

# MasterFlow 4500

Cementitious high strength non-shrink precision grout

## Material Description

**MasterFlow 4500** is a non-shrink, PCE plasticised, natural aggregate precision grout with excellent high early and ultimate strengths. It is specially formulated to provide extended working time even at high ambient temperatures when mixed and placed at any recommended consistency. **MasterFlow 4500** is normally placed at a flowable consistency to completely fill voids between 10mm and 100mm. Thicknesses greater than 100mm are grouted with MasterFlow 4510.

## Areas of Application

**MasterFlow 4500** is used for all precision, non-shrink grouting applications with clearances of 10mm or more, including:

- critical equipment baseplates, soleplates & columns,
- precast wall panels, beams, columns, structural building members and curtain walls,
- patching poured in place concrete structures, e.g. honeycombing, using preplaced aggregate techniques,
- applications requiring high early compressive strengths and high ultimate compressive

## Characteristics and Benefits

- High early strength – ensures rapid commissioning of new equipment and structures.
- High ultimate strength – ensures permanence of the installation under static and moderate repetitive loads.
- Flowable non thixotropic grout – easy to grout intricate spaces as grout easily melds with previous pours and requires no additional strapping or agitation.
- Extended working time – facilitates grouting of large or difficult placements in a single pour, often without the use of a pump.
- 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 pail using a grout stirrer.

- Compliance with codes – Meets the non-shrink requirements of ASTM C1090 and CRD-C 621, Corps of Engineers Specification for Non Shrink Grout; tested to the requirements of AS1478.2 “Methods of sampling and testing admixtures for concrete, mortar and grout”.

## Properties

### Strength Development

Typical rates of strength development under variable conditions are as follows:

**Compressive Strength (MPa)** effect of temperature on strength development at a flowable consistency

Age	20°C
1 day	30
3 days	50
7 days	65
28 days	80

Test Method: AS1478.2 Appendix A

### Volume Change

At a flowable consistency

Age	20°C
1 day	Positive
3 days	Positive
7 days	Positive
28 days	Positive

Test Method: ASTM C 1090 (CRD-C621)

### Flow Retention

At a flowable consistency.

Age	20°C
Initial	100%
After 1 hour	90%

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## Bleeding, Plastic Density and Setting Time

Effect of temperature on plastic properties at a flowable consistency

Temp.	Bleeding (%)	Plastic Density (kg/m <sup>3</sup> )	Setting Time	
			Initial (hours)	Final (hours)
20°C	0	2250	3.0	4.0

Test Method: Bleeding AS1012.6; Plastic density AS1012.5; Setting time ASTM C191

## Water Demand

Actual water demand will depend on consistency required and temperature (both ambient and grout). As a guide, the following table indicates the approximate quantity of water required to mix a 20kg bag of MasterFlow 4500 to various consistencies.

Temperature	Consistency
	Flowable <sup>1</sup>
20°C	3.3 litres

<sup>1</sup> AS1478.2 Appendix D, 45-55cm 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. If the project requires strength tests be made on site do not use cylinder moulds. Do not add sand, cement or other materials to the grout.

VOC content: 6g/L	Test method: SCAQMD 304-91
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## Application

For information about application, please obtain a copy of the "Application Guide for MasterFlow Cementitious Precision Grouts" from your local Master Builders Solutions Technical Sales Representative. MasterFlow 4500 is not suitable for damp packing. For damp packing applications refer to the application guide for MasterFlow 700.

## Estimating Data

One 20 kg bag of MasterFlow 4500 mixed according to directions will yield the following consistency grouts at 20°C: Flowable – 10.5 litres, approx.

MasterFlow 4500				
L	Thickness in mm /m <sup>2</sup>	m <sup>3</sup>	bags /m <sup>3</sup>	m <sup>2</sup> /mm thickness
10.5	10.5mm	(0.00105)	95	10.5 m <sup>2</sup>

## Packaging

MasterFlow 4500 is packaged in 20kg bags.

## Storage & Shelf Life

MasterFlow 4500 has a shelf life of 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, make sure that you obtain a copy of the Safety Data Sheet (SDS) from our office or website.

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## Disclaimer

MasterFlow-4500-ANZ-VI 1-0623

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