Aayush Shipping Private Limited

WE ARE COMMITED TO REDUCE THE CARBON EMISSION

FLY ASH 60000 MT /EVERY MONTH

Product	Fly Ash/ Coal Ash
Standards	ASTM C618 Class-F, BS EN 450, BS 3892, Class C
Packing	1.4 Tons Jumbo bags , 50/40kg bags as per client requirement
Monthly capacity	60,000 tons
Shipping mode	Containerized or bulk, Bulkers (Road)

Fly Ash produced at Coal based Thermal Power Plant, is a resource material for Cement industry and building products manufacturing units. It is also being used as one of construction material in Road and Fly over embankment construction and thus helping to save earth and degradation of good agricultural land.

Fly ash is produced from the burning of pulverized coal in a coal-fired boiler. It is a fine-grained, powdery particulate material that is carried off in the flue gas and normally collected from the flue gas by means of electrostatic precipitators, baghouses, or mechanical collection devices such as cyclones.

CH-3/75, 7th Floor, Kendriya Vihar, Sector 11, Kharghar, Navi Mumbai - 410210, Maharashtra, INDIA.
Website: www.aayushshipping.com
Email: info@aayushshipping.com

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Fly ash is commonly used in production of concrete. It is applied as a supplementary cementing material. Initially the idea was to use fly ash for economic reasons – on one hand to utilize fly ash which is an industrial by product, on the other to reduce the amount of costly cement. However, it appears that application of fly ash in concrete has a lot of benefits, mainly by reduction of unwanted hydration heat.

Cement can be replaced with fly ash in concrete. It reacts (Si) with Ca(OH)2 and produces more CSH gel which contributes to strength. With reduced cement, hydration heat will be reduced and hence there is strength gain.

Uses and benefits of fly ash

Uses:

- The most common use of fly ash is as a partial replacement for Portland cement used in producing concrete. Replacement rates normally run between 20% to 30%, but can be higher.
- Fly ash produced by coal-fired power plants provides an excellent prime material used in blended cement, mosaic tiles, and hollow blocks among others.
- Fly ash is an inexpensive replacement for Portland cement in concrete and using it improves strength, segregation and ease.
- Fly ash can be used as prime material in blocks, paving or bricks; however, one of the most important applications is PCC pavement. PCC pavements use a large amount of concrete and substituting fly ash provides significant economic benefits. Fly ash has also been used for paving roads and as embankment and mine fills, and its gaining acceptance by the government, specifically the Highway Administration.
- Fly ash reacts as a pozzolan with the lime in cement as it hydrates, creating more of the durable binder that holds concrete together. As a result, concrete made with fly ash is stronger and more durable than traditional concrete made exclusively with Portland cement.

Benefits:

Fly ash can be a cost-effective substitute for Portland cement. In addition, fly ash could be recognized as an environmentally friendly product because it is a by-product and has low embodied energy. It is also available in 2 colors, and coloring agents can be added at the job site. In addition, fly ash also requires less water than Portland cement and it is easier to use in cold weather.

Other benefits include:

- Can withstand harsher service environments
- Less susceptible to chemical attacks and mitigates the negative impact of deleterious aggregates.
- Improved flow ability, reduced hydration temperatures and delayed setting time of fly ash concrete.
- Longer service life,
- Used to mitigate a problem called alkali silica reaction which occurs when concrete deteriorates early due to issues with aggregate quality.
- Cost effective
- Has positive environmental impacts, as it conserves landfill space, reduces energy and water consumption, and helps reduce greenhouse gases
- Produces various set times

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- Cold weather resistance
- Higher strength gains, depending on its use.
- Can substitute Portland cement
- Considered a non-shrink material
- Produces denser concrete and a smoother surface with sharper detail
- Great workability
- Reduces crack problems, permeability and bleeding
- Reduces heat of hydration
- Produces lower water/cement ratio for similar slumps when compared to no fly ash mixes.
- Reduces CO2 emissions.

Types of fly ash :

There are different types of fly ash , depending on its chemical properties, including Class F and Class C , generated by burning black coal and brown coal respectively. Class F and Class C are being utilized in making building materials such as concrete, lightweight aggregate, bricks etc. Also fly ash is used as a material for road construction and earth filled dam construction.
Class F fly ash is available in larger quantities , which is generally low in lime , less than 15%, and contains greater combination of silica , alumina and iron(more than 70%) compared to Class C fly ash. Class F is a solution to a wide range of summer concreting problems and it is often recommended for using where concrete may be exposed to sulphate ions in soil and ground water.

Class C fly ash normally comes from coal which produces an ash with higher lime content, generally more than 15%, often as high as 30%. Also, high Calcium Oxide(CaO) gives Class C unique self hardening characteristics. Class C is mostly used in situations where higher early strengths are important.

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Test report of FLY ASH-ASTM C 618

Sr No	Parametrs	Unit	Result Obtained	Protocol	CAS NO
1	Loss on Ignition	%	0.5	ASTM C-311	NA
2	Silica as Sio2	%	55.32	ASTM C-311	60676-86-0
3	Aluminia as Al2O3	%	21.7	ASTM C-311	1344-28-1
4	Titnia as TiO2	%	1.35	ASTM C-311	12137-20-1
5	Iron as Fe2O3	%	8.43	ASTM C-311	1309-37-1
6	Calcium as CaO	%	4.72	ASTM C-311	1305-78-8
7	Magnesium as MgO	%	2.45	ASTM C-311	1309-48-4
8	Sodium as Na2O	%	1.86	ASTM C-311	1313-59-3
9	Potassium as K2O	%	1.36	ASTM C-311	12136-45-7
10	Sulphur Trioxide as SO3	%	0.24	ASTM C-311	7440-38-2
11	Manganese as MnO	%	0.15	ASTM C-311	1344-43-0
12	Chrolide as CL	%	Less than 0.10	ASTM C-311	16887-00-6
13	Residue on 45 Micron seieve	%	15.54	ASTM C-311	NA
14	Moisture	%	Less than 0.10	ASTM C-311	7732-18-5

Test report of FLY ASH-BS 3892-BEIGE

Sr No	Parametrs	Unit	Result Obtained	Protocol
1	Loss on Ignition	%	<1	ASTM C 114-2013
2	Silica as Sio2	%	55.13	ASTM C 114-2013
3	Aluminia as Al2O3	%	24.45	ASTM C 114-2013
4	Titnia as TiO2	%	1.23	ASTM C-314
5	Iron as Fe2O3	%	7.43	ASTM C 114-2013
6	Calcium as CaO	%	3.54	ASTM C 311
7	Magnesium as MgO	%	2.73	ASTM C 311
2	Sodium as Na2O	%	0.75	ASTM C 114-2013
3	Potassium as K2O	%	1.02	ASTM C 114-2013
4	Sulphur Trioxide as SO3	%	0.35	ASTM C 114-2013
5	Chrolide as CL	%	0.01	ASTM C 311
6	Residue on 45 Micron seieve	%	<12	ASTM C 311
7	Moisture	%	<1	ASTM C 311

Team:
Capt. Manoj Kumar
Mr. Ravikant Mishra
Commander Navdeep Bakshi
Mr. Mahesh Sarthe

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