Expect results

Expect results is our promise to our customers and the essence of our strategy. It is the attitude we share globally. Our business is to deliver results to our customers to help them reach their goals.

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Metso centrifugal classifier for fly ash processing

Fly ash – waste or opportunity?

Coal-fired power stations produce large volumes of waste product in the form of fly ash. When treated, this fly ash can have industrial applications. This is mainly due to its pozzolanic properties that can make it a suitable replacement for ordinary portland cement.

Fly ash characteristics

Fly ash characteristics differ due to the coal grade, chemistry, method of firing and any flue gas scrubbing processes.

The ASTM International Standards divide fly ash into two classes dependant on characteristics: Class C and Class F. The higher grade Class F is typically derived from the higher grade coals and consists mainly of microscopic alumina and silica based particles that have excellent pozzolanic properties.

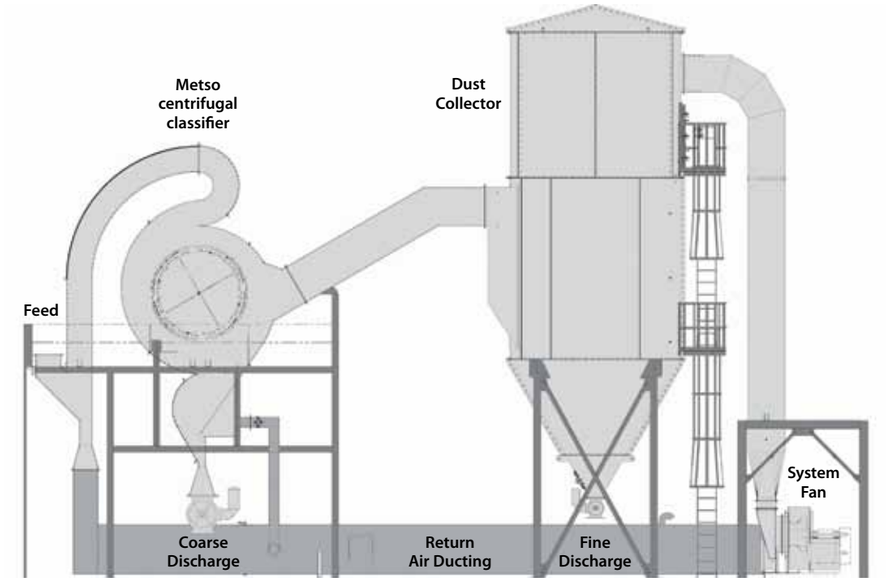
To achieve specifications, the correct chemistry needs to be present in the fly ash.

Fineness is the primary physical characteristic of fly ash that relates to pozzolanic activity. As the fineness increases, the pozzolanic activity can be expected to increase.

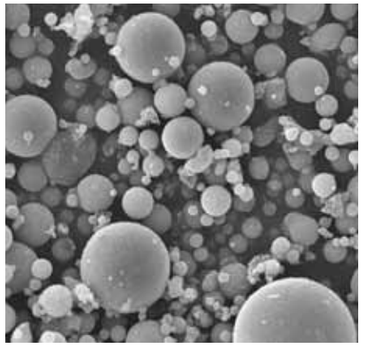
Current specifications include a requirement for the maximum allowable percentage retained on a 0.045 mm (No. 325) sieve when wet sieved. To meet these requirements, the Metso centrifugal classifier gives an accurate fine separation that is adjustable to meet the individual site requirements.

Typical qualifying requirements for Class F fly ash

Fly ash specification requirements	Limits
Loss on ignition	<3%
Combined content of SiO_2, Al_2O_3, Fe_2O_3	≥70%
Moisture	<1% (on-line feed)
SO_3	≤5%



Metso centrifugal classifier in a typical fly ash layout with a return air system



Most accurate air classifier solution

- Highly efficient removal of waste sizes
- More product gained by the sharp separation the centrifugal classifier offers
- No drop-off in separation as parts wear
- Fine adjustment options allow separations to be tuned exactly to meet specification requirements

Exceptionally low maintenance

- The centrifugal classifier has no rotating parts
- Wearing areas are well protected by ceramic tiles
- No requirement to stop to make setting adjustments
- No confined space requirements for maintenance on the centrifugal classifier
- All power in the system from single fan running in clean air

Metso centrifugal classifier

Metso's centrifugal classifier has an extensive track record with multiple installations in Australia, Belgium, China, Columbia, India, Indonesia, Korea, United Kingdom and U.S.A. Typical fly ash tonnages are in the range of 40–100 tons per hour but with capabilities to provide solutions to fit almost any required tonnage.

The centrifugal classifier is designed for separations from 635# (20 microns) to 140# (100 microns).

The classifier unit contains no rotating parts. All of the air movement in the classifier is created by a fan on the clean air side of the system's filter.

The centrifugal classifier has ceramic lining giving it excellent wear resistance and long maintenance intervals.

Ceramic linings give outstanding wear life

The centrifugal classifier has an adjustable recirculating air flow that allows the separation requirements to be fine tuned and hence high quality of separation is achieved.

1. The feed is transported pneumatically to the classifier
2. Coarse particles are separated from the airstream by centrifugal force
3. The air stream then passes through the particle curtain
4. This air stream then draws the finer particles from the flow of material through an orifice to be collected at the filter
5. A secondary air inlet scrubs the remaining particles and recirculates the remnant fines back to the primary flow of material
6. The coarse particles exit through an air lock