Fly ash components: A proposal for their identification and classification

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ABSTRACT

The different uses of fly ashes depend on their composition, the inorganic fraction being the predominant component. For this reason, much more attention has been paid to the inorganic components in fly ashes. However, the carbon content of fly ashes is also important because of some of their physico-chemical properties. This organic fraction has generally been characterized as a whole and although, there have been a few attempts to classify the various carbon forms, no comprehensive, useful or practical classification of fly ash carbons has yet been developed.
Different fly ash carbons have different physico-optical and textural properties and not all the fly ash carbons behave in the same way, for example in their capacity to retain trace elements or when they are used as precursors of carbon materials.
Thus, there is a clear need to establish a classification of fly ash components (organic and inorganic) on the basis of a few selected criteria related to their physico-optical properties. Such a classification should include not only all the morphotypes of unburned carbons that may be found in fly ashes as a result of the combustion of coal and coal blends, but also those unburned carbons derived from the co-combustion of coals and other materials.
The International Committee for Coal and Organic Petrology (ICCP) is working on fly ash with two objectives: to identify all the organic and inorganic components in fly ashes and to establish a classification of these components. Some preliminary results of this work will be shown here.

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