DE NEEF® MC 500

Product Description

MC-500® MICROFINE® Cement is a blast furnace slag based cement composed of ultrafine particles, designed for injection into loose soils, rock, concrete, and down-hole applications. MC-500® has a grain size of d_{95} equal to 9.5 microns and a d_{50} of 3.5 microns. The composition is comparable to high sulfate – resistant cements. It is suited for stabilizing or sealing all earthen foundations; especially for permanent structures such as tunnels, dams, deep foundations and oil storage tanks. Because MC-500® cures into a hardened concrete, it causes no pollution to underground soils or water supplies.

MC-500® is used with NS-200, a super plasticizer, to prevent clumping of microfine cements. It is generally used at 1-2 wt. % of the dry cement weight.

Product Advantages

- Excellent penetration into fine sands and finely cracked rock
- High cured strength- chemically activated to produce rapid curing to high strength
- Excellent durability- impermeable to ground water and seawater
- Low permeability- 10-9 cm/s permeability for neat grout.

Product Applications

- Geotechnical grouting
- Oil well remedial cementing
- Seal off underground streams
- Create cut off walls for dam construction
- Reinforce foundations in dams and buildings
- Reinforce and waterproof tunnel walls and roofs
- Create waterproof basins for reservoirs
- Facilitate all types of excavation
- Stabilize hazardous waste.
- Provide secondary containment for nuclear waste

Properties

DRY PROPERTIES		
Grain Size	9.5 d_{95}	ASTM C204
Grain Size	3.5 d_{50}	ASTM C204
Bulk Specific Gravity	0.7 g/cm^3	ASTM C150
Absolute Density	2.9 g/cm^3	ASTM C150
Volume	0.041 gal/lb	ASTM C150
Surface Area	1.6 x 10^4 cm^2/g	BET Method

MIXED PROPERTIES	WATER:CEMENT = 2:1	
	NS-200= 2% BY WEIGHT . T=20°C	
MARSH FUNNEL	**MIX TIME***	**RUN OUT**
	0 min	29 s/dm^3
	30 min	30 s/dm^3
	60 min	30 s/dm^3
	90 min	30 s/dm^3
SEDIMENTATION	**MIX TIME***	**BY VOLUME**
	30 min	0%
	60 min	2%
	90 min	3%

COMPRESSIVE STRENGTH (NEAT GROUT 2:1)**		
3d	3.0 N/mm^2	435 psi
7d	4.0 N/mm^2	580 psi
14d	4.5 N/mm^2	653 psi
28d	4.5 N/mm^2	653 psi

* Suspension mixed continuously at 350 rpm until tested.

** Measured on 4 cm x 4 cm x 16 cm prisms.

NOTE: The data shown above reflects typical results based on laboratory testing under controlled conditions. Reasonable variations

from the above data may be expected.

Installation

A colloidal mixer is necessary for mixing MC-500®. The order of addition to the tank is: water, NS-200, mix, then add MC-500®.

Contact a DE NEEF® technical services representative for application specific installation procedures.

Packaging & Handling

MC-500®:

55 lb bags
40 bags per pallet.

Store on pallets in dry and cool location.

NS-200: 3.5 gallon pails (35 lb).

Store in original containers at or above 60°F.

One Component Grout Mix

MC-500® GROUT MIX (55 LB BAG)			
Batch Size	5 Bages (275 lbs)	4 Bages (220 lbs)	3 Bages (165)
Water: Cement	1:1	2:1	3:1
Water	33 gal.	53 gal.	60 gal.
NS-200	0.28 gal.	0.22 gal.	0.16 gal.
MC-500®	275 lbs.	220 lbs.	165 lbs.
TOTAL	44 gal.	62 gal.	67 gal.
TOTAL	555 lbs	669 lbs	672 lbs

Set time for above mixes is 3-5 hours

Health and Safety

Freshly mixed cement grout may cause skin injury. Avoid contact with skin where possible and wash exposed skin promptly with water. Use dust mask when breaking bags and mixing. Avoid eye contact, if exposed, rinse immediately with water and seek prompt medical attention. Always use protective clothing, gloves, and goggles during use. Do not ingest. Refer to SDS for detailed safety precautions.

In the event of an EMERGENCY call:

CHEMTREC 800-424-9300.

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GCP Applied Technologies, 20 Moores Road, Malvern, PA 19355, USA.
GCP Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.
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