

MasterFlux 880 (formerly BluCem HE80)

Precision ultra rapid strength gained grout/micro concrete

Material Description

MasterFlux 880 is a high early strength gained, C Class flowable shrinkage free micro concrete which incorporates special cement systems and advanced additives to form a rapid curing cementitious chloride free grout.

MasterFlux 880 is a pumpable, durable product suitable for civil engineering applications.

Areas of Application

- Ideal for grouting bridge stitch joints, bearing pads, and other critical infrastructure elements in large-scale projects such as bridges and viaducts.
- Provides rapid strength development and durability for general repairs in concrete structures, including high-load and dynamic environments.
- Specifically suited for use in marine environments, offering excellent performance in tidal zones and underwater applications due to its fluidity during placement and ultra-rapid strength gain.
- Engineered for applications requiring long-term durability, including aggressive environments such as marine structures and areas exposed to environmental stresses.

Characteristics and Benefits

- Ultra-rapid strength gain - high early compressive strength for fast-track construction.
- Dual shrinkage control - ensures dimensional stability and crack resistance.
- Highly flowable - easy placement in complex and confined spaces.
- Durability - long-term performance.
- Chemical resistance - suitable for aggressive environments, including marine applications.
- Versatile applications - ideal for structural grouting, repairs, and marine environments.
- Ease of application - simplifies grouting and reduces labor requirements.

Properties

Tested Characteristic / Standard	Result		
Compressive strength AS 1478.2- Appendix A	Liter Water per 20 kg		
	4.0 L	4.5 L	5.0 L
	2 hours: MPa	20	15
	3 hours: MPa	30	20
	4 hours: MPa	40	30
	24 hours: MPa	65	55
	7 days: MPa	80	70
	28 days: MPa	90	80
Drying Shrinkage μ strain AS 1478.2	7 days: 340 28 days: 455 56 days: 460		
Electrical Resistivity $k\Omega cm^{-1}$ Taywood-Warner 4 Probe	7 days: 7.8 28 days: 13.7 56 days: 20.0		
Setting Time mins AS 1012.18	Initial set – 25 mins Final set – 40 mins		
Fresh Wet Density kg/m^3 AS 1012.5	20% water: 2140 25% water: 2040		
Flow Characteristics AS 1478.2 Appendix C	25% water: flowable 30 seconds (flow cone)		

Application Properties	Results
Water addition	4.0 – 5.0 litres per 20kg
Yield	11.2-12.2L
Thickness range: (Refer to Master Builders Solutions for advice and approval on pour thicknesses)	10-100mm (> 100mm)
Pot Life @ 20°C	30 - 60 minutes (Agitated) 10-30 minutes (Still)
Maximum particle size	0.3mm

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Application

For information about application, please obtain a copy of the "Cementitious Grouts MasterFlux range" application guide from your local Master Builders Solutions Technical Sales Representative or download a copy from the website.

Concrete Preparation

Concrete must be fully cured with a minimum direct tensile strength of 1.5 MPa. All loose traces of concrete or mortar, dust, grease oil, etc. must be removed. Damaged or contaminated concrete shall be removed to obtain a keyed aggregate exposed surface. Non-impact/vibrating cleaning methods, e.g. grit or high pressure water blasting are recommended. Scabble to a surface profile of ICRI CSP 3 or greater.

Mixing

Measure and place 80% of the specified volume of potable water to the high shear mixing vessel. Start mixer and slowly add MasterFlux 880 powder. Following addition of all powder, mix for 1 - 2 minutes or until uniform consistency then add final 20% of potable water. More or less water may be added within the ratio limits specified on this data sheet. Do not mix more material than can be placed in 20 minutes.

The mix water's temperature should be kept as low as possible to prevent the grout from hydrating too rapidly.

As with the water temperature, the higher the air temperature the more quickly the grout hydrates and sets. Master Builders Solutions specify mixing times and set times at an ambient temperature of 20°C.

Pumping

Once the grout has been mixed you need an effective pumping method to deliver it to the area of application. Various models of batch mixers and continuous mixers are available for use, all with varying specifications. It is important to match your application's specifics with the capabilities of the mixer and pump. Master Builders Solutions are able to recommend the right mixer for your project.

Exposing the pumping hoses to the sun on a hot day accelerates the product's set time. In some cases it may be

necessary to cool the material, the mix water, or even the hose itself during the process and pre-planning the storage of all materials to keep the temperature as low as possible. High-shear mixing can add 1 to 2°C per minute of mixing. In order to minimise this effect, add all ingredients to the mixer as quickly as possible and minimise prolonged batch-mixing procedures.

Application

MasterFlux 880 may be poured or pumped into place. Do not exceed the maximum application thicknesses specified in the data sheet for any wet layer. When pouring MasterFlux 880, reduce exposed surface areas to ensure maximum confinement during expansion phase of initial set.

Master Builders Solutions are able to provide further information about aggregate addition for large volume pours.

Curing

It is recommended that the final surface finish layer is coated with curing compound or otherwise maintained wet for at least three days.

Estimating Data

One 20kg bag will yield approximately 11.2-12.5 litres :

MasterFlux 880				
20kg powder	Thickness in mm /m ²	m ³	bags /m ³	m ² /mm thickness
20% water	11.2mm	0.011	91	11
25% water	12.5mm	0.013	77	13

Packaging

MasterFlux 880 is available in 20kg bags.

Consult Master Builders Solutions for Bulk supply options.

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Storage & Shelf Life

Store in cool and dry warehouse conditions. Shelf life in these conditions is 12 months in unopened original bags.

Precautions

For the full health and safety hazard information and how to safely handle and use this product, make sure that you obtain a copy of the Safety Data Sheet (SDS) from our office or website.

Specification Clause

High Early Strength gained class C precision Grout - The rapid curing cementitious grout used for this project shall be a one component cement powder which requires only the addition of water to form a durable rapid curing product. It shall be that has independent testing to validate the performance outlined in the technical data table on the property section. MasterFlux 880 manufactured by Master Builders Solutions or equivalent shall be accepted.

Disclaimer

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