IMPORTANT INFORMATION

abilspray®

POZZOLANIC MINERAL ADMIXTURE FOR CONCRETE

IMPORTANT:

1. **Keep bag and contents dry.**
2. **Do not use product if bags are damaged, wet or their contents contaminated.**

DESCRIPTION:

'abilspray®' is a special concrete admixture formulated to produce concrete with substantially improved performance qualities. It is supplied in dry powder form as a brownish grey powder in 10kg net degradable paper sacks and in 1 tonne net bulker bags.

The product may be considered a very satisfactory alternative to pozzolanic silica fume, ultra-fine particle kaolin silicates and metasilicates, natural volcanic tras, and other low micron sized particle supplementary cementitious materials ('SCM's) and pozzolanic mineral admixtures for concrete.

'abilspray®' improves the characteristics of virtually all concrete mix designs – particularly shotcrete - in both their wet plastic and hardened states as follows:

1. 'abilspray®' is an ultra-fine particle material, that when added and mixed into concrete, is chemically activated to modify the concrete's wet rheological flow/workability characteristics and to fill tiny voids between cement particles.

2. 'abilspray®' as an intimate blend of less than micron particle size mineral pozzolans, reacts chemically at normal ambient temperatures without applied heat within the concrete to increase the amount and quantity of ultimately hard, durable - calcium silicate hydrate binder formed during hydration.

3. Increases the wet adhesion of spray applied shotcrete mixes during construction to reduce its rebound and wastage.

   These product features at an optimum dose, with proper site compaction and curing procedures adopted for the placed or applied concrete, substantially improves the concrete's strength, reduces its moisture permeability and increases its protective properties to result in a building material that contributes high long-term durability to structures.

WHERE TO USE:

The reduced moisture permeability to liquids of hardened concrete produced with 'abilspray®' greatly reduces or eliminates the ingress of water, as well as chlorides, sulphates, carbon dioxide - CO_2 (carbonic acid) and other chemicals in aqueous solution – aggressive to concrete and well-known for promoting reinforcing steel corrosion (and the CO_2 as a gas or in aqueous solution for causing carbonation of concrete) - ***thereby increasing the protective qualities of concrete construction***.

'abilspray®' is therefore an ideal product for use in concrete intended for use in suspended slabs, multi-storey car parks, bridge components, marine structures, shotcrete projects and in construction that requires the protection and longevity provided by watertight, impermeable concrete.

Because of its pozzolanic hardening, strength increasing and chemical cross linking properties, the addition of 'abilspray®' to concrete has the potential to provide increased abrasion, knock/impact, salt and general chemical resistance together with the achievement of ultra-high mechanical strengths.

These properties allow for structural concrete design flexibility, such as reduced member size, increased span lengths, lower pavement thicknesses to result in improved overall economics.

As a result of these benefits, 'abilspray®' incorporated into ideal specific purpose concrete mix designs will potentially improve the performance of many types of *concrete products* - especially concrete pipes, concrete masonry, pavers and roofing tiles, as well as those for prestressed, post tensioned and precast concrete applications.

Concrete curing procedures adopted for a particular concrete mix design containing 'abilspray®' which retain the concrete's mixing water at an elevated air temperature such as autoclaving and steam curing can be expected to result in higher mechanical strengths than for the same concrete cured at ambient temperatures.

RECOMMENDED QUANTITY FOR USE:

The optimum dose for strength and durability requirements should be determined by trial batches using specific project materials. 'abilspray®' is recommended for use at an addition rate of 5% to 10% by weight of cement, depending on the amount of strength increase and/or

moisture permeability reduction desired. This addition rate applies to most concrete mixes using typical concrete ingredients. However, variations in project conditions and concrete material ingredients may make amounts outside this recommended range desirable. In such cases, contact Ability Building Chemicals Co for recommendations.

The specific gravity of 'abilspray' powder is approximately 2.2 and its bulk density is approximately 0.6.

RECOMMENDATIONS FOR USE:

Typically 'abilspray®' is batched at the premixed concrete supply plant, by adding degradable paper sacks containing it directly to the batch of concrete in the transit mixer, with *thorough* mixing for 6-8 minutes at the mixing speed (18 RPM) – to ensure a high degree of its particle deagglomeration and dispersion or in suitable ways similar to cement or other supplementary cementitious materials such as fly ash (pulverised fuel ash) and ground, granulated blast furnace slag powder (GGBFS).

When microscopic air-entrainment in concrete is desired, the additional use of Ability's 'EFFLOREIN®' Mark 2 multi-functional and air-entraining admixture is recommended to be evaluated to confirm its effectiveness for this and other purposes prior to its actual use in concrete.

Because its average particle size is ultra-small and its surface area very high, 'abilspray' will usually increase water demand when added to conventional concrete. Therefore, it is recommended that the product be used in conjunction with a water reducing admixture such as Ability's **'EFFLOREIN® Mark 2** and/or Ability's **'COSMOTRON® DPU-AC** superplasticising admixture(s) powder - in order to provide maximum workability and flow whilst maintaining a desirable, relatively low water:cement ratio.

NOTE:

For further information about the proper use of 'abilspray®' – particularly in shotcrete mixes - and industry recommended finishing and water retentive curing procedures to concrete containing it, contact Ability Building Chemicals Co.

SETTING & HARDENING RATE:

The setting time of concrete is influenced by the temperature of the concrete itself, the ambient air temperature and climatic conditions, the water to cementitious material ratio, the type and performance of the chemical admixtures used and by the chemical and physical composition of the cement type used to produce the particular grade, class or type of concrete.

Trial mixes should be made with the intended raw materials to determine the 'abilspray®' admixture dosage required for a specific setting and/or the various strength achieving hardening times with a particular concrete mix design under relevant/prevalent weather conditions.

SAFETY ASPECTS:

As the percentage of amorphous silica is high and the crystalline silica in 'abilspray®' is very low (less than 1%) the product is considered to be safe-to-use. ***Check Ability's MSDS for this product before its actual use.***

FIRST AID:

Skin:
Wash skin thoroughly with soap and water and remove contaminated clothing.

Eyes:
Hold eyes open, flood with clean tap water for at least 15 minutes.

Ingestion:
Do NOT induce vomiting. Give a glass of potable water after rinsing out mouth.

Inhalation:
Remove to fresh air. Lie patient down to rest.

Safety Directions:
Wear suitable protective clothing, gloves, goggles and particularly a quality *dust mask* when handling.

Risk:
May be irritating to eyes, nose, lungs and skin.

Shipping Name:	N/A
UN No:	N/A
DG Class:	N/A
Subsidiary Risks:	N/A
Hazchem:	N/A
EPG Card Packaging Group:	N/A
Poisons Schedule:	N/A

Manufactured by:

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