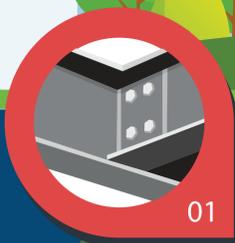


10

Things Made from Coal and Coal By-Products



01

STEEL

Metallurgical coal, or coking coal, is a vital component of steel making. In fact, about **3/4 of the steel produced today uses coal**. And, in 2017 the U.S. produced

81.6 million metric tons of steel.



02

HIGH-TECHNOLOGY PRODUCTS

Coal and its by-products are used to make materials that can be found in your **computers, smartphones, DVDs, lasers, LEDs, and other consumer electronics**. Not only are coal products used in the production of the metals needed by the technology sectors but these high-technology products are also made with rare earth elements (REEs). Many REEs can be found in coal basins, and FE has researched new processes to concentrate and extract REEs from coal-based materials.



03

AUTOMOBILES

Besides the steel, aluminum, and electronics found in the automobile, coal products are used in the value chains of **rubber products used in tires**, and they have been used to make **transportation fuels**.



04

CHEMICALS

Chemicals that are produced from coal are used for **wood preservation, rubber products, and even shampoo**. Other examples of chemicals from coal products include fertilizers and waxes, such as those that coat paper cups.



05

FILTERS FOR WATER AND AIR PURIFICATION

Coal products find applications in pollution prevention and other environmental processes. Activated carbon, a component of coal, has the ability to extract impurities and contaminants. Activated carbon is often used to make **filters for water and air purification systems**, and it's even used in kidney dialysis machines.



06

ALUMINUM

While anodes for the aluminum industry are currently made from petroleum coke and pitch, coal powder and coal pitch can be used as alternatives—which can help bring down the cost of aluminum.



07

COSMETICS

Coal is vital to creating silicon metal, which is used in a wide range of cosmetics including **makeup, soaps, perfumes, and lubricants**.



08

CONSTRUCTION MATERIALS

A common use of coal and coal ash is as feedstock for the **production of cement**. However, coal by-products are used in a variety of other construction practices. One example is **carbon fiber**, a by-product of coal that is extremely strong but also conveniently lightweight. It is not only used in construction materials, but also to make **hard hats, mountain bikes, and tennis rackets**.



09

MEDICINE

We've already talked about how activated carbon is used in **kidney dialysis machines**, but coal has other medical uses, too. For example, coal tar has been used to make **aspirin and other similar medicines**.



10

NEW MATERIALS AND ADVANCED MANUFACTURING

Besides their common use in the production of steel and aluminum, coal products are used to make advanced materials with **advanced manufacturing processes, such as 3D printing**.



U.S. DEPARTMENT OF ENERGY

Fossil Energy