



EXPLOSIVE REACTIONS

EXPLOSIVES



An **EXPLOSIVE** is a material that releases large quantities of pressure and hot gas extremely rapidly, and very violently.

Relative effectiveness factor: explosive's demolition power to that of TNT, in units of the TNT equivalent/kg (TNTe/kg)

1 kg of TNT equals 4.184 megajoules of energy. Under controlled conditions one kilogram of TNT can destroy (or even obliterate) a small vehicle.

EXPLOSIVES



GUNPOWDER



TNT



DINAMITE

THE GUNPOWDER

Roger Bacon, a Franciscan monk, introduced **gunpowder** to Europe in the 13th century.



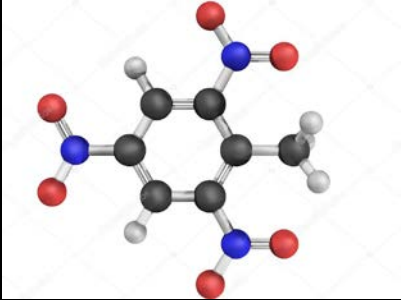
Gunpowder consists of two fuels - sulfur (S) and charcoal (C) - mixed with an oxidizer, potassium nitrate (KNO_3) also known as saltpeter.

DETONATION VELOCITY: 600 m/s.

RELATIVE EFFECTIVENESS FACTOR: 0,5



THE TNT



It was discovered in 1863 by German chemist Julius Wilbrand and originally used as a yellow dye.

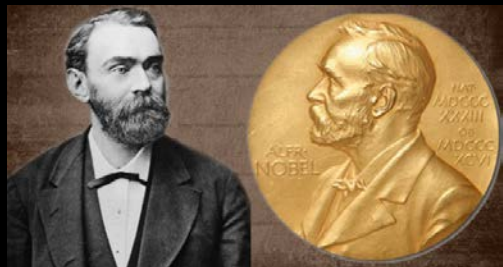
Its explosive properties were first discovered by another German chemist, Carl Häussermann, in 1891.

DETONATION VELOCITY: 6900 m/s.

RELATIVE EFFECTIVENESS FACTOR: 1

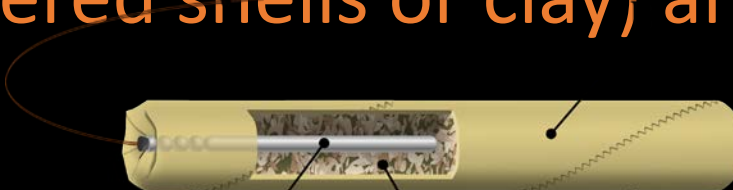
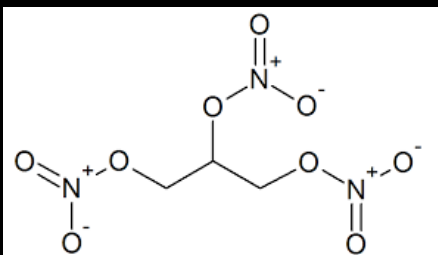


THE DYNAMITE



It was invented by the Swedish chemist and engineer Alfred Nobel, and patented in 1867.

It is an explosive made of nitroglycerin, sorbents (such as powdered shells or clay) and stabilizers.



DETONATION VELOCITY: 7200 m/s.

RELATIVE EFFECTIVENESS FACTOR: 1,25



BALANCE THESE REACTIONS:

GUNPOWDER



TNT



DYNAMITE



SEARCH FOR OTHER EXPLOSIVE REACTION.

**BALANCE THEIR CHEMICAL EQUATION AND EXPLAIN
IT TO YOUR CLASSMATES.**