

EI[®] TECHNOLOGY – HIGH-PERFORMANCE PROPELLANTS FOR MORTAR PROPULSION DESIGN



Modern propellant technology for mortar propulsion

Modern high-performance propulsion systems for mortars consist of combustible containers containing appropriate propellants. EI[®]-propellants offer high performance, precision and long-term stability combined with a reduced temperature dependence.

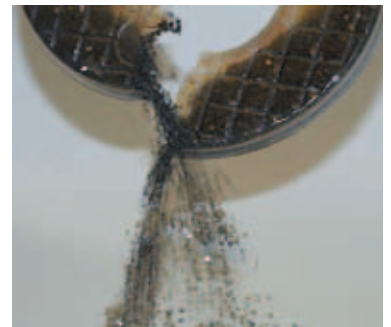
New mortar charge generation

The new generation of mortar ammunition is characterized by improved properties in range, precision and long-term stability. It offers an especially high reliability in adverse climatic conditions.

The combination of EI[®], high-energy propellants and improved container materials, have led to charge systems which are already well established on the international market.

Many of today's propulsion systems suffer from severe diffusion problems. Diffusion processes between propellant and combustible containers can result in safety-critical conditions and interior ballistic changes.

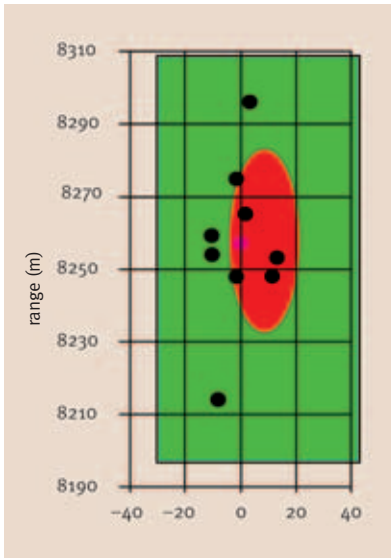
Nitroglycerine diffuses from the propellant to the container and plasticizer from the container to the propellant. This results in changes of the interior-ballistic behaviour, leading to changes in range, decreased precision and eventually even weapon damage.



El® for highest performance demands

The new generation of Extruded Impregnated propellants are particularly suitable to meet high performance requirements. They are based on a layered structure, which enables the fine tuning of the energy content and burning characteristics over a wide range. These properties permit to offer modern charge systems for specific, customer-defined applications.

A very good chemical stability is achieved by the selection of a well-adapted stabilizer system. Combined with an optimized deterrent and blasting oil composition, migration can be suppressed and a superior life cycle duration is guaranteed.



Favourable effects of the low diffusion of nitroglycerine and plasticizer:

- Reduced dispersion of VO and pmax
- Low dispersion «on target»
- Excellent performance, stability and shelf life
- The high precision in range also guarantees a reduced risk of collateral damage.

- 50% hit accuracy 46 x 23 m
- area of a soccerfield 110 x 75 m

The El®, propellant is compatible with all container materials. It has an optimal bulk density and good flow characteristics which ease lapping work.

Optimized container materials

Changing threat scenarios (deployments in crisis regions, urban warfare and fighting of terrorism) have led to the development of modern mortar systems. While offering the benefits of low weight and a high mobility, they subject the ammunition to greatly increased mechanical and temperature strains.

To encounter these increased requirements new container materials are used and further developed.



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