

Coal Formation

Equipment:

piece of peat
piece of coal

Safety:

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Demonstration and Observation:

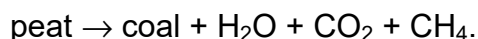
The piece of peat and the piece of coal are demonstrated or passed around.

Observation:

The brown peat has a relatively loose, fibrous structure, while the black coal, on the other hand, is hard.

Explanation:

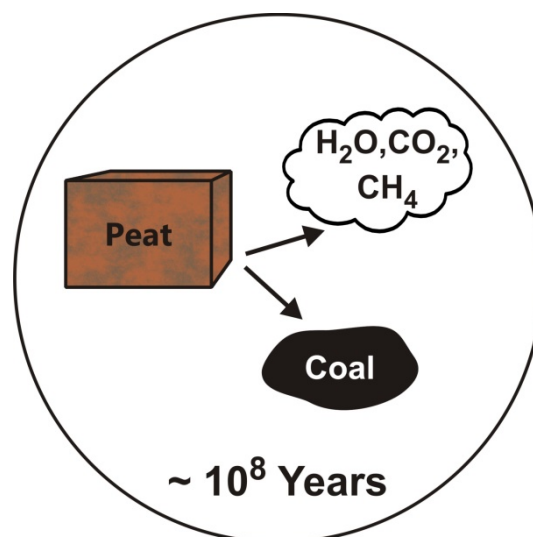
The formation of coal from peat is part of what is known as coalification, the natural process of converting plant residues into coal. During the transition from peat to coal, the carbon content continues to increase due to the release of water, carbon dioxide and methane. While cellulose and lignin can still be found in young lignite (brown coal), the cellulose disappears first as the process progresses, and later on, at the transition to black coal, the lignin also disappears. At the stage of the formation of black coal, the production of methane is decisive, but hydroxy, carboxy, methoxy and carbonyl groups are also increasingly eliminated. Eventually, anthracite is obtained, the most metamorphosed type of coal. In a very simplified way, the peat-to-coal transition can be described by the following conversion formula:



Turning peat into coal takes millions of years, hence it is an extremely slow process.

Disposal:

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PEAT



LIGNITE



BLACK COAL



Photo: www.steinkohle.biz