREGOING WARRANTY SHALL BE EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER WARRANTIES OTHERWISE ARISING BY OPERATION OF LAW, COURSE OF DEALING, CUSTOM, TRADE OR OTHERWISE.

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