



Material Datasheet

ASHES

BS 3892 Part 2: 1996 Specification for pulverized-fuel ash to be used as a Type 1 addition
BS 3892 Part 3: 1997 Specification for pulverized-fuel ash for use in cementitious grouts
Furnace Bottom Ash (FBA)

Apart from our 450-S fly ash for concrete (to BS EN 450-1; Fineness Category S), CEMEX also offer ashes meeting other technical specifications, suitable for use in anything from grouts to structural fill materials:

- **BS 3892 Part 2: 1996 Specification for pulverized-fuel ash to be used as a Type 1 addition.**
- **BS 3892 Part 3: 1997 Specification for pulverized-fuel ash for use in cementitious grouts.**
- **Furnace Bottom Ash (FBA)**

A Type 1 addition is defined as: Finely divided inorganic nearly inert material that may be added to concrete in order to improve certain properties or to achieve certain properties.

Note: BS 3892 Parts 2 & 3 retain the UK term "pulverized-fuel ash (P-FA)", which is synonymous with the term "fly ash" as used in the harmonised European standard BS EN 450-1.

Features/benefits/applications

- BS 3892 Part 2 :1996 [Type 1 addition] and Part 3 :1997 [Cementitious grouts].
- BS 3892 Part 2 P-FA is assumed to be inert and therefore is not permitted to count towards the cement content in the concrete mixes.
- BS 8500 Concrete [complementary Std to BS EN 206-1], includes the use of BS 3892 Part 2 P-FA as a Type 1 addition.
- The main application for BS 3892 Part 2 P-FA is in grout mixes and precast concrete mixes.
- P-FA grouts have important technical, rheological and durability advantages over sand and cement grouts, by varying the proportions of P-FA and Portland cement or alternatively incorporating sand, lime or other materials such as bentonite.
- Rounded particle shape reduces water demand for the same workability, which improves pumpability and flowability; this also increases compressive strength and durability.
- P-FA particle size [< 45 micron] enables void filling in combined cement and aggregate gradings, thus contributing to the densification and cohesiveness of the concrete or grout.
- Reduced water content of the concrete or grouts lowers permeability and improves sulfate resistance and shrinkage reduction.
- Where weight is an important factor, the lower particle density of P-FA can be an advantage in reducing bulk density of grout. This property is also beneficial in structural fill applications to provide an alternative to natural granular materials and clays in reduction of post-fill ground settlement.
- P-FA has excellent compaction properties, with a high value of apparent cohesion [cm] and high angle of internal shearing resistance [qm].
- Furnace Bottom Ash (FBA) is also available as a fill material and is ideal for highway sub-base construction. FBA may also be utilised as a light weight aggregate.

Delivery, storage and handling

Delivered in pressurised bulk powder tankers by road, the standard load size is 28 - 30 tonnes. Silo identity disks can be provided for individual products on request by calling 01788 564444. Make sure you're ready to receive and store your bulk material from us by viewing the checklist shown on www.cemex.co.uk

Fly ash is finer than Portland cement and, therefore, tends to bulk more in the silo. As the particle shape is rounded, the particles must remain dry and segregated to enable ease of flow. Sometimes additional aeration will be required to maintain the flow characteristics of the fly ash and, in difficult situations, installation of a Vibra-Jet aerator will be necessary. The Vibra-Jet is a low cost solution to the problem of fly ash compaction that functions by means of air discharge in a circular pattern along the silo wall, undercutting the material. CEMEX is able to advise on the installation and positioning of the Vibra-Jet aeration system if required.

All CEMEX drivers are fully trained and experienced in the discharging of our vehicles. Please do all you can to ensure your site is accessible with no obstructions. If you are in any doubt, we can send an engineer to advise you - just ask

Health and safety

Extensive testing has shown fly ash to be non-toxic and environmentally benign. There is no known significant health risk associated with the material but, as an airborne dust, it may cause irritation to the eyes and respiratory system. It is recommended that suitable protective clothing; gloves and eye/face protection is worn. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. Prolonged contact may cause transient skin irritation in susceptible individuals. Remove with soap and water. If any irritation persists seek medical advice

Product applications

Principal properties of BS 3892 Parts 2 and 3

| Properties (%max) | BS 3892 Part 2 | BS 3892 Part 3 |
|-------------------|------------------------------|---------------------|
| Description | Type 1 addition nearly inert | Cementitious Grouts |
| Loss on ignition | 12.0 | 14.0 |
| Fineness @ 45u | 60.0 | 60.0 |
| Moisture | 0.5 | 0.5* |

*A number of optional tests are available with grouts, e.g. if conditioned ash is used then a different moisture content can be agreed with the customer. Also, tests may be conducted on fluidity and strength activity.

Information and advice on the use of CEMEX ash products is available via our website. Another useful website is the United Kingdom Quality Ash Association, www.ukqaa.org.uk

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