

# THE CHEMISTRY OF GUNPOWDER



## CHARCOAL

Consists of broken down cellulose and provides carbon and other fuel for the reaction.

## SALTPETRE

Saltpetre is a common name for potassium nitrate. It supplies oxygen for the combustion reaction.

## SULFUR

Sulfur, also referred to as brimstone, lowers the ignition temperature required to start the reaction.

## PRODUCTS OF COMBUSTION

56%

SOLID  
PRODUCTS

43%

GASEOUS  
PRODUCTS

1%

WATER

## ENERGY DENSITY

3 MEGAJOULES PER KG

75%

*Potassium Nitrate*

$\text{KNO}_3$

15%

*Charcoal*

$\text{C}$

10%

*Sulfur*

$\text{S}$

## A SIMPLIFIED EQUATION FOR THE BURNING OF BLACK POWDER

