



abilspray®

High Performance, pozzolanic, mineral admixture for shotcrete and concrete

Product Overview:

Supplied in dry powder form, **abilspray®** is a carefully engineered blend of superfine flyash and synthetic and naturally occurring amorphous silica.

Available in 10kg degradable paper sacks and 1-tonne bulker bags, **abilspray®** powder improves a wide range of performance characteristics in virtually all pre-mixed shotcrete and concrete mix designs.

abilspray® powder has been specifically developed for the pre-mixed concrete industry to provide a high performance alternative to pozzolanic silica fume, ultra-fine particle kaolin silicates and metasilicates, natural volcanic tras, other low micron sized particle SCM's (Supplementary Cementitious Materials) and pozzolanic mineral admixtures for shotcrete and concrete.

Use With:

Suitable for use with both 'wet' and 'dry' shotcrete mix designs and with most concrete mix designs, **abilspray®** powder is ideal for use in:

- Shotcrete for mining and underground construction projects
- Shotcrete for above-ground applications
- Suspended slabs
- Pre-stressed and post-tensioned concrete components
- Precast concrete products including architectural items, concrete pipes, masonry pavers and roofing tiles
- Marine structures
- Projects and/or concrete components requiring ultra-high mechanical strengths.

Benefits:

abilspray® powder delivers a range of improvements in the performance of shotcrete and concrete in both their wet (plastic) and hardened states, including:

- Improves flow (rheology) and workability
- Reduces voidage within a shotcrete/concrete matrix
- Improves wet and hardened adhesion of shotcrete
- Delivers significant reductions in shotcrete rebound and wastage
- Reduces permeability to water and other aqueous solutions (including chloride, sulphates and carbonic acid)
- Improves compressive and other mechanical strengths
- Increases durability and abrasion resistance.

Usage and Application:

Typically, **abilspray®** powder is batched at the premixed concrete supply plant by adding the product packed in degradable bags directly into the batch of concrete in the transit mixer. To ensure a high degree of particle deagglomeration and correct dispersal through the shotcrete/concrete mix, the concrete should be mixed thoroughly for 6 - 8 minutes at the standard mixing speed (18 rpm).

Due its average ultra-small particle size and high surface area, using **abilspray®** powder will generally, in conventional mixes, result in an increased water demand. As such, it is recommended that the product be used in conjunction with a suitable water reducing admixture such as Ability's **Efflorein® Mark 2** and/or Ability's **Cosmotron® DPU-AC** superplasticising powder

admixtures to ensure maximum workability and flow whilst still maintaining a desirable, relatively low water:cement ratio.

abilspray[®] powder is suitable for use in shotcrete and concrete mixes containing colouring oxide pigments such as Ability's **abilox**[®] range of 48 UV-resistant products. For further information about the correct use of **abilspray**[®] - particularly in shotcrete mixes - including industry recommended placement, finishing and water-retentive curing techniques, please contact Ability Building Chemicals Co.

Dosage Rates:

The recommended dosage rate for **abilspray**[®] powder is between 5 - 10% by weight of cement, depending on the desired level of strength increase and/or moisture permeability reduction required. Whilst this addition rate applies to most shotcrete and concrete mixes using typical ingredients, variations in project conditions and concrete material ingredients may make dosage rates outside this recommended range desirable.

The optimum dose rate for strength and durability requirements should be determined by trial batches using specific project materials.

Compatibility:

abilspray[®] powder is compatible and suitable for use with most types of shotcrete (including 'wet' and 'dry' mixes) and concrete mixes. The product may be considered as a satisfactory alternative to pozzolanic silica fume, ultra-fine particle kaolin silicates and metasilicates, natural volcanic tras, other low micron sized particle SCM's (Supplementary Cementitious Materials) and pozzolanic mineral admixtures for shotcrete and concrete.

Please contact Ability Building Chemicals Co for specific information and advice on compatibility with other admixtures and agents.

Packaging:

abilspray[®] powder is available in either 10kg biodegradable bags or 1-tonne bulker bags.

Storage:

abilspray[®] powder should be stored in its original packaging, out of direct sunlight, in an appropriate, dry and well ventilated area.

Precautions:

As the percentage of amorphous silica is high and the crystalline silica is very low (less than 1%) **abilspray**[®] powder is considered safe to use. The product is categorised as a hazardous, non-dangerous good and is classed as an 'R48' category irritant.

abilspray[®] powder is a non-flammable, non-explosive substance.

To avoid possible irritation to eyes, nose, lungs or skin, it is recommended that the following Personal Protective Equipment (PPE) and precautions are followed when handling and using the product:

- Wear full overalls, gloves, safety goggles and a high quality dust mask during mixing
- Avoid skin and eye contact
- Always wash hands before eating, drinking, smoking or using the toilet.

For further Health, Safety and First Aid information, please refer to **abilspray**[®] Material Safety Data Sheet (MSDS) downloadable from Ability's website or contact us directly at: 03 9457 6488.