

Fly Ash

A STRENGTH-INCREASING POWDER ADDITIVE FOR PORTLAND CEMENT-BASED MIXES.

PRODUCT OVERVIEW:

Ability's Fly Ash powder is a fine siliceous dust selectively collected in Australia from the controlled combustion of pulverised black coal. During the combustions process, the bulk of the particles formed are microscopic spheres. Light grey in colour, and are of a much more rounded particle shape than Portland cement.

In the presence of hydrating Portland cement, Fly Ash powder behaves like a secondary cement by reacting slowly at ambient temperatures with Calcium Hydroxide (lime) liberated during these long-term hydration reactions of water with cement.

Chemically, the spherical particles of Fly Ash are composed mainly of glassy compounds of silica, alumina, iron and calcium. The product can be regarded as virtually inert and therefore may, after adequate testing be suitable for incorporation into coatings, plastics, adhesives, rubber and other composite materials as a non-hiding, light grey extender/filler pigment at low cost.

ECOLOGICALLY SUSTAINABLE DEVELOPMENT:

Fly ash can be used to replace up to 40 % of milled cement. It reduces the amount of raw material and fuel required in the manufacture of cement. That means greenhouse gas emissions are reduced.

USE:

For Portland cement based structural members, concrete pavements and all concrete products.

Also as a cost lowering, binder reducing and abrasion resisting additive for plastics, paints, adhesives, rubber etc, virtually all types of mortars/grouts, floors, screeds and toppings etc. In bituminous concrete, slab-jacking, soil stabilisation, mine shaft fill, filtration, as a plastic consistency improving additive for baked clay products etc, road base, in embankment construction, as well as for back fill etc.

It should be fully evaluated before actual use in paints and membranes, cementitious paints and as a low cost extender/filler in plastics and other composites materials. Mortar (including existing wall rendering/plastering and floor/wall fairing mortars)

BENEFITS:

In plastic concrete:

- ✱ Reduced water requirement for a given plastic consistency.
- ✱ Reduced bleeding of mix water to the surface and the reduction or elimination of segregation of the aggregates from the cementitious paste.
- ✱ Easier placement and improved workability.
- ✱ Improved pumpability, extrudability and spray ability.
- ✱ Improved finishability.

In hardened concrete:

- ✱ Greater ultimate mechanical strengths.
- ✱ Reduced drying-shrinkage and creep (volume deformation under sustained load).
- ✱ Reduced permeability to liquids.
- ✱ Increase resistance to sulphate attack from sulphate containing ground waters.
- ✱ Enhanced resistance to alkali aggregate reaction (AAR) and subsequent spalling.
- ✱ Lowered heat of hydration to prevent cracking in large volume, mass pours.
- ✱ Increased resistance to freezing and thawing degradation.
- ✱ Less potential for efflorescence (we recommend the use of Ability's 'EFFLOREIN®' Mark 2 powder for greater control of efflorescence – leached, white salt crystalline bloom).
- ✱ Greater resistance to acids and chemical attack.

DOSAGE RATES:

The dose rate proportion for Portland cement, ranges from 15% to 30% replacement in pre-mixed concrete and 20% to 50% with autoclave during in concrete blocks, bricks and pavers for a given ultimate compressive strength which lowers the cost of production.

PACKAGING:

Fly Ash is supplied in 10kg paper bags.

STORAGE:

For maximum shelf life, Fly Ash should be stored in its original container, out of direct sunlight, in appropriate, dry conditions.

PRECAUTIONS:

Fly Ash is classified as hazardous, and 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 dust mask during mixing
- Wash overalls regularly.
- Avoid skin and eye contact
- Always wash hands before eating, drinking, smoking or using the toilet

For further Health and Safety information, please refer to Fly Ash Safety Data Sheet (MSDS), which is available from Ability Building Chemical Co.



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