PENTAERYTHRITOL TETRANITRATE

PETN

TECHNICAL DATASHEET

PETN (Pentaerythritol Tetranitrate) is a high-performance secondary explosive supplied as a white crystalline material with uniform particle characteristics. It is known for its very high detonation velocity and strong brisance, making it highly effective for initiation and detonation transfer applications.

Due to its sensitivity characteristics, PETN is not used as a bulk explosive, but is widely employed in detonators, detonating cords, boosters, and primer compositions where reliable and instantaneous energy transfer is critical. When manufactured and handled under controlled conditions, PETN provides consistent, predictable explosive performance for demanding commercial and defence applications.



TECHNICAL DETAILS

PARAMETER	SPECIFICATION
Bulk Density (Tapped)	1.00 ± 0.1 g/ml
Moisture % by Mass, Max (Dry)	0.1
Nitrogen Content (min)	17.5%
Melting Point	139 °C to 142 °C
Stability (Abel Heat Test) at 76.5 ± 1.5 °C, minutes, min	60
Total Acidity	0.01% Max
Insoluble in Acetone	0.05% Max
Ash Content	0.005% Max
Sieve Analysis (Pass Through) – 14 Mesh BSS	100%
Sieve Analysis – 36 Mesh BSS	>55%
Sieve Analysis – 10 Mesh BSS	<10%
Flow Rate	160 g/min

APPLICATION

- Used as the explosive core of detonating cord.
- Employed as a component in composite explosives.
- Used as the base charge in blasting caps.
- Supplied as cast primers, including shaped charges, for specialized blasting and demolition applications.

ADVANTAGES

- Can be stored for longer periods without significant deterioration compared to nitro-glycerine or nitrocellulose.
- Easily initiated using a detonator or detonating cord.
- Soft, paste-like consistency allows easy shaping for specialized applications.

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SAFETY

- Dropping or ignition will typically not cause an explosion, as PETN is less sensitive than primary explosives; however, it is more sensitive to shock and friction compared to many other secondary explosives.
- Under certain conditions, a deflagration-to-detonation transition (DDT) may occur.
- PETN is considered less stable than several other commonly used military explosives and must therefore be handled with appropriate precautions.

SHELF LIFE

Minimum shelf life of 2 years from the date of manufacture, provided PETN is stored under proper storage conditions.

PACKAGING

PETN (25% moisture) is securely packed in double polythene bags, further enclosed in an HDPE woven bag and finally packed in a corrugated cardboard case.

The packaging is approved by PESO (India) and the Indian Institute of Packaging (IIP), Mumbai for UN-certified transport of hazardous goods.

PACKING	DETAIL
Net weight per box	10 kg
Gross weight per box	15 kg
Container loading capacity	Up to 15 MT (approx. 1,500 boxes per container)

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