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South African Coal Ash

SARS Tax Exemption No: 930012713

WHAT DO WE KNOW ABOUT COAL ASH?

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Dear **SACAA** Members,

1. INTRODUCTION:

The South African Coal Ash Association has been in existence for many years, and it is found when becoming involved in this part of the industry, that there is very little knowledge or understanding of this subject.

This article will not become too technical, which is something happens frequently.

2. ELECTRICITY AND THE ASH:

Like many other countries, South Africa has coal fired power stations, which is produce enormous quantities of coal ash. The ash is produced when the coal that is used in a power station is burnt, after the burning process is completed, there is ash.

Ash is also obtained from other factories' processes that are not power stations, but where coal is used to generate heat.

Some of the problems seen into the future, is that coal reserves are to last – in some cases, it is estimated for only another 200 years. Many countries have signaled their intentions to continue to use coal as a valuable long-term and sustainable energy source.

With this scenario relevant, **SACAA** is endeavouring to find an "acceptable" and "beneficial" use for ash materials.

There is constant increase pressure from environmental groups, wanting to reduce coal as a source of generation for coal-fired power stations – focusing on the next few years.

In South Africa, we have a similar scenario to many other industrial nations. Also, in South Africa the increasing of the “effective utilization” of ash materials is becoming a large priority and a huge challenge. The contestability of electrical supply has presented power station operations with many challenges not limited to reducing costs and increasing profitability.

If one looks at it, the ash is one part of the business outputs, that has excellent return potentials of management consider prudent commitment and investment, both in time and financial resource.

3. SO, WHAT IS FLY ASH?

The fly ashes produced in South African power stations are light to mid-grey in colour and have the appearance of cement powder.

Fly ash is pozzolanic and reacts with various cementitious materials. A big percentage of the current beneficial use of fly ash is to enhance the properties of concrete used and other building materials, and also used to good effect with road-based binders and asphalt filter.

Fly ash has strength and compressive properties resembling a medium to dense sand but its compacted mass is only about 60% of that of dense sand. Fly ash has therefore been ideal for backfilling retaining walls or construction embankments over soft soils because of its:

- High internal angle of friction
- Low unit mass
- Low compressibility
- Reduced settlement when used as fill material
- Ease of compaction

4. AND OTHER ASHES?

We often hear people speak about bottom ash.

Let’s explain – bottom ash and boiler slag are formed when ash adheres, as hot particles to the furnace walls, agglomerates and then falls to the base of the furnace where it is collected for disposal.

Bottom ash and boiler slag comprise of approximately 10 – 15% of the coal combustion products produced and range in grain size from the fine sand to the coarse lumps.

Bottom ash is very suitable for structural fills, asphalt mixes and civil engineering applications. The use as agricultural applications have increased in volume as awareness of the materials free draining properties have become known.

Yours sincerely,

Belinda Heichler

SACAA President