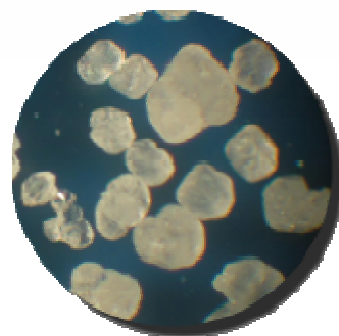


For more than 10 years, our R&D teams perform research and development of new energetic substances to satisfy the future requirements of our customers. Leading worldwide specialist in the field of high explosives, EURENCO offers further new energetic molecules such as GUDN (FOX-12), developed in cooperation with FOI (the Swedish Defence Research Agency) and manufactured thanks to its modern multipurpose units.



PRODUCT

- Trade name: GUDN (or FOX-12)
- Chemical name: guanylurea dinitramide
- Chemical formula: $((\text{NH}_2)_2\text{CNHCONH}_2)\text{N}(\text{NO}_2)_2$

CHARACTERISTICS

- | | |
|---|--|
| <ul style="list-style-type: none"> • Density: 1.75 g/cm³ • Heat of formation: -355 kJ/mole • Friction sensitivity (ISF): > 353 N • Impact sensitivity (ISI): > 49 J • Sensitivity ESD (Bofors): > 3125 mJ • Autoignition temperature: ≈ 216°C | <ul style="list-style-type: none"> • Thermal stable at: 110°C / 400h • Burning rate: <ul style="list-style-type: none"> - 5 MPa: 5 mm/s - 50 MPa: 23 mm/s - pressure exponent: 0.7 |
|---|--|

USES



GUDN is a dinitramide with excellent thermal stability, low water solubility, no hygroscopicity and offering a high gas yield.

A first application is for automotive safety: EURENCO sells GUDN for airbags and belt restraint systems. Due to the high gas yield, GUDN allows use of only small amounts of solid propellant to inflate a bag of a certain volume, which is important in larger cars where the passenger bags are large.

GUDN can also be used in LOVA propellants for artillery modular charges.

Furthermore, GUDN is a high explosive with calculated performance between TNT and RDX. Thanks to its extremely low sensitivity and its excellent thermal stability, GUDN could be a main component in insensitive warhead fillings such as general purpose bombs, artillery, tank and mortar ammunition.

RESULTS

Calculated performance data for GUDN charges at theoretical maximum density:

- Detonation velocity (m/s): 8 210 (TNT: 6 900)
- Detonation pressure (Gpa): 25.7 (TNT: 19.4)