

West africa s commercial and industrial solar container spontaneous combustion

What causes spontaneous combustion of coal shale?

The second is geology of the material, particularly during the formation of the deposits. The self-heating of coal-shale has been reported to be the likely source of spontaneous combustion in selected bands of a coal seam, highwalls and spoil heaps in Witbank, South Africa (as shown in Fig. 1, Fig. 2, Fig. 3).

Is spontaneous combustion a hazard in coal mining?

Of the many dangers that occur during coal mining, the risk of spontaneous combustion is both highly dangerous and common. This hazard is reported most often during the process of collapsing longwall goaves. The significance of this threat is confirmed by the potential effects which coal self-ignition may cause.

What is spontaneous combustion?

Spontaneous combustion is defined as the chemical or biological process that generates sufficient heat to ignite the reacting material without an external ignition source, resulting from self-heating due to exothermic reactions. How useful is this definition? You might find these chapters and articles relevant to this topic.

Can a pile of coal spontaneously combust?

"Piles of straw, coal and even large manure piles can spontaneously combust." Suppose a family member or friend had read this article and then asked you to explain what is meant by spontaneous combustion and how a pile of coal could suddenly burst into flames. How would you respond?

Is spontaneous combustion a fire hazard?

Spontaneous combustion often occurs in piles of hydrocarbon-soaked (oily) rags and can constitute a serious fire hazard. Fires started by spontaneous combustion are caused by the following mechanisms: (1) spontaneous heating, (2) pyrophoricity, and (3) hypergolic reactions.

Does ash content affect the liability of coal to spontaneous combustion?

It was observed that the liability of coal to spontaneous combustion decreases with increasing ash content and vice versa. Coal-shales SN and SE have the lowest ash contents compared with other coal-shales and have the highest self-heating rate. It is shown that coal-shales SH, SJ and SG have high ash contents and displayed slow self-heating rate.

Spontaneous combustion of cotton is one of the major challenges during cotton storage. To investigate the thermal behavior of cotton and calculate its self-heating oxidation temperature (SHOT), which ...

Coal and coal-shale both tend to undergo spontaneous combustion under favourable atmospheric conditions. The Wits-Ehac index has been developed in South Africa since the late 1980's to test the ...

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Table 4.4 Results of the Wits-CT Index for the coal samples - "Spontaneous combustion liability of coals and coal-shales in the SOUTH AFRICAN coalfields"

Coal spontaneous combustion (SPONCOM) is the reason behind most of these fires. Therefore, when taking preventive actions against the risk of coal fires, it is essential to evaluate their degree of liability ...

Figure 4.8 Moisture occurrence on the surface of the coal at Khwezela Mine (Bokgoni Pit), Witbank, South Africa - "Spontaneous combustion liability of coals and coal-shales in the SOUTH AFRICAN ...

Article "The Relationship Between the Natural Compaction and the Spontaneous Combustion of Industrial-scale Coal Stockpiles" Detailed information of the J-GLOBAL is an information service ...

ABSTRACT A spontaneous combustion test termed the Wits-Ehac test was used to examine the spontaneous combustion liability of activated carbons prepared using KOH activation from three coal ...

The spontaneous ignition of coal stockpiles is a serious economic and safety problem. This paper deals with oxidation and spontaneous ...

Coal and coal-shale both tend to undergo spontaneous combustion under favourable atmospheric conditions. The Wits-Ehac index has been developed in South Africa since the late ...

Table 4.5 Results of the Wits-CT Index for the coal-shale samples - "Spontaneous combustion liability of coals and coal-shales in the SOUTH AFRICAN coalfields"

Figure 5.4 Influence of proximate and ultimate properties on spontaneous combustion liability for the coal (s to v) - "Spontaneous combustion liability of coals and coal-shales in the SOUTH AFRICAN ...

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Serious incidents of spontaneous combustion have been reported as a result of self-heating of reactive coal-shales. The intrinsic properties and spontaneous combustion tests of 28 ...

Figure 5.21 Influence of liptinite maceral groups and various petrographic properties (vol% including and exluding mienral matter) on spontaneous combustion liability for the coal (a1 to e) - "Spontaneous ...

Comparative analyses of intrinsic properties and spontaneous combustion characteristics indicate similarities

between the mechanism of coal oxidation and that of the oxidative ...

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Spontaneous combustion of coal is a serious problem that often occurs in the coal industry (Jones and Townend, 1945; 1949. Although several theories have been proposed to account for the phenomenon ...

Table 9.6 Relationships between independent (various petrographic properties, vol.%) and dependent variables for the coal-shale - "Spontaneous combustion liability of coals and coal-shales in the ...

The results indicate that the spontaneous combustion of coal gangue initially generates high-temperature regions beneath the slope of the ...

Spontaneous combustion is the phenomenon in which a hydrocarbon (or a chemical substance) substance unexpectedly bursts into flame without apparent cause. In ordinary combustion, the ...

West Africa Container Terminal (WACT) has signed a solar lease agreement with Starsight Energy to provide 1.2 GW hours of solar electricity ...

Description Auto-ignition temperature, also known as the self-ignition temperature, is a fundamental property of flammable materials. It represents the critical point at which a substance reaches a ...

Figure 4.5 Differential analysis thermogram for untreated coal-shale samples - "Spontaneous combustion liability of coals and coal-shales in the SOUTH AFRICAN coalfields"

The correct storage of spontaneously combustible materials is extremely important, as improper storage is the main cause of spontaneous combustion. Materials such as coal, cotton, hay, and oils should be ...

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