



COMPOSITION OF BLACK POWDER

Black powder is a granular mixture of

- a nitrate, typically potassium nitrate (KNO_3), which supplies oxygen for the reaction;
- charcoal, which provides carbon and other fuel for the reaction, simplified as carbon (C);
- sulfur (S), which, while also serving as a fuel, lowers the temperature required to ignite the mixture, thereby increasing the rate of combustion.

Potassium nitrate is the most important ingredient in terms of both bulk and function because the combustion process releases oxygen from the potassium nitrate, promoting the rapid burning of the other ingredients. To reduce the likelihood of accidental ignition by static electricity, the granules of modern black powder are typically coated with graphite, which prevents the build-up of electrostatic charge.

Charcoal does not consist of pure carbon; rather, it consists of partially pyrolyzed cellulose, in which the wood is not completely decomposed. Carbon differs from charcoal. Whereas charcoal's autoignition temperature is relatively low, carbon's is much greater. Thus, a black powder composition containing pure carbon would burn similarly to a match head, at best.