

MasterLife SF 100

Silica fume mineral admixture

Material Description

MasterLife SF 100 is a dry, compacted, silica fume mineral admixture formulated to produce concrete with special performance qualities. It improves the hardened characteristics of concrete in two main ways.

Firstly, **MasterLife SF 100** is a pozzolan which reacts chemically within the concrete to increase the amount of calcium silicate hydrate gel formed, thus improving the strength and impermeability of the concrete. Secondly, **MasterLife SF 100** is an ultra-fine material that, when added to concrete, physically fills the voids between cement particles resulting in an extremely dense and impermeable concrete. MasterLife SF 100 meets AS/NZS 3582.3 Amorphous Silica and ASTM C 1240 requirements.

Areas of Application

The reduced permeability of concrete produced with **MasterLife SF 100** greatly limits the ingress of water, chlorides, sulphates, and aggressive chemicals known for promoting reinforcing steel corrosion and other distress in the concrete. This makes **MasterLife SF 100** an ideal product for use in basement structures, parking decks, bridge decks, marine structures, and any construction that requires the protection provided by impermeable concrete.

Because of its pozzolanic and void-filling properties, the addition of **MasterLife SF 100** to conventional concrete can also provide ultra-high compressive strengths. This allows for design flexibility, resulting in reduced member size, increased span lengths, and improves overall structural economics.

As a result of the preceding advantages, **MasterLife SF 100** will improve performance in wet and dry shotcrete, prestressed, precast, and ready-mixed concrete applications.

When air entrainment is desired, an air-entraining admixture is recommended. Please consult your local Master Builders Solutions Technical Sales Representative. It is also recommended that **MasterLife SF 100** be used in conjunction with a high range, water-reducing admixture, such as MasterRheobuild or MasterGlenium admixtures for maximum workability while maintaining a low water-cementitious ratio.

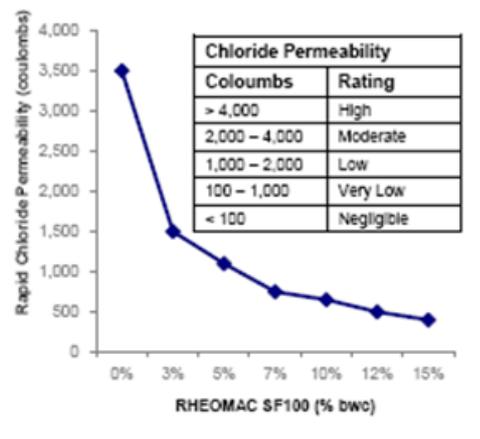
Characteristics and Benefits

MasterLife SF 100 aids in the production of concrete with the following special qualities:

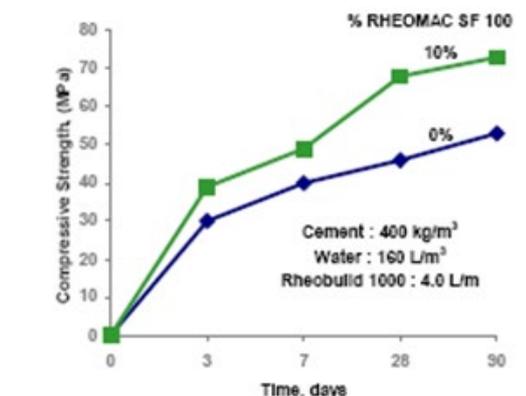
- Dramatically improved durability
- Uniformly high compressive strength
- Abrasion and erosion protection
- Better flexural strengths at all ages
- Low permeability
- Excellent freeze/thaw resistance

Properties

Example of the influence of MasterLife SF 100 on rapid chloride permeability.



Compressive Strength (MPa)



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How It Works

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

As a pozzolan, **MasterLife SF 100** silica fume reacts chemically within concrete to increase the amount of calcium silicate hydrate (CSH) that is formed. CSH is the bonding agent that holds concrete together.

The additional CSH significantly increases the compressive strength and decreases the permeability of concrete.

Compatibility

MasterLife SF 100 silica fume can be used with Portland cements approved under AS, NZS, AS/NZS and similar international standards and specifications. It is compatible with most concrete admixtures, including all Master Builders Solutions admixtures.

MasterLife SF 100 silica fume is recommended for use in combination with high-range water-reducers, such as MasterRheobuild and MasterGlenium admixtures, for maximum workability while maintaining a low water-cementitious materials ratio.

Rate of Hardening

MasterLife SF 100 is batched at the ready-mix plant in a manner similar to cement or other cementitious materials such as fly ash and granulated slag. **MasterLife SF 100** is supplied in biodegradable bags and can be placed directly into the agitator. It is recommended that **MasterLife SF 100** be used with a Master Builders Solutions high-range water reducer in order to provide maximum workability while maintaining the desired low water/cement ratio.

Note : For directions on the proper use of **MasterLife SF 100** in specific applications, contact your local Master Builders Solutions Technical Sales Representative.

Dosage

MasterLife SF 100 is recommended for use at an addition rate of 5 to 15% by weight of cement, depending on the amount of strength increase or impermeability desired. The exact amount for strength or durability requirements should be determined by trial batches using project materials.

The above addition rate applies to most concrete mixes using average concrete ingredients. However, variations in the job conditions and concrete materials may make an amount outside the recommended range desirable. In such cases, contact your local Master Builders Solutions Technical Sales Representative.

Packaging

MasterLife SF 100 is supplied in 10kg degradable bags.

Storage & Shelf Life

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect from direct sunlight.

MasterLife SF 100 has a shelf life of 12 months.

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

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STATEMENT OF RESPONSIBILITY

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