

03 30 00	Cast-in-Place Concrete
03 37 13	Shotcrete
03 40 00	Precast Concrete
03 70 00	Mass Concrete

MasterLife[®] MK 828

High-Reactivity Metakaolin

Description

MasterLife MK 828 high-reactivity metakaolin is a high-performance pozzolanic supplementary cementitious material for use in producing concrete with high strength and increased durability.

MasterLife MK 828 metakaolin meets the requirements of ASTM C618, *Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete* for a Class N pozzolan.

Applications

Recommended for use in:

- High-strength concrete
- Mitigating alkali-silica reaction (ASR) in concrete
- Mitigating chloride-induced corrosion of steel in concrete
- Any construction project requiring the benefits provided by highly durable, low permeability concrete
- Architectural concrete in lieu of silica fume
- Green Sense Concrete

Features

- Increased cohesiveness
- Pozzolanic
- Light tan / white color
- High reactivity - enhanced performance

Benefits

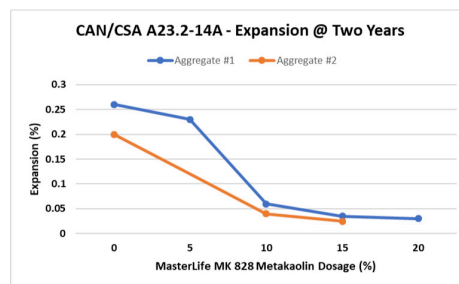
- Increased overall concrete service life
- Increased strength
- Reduced permeability thereby increasing durability
- Increased resistance to sulfate attack
- Increased resistance to alkali-silica reactivity
- Ideal for use in architectural elements

Performance Characteristics

Compressive Strength: As a pozzolan, MasterLife MK 828 metakaolin reacts chemically within a cementitious matrix to increase the amount of calcium silicate hydrate (CSH) gel that is formed. The CSH gel is the bonding agent that holds the matrix of a cementitious mixture together in the hardened state. The additional CSH gel increases strength.

Permeability: The additional CSH gel formed from the reaction of MasterLife MK 828 metakaolin fills the voids in concrete thus reducing the size and number of capillary pores and, effectively, reducing the permeability of the concrete.

Alkali-Silica Reactivity: The supplementary hydrates formed when MasterLife MK 828 metakaolin reacts entrap alkalis, thereby reducing their availability for alkali-silica reaction and the harmful expansion that can cause premature deterioration of concrete.



Alkali-Silica Reaction Mitigation

Guidelines for Use

Dosage: MasterLife MK 828 metakaolin is recommended for use in concrete at a replacement level of 5-15% by mass of portland cement. A dosage higher than the recommended range may be required to mitigate ASR for a concrete mixture containing reactive aggregates, and should be determined by appropriate testing.

Specific Gravity: The specific gravity of MasterLife MK 828 metakaolin is 2.5.

Dispensing and Mixing: MasterLife MK 828 metakaolin is batched at the concrete production plant in a manner similar to that for portland cement or other cementitious materials such as fly ash and slag cement. It may be batched into a central or truck mixer. Follow the procedures outlined in ASTM C94/C94M, *Standard Specification for Ready-Mixed Concrete*.

Degradable bags containing metakaolin are intended to be added directly to a concrete mixing vessel without opening. The degradable bags are designed to disintegrate through the combination of wetting and grinding the paper during concrete mixing. In some instances, the degradable bags may fail to disintegrate as intended, resulting in fragments of the bag on a concrete surface. This can occur in concrete mixtures with a very low water-cementitious materials ratio, mixtures with maximum sized coarse aggregate of ½ in. [13 mm] or less, mixtures with rounded or lightweight aggregates, and in pan mixers. As a precaution, Master Builders Solutions recommends performing a trial batch of the proposed mixture. If the bags do not disintegrate fully, then Master Builders Solutions recommends that bagged MasterLife MK 828 metakaolin be added to the concrete batching process by opening the bag and safely adding the contents into the mixer. The bag should then be properly discarded. Contact your Master Builders Solutions representative for guidance.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: MasterLife MK 828 metakaolin will neither initiate nor promote corrosion of reinforcing or prestressing steel embedded in concrete or of galvanized steel floor and roof systems. Neither calcium chloride nor other chloride-based ingredients are used in the manufacture of MasterLife MK 828 metakaolin.

Compatibility: MasterLife MK 828 metakaolin can be used with portland cements approved under ASTM, AASHTO or CRD specifications. It is compatible with most concrete admixtures, including all Master Builders Solutions admixtures. MasterLife MK 828 metakaolin is recommended for use with high-range water-reducing admixtures, such as the MasterGlenium® series, for maximum workability while maintaining a low water-cementitious materials ratio.

Storage and Handling

MasterLife MK 828 metakaolin stores, handles and dispenses similar to portland cement or fly ash. In bulk, MasterLife MK 828 metakaolin may be stored in a silo. Packaged MasterLife MK 828 metakaolin must be stored in a dry area. MasterLife MK 828 metakaolin requires no special dispensing equipment.

Shelf Life: MasterLife MK 828 metakaolin has a minimum shelf life of 24 months when stored under recommended conditions. Depending on storage conditions, the shelf life may be greater than stated. Please contact your local sales representative regarding suitability for use and dosage recommendations if the shelf life of MasterLife MK 828 metakaolin has been exceeded.

Packaging

MasterLife MK 828 metakaolin is available in 25 lb (11.34 kg) degradable paper bags, 2,000 lb (907 kg) bulk bags or by bulk delivery.

Related Documents

Safety Data Sheet: MasterLife MK 828 metakaolin.

Additional Information

For additional information on MasterLife MK 828 metakaolin or its use in developing concrete mixtures with special performance characteristics, contact your local sales representative.

Master Builders Solutions creates technologies for the construction industry inspiring people to build better. We are active in ~40 countries and operate 35 production sites with over 1,600 employees. We develop, produce, and market high-quality chemical admixtures, as well as adjacent core technologies, to master the challenges of today and support a decarbonized future. Our people are pivotal and pair leading technologies and a strong brand heritage to surpass our customers' expectations and drive continuous value creation.

Limited Warranty Notice

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