

## Fly Ash (Class C)

Fly ash Class C conforming to ASTM C-618



### Description

Fly ash available from modern thermal power plants typically contain around 1% carbon, as the boilers are far more efficient (the Indian IS: 3812 code still has the upper limit of carbon as 12%, while the ASTM C-618 6%). The high velocity of the flue gases in the burning zone produce fly ash of much greater fineness were achieved earlier. Also this modern day fly ash plays a far more active role in concreting than earlier. From the cement point of view the mineralogy of fly ash is important as 80-90% of it is glass. It starts out as impurities in coal- mostly clays, shales, limestone and dolomite. They cannot be burned so they turn up as ash and at high temperatures fuse to become glass. Due to the high speed of the flue gasses the molten glass turns into tiny beads of glass, 40% being less than 10 micron in size (1000 microns is 1mm, cement is approx. 25micron) and these are the principal contributors of the 7 and 28 days strength. Sizes between 10 to 45 microns react slowly to give the concrete strength from 28 days to a year and sizes over 50 micron behave like sand particles and do not matter excepting as a filler.

### Characteristics of Fly Ash

- Fine particles size.
- Low carbon content.
- Pozzolanic reaction.
- Spherical particle shape.

With these unique features and characteristics, the use of Fly Ash will have a number of performance benefits in concrete, both in the fresh and hardened state.

### Advantages

- Increased compressive strength.
- Increased workability.
- Reduced heat of hydration.

- No leaching of Calcium Hydroxide crystals on to the surface.
- Increased durability.
- Decreased permeability, bleeding and segregation.

### Typical Properties

Chemical and Physical Properties (ASTM C-618)

Chemical		Class C
SiO <sub>2</sub> + Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub>	min %	50
SiO <sub>2</sub> + Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub>	max %	5
Moisture Content	max %	3
Loss on Ignition	max %	6
Optional Chemical		
Available Alkalies	max %	1.5
Physical		
Fineness + 325 Mesh	max %	34
Strength Activity/Cem.	min %	75
Water Requirement	max %	105
Autoclave Expansion	max %	0.8
Uniformity Requirements		
Density Max. Var. max %	max %	5
Fineness Points Var.	max %	5
Optional Physical		
Multiple Factor		-
Increase in Drying Shrinkage	max %	0.03
Uniformity Requirements		
A.E. Admixture Demand	max %	20
Control of ASR		
Expansion, % of Low Alkali Cement	max %	100
Sulfate Resistance		
Moderate Exposure, 6 Months	max %	0.10
High Exposure, 6 Months	max %	0.05

**Health and Safety**

Fly ash is formulated from chemicals which present no fire or health hazards. However, it is a very fine powder. For further information look at product Material Safety Data Sheet.

**Packaging and Storage**

Fly ash is supplied in small bags of 25kg or jumbo bags of 1400kg. Product should be stored in dry conditions, similar to cement.

**Technical Service**

The Technical Service Department is available to assist you in the correct and best use of our products. These resources and advice are at your disposal entirely without obligation.

**Contact Information**

Al-Faiha for Engineering Products  
techsupport@alfaihaengineering.com  
www.alfaihaengineering.com

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