

# Lafarge Fly Ash S

(BS EN 450-1:2005 - Fineness Category S)



bringing materials to *life*

Lafarge Fly Ash S is an enhanced quality fly ash suitable for use in combination with Portland cement (CEM I) in concrete. Particular uses include:

- Minimising the risk of ASR in concrete containing reactive aggregates.
- Large pours to reduce the risk of early-age thermal cracking.
- Concrete exposed to sulfates or aggressive ground.
- Concrete exposed to chlorides.

Lafarge Fly Ash S is a quality assured fly ash conforming to BS EN 450-1 2005: Fineness Category S, with a loss of ignition of 2% to 7% (LOI Category B). Fineness Category S Ash is a finer ash than Category N Ash.

Lafarge Fly Ash S is a type II addition suitable for use in mixer combinations with Portland cement (CEM I) as defined in BS 8500: Concrete-Complementary British Standard to BS EN 206-1.

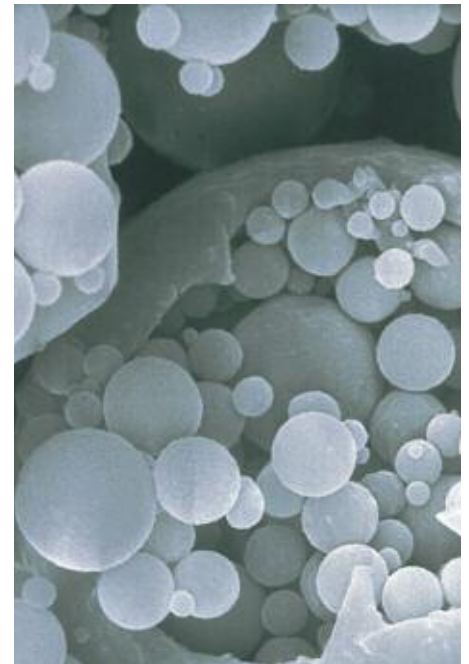
## Designation of Mixer Combinations

BS 8500 Designation	Proportion of Fly Ash (%)	Equivalent BS EN 197-1 Cement
CIIA-V	6-20	CEM II/A-V
CIIB-V	21-35	CEM II/B-V
CIVA-V	11-35	CEM IV/A
CIVB-V	36-55	CEM IV/B

## Applications

Lafarge Fly Ash S can be combined with Portland cement (CEM I) in the concrete mixer. Guidance on the appropriate combination for different applications is available in BS 8500: *Concrete-Complementary British Standard to BS EN 206-1* and from the Lafarge Cement Technical Helpline. Combinations of Lafarge Fly Ash and Portland cement (CEM I) are recommended for many applications including:

- Large concrete pours: Combinations of Portland cement (CEM I) with higher proportions of Lafarge Fly Ash S (typically 30% or more) can significantly reduce the temperature rise in large concrete pours and hence reduce the risk of early-age thermal cracking.
- Concrete exposed to the ground: BRE Special Digest 1: *Concrete in aggressive ground* indicates that combinations of Portland cement (CEM I) with 25% or more of Lafarge Fly Ash can be used in all sulfate exposure classes apart from DC-4m.



Electron micrograph of fly ash

- To improve the resistance of concrete to reinforcement corrosion when exposed to chlorides from seawater or other sources.
- To minimise the risk of alkali-silica reaction in concrete: Combinations of Portland cement (CEM I) with 40% or more Lafarge Fly Ash are recommended by BRE Digest 330: *Alkali-silica reaction in concrete* and BS 8500: *Concrete-Complementary British Standard to BS EN 206-1* for use with high reactivity aggregates.

# LAFARGE FLY ASH S

## Properties

The properties of concrete containing Lafarge Fly Ash combined with Portland cement (CEM I) will depend on the proportion of Lafarge Fly Ash. When compared with Lafarge Cement concrete at the same cement content, the following differences may be noticed:

- Reduced water demand.
- Extended setting times, particularly in cold weather.
- Improved workability retention.
- Reduced bleeding.
- Improved pumpability.
- Slower and more gradual strength development with potentially higher long-term strength (after 28 days).
- Improved strength when heat cured.
- Slightly darker colour.

## Availability

Lafarge Fly Ash is only available in bulk. Details of availability can be obtained from the contacts listed below.

## Health and Safety

There are no known significant health risks associated with fly ash. However, as an airborne dust it may cause irritation to the eyes and respiratory system. Prolonged contact with the skin may also cause skin irritation.

For further information refer to the Lafarge Health and Safety Information Sheet for Fly Ash.

## Technical Support

Further information or specification advice on Lafarge Fly Ash and the full range of Lafarge cements can be obtained from the Lafarge Cement Technical Helpline.

## Typical properties

Loss on ignition	(%)	2 to 7
Fineness (retained on 45 micron sieve)	(%)	Max 12
Water requirement	(%)	Max 95
Activity index	(%)	Min 75 Min 85
Initial setting time (75% Portland cement/25% fly ash)	(minutes)	Max 120 mins longer than Portland cement
Soundness	(mm)	Max 10
Chloride	(%)	Max 0.10
Sulfuric Anhydride (SO <sub>3</sub> )	(%)	Max 3.0
Reactive Calcium Oxide	(%)	Max 10.0
Bulk density	(kg/m <sup>3</sup> )	1200 to 1700
Particle density	(kg/m <sup>3</sup> )	Approx 2300

## For further information

### Technical helpline

Tel: 0845 812 6232

E-mail: [info@lafargecement.co.uk](mailto:info@lafargecement.co.uk)

### Customer services

Tel: 0845 812 6300

E-mail: [customerservice@lafargecement.co.uk](mailto:customerservice@lafargecement.co.uk)

The information in this datasheet is accurate at the time of printing, but Lafarge Cement UK reserve the right to amend details as part of their product development programme.



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