High Melting Explosive (HMX)

Single Molecule Explosive

Description
HMX explosive material comes in a crystalline powder form of a white opaque color without visible impurities or signs of moisture.

Application
Pure HMX is used for production of detonating cords and shock tubes which are thermally stable in temperatures up to 300 °C. HMX is used in mixtures with other explosives and plasticizers or phlegmatizers for production of various explosive compositions (FO-4.5, FP=3.5, OWC, Octol, LX-14, etc.) used in warhead main charges, ammunition, boosters, pyrotechnic devices and oil well explosive charges. Mixed with polymer binders, HMX is used to produce insensitive munition explosives.

Specifications

- Chemical Formula: $C_4H_8N_8O_8$
- Specification: MIL-DTL-45444C Grade A & B
- CAS: 2691-41-0
- Synonyms: Octogen, HMX, Cyclotetramethylene-tetranitramine
- Appearance: white solid powder
- Odor/Taste: odorless, tasteless
- Granulation: Class 1 to 6
- Molecular Weight: 296.155 g/mol
- Water Solubility: insoluble
- Melting Point: 277°C
- Acetone Insolubility: ≤ 0.05% (m/m)
- Content of Ash: ≤ 0.03% (m/m)
- Acidity $CH_3COOH$: ≤ 0.02% (m/m)
- β HMX Content: 98% (m/m)
- RDX Content: 2% (m/m)
- Density: 1.908 g/cm³ at 20°C
- Detonation Velocity: 9100 m/s at 1.62 g/cm³
- Detonation Pressure: 390 kbar
- Oxygen Balance: -21.6% (m/m)
- Explosion Heat: 6.192 MJ/kg
- Impact Sensitivity: 7.4 N/m
- Friction Sensitivity: 120 N
- Toxicology Data LD₅₀:
  - Oral, Mouse: 1670 mg/kg
  - Oral, Rat: 6250 mg/kg
- Hazard Class: 1.1 D
- UN Number: 0226
- Shipping Name: HMX, wetted
- Packing: 25 ± 0.2 kg per cardboard box 380 x 375 x 335 mm