

MASTERFLOW[®] 880

Cementitious ultra-high strength non-shrink iron reinforced precision grout

DESCRIPTION

MASTERFLOW 880 is a non-shrink, iron reinforced precision grout with high early and ultimate strengths. It is formulated to provide extended working time even at high ambient temperatures when mixed and placed at any recommended consistency. **MASTERFLOW 880** is normally placed at a flowable consistency to completely fill voids between 10mm and 100mm.

RECOMMENDED FOR

All precision, non-shrink grouting applications with clearances of 10mm or more, particularly those requiring maximum dynamic load bearing and impact resistance such as:

- Critical equipment baseplates, soleplates & columns.
- Crane rails, ball mills, crushers.
- Rolling, stamping, drawing and finishing mills for the steel and aluminium industries.
- Turbines, generators, pumps and centrifugal compressors.
- Anchor bolts and bars
- "H" shaped steel columns, steel tube columns.
- Applications requiring high early compressive strengths and high ultimate compressive strengths.

FEATURES AND BENEFITS

- **Iron reinforced** – contains inert iron aggregate as internal reinforcement to provide improved resistance to heavy impact, vertical and horizontal repetitive loading as well as rotational torque.
- **High early strength** - ensures rapid commissioning of new equipment and structures.
- **High ultimate strength** - ensures permanence of the installation under static and repetitive loads.
- **Flowable long life grout** - easy to grout intricate spaces normally inaccessible by conventional grouting techniques.
- **Extended working time** - facilitates grouting of large or difficult placements in a single pour, often without the use of a pump.
- Economical - greater volumes of grout can be mixed and handled with less labour.
- **Dense, non-shrink** grout - hardens free of bleeding, settlement and drying shrinkage, ensuring tight contact with all grouted surfaces.
- **Easy to use** - requires no special mixing equipment, it can be mixed in a standard concrete mixer or in a pail using a grout stirrer.
- **No added chloride.**
- **Strict quality control** - ensures reliable and consistent product performance.
- **Compliance with codes** - meets the non-shrink requirements of ASTM C1090 and CRD-C 621, Corps of Engineers Specification for Non Shrink Grout; provides complete non shrink performance when tested in accordance with simulated Bedplate Technique; tested to the requirements of AS1478.2 "Methods of sampling and testing admixtures for concrete, mortar and grout".

PERFORMANCE DATA

Strength Development - The strength of the grout is often the determining factor in deciding when loads can be put on structural members or machinery. The strength of the grout is dependent on the amount of mixing water, substrate and ambient temperature, curing and age of the hardened grout. Typical rates of strength development under variable conditions are as follows:

1. Effect of consistency on compressive strength (MPa) development at 20°C.

Age	Consistency	
	Flowable	Plastic
1 day	40	55
3 days	64	75
7 days	78	84
28 days	90	98

Test Method: AS1478.2 Appendix A

2. Effect of temperature on compressive strength (MPa) development when placed at a 'flowable' consistency.

Age	Temperature		
	10°C	20°C	30°C
1 day	17	40	45
3 days	45	64	67
7 days	59	78	79
28 days	66	90	94

Test Method: AS1478.2 Appendix A

Flexural Strength (MPa) - effect of temperature on strength development when placed at flowable consistency. (Test Method: JIS R 5201)

Age	Temperature		
	10°C	20°C	30°C
1 day	4.0	6.9	7.6
3 days	5.3	10.6	12.0
7 days	5.9	12.4	12.6
28 days	10.0	13.2	13.8

Indirect Tensile Strength (MPa) - effect of temperature on strength development when placed at 'flowable' consistency. (Test Method: AS1012.10)

Age	Temperature		
	10°C	20°C	30°C
1 day	2.0	3.5	3.9
3 days	3.5	5.0	6.3
7 days	5.1	5.7	7.2
28 days	6.2	6.7	7.4

Volume Change - effect of temperature on volume change when placed at flowable consistency. (Test Method: ASTM C1090 (CRD-C621))

Age	Temperature		
	10°C	20°C	30°C
1 day	Positive	Positive	Positive
3 days	Positive	Positive	Positive
7 days	Positive	Positive	Positive
28 days	Positive	Positive	Positive

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Flow Retention - effect of temperature on flow retention when placed at flowable consistency.

Age	Flow Retention (%)		
	10°C	20°C	30°C
Initial	100	100	100
After 30 minutes	70	95	80
After 1 hour	50	75	50

Bleeding, Plastic Density and Setting Time - effect of temperature on plastic properties when placed at flowable consistency. (Test Method: Bleeding AS1012.6; Plastic density AS1012.5; Setting time AS1012.18)

Temp.	Bleedin g (%)	Plastic Density (kg/m ³)	Setting Time	
			Initial (hr:min)	Final (hr:min)
10°C	0	2515	4:40	6:00
20°C	0	2550	4:10	5:00
30°C	0	2625	3:00	3:40

Water Demand Actual water demand will depend on consistency required and temperature (both ambient and grout). Do not use too much water, as it will cause grout to bleed or segregate. As a guide, the following table indicates the appropriate quantity of water required to mix a 20kg bag of **MASTERFLOW 880** to various consistencies at the temperature shown.

Water Demand, Litres per 20kg bag		
Temperature	Consistency	
	Flowable (1)	Plastic (2)
20°C	3.0	2.6

- 1) AS1478.2 Appendix D, 45-55cm lateral flow in the flow trough.
- 2) ASTM C230/C230M, 100-120% flow by flow table after 5 drops in 3 s or AS1478.2 Appendix D, 20-30cm lateral flow in the flow trough.

The performance data is typical and based upon controlled laboratory conditions. Actual performance on the job site may vary from these values based on actual site conditions. Field and laboratory tests should be

conducted on the basis of the desired placing consistency rather than strictly on indicated water demand. If the project requires strength tests be made on site do not use cylinder moulds.

ESTIMATING DATA

MASTERFLOW 880 mixed in accordance with BASF Construction Chemicals recommended procedures to the required consistency, will provide the following approximate yields:

Approximate Yield, Litres per 20kg bag		
Temperature °C	Consistency	
	Flowable	Plastic
20	9.2	8.8

APPLICATION

For application directions on preparation, forming, mixing, placing and curing **MASTERFLOW 880**, as well as the precautions to take in hot and cold weather, refer to the "Application Guide for MASTERFLOW[®] Cementitious Precision Grouts" available from your local BASF Construction Chemicals representative.

PACKAGING

MASTERFLOW 880 is packaged in 20kg bags.

SHELF LIFE

MASTERFLOW 880 has a shelf life of approximately 12 months when stored in a cool dry environment.

PRECAUTIONS

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

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STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this **BASF** publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use. **BASF data sheets are updated on a regular basis and it is the user's responsibility to obtain the most recent issue.**

NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by **BASF** either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not **BASF**, are responsible for carrying out procedures appropriate to a specific application.

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