TECHNICAL DATA SHEET

TITAN® 7000

Sensitized Bulk Emulsion

Properties

SDS #1062

	Pumped
Density[a] (g/cc) Avg (25-35 °C)	1.20 ± 0.03
Energy[b] cal/g (cal/cc)	690(830)
Relative Weight Strength[c]	0.78
Relative Bulk Strength[c]	1.14
Velocity[d] m/sec (ft/sec)	5,500(18,000)
Detonation Pressure[d] (Kbars)	91
Gas Volume[b] (moles/kg)	42.2
Water Resistance	Excellent
Fume Class	IME1 / NRCan1[e]
Minimum Hole Diameter inch(mm)	1.75(45) [f]
Loading Method	Pumped / Extruded

[a] Additionally, density of product is expected to increase by 0.01 - 0.02 g/cc for every decrease of 20°C.

[b] All Dyno Nobel Inc. energy and gas volume values are calculated using PRODET™, a computer code developed by Dyno Nobel Inc. for its exclusive use. Other computer codes may give different values.

[c] ANFO = 1.00 @ 0.82 g/cc

[d] Unconfined in 50 mm (2 in) diameter at average density.

[e] Approved by Natural Resources Canada as NRC Fume Class 1

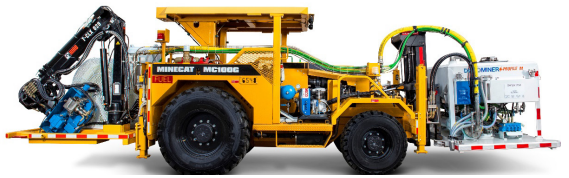
[f] 90g minimum booster

Hazardous Shipping Description

Explosive, Blasting, Type B, 1.5D, UN 0331, II OR
Ammonium Nitrate, Fuel Oil Mixture, 1.5D, NA 0331, II

Product Description

TITAN 7000 is a booster sensitive, high performance, repumpable bulk emulsion explosive designed specifically for use in underground construction, quarry and mining operations. Applications include drift and raise development, shaft sinking and tunneling. In addition, other underground mining methods in which TITAN 7000 has proven effective are room and pillar, mechanized cut and fill, vertical crater retreat, uppers retreat, benching and block caving.



Application Recommendations

- The minimum cast booster weight recommended for use as a primer for TITAN 7000 is a 10 gram cast booster @ 5º C (40º F) and above; 90 gram cast booster down to -20º C (-4º F).
- **ALWAYS** double prime when bulk explosive columns exceed 6 m (20 ft). One primer should be positioned near the bottom of the hole and the second near to the collar.
- **ALWAYS** ensure primers are in the explosive column.
- **ALWAYS** consult a Dyno Nobel representative for specific recommendations before designing a TITAN 7000 blasting program involving the use of detonating cord. TITAN 7000 may be used with detonating cord only under special conditions.
- Maximum hole depth is 30 m (100 ft) but special formulations are available for deeper boreholes. Consult your Dyno Nobel representative for details.

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- Borehole sleep time is one (1) month.
- **ALWAYS** insert the loading hose to the back of the hole before pumping TITAN 7000 to optimize loading density.
- **ALWAYS** consult your Dyno Nobel representative for special equipment and loading recommendations before planning a TITAN 7000 blast program that requires collar loading.
- Specialized equipment features are necessary to enable the TITAN 7000 emulsion explosive to remain in upholes after loading. Contact your Dyno Nobel representative for equipment recommendations.
- **ALWAYS** check any TITAN 7000 loading system before each use to ensure that all components meet operational standards including all safety systems. Equipment should be calibrated periodically to ensure emulsion explosive quality and explosive performance.
- Consider Dyno Nobel's DynoMiner® Advance, DynoMiner Shaft or DynoMiner Uphole delivery systems to maximize safety when loading TITAN 7000 bulk explosives underground. DynoMiner is easy to operate and maintain, reduces manual product handling, improves efficiency and flexibility and incorporates a robust design for dependable operation in the underground environment. Contact your Dyno Nobel representative for details.

Transportation, Storage and Handling

- TITAN 7000 can be stored for 3 months at temperatures between 0º F and 90º F (-18º C and 32º C). Older product should be used first and all storage tanks should be kept clean of residual product.
- Use only pumps which have been approved by Dyno Nobel for 1.5 emulsion explosive transfer. Pump type, pump speed, worn pump parts, repeated repumping and pumping against high hose pressures can increase TITAN 7000 viscosity and decrease shelf life.
- **ALWAYS** monitor emulsion pump performance and check pumps periodically for excessively worn parts. Design storage facilities to minimize repeated pumping.
- Transport, store, handle and use TITAN 7000 in compliance with federal, state, provincial and local laws governing bulk explosives.

ADDITIONAL INFORMATION – Visit **dynonobel.com** for Brochures and Case Studies related to this product.

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