

# MasterLife<sup>®</sup> SF 100

## Densified Silica Fume Admixture

### Description

MasterLife SF 100 dry, densified silica fume admixture is formulated to produce extremely strong, durable concrete. MasterLife SF 100 silica fume admixture meets the requirements of ASTM C 1240, Standard Specification for Silica Fume used in Cementitious Mixtures.

### Applications

Recommended for use in:

- Steel-reinforced concrete structures or wet shotcrete applications exposed to deicing or airborne salts
- Any construction project requiring the protection provided by highly durable, low permeability concrete
- Projects requiring high-strength/high-performance concrete
- Green Sense<sup>®</sup> Concrete

### Features

- Added cohesiveness
- Reduced bleeding
- Enhanced performance

### Benefits

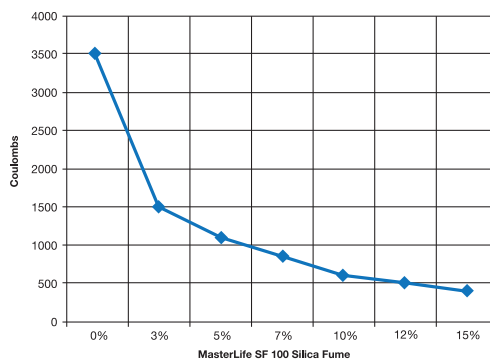
- Increased concrete service life
- Increased strength
- Increased modulus of elasticity
- Reduced permeability thereby increasing durability
- Increased resistance to sulfate attack
- Increased resistance to alkali-silica reactivity

### Performance Characteristics

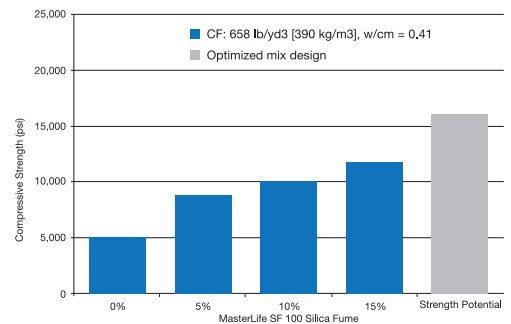
**Permeability:** MasterLife SF 100 silica fume admixture is a micro-filling material that physically fills the voids between cement particles. MasterLife SF 100 silica fume admixture dramatically lowers permeability and reduces the size and number of capillaries that allow contaminants to enter the matrix.

### Rapid Chloride Permeability

Rapid Chloride Permeability Test



### Typical Compressive Strengths



**Compressive Strength:** As a pozzolan, MasterLife SF 100 silica fume admixture 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 and decreases permeability.

**Specific Gravity:** The specific gravity of MasterLife SF 100 silica fume admixture is 2.2.

## Guidelines for Use

**Dosage:** MasterLife SF 100 silica fume admixture is recommended for use in concrete and wet shotcrete applications at an addition dosage of 5-15% by mass of cement.

**Dispensing and Mixing:** For concrete and wet shotcrete, MasterLife SF 100 silica fume admixture is batched at the concrete production plant in a manner similar to that for cement or other cementitious materials such as fly ash. It may be batched in a central or truck mixer. Follow the procedures outlined in ASTM C 94/C 94M, Standard Specification for Ready-Mixed Concrete.

**Degradable Bags:** Degradable bags containing silica fume 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 SF 100 silica fume 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 SF 100 silica fume admixture 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 this silica fume.

**Compatibility:** MasterLife SF 100 silica fume admixture 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 SF 100 silica fume admixture 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 SF 100 silica fume admixture stores, handles and dispenses similar to cement or fly ash. In bulk, MasterLife SF 100 silica fume admixture may be stored in a silo. Refer to the Silica Fume Association Users Manual for information on the appropriate set up for pumping and handling silica fume into silos. Packaged MasterLife SF 100 silica fume admixture must be stored in a dry area. MasterLife SF 100 silica fume admixture requires no special dispensing equipment.

**Shelf Life:** MasterLife SF 100 silica fume admixture has a minimum shelf life of 24 months. 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 SF 100 silica fume admixture has been exceeded.

## Packaging

MasterLife SF 100 silica fume admixture is available in 25 lb (11.34 kg) degradable bags, 2,000 lb (907 kg) bulk bags or by bulk delivery.

## Related Documents

Safety Data Sheet: MasterLife SF 100 silica fume admixture, Silica Fume Association Users Manual.

## Additional Information

For additional information on MasterLife SF 100 silica fume admixture or its use in developing concrete mixtures with special performance characteristics, contact your local sales representative.

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*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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