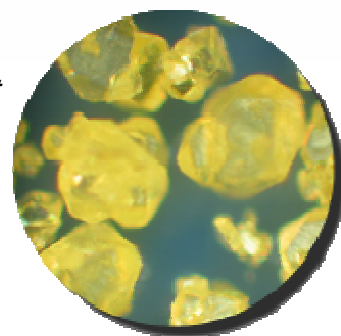


For more than 10 years, our R&D teams perform research and development of new energetic substances to satisfy the future requirements of our customers. Leading worldwide specialist in the field of high explosives, EURENCO offers further new energetic molecules such as DADNE (FOX-7), developed in cooperation with FOI (the Swedish Defence Research Agency) and manufactured thanks to its modern multipurpose units.



PRODUCT

- Trade name: DADNE (or FOX-7)
- Chemical name: 1,1-diamino 2,2-dinitro ethylene
- Chemical formula: $C_2(NH_2)_2(NO_2)_2$
- Compatibility with binders such as estane, CAB, HTPB, viton, isocyanate, K-10, butyl-nena, etc.
- EURENCO offers 4 different classes of DADNE (FOX-7) with different crystal sizes:
 - Class 1: 20 – 40 μm
 - Class 2: 50 – 100 μm
 - Class 3: 100 – 200 μm
 - Class 4: 250 – 300 μm

CHARACTERISTICS

- Density: 1.885 g/cm³
- Heat of formation: -8 kJ/mole
- Friction sensitivity (ISF): > 350 N (RDX: 120 N)
- Impact sensitivity (ISI): 20 – 40 J (RDX: 4 – 5 J)
- Sensitivity ESD (Bofors): > 8 J
- Auto-ignition temperature: 215 °C
- Detonation pressure: 34 GPa (RDX: 35 GPa)
- Detonation velocity: 8800 m/s (RDX: 8930 m/s)

USES

Characterized by an inherent lower sensitivity than usual military explosives, DADNE (FOX-7) is drastically more resistant towards all forms of impact and friction and provides safe handling of ammunition. With same performance as RDX, DADNE (FOX-7) can thus be used for insensitive warhead fillings.

Increasing the burning rate in propellants more than RDX does, DADNE (FOX-7) can also be used as a main ingredient of high performance propellants for tank ammunition.

RESULTS

Small-Scale Slow Cook-Off Test⁽¹⁾

A formulation was tested in Small-Scale Slow Cook-Off Test, based on DADNE (FOX-7) with PolyGlyn as binder and Bu-NENA as plasticizer. The bomb was heated at the rate of 3.3°C/h. The formulation started to burn non-violently at 150°C without fragmentation of the bomb (type V)⁽²⁾.

As a reference, another test was conducted on Composition B; it reacted violently with extensively fragmentation (Type I) at 207°C.

(1). B. Janzon, H. Bergman, C. Eldsäter, C. Lamnevik and H. Östmark, 20th International Symposium on Ballistics Orlando, FL. 23-27 September, 2002.
(2). The results were classified according to the Stanag 4382 Ed. 1.