

How coal is formed

Family



Coal is one of the most ancient known sources of energy in the world. It has been used almost since the beginning of the humanity. For centuries it has been vital for the mankind to sustain heat in dwellings as well as being used for cooking, making clay pots and much more. Later, with the industry development, besides being a source of energy and fuel, the coal became a vital element in steel and cement production, production of benzol, methane, tar, coke and more. Coal is one most important and used source of the energy in the world. It has been used to produce almost 40% of electricity worldwide, with some countries using it much more extensively for that purpose: produce of electricity in Poland is over 94% depends on coal; in South Africa - about 92%; in China - over 77%; and in Australia - about 76%. The use of coal for the purpose of electricity production has been most fast growing in the world - faster than the use of gas, oil, nuclear and hydro energy. Coal is a combustible sedimentary rock with the varying degree of hardness and shades in color from brownish-black to black and shiny rock. Usually, it is found in rock layers or veins called coal beds or coal seams. There are few forms of coal, which differ from each other both in the way they look as well as the volume of heat that can be produced. What kind of coal it is depends on the amount of pressure and heat it was exposed to, when forming. The forms of coal range from the "immature" coal that is still soft and has a brownish-black color and high moisture and ash content to the "hard coal" - the form of coal that has the highest energy content; the form of coal that was formed from softer forms under increased pressures and high temperature exposure during the creation of mountain ranges. The main component of coal is carbon that is a source of coal's energy. Other components of coal are combinations of elements, mainly sulfur, nitrogen,

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oxygen and hydrogen. Coal is called a fossil fuel and "buried sunshine" because it was formed from the remains of plants that grew on Earth since its creation and were receiving their energy from the sun through biological processes. Most of coal was formed during the time when much of the earth was covered by steamy forested swamps. The organic remains of the plants and trees - also some remains of the animal life - were sinking into the swampy areas. Accumulation of a layer upon layer of these remains eventually led to forming of a dense material called peat - the beginning stage in the process of coal formation. Under normal circumstances the vegetable matter subjected to large volume of oxygen as well as carbon dioxide. These compounds help the decaying process to ruin the remains. However, if vegetable material accumulates underwater, only partial decomposition is possible as oxygen is not present, thus the accumulation of organic substance is happening because the remains destruction is incomplete. That is how the peat is formed - soft, spongy substance in which plant remains are easily distinguishable. It is accumulated faster under wet conditions; obviously, it contains a large volume of water and is barely usable for getting the heat until dried. If peat is burned, the flames are long; there is considerable amount of smoke and not much heat. For the process of coal forming to continue, the plant debris, after being submerged, must be buried by sediments, compressed and protected from erosion. Only then the geographic, climatic and biological conditions for forming coal would be met. As the formation of Earth continued, the makeup of its surface changed. Instead of swamps, there appeared seas and rivers. Great deposits of sand, clay and other mineral matters accumulated, burying the peat. From those sand deposits sandstone and other sedimentary rocks were formed. The <https://assignbuster.com/how-coal-is-formed/>

pressure caused by weight of the rocks on top of the peat squeezed the water from it and buried it deeper. The combination of the pressure and heat gradually changed the peat to the next stage of the coal forming - lignite. Then, as the pressure continues, all traces of plant life disappears and " soft coal" is formed. This is the form of coal that is most used in the industry. The final stage of coal forming is " hard coal" or Anthracite. This is the result of very high pressure and temperature explosion over a very long time period. According to scientific estimations, from three to seven feet of peat is needed to form one foot of " soft coal". Formation of coal is a continuing process. Nowadays the process continues in areas such as the Great Dismal Swamp of North Carolina and Virginia, the Okeechobee Swamp of Georgia, and the Everglades in Florida. As it happened millions of years ago, the plant life, although it is not as lush as it was at ancient times, decays and subsides. With time it will be covered by sands and other matters and eventually, possibly millions of years from now, those areas will contain large beds of coal. Similar processes are happening in other areas of the world as well. References Pedrick, Laura. Coal. New York Times 5 May 2010. Print. How Fossil Fuels were Formed, energy. gov. DOE, 9 October 2008, Web. 10 April 2011 How Coal Is Formed, ket. org. Kentucky Educational Television. 2011. Web. 9 April 2011 Teachcoal. org. The American Coal Foundation. 2010. Web. 9 April 2011 200 2002 The Science and Mathematics Teaching Center, University of Wyoming2 The Science and Mathematics Teaching Center, University of Wyoming 2002 The Science and Mathematics Teaching Center, University