



# Ferrocrete 216

**FAST-SETTING, SELF-LEVELING MORTAR FOR CONCRETE ROAD RESURFACING 3-8 MM.**



**Carbon Footprint Label**  
Certificate Number :  
TGO CFP FY24-177-1917



**Received a petty patent**  
Method for repair concrete road  
surface with fast setting,  
self-leveling mortar.



**Received a petty patent**  
Self-Leveling mortar with  
additives to inhibit black  
mold, algae and bacteria.



Ferrocrete 216 is a innovation fast-setting, self-leveling mortar for repairconcrete road surface outdoor. Contains additives to inhibit black mold, algae and bacteria. Open to vehicular traffic within 6 hours with a compressive strength value of not less than 10 MPa. at 6 hours and a flow retention of not less than 120 mm. at 20 minutes. Has a carbon footprint value of not exceed 11.0 kgCO<sub>2</sub>e per of mortar 1 bag (25 kg.) and the surface must be preparation with alternating concave grooves size approx. 5x5 mm. and wide raised ridges approx. 6 mm. to enhance mechanical bonding.

## Advantages

- Suitable for concrete surface repair projects with limited budget for demolition and new pour concrete.
- Suitable for outdoor use, weather resistant conditions and durable against vehicular traffic.
- Use better than with asphalt repair. Due to high smooth, ensuring vehicles do not bump over repair edges.
- Fast-Setting, dry outdoor, can open to vehicular traffic within 6 hours.
- Outdoor self-leveling mortar, easy to spread thickness from 3-8 mm.
- Easy to use by mixing with clean water and leveling with a self-leveling floor dedicated sled pushing rake.
- Contains anti-black mold agents and help reduce the depth of water ponding.
- Resistant to acids and alkalis than general cement.
- High adhesion, do not peel off easily.

## Standards and compliances

Ferrocrete 216 is manufactured under standard meets to ASTM C1708 /C1708M-19, ASTM C1583/C1583M-20, EN 1383 C30 F7

## Area of use

Ferrocrete 216 is a suitable for repair outdoor concrete road surface inthe follow areas.

- Old concrete road surface without cracks erosion of 3-8 mm. due to vehicle tires abrasion causing the dry surface mortar laitance layer to peel off such as village entrance roads, house entrance road. New concrete road surface without cracks during construction.
- the concrete is pour rain wash away the laitance layer exposing the sand granuls. Pour over the concrete surface of the house entrance roads which has water pounding and black mold to bautiful appearance. The surface to be repair must be not width exceed 10 m. and and not length exceed 15 m. in per panel.

## Physical properties

Properties	Values
General characteristics	Cement colour powder
Density, kg./litre (Approx.)	1.2 kg./litres

## Technical properties

Properties	Values	Standards
Initial flow, mm. (Approx.)	>130 mm.	ASTM C1708/C1708M-19
Flow retention, mm. (Approx.) - At 20 minutes - At 30 minutes	>120 mm. >70 mm.	ASTM C1708/ C1708M-19
Recovery time, minute (Approx.)	25 minutes	ASTM C1708/C1708M-19
Setting time, minute (Approx.) - Initial set - Final set	35 minutes 44 minutes	ASTM C1708/ C1708M-19
Compressive strength, MPa. (Approx.) - At 6 hours - At 1 day - At 3 days - At 7 days - At 28 days	>10 MPa. >15 MPa. >20 MPa. >25 MPa. >30 MPa.	ASTM C1708/ C1708M-19
Flexural strength by slant shear, MPa. (Approx.) - At 3 days - At 7 days - At 28 days	>4 MPa. >5 MPa. >7 MPa.	ASTM C1708/ C1708M-19
Length change at 28 days, % (Approx.)	-0.087%	ASTM C1708/C1708M-19
Adhesive strength at 28 days, MPa. (Approx.)	>2 MPa.	ASTM C1583/C1583M-20

### Slip resistance value (After make anti-skid line)

Slip resistance test report  
BPN (British Pendulum Number) values

Sample type	Dry condition test				Wet condition test		
	T Test C°	SRV	SRV T = 35 C°	CF	SRV	SRV T = 35 C°	CF
1. Fast-Setting, self-leveling mortar for concrete road resurfacing and anti-skid line panel size 40x40 cm. (Sample 1 at the center of the panel).	25	87.2	81	0.81	63.4	59	0.59*

\*Test results from the Bureau of Analysis and Inspection, Department of Highways.

## Compressive strength values of Ferrocrete 216 when mixing with stone 3/8 inch, non oven-dry (20%)

Ages	Value
At 4 hours	>100 ksc.
At 5 hours	>110 ksc.
At 6 hours	>120 ksc.*
At 1 day	>150 ksc.
At 3 days	>200 ksc.
At 7 days	>250 ksc.
At 28 days	>300 ksc.

\*Test results from the Bureau of Analysis and Inspection, Department of Highways.

## Ferrocrete 216

Fast-Setting, self-leveling mortar for concrete road resurfacing 3-8 mm. Has a compressive strength value of not less than 10 MPa. at 6 hours and has a carbon footprint value of not exceed 11.0 kgCO<sub>2</sub>e.

### Area of use

Suitable for repair outdoor concrete surface that have been eroded by rain, vehicle tires to restore the surface to resemble a typical concrete road can be use within 6 hours.

- ① Repair cracks by reducing their width use resin in combination with fully threaded stud bolt. Installation transversely and injection to repair the concrete cracks with super fast acrylic crack repair (Ferrorez 700/KIT) or crack injection kit for concrete repair (Ferrorez 717/KIT).
- ② Scarify the surface is grooves approx. 5x5 mm. (Process according to petty patent No. 22712) with concrete scarifier. Spray and soak the concrete surface with water until fully saturated, no air bubbles rise to the surface.
- ③ Mixing-Pour-Screed the fast-setting, self-leveling mortar, contains anti-black mold agents for concrete road resurfacing 3-8 mm. (Ferrocrete 216).
- ④ Make a anti-skid line when begin to dry surface. Fingers can not press into the surface but nails can leave a mark.
- ⑤ Spray for curing compound for fast-setting mortar (Ferrocrete 114B) at a coverage 4-6 m<sup>2</sup>/litre.



Rubber tires

## Method statement

## Ferrocrete 216

## Step 1 Reducing the size of the cracks

The original surface has cracks with a width 0.3-2 mm. Should be repair cracks by reducing their width use resin in combination with fully threaded stud bolt size 6 mm., length 10 cm., threaded pitch 1 mm. Installation transversely and injection to repair the concrete cracks with super fast acrylic crack repair (Ferrorez 700/KIT) (Fast-Drying 1 hour) or crack injection kit for concrete repair (Ferrorez 717/KIT) (Drying time 6 hours) to reduce the size of the cracks of concrete before overlay with Ferrocrete 216 (Except for cracks caused by ground layer settlement).

## Step 2 Surface preparation by roughening

The concrete surface to be repair must be clean and free of dust, grease, old paint etc. The weak concrete surface must be removing complete until reaching the strong concrete layer with concrete scarifier achieve a rough texture with alternating raised deep grooves approx. 5x5 mm. and wide approx. 6 mm. According to petty patent No. 22712 (Method for repair concrete road surface with fast-setting, self-leveling mortar) to ensure that Ferrocrete 216 can bond strong, compressive strength value of the original concrete must be no less than 210 ksc. and vacuum the surface clean.

## Step 3 Curing the surface with water until fully saturated before pour

Spray water to wash the preparation surface with a water jet 100 bar to make clean and soak the concrete surface with water until fully saturated, no air bubbles rise to the surface.

## Step 4 Mixing

Mixing 1 bag of Ferrocrete 216 (25 kg.) with clean water (The temperature of tap water should be below 30 °C) 20-22% (5-5.5 litres) mixing with a drill (1600W) and mixing paddle (M 14) use a 2 gear, 5 speed (450-600 rpm.) mixing for 1 minute until become homogeneous, when mixing use immediately. Should be use within 10 minutes and do not add more water.

## Step 5 Pouring-Screed and make a anti-skid line

Pour immediately after mixing. Use a self-leveling floor dedicated sled pushing rake and screed the mixture to a thickness 3-8 mm. Then use a bubble roller with handle to remove air bubbles ensuring a smooth surface let dry for approx. 8-10 minutes (Depends on the site conditions). Start make a anti-skid line the surface with a flat wire texture broom then let dry for approx. 20-30 minutes.



## Step 6 Curing

When observing the surface Ferrocrete 216 begin to dry and turn a damp colour and there do not water on the surface, fingers can not press into the surface but nails can leave a mark. Proceed to curing immediately with curing compound for fast-setting mortar (Ferrocure 114B) after make a anti-skid line the surface, use a knapsack sprayer to spray evenly over the area at a coverage 4-6 m<sup>2</sup>/litres.

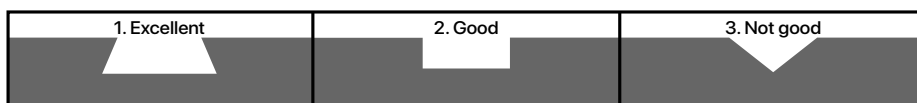
## Step 7 Activation

Can be use immediately within 6 hours after pour is completed.

### Recommendations for shallow repair

1) Shallow repair (Depth 5-10 mm.) the edges of the deteriorated concrete area should be cut into a square shape ensuring that the edges are of strong concrete. Then water curing to saturate the surface let dry and plaster to fill the damaged area on the concrete surface (5-10 mm.) with fast-setting road repair mortar 5-50 mm. (Ferropatch 550) let dry 15-30 minutes.

2) Ponding repair with corrosion of 10-20 mm. Screed the surface of the concrete with 1 bag of Ferrocrete 216 (25 kg.) mixing clean water (The temperature of tap water should be below 30 °C) 20-22% (5-5.5 litres) mixing with a drill (1600W) and mixing paddle (M 14) use a 2 gear, 5 speed (450-600 rpm.) mixing for 1 minute until become homogeneous. Mixing with stone 3/8 inch, non oven-dry (5 kg.) and continue mixing for another 30 seconds. After mixing use immediately should be screed in a thin layer 10-20 mm. Should be use everything immediately and do not add more water.



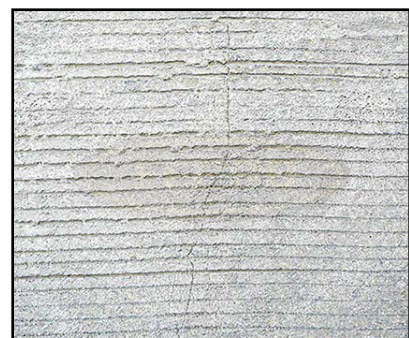
\*Should be ponding cut into shape 1 for strong adhesion.



Concrete cracks before injection repair.



Injection cracks repair with super fast acrylic crack repair (Ferrorez 700/KIT) or crack injection kit for concrete repair (Ferrorez 717/KIT).



After overlay pour with Ferrocrete 216 the cracks size is reduced.

## Limitations/Cautions

- Do not pour on concrete with any type of cracks. Should be consult a concrete repair specialist.
- Limitation of repair area : Not exceed width 10 m. x length 15 m. per 1 panel.
- Preparation the concrete surface to be pour by moistening with clean water before immediately starting to pour Ferrocrete 216. Caution : If insufficiently moistened the surface of Ferrocrete 216 will lose water to the substrate. This will make appear to fast dry very, reducing flowability and causing surface cracking.
- In case of continuous rainfall for several days where the concrete surface has high accumulated moisture do not pour for repair immediately. Should be to dry in the sun for 3 days before deciding to pour for repair as excessive moisture can cause the concrete surface to release hot vapor when exposed to sunlight and the transformation into pressure causes the surface of Ferrocrete 216 to bulge and peel off.
- Not suitable for indoor industrial factory floors. Recommend Ferrocrete 215 which has a stronger concrete surface.
- Must be use in conjunction with a curing compound for fast-setting mortar (Ferrocrete 114B) only. Specifically design for use with fast-setting, self-leveling mortar for concrete road resurfacing 3-8 mm. such as Ferrocrete 216.
- The surface temperature of the installation concrete should be approx. 30-35 °C a hot surface accelerates the setting resulting in creates joints in the pour.
- For pour under strong sun and wind. Should be shade provided and curing the surface with curing compound for fast-setting mortar (Ferrocrete 114B) within 1 hour. Avoid pour during intense heat or very strong winds.
- Do not pour over expansion joint or moving crack.
- Do not pour thickness than 8 mm. as may cause small cracks.
- The colour of Ferrocrete 216 use for resurfacing will differ from the colour of the original concrete.
- Do not use on asphalt road or concrete surfaces with permanent water ponding.
- Small hairline crack, map crack may still appear due to the limitations of materials containing cement.
- Applicator must be inspect the strength of concrete surface if too weak (Compressive strength less than 210 ksc.) or very high corrosion, high dusty and easy to dig by hand. It means to a too weak substrate no hard surface for Ferrocrete 216 to bond to. In this case do not apply Ferrocrete 216.
- Ferrocrete 216 designed for repair slightly corroded surface can not solve the problem of cracks of the original concrete surface such as cracks concrete floor collapsed, cracks caused by joints. Consult concrete cracks repair specialist.
- Do not pour Ferrocrete 216 without surface grinding or etch the surface with concrete scarifier.
- Is a limitation that white stains may occur. Because the curing compound with contains water and in mortar there is water and lime as an component which if the curing rhythm by Ferrocrete 216 still has a lot of water stains (Wet) and the installer spray more curing compound, causing excess water. Lime stains therefore floats up on the surface and when dry can not be wiped off must be polishing with a light sandpaper disc grinding.
- If use to repair on concrete surface with high traffic. Should be the surface special preparation to be rough and clean.



- The colour of the mortar from each production batch may vary.
- Make a anti-skid line the surface helps dissipate heat during setting better than pour a smooth surface to reduce the risk of hairline crack.

\*See updated data and application in [www.ferroproduct.co.th](http://www.ferroproduct.co.th) before use.

## Technical support

Customers can contact the sales department of the company at [sale@ferroproduct.co.th](mailto:sale@ferroproduct.co.th) to inquire about product usage methods. Furthermore they can also request information or organize the following activities :

1. Request for the latest updated data sheet.
2. Request for the sale conditions document and the product price list.
3. Schedule a technical staff visit to demonstrate the products at the customer's job site by filling out the "Demonstration request form" prior to the product purchase.
4. Schedule a technical staff visit to provide product usage training to the customer's workers at the job site by filling out the "Worker training request form".
5. Schedule training for the customer's foreman at the company's training center (Ferro training center) by filling out the (Foreman training request form).



## Coverage

Approx. 8 kg./m<sup>2</sup>/3 mm.

## Package

25 kg./bag (80 bags/pallet).

### Calculation for purchasing

	+	
Ferrocrete 216 approx. 2 bags		(Curing compound) Ferrocrete 114B approx. 1 litre
Must be buy them together. If not spray the curing compound Ferrocrete 216 will crack.		

## Cleaning tools

Should be wash mixing tool with water immediately before the Ferrocrete 216 dry.  
In case dry, should be scraped off with mechanical force.

## Storage

- The shelf life is 1 year in unopened bag.
- Storage in a shaded, dry area with a temperature of approx. 23 °C + 2% relative humidity 50%+ 5%RH (According standard to ISO 554).

## Health and safety instructions



- In case of eye contact, rinse thoroughly with plenty of clean water and seek medical attention immediately.
- In case of skin contact, irritation may occur. Rinse off with clean water.
- In case of ingestion, do not induce vomiting. Seek medical attention immediately.
- In case of inhalation, avoid breathing vapors. If exposed to airborne vapors move to an area with fresh air.
- Is a material do not ignite easily.
- Wear gloves and glasses is recommended while handling.

## Disposal

Ferrocrete 216 is contains cement and polymer. Please do not disposal of the remaining mixture into public drainage pipes. Should be dry and solidified by exposure to sunlight.

## Transportation and shipping data

Transportation requirements for Ferrocrete 216 via public roads :

Ministry of transport, Thailand : No specific requirements.

Department of transportation, United States of America : No specific requirements.



### Size

25 kg./bag

80 bags/pallet

Code FG-2IC-8858915220547



①



②



③



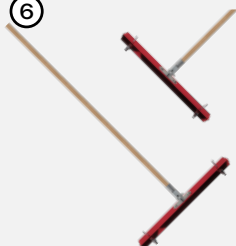
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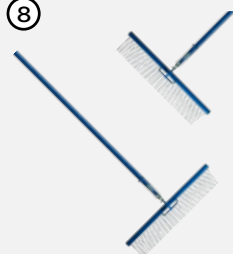
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⑦



⑧



## Equipment

- 1) Scarifier machine  
Code FG-OE-0001-01
- 2) Drill and mixing paddle  
Code FG-OE-0002
- 3) Gallon of water dosing  
Ferrocete 216/5.5 L. (Gallon)  
Code FG-2IC-8858915220660
- 4) Self-Leveling mortar mixer (50 kg./batch)
- 5) Spiked shoes Size 300 mm.\*140 mm.  
Code FG-14OE-8858915211156
- 6) Self-Leveling floor dedicated sled pushing  
rake Size 40 mm.\*40 mm.\*605 mm.  
Code FG-11OE-8858915211170
- 7) Bubble roller with handle  
Size 28 mm.\*508 mm.\*1500 mm.  
Code FG-11OE-8858915211163
- 8) Flat wire texture broom Spacing 10 mm. for  
(Ferrocete 216)  
Code FG-2IC-8858915220684



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Product warranty: The company is pleased to replace any product that is clearly proven to be defective due to manufacturing processes with a new products of equal value to the portion that is defective. Refunds are not available. Customers must be notify us of replacement within 7 days from the order date. Additionally customers can't claim damages resulting from direct or indirect using of the materials, as well as delays in delivery by the company. Furthermore replacements can't be made for errors in using that arise from customers negligence without consulting the sales staff or technical documentation provided by the company. The company reserves the right to amend manufacturing formulas or new packaging designs without prior notice. Therefore customers must be request the data sheet and sale conditions from the company before actual using and before each purchase. By doing so the company assumes that customers have understood and agreed to the company's sale conditions before using. (Company products are only allowed for using by individuals who have completed training provided by the company). \*For further data please refer to the sale conditions from the company's sale department at [sale@ferroproduct.co.th](mailto:sale@ferroproduct.co.th).



**ISO 9001 & ISO 14001**



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