

1. Product Name

- Fly Ash, Class C and Class F

2. Manufacturer

Holcim (US) Inc.
6211 North Ann Arbor Road
P.O. Box 122 Dundee, MI 48131
Phone: 888-646-5246
734-529-2411
Fax: 734-529-4110
E-mail: lafargeholcim.com
Web: lafargeholcim.us

3. Product Description

Basic Use

Fly ash is a siliceous or siliceous and aluminous material that, by itself, possesses little or no cementitious value. In the presence of water, however, fly ash chemically reacts with calcium hydroxide released by hydration of Portland cement to form compounds possessing cementitious properties. This can result in a denser, durable concrete.

Fly ash also can be used to improve concrete workability, decrease permeability, reduce sulfate attack, decrease bleeding and segregation, reduce shrinkage, reduce heat of hydration, increase compressive strength and increase flexural strength. Fly ash is suitable for a variety of concrete construction applications from general construction to dams, piers, massive mat placements, footings and similar structures.

Composition and Materials

Fly Ash can be a tan or gray color, depending on the type of coal source; its appearance resembles cement. It is primarily silicate glass containing silica, alumina, iron and calcium. Minor constituents are magnesium, sulphur, sodium, potassium and carbon.

Fly ash is the by-product of the combustion of pulverized coal at power generating plants. Exact chemical composition of fly ash is largely determined by the coal used. Upon ignition in the furnace, most of the volatile matter and carbon in the coal are burned off. During combustion, the coal's mineral constituents (such as clay, feldspar, quartz and shale) fuse in suspension and are carried away from the combustion chamber by the exhaust gas.



Lake Murray Dam Project in South Carolina

The fused material cools and solidifies into spherical particles called fly ash. This is then collected from the exhaust gas by electrostatic precipitators or bag filters. The fly ash collected from exhaust gases needs no further processing for use in blended cement or concrete.

Most particles of fly ash are spherical. The particle size of fly ash varies from one micron to as large as 100 microns (typical particle size is under 20 microns). Specific gravity can range between 2.2 and 2.8, depending on the type of fly ash.

Types

Fly ash is categorized by ASTM C618 and AASHTO M 295 as Class C or Class F.

Class C Fly Ash contains greater amounts of calcium higher than Class F fly ash. Class C Fly Ash is both pozzolanic and cementitious and, when exposed to water, reacts and hardens

Class F Fly Ash often contains less than CaO than Class F fly ash and may have a higher carbon content than Class C fly ash.

Benefits

- Meets standard requirements of ASTM C618
- Meets standard requirements of AASHTO M 295

Limitations

Finely divided materials such as fly ash affect the performance of a concrete mix. Before one is accepted for use, it should be tested in combination with the specific cement and aggregates being used. This ascertains its suitability with regard to water requirements, strength development, shrinkage, heat of hydration, durability or special properties such as preventing alkali-aggregate reactions and reducing sulfate attack.

As is always the case, proper concreting practices are required to produce optimum results.

Sizes

Fly Ash is measured in bulk quantities (tons) and is shipped by rail, barge and/or truck.

4. Technical Data

Applicable Standards

ASTM International

- **ASTM C618** Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
- **American Association of State and Highway Transportation Officials (AASHTO)**
- **AASHTO M 295** Standard Specification for Coal, Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

5. Installation

Methods

Engineers, architects and concrete designers may all have an interest in specifying or using fly ash to meet project requirements. It is recommended that optimum fly ash replacement percentages at varying cement contents be consulted prior to use of this product. These SDS are available at www.holcim.us

6. Availability and Cost

Availability: Contact the nearest Holcim US Sales Office for availability.

Cost: Pricing information can be obtained from the nearest Holcim US Sales Office.

7. Warranty

Upon request, Holcim US can provide Material Certification reports demonstrating that Fly Ash meets applicable ASTM standards. Holcim will not guarantee finish work, having no control over use of this product. Holcim shall not be responsible for condition of material after delivering to dealer or distributor.

8. Maintenance

In areas where concrete cleaners and sealers are required, proper instructions should be followed. Contact the appropriate product manufacturer before application.

9. Technical Services

Technical service is available by contacting the nearest Holcim Sales Office at (888)-646-5246. With advance notice, technical service can be provided at jobsite locations.

For questions on any technical information contained in this document, contact a Holcim Technical Service Engineer for further detail.

10. Filing Systems

Additional product information is available from the manufacturer upon request

Corporate Headquarters

Holcim US
8700 Bryn Mawr Avenue
Chicago, IL 60631
(888) 646-5246

Corporate Office

6211 Ann Arbor Road
P.O. Box 122
Dundee, MI 48131
(888) 646-5246