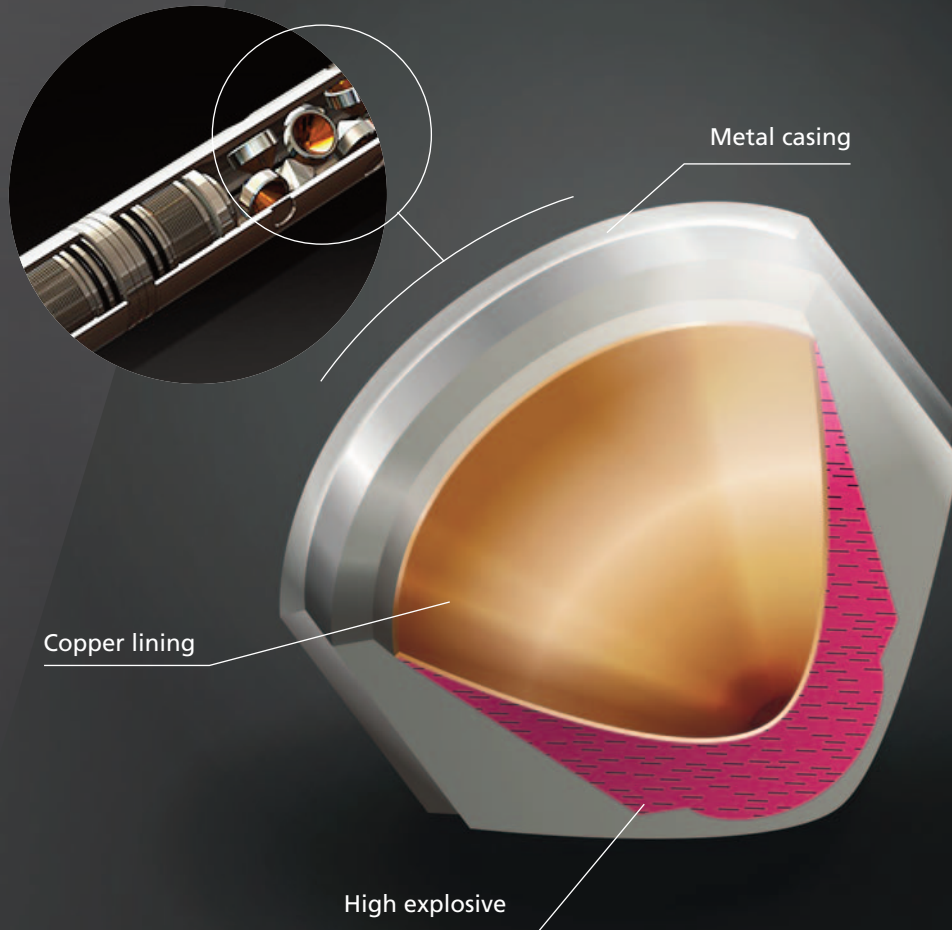




High Explosives

For Oil & Gas Industry



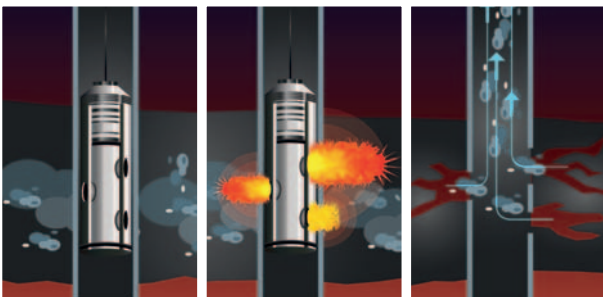
High Performance Explosive

Heat resistance is an important characteristic of the explosives used for perforating deep oil wells, since the temperature in a drilled hole increases with the depth. The same requirements exist in the gas industry. Using its thorough experience in high explosives and propellants for the military market, EURENCO produces high quality and high thermal stability explosives suited for the Oil & Gas Industry, which are extensively used in shaped charges for perforating guns in well completion.

Application and user's advantages

Available in all standard grain sizes, EURENCO provides a complete range of explosives for shaped charges for perforating guns:

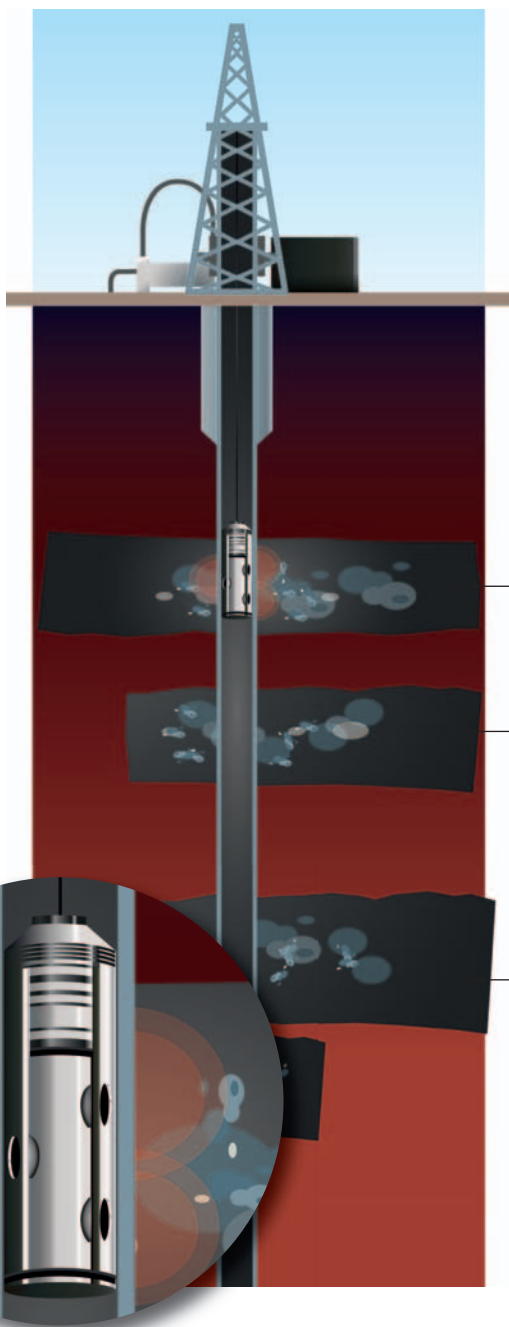
- RDX-based formulations for all standard wells;
- HMX-based formulations for deep wells;
- HNS-based formulations for very deep wells;
- Customer-tailored products for special applications.





High Explosives

For Oil & Gas Industry



RDX-Based Formulations

- Melting point: 204°C
- Heat of combustion: -2092.0 ± 2.1 kJ/mol solid phase
- Detonation velocity, confined: 8 750 m/s (1.76 g/cm³)
- Volume of detonation gases: 900 l/kg
- Impact sensitivity: 7.5 J
- Friction sensitivity: 120 N
- Critical diameter of steel sleeve test: 8 mm

HMX-Based Formulations

- Melting point: 287°C
- Heat of combustion: -2820 ± 2.8 kJ/mol solid phase
- Detonation velocity, confined: 9 100 m/s (1.9 g/cm³)
- Volume of detonation gases: 927 l/kg
- Impact sensitivity: 7.5 J
- Friction sensitivity: 120 N
- Critical diameter of steel sleeve test: 8 mm

Water gap sensitivity is also improved from 30 to 40 kBar when using EURENCO's HMX in PBXN-110.

HNS-Based Formulations

- Melting point: 316 – 318 °C
- Heat of combustion: $-6 434.2 \pm 5.0$ kJ/mol solid phase
- Detonation velocity: 7 000 to 7 100 m/s
- Volume of detonation gases: 700 l/kg
- Impact sensitivity: 5 J
- Friction sensitivity: 240 N
- Critical diameter of steel sleeve test: 8 mm

Particular requests for new energetic molecules can be studied and manufactured in EURENCO's multipurpose plants.



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