

FUNDACIÓN  
**MAXAM**

[fundacionmaxam.net](http://fundacionmaxam.net)



[mumi.es](http://mumi.es)



ESCUOLA TÉCNICA SUPERIOR  
DE INGENIEROS DE MINAS Y ENERGÍA

[minasyenergia.upm.es](http://minasyenergia.upm.es)

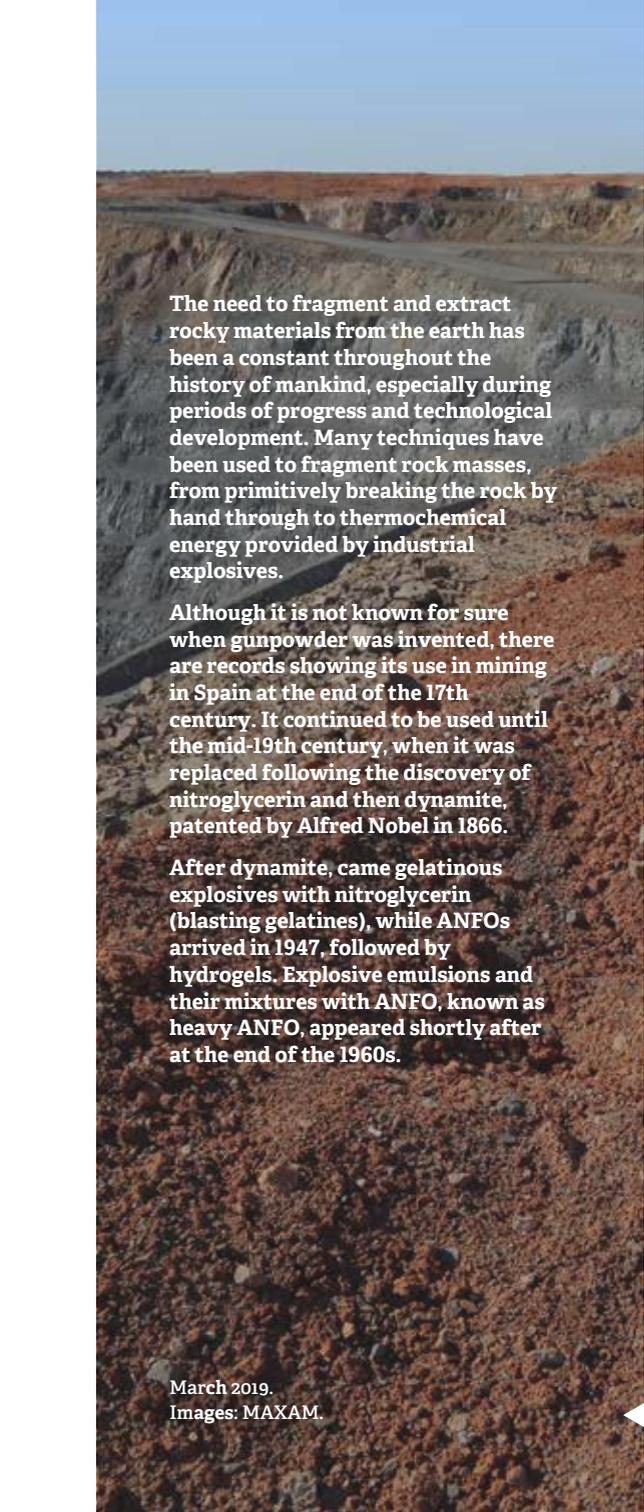
A photograph showing a production line of industrial explosives. Multiple coils of bright orange plastic-wrapped explosive cords are arranged on a metal conveyor system. The background is slightly blurred, focusing on the foreground coils.

# BLASTING SOLUTIONS INDUSTRIAL EXPLOSIVES

FUNDACIÓN  
**MAXAM**



ESCUOLA TÉCNICA SUPERIOR



The need to fragment and extract rocky materials from the earth has been a constant throughout the history of mankind, especially during periods of progress and technological development. Many techniques have been used to fragment rock masses, from primitively breaking the rock by hand through to thermochemical energy provided by industrial explosives.

Although it is not known for sure when gunpowder was invented, there are records showing its use in mining in Spain at the end of the 17th century. It continued to be used until the mid-19th century, when it was replaced following the discovery of nitroglycerin and then dynamite, patented by Alfred Nobel in 1866.

After dynamite, came gelatinous explosives with nitroglycerin (blasting gelatines), while ANFOs arrived in 1947, followed by hydrogels. Explosive emulsions and their mixtures with ANFO, known as heavy ANFO, appeared shortly after at the end of the 1960s.

March 2019.  
Images: MAXAM.

## DEFINITION OF EXPLOSIVE

Industrial explosives comprise a mixture of substances, fuels and other oxidants that, once initiated, cause a very fast chemical reaction that produces gases at high temperature and pressure.

Since composition varies from explosive to explosive, performance and behaviour change in accordance with use or the results to be achieved.

Depending on their composition and mixing technology, they can be classified into:

- Dynamites
- ANFO.
- Emulsions.
- Hydrogels.
- Heavy ANFO.

## GENERAL CHARACTERISTICS

Detailed understanding of the characteristics of each explosive is required in order to decide which one to use.

- Energy.
- Explosive power.
- Breaking power.
- Detonation speed.

- Density.
- Water Resistance.
- Smoke.
- Sensitivity.
- Chemical stability.

The choice of explosive will depend on a series of conditioning factors that must be taken into account. Some of these factors are due to legislation, while others come from the characteristics of the explosive (in order to achieve the target results) and the environment where it is to be used.

- Type, place and work to be carried out.
- Diameter of the blast holes.
- Type of rock to blast.
- Presence or absence of water in blast holes.
- Safety of the explosive.
- Toxicity of the gases from the detonation.

Our wide range of explosives, each one with its own characteristics and behaviour, allows us to take on all types of projects.

Contact MAXAM if you wish to add value to your mining project by choosing the ideal energy materials.

