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03 30 00	Cast-in-Place Concrete
03 40 00	Precast Concrete
03 70 00	Mass Concrete
32 13 13	Concrete Paving



# MasterMatrix<sup>®</sup> 33

## Rheology–Controlling Admixture

### Description

MasterMatrix 33 rheology-controlling admixture is a patent-pending, liquid admixture that is specially developed for low–slump concrete and paving mixes. MasterMatrix 33 admixture meets ASTM C 494/C 494M requirements for Type S, Specific Performance, admixtures.

### Applications

Recommended for use in:

- Mainline concrete paving
- Low–slump concrete
- Curb and gutter
- Extruded concrete
- Median barriers
- Hollow-core slabs, railroad ties, flat slabs, poles, walls, pipe, and other repetitive products
- Conventional slump concrete and SCC mixtures where enhanced surface appearance is desired

### Features

- Modifies concrete rheology
- Acts as a lubricant
- Improves response to vibration
- Exhibits thixotropic properties – adds body

### Benefits

- Higher volume flow which increases productivity/extrusion rate
- Facilitates optimization of cementitious materials content to improve extrusion and surface finish
- Facilitates the use of manufactured or gap-graded sands
- Reduces costs associated with placement and finishing
- Produces smoother surfaces
- Minimizes edge slump
- Improves riding quality
- Enhances aesthetics and durability
- Extends service life of vibrators/paving equipment

## Performance Characteristics

**Air Content:** MasterMatrix 33 admixture does not affect the air content in either air-entrained or non-air-entrained concrete. Typical dosages of air-entraining admixtures may be used to achieve the desired air content.

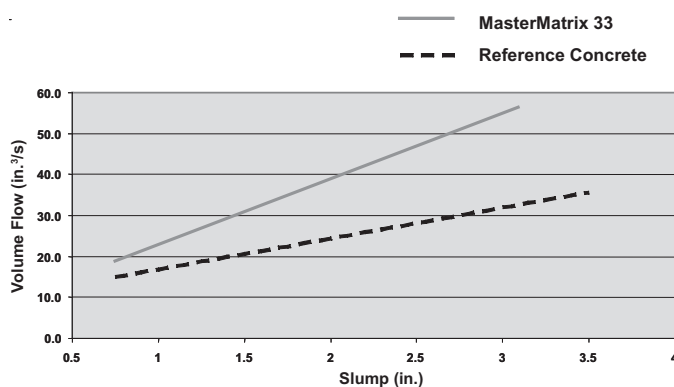
**Time of Setting:** MasterMatrix 33 admixture has little to no impact on the time of setting of concrete within the recommended dosage range of 2 – 12 fl oz/cwt (130 – 780 mL/100 kg) of cementitious materials.

**Workability/Extrudability:** MasterMatrix 33 admixture imparts a lubricating effect in concrete resulting in a very workable mixture. This effect allows low-slump concrete to be easily extruded thereby facilitating placement. A lower slump mixture that can be easily placed permits the design and placement of lower water-cementitious materials ratio mixtures resulting in higher compressive strengths and minimized edge slump.

**Compressive Strength:** MasterMatrix 33 admixture does not affect the compressive strength of concrete.

**Volume Flow:** Concrete containing MasterMatrix 33 admixture will exhibit an increase in mixture fluidity during vibration. Using the L-Box (equipment typically used for measuring the flow of self-consolidating concrete) with an externally-mounted vibrator, the volume flow of concrete, including that of low-slump concrete, can be measured.

Effect of MasterMatrix 33 on Volume Flow of Concrete



Note: 1 in. = 25.4 mm, 1 in.<sup>3</sup> = 16.39 mL

It has been demonstrated in both laboratory and field testing that concrete containing MasterMatrix 33 admixture will exhibit a higher volume flow for a given concrete slump when consolidated with a fixed level of vibration. This desirable performance may result in increased productivity or equal productivity with a reduced vibration requirement for consolidation. Lowering the vibration requirement may extend equipment life and help maintain a quality air-void system in concrete.

## Guidelines for Use

**Dosage:** The recommended dosage range for MasterMatrix 33 admixture is 2 to 12 fl oz/cwt (130 to 780 mL/100 kg) of cementitious materials. The typical dosage for most applications is 4 to 8 fl oz/cwt (260 to 520 mL/100 kg). Because of variations in concrete materials, job site conditions and/or applications, dosages outside of the suggested range may be required.

**Mixing:** MasterMatrix 33 admixture is typically added with the initial mix water. Alternatively, MasterMatrix 33 admixture may be added after all other concreting ingredients have been batched and thoroughly mixed, either at the batch plant or at the jobsite.

## Product Notes

**Compatibility:** MasterMatrix 33 admixture works best when used in combination with Master Builders Solutions' polycarboxylate-based water-reducing admixtures. MasterMatrix 33 admixture is compatible with most other Master Builders Solutions admixtures used in the production of quality concrete including normal, mid-range and high-range water-reducing admixtures, and air entrainers. MasterMatrix 33 admixture is also compatible with most accelerators, retarders, extended set-control admixtures, corrosion inhibitors, and shrinkage reducers. However, a field trial mixture is recommended to ensure appropriate performance.

## Storage and Handling

**Storage Temperature:** MasterMatrix 33 admixture should be stored at temperatures above 32 °F (0 °C) and below 110 °F (43 °C). It is recommended that MasterMatrix 33 admixture be protected from freezing. However, if MasterMatrix 33 admixture freezes, it should be completely thawed and mildly agitated using mechanical stirring to restore uniformity.

**Shelf Life:** MasterMatrix 33 admixture has a shelf life of 18 months. Please contact your local sales representative regarding suitability for use and dosage recommendations if the stated minimum shelf life of MasterMatrix 33 admixture has been exceeded.

**Dispensing:** MasterMatrix 33 admixture should be dispensed using direct-feed dispensing systems. It is recommended that fail-safe features be included in this dispenser application for potential meter malfunctions. Consult your local sales representative for the proper dispensing equipment for MasterMatrix 33 admixture.

## Packaging

MasterMatrix 33 admixture is supplied in 55 gal (208 L) drums, and 275 gal (1040 L) totes.

## Related Documents

Safety Data Sheets: MasterMatrix 33 admixture

## Additional Information

For additional information on MasterMatrix 33 admixture or its use in developing concrete mixtures with special performance characteristics, contact your local sales representative.

*Master Builders Solutions, a brand of MBCC Group, is a global leader of innovative chemistry systems and formulations for construction, maintenance, repair and restoration of structures. The Admixture Systems business provides advanced products, solutions and expertise that improve durability, water resistance, energy efficiency, safety, sustainability and aesthetics of concrete structures, above and below ground, helping customers to achieve reduced operating costs, improved efficiency and enhanced finished products.*

*Utilizing worldwide resources, the Master Builders Solutions community of experts are passionate about providing solutions to challenges within all stages of construction, as well as the life cycle of a structure. At Master Builders Solutions we create sustainable solutions for construction around the globe.*

## Limited Warranty Notice

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