MCC LIMPOPO

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# MULTIGROUT 820 MP

## Fatigue Resistant Metallic Aggregate High Strength Non-Shrink Grout for Bulk Grouting

**Specification Type:**
Meets requirements of CRD-C621 Specification, ASTM C 109-80, ASTM C 70-8-, CRD-C 227 and ASTM C 232-71 specifications

**Description**
MULTIGROUT 820 MP a pre-mixed ready to use dry grout with a precise blend of graded metallic, siliceous and pea gravel aggregates incorporating, shrinkage compensating chemicals and blended with cementitious powders. it has no added chlorides, nitrates or other accelerating chemicals. A free flowing metallic reinforced cementitious non-shrink grout.

**Typical Applications**
* In all applications where a metallic aggregate non shrink grout is specified and an excessive grout thickness is a criteria
* For bulk grouting - grout thickness in excess of 100mm
* To reduce heat of hydration in high volume grout pours
* In excessively large bolt hole pockets.
* Precision support under load bearing equipment such as:
- Turbines
- Milling Equipment
- Generators
- Base / Sole plates
- Electrostatic disseminator
- Crane rail plates
- Column bases
- Pumps
- Coal pulverizes
- Compressor
- Fans

**Advantages**
* Provides precise alignment and support for equipment requiring heavy duty load bearing. Provides extra resistance to impact, dynamic and repetitive loading.
* Fatigue Resistance - the inclusion of ductile metallic aggregate provides reinforcement for greater fatigue resistance and increased flexural strength.
* Non-Shrink - the thixotropic action which takes place after the grout is completely in place and in tight contact with underside of the base plate, provides a dense grout that hardens free of bleeding, settlement of drying shrinkage. Contains no gas-generating or air-release agents such as aluminum powder, fluid coke, chlorides, ect.
* High Early Strength - in a compressive and flexural strengths it facilitates rapid installation of equipment
* Fluid Consistency - maintains precision and non-bleeding properties when pumped or gravity placed into intricate areas.
* Reliability - a premixed high quality grout eliminating materials
* Withstand Thermal Movement - compatible with equipment subjected to extensive thermal expansion
* Dimensional stability
* Extended placing time

**Typical Properties**
**Stiffening Test:**

| | |
|---|---|
| Initial set: | Approximately 2 hours 45 minutes at 20°C |
| Final Set: | Approximately 4 hours 45 minutes at 20°C |
| Flow Characteristics: | Using a flow trough 1000 x 230 x 50 deep a conical funnel 285 diameter. x 180 deep with 28 diameter outlet (all as recommended by DOE). The cone is filled with a known amount of grout and is then discharged at one end of level tray, the lineal flow being measured after 30 seconds. |
| Shrinkage / Expansion: | Micrometer bridge as per CRD-C 621-80 specification. Expansion % at 3,14 and 28 days not greater than 0.4% at any of these ages see Table 1 |
| Flashpoint: | Not applicable |
| Operating Temp: | Between 160°C to 230°C Permissible to equipment exposed to the above temperature parameters. Up to 1 |
| Storage Life: | year when stored under cover and in dry conditions |
| Oxidizing Catalysts: | None, non-toxic |
| Strength Development: | Compressive, Flexural end Tensile. See Tables 2 and 3 |

**Table 1**

| **Age** | **Shrinkage (or) Expansion %** |
|---|---|
| 1 day | +0.065 |
| 3 days | +0.067 |
| 7 days | +0.067 |
| 28 days | +0.067 |

**Note:** Expansion % at 3 and 14 days must not be greater than expansion at 28 days. All the above tests to be carried out at 20oC. As with all cementitious products performance will vary with temperatures above or below this value.

**Table 2**
**Flexural Strength in MPa**

| **Age** | 1 day | 3 days | 7 days | 28 days |
|---|---|---|---|---|
| **Strength** | 1.2 | 2.1 | 3.2 | 5.4 |

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**Split Tensile Strength in MPa**

| **Age** | 1 day | 3 days | 7 days | 28 days |
|---|---|---|---|---|
| **Strength** | 1.1 | 2.1 | 3.2 | 5.4 |

**Table 3**
Compressive (ASTM C 78-80) and Shear (ASTM C-109) strength at different ages of MULTIGROUT 820 MP. At flowable consistency tested at 20oC

| **Age** | **Compressive MPa** | **Shear MPa** |
|---|---|---|
| 1 day | 10.0 | 4.0 |
| 3 days | 22.0 | 9.1 |
| 7 days | 30.0 | 11.4 |
| 28 days | 52.0 | 16.3 |

**Directions for Use**
* Preparation of Surface: All surfaces in contact with the grout must be sound, dense and clean. All laitance and unsound material must be removed.
* Wherever possible an evenly scabbled slightly textured surface is required with all dust, dirt, grease and oil removed. Surfaces must be pre-wetted for 24 hours to thoroughly dampen the concrete and all free surface water must be removed before grouting commences.
* Preparation of Equipment: All equipment to be grouted must be free of grease, rust, oil and dirt especially the underside of base plates.

**Mixing instructions**
**Flowable Consistency:** Typically add 3.8 to 4.0 litres of water per 25kg bag and mix thoroughly. Ensure there is no bleeding.

**Notes**
* To achieve properties described, water additions should be accurate to +0.05 litres and it is recommended that potable water is accurately weighed.
* Water should be added slowly to the grout over a 1 minute period and the mixing continued for a further 2 minutes. It is important that efficient mixer be used to ensure complete dispersion of the water.
* Use water in an amount or at a temperature that will not produce bleeding, segregation, hardening or low strengths.

**Placing**
* The placing of grout should be completed before loss of flow starts occur, this is between + 10-20 minutes.
* No water should ever be added for re-tempering
* Placing must not take place below 13°C, it is advisable to use warm water and to warm the substrate + 18°C. This will subsequently maintain the temperature of the placed grout at ±18°C.

**Curing**
As soon as the exposed surfaces are sufficiently firm, cure with MULTICURE 300 C / 200 C. During very hot of cold weather protect against temperature extremes during the curing period, wet Hessian for the former and plastic for the latter

**Watchpoints**
* Site and laboratory test should be determined on desired placing consistency rather than strictly on the water content. This must be established prior to placing the grout.
* Always place grout from one side only. Do not pour grout from both sides as this will sresult in entrapment of air creating a gap (air pocket) between the underside of bedplate and grout.
* Do not use contaminated water or water in an amount or at a temperature that will produce bleeding segregation, delayed hardening and low strengths.
* For fatigue and impact resistand grouting, use MULTIGROUT 802-M Metallic Aggregate Non shrink Grout.
* Bulk-Grouting - Whenever the thickness of grout is in excess of 100mm, use MULTIGROUT 815 NP, recommended for bulk grouting.
* For normal precision grouting where the thickness of grout is less than 100mm, refer to our MULTIGROUT 800 N or MULTIGROUT 801 GP technical data sheets.

**Hot and Cold Temperature**
Temperature of both the ground and all elements coming into contact with the grout should be in range of 15-26°C. Do not grout in freezing conditions. If outside this range special information on high and low temperature grouting suggestions are available from your local MCC LIMPOPO's Field Representative

**Yield**
One 25kg bag of MULTIGROUT 820 MPwhen mixed with 3.8 to 4.0 litres of water will yield +- 11 litres (91 x25 kg bags perm3)

**Packaging**
Supplied in 25 kg double lined moisture resistand bags

**Specification Clause**
All grouting shall be carried out where indicated using MULTIGROUT 820MP non-shrink, high ultimate grout as manufactured by MCC LIMPOPO's to the following specifications:

* To comply with CRD-C 621, CRD-C 226 - 68. ASTM C109-80 and ASTM C 78-80 specifications
* The grout shall be mixed and used strictly in accordance with the manufacturer's recommendations.

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**Quality Assurance**
MCC LIMPOPO's production and testing programmes comply with local and international testing standards. These stringent requirements must also comply with CRD-C 621. ASTM C 109-8-, ASTM C78-80, CRD-C 227 and ASTM C 232-71 specifications.

**Updates**
This data sheet supersedes all previous issues prior to this date: 01/11/98.