

TITAN[®] 7000A

Technical Information



Sensitized Bulk Emulsion



Product Description

TITAN 7000A is a high performance, booster sensitive, repumpable bulk emulsion explosive designed specifically for use in underground construction, quarry and mining operations where contact is likely with concrete or shotcrete used for ground support. TITAN 7000A also applies in situations where pH basic ore and/or basic water conditions exist or where fumes of ammonia are problematic. TITAN 7000A is specifically applicable in shaft sinking, tunneling, drift and raise development, room and pillar, mechanized cut and fill, vertical crater retreat, uppers retreat, bench and block cave mining methods.

Application Recommendations

- **ALWAYS** use a Dyno Nobel cast booster for best results. The minimum cast booster recommended for use as a primer is 10 g @ 5° C (40° F) and above; 90 g down to -20° C (-4° 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 7000A blasting program involving the use of detonating cord.

Properties

SDS
#1062

Density	(g/cc) Avg	1.20
Energy ^a	(cal/g) (cal/cc)	690 830
Relative Weight Strength ^a		0.78
Relative Bulk Strength ^a		1.14
Velocity ^c	(m/sec) (ft/sec)	5,500 18,000
Detonation Pressure ^c (Kbars)		91
Gas Volume ^a (moles/kg)		41.7
Water Resistance		Excellent
Minimum Diameter	(mm) (in)	45 1.75
Loading Method		Pumped or Extruded
Fume Class		IME1 and NRCan1 ^d

^a Based on calculated values for emulsion phase, 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.

^b ANFO = 1.00 @ 0.82 g/cc

^c Unconfined in 50mm (2 in) diameter.

^d Approved by Natural Resources Canada as NRC Fume Class 1

Hazardous Shipping Description

Explosive, Blasting, Type E 1.5D UN 0332 II



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- TITAN 7000A 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.
 - Borehole sleep time is one (1) month.
 - **ALWAYS** use Dyno Nobel approved loading equipment which has been designed specifically for handling repumpable emulsion explosive for under-ground applications.
 - **ALWAYS** use bulk emulsion best practices during loading to minimize emulsion spillage around the blast area and to further limit preblast ammonia fume generation whenever possible.
 - **ALWAYS** insert the loading hose to the back of the hole before pumping TITAN 7000A to optimize loading density.
 - **ALWAYS** consult your Dyno Nobel representative for special equipment and loading recommendations before planning a TITAN 7000A blast program that requires collar loading.
 - Specialized equipment features are necessary to enable the TITAN 7000A emulsion explosive to remain in upholes after loading. Contact your Dyno Nobel representative for equipment recommendations.
 - **ALWAYS** check any TITAN 7000A 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 7000A can be stored for 3 months at temperatures between -18° C and 32° C (0° F and 90° F). 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 7000A 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 7000A in compliance with federal, state, provincial and local laws governing bulk explosives.

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Groundbreaking Performance