TECHNICAL DATA SHEET

BULK EXPLOSIVES

TITAN® 7000 SS

Sensitized Bulk Emulsion

Properties

SDS #1062

Density	(g/cc) avg	1.20
Energy[a]	(cal/g)	690
	(cal/cc)	830
Relative Weight Strength[a]		0.78
Relative Bulk Strength[a]		1.14
Velocity[c]	(m/sec)	5,500
	(ft/sec)	18,000
Detonation Pressure[c]	(Kbars)	91
Gas Volume[a]	(moles/kg)	41.7
Water Resistance		Excellent
Minimum Diameter	(mm)	45
	(in)	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.

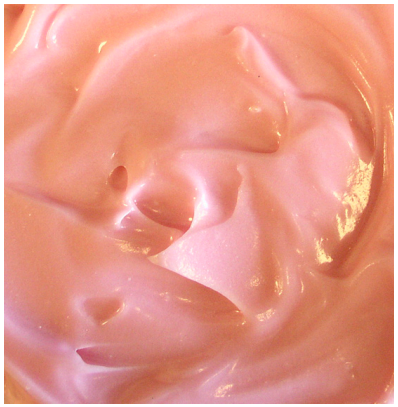
[d] Approved by Natural Resources Canada as NRC Fume Class 1

Hazardous Shipping Description

- Explosive, Blasting, Type E 1.5D UN 0332 II

PRODUCT DESCRIPTION

TITAN 7000 SS is an ultra low viscosity, high performance, booster sensitive, repumpable bulk emulsion explosive designed specifically for use in underground shaft sinking operations. A DYNOMINER® Shaft Pressure Vessel is utilized to load the blast holes using mine air to extrude the emulsion through multiple loading hoses simultaneously. The viscosity of the product is such that water lubrication is not required during loading thus providing a simplified and efficient loading process. A modified formulation (Titan 7000A) is available where contact with concrete or shotcrete is likely and fumes of ammonia are problematic.



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 7000 SS blasting program involving the use of detonating cord.
- TITAN 7000 SS 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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Product Disclaimer: Please see reverse side.

TECHNICAL DATA SHEET

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APPLICATION RECOMMENDATIONS - continued

- ALWAYS use Dyno Nobel approved loading equipment which has been designed specifically for handling repumpable emulsion explosive for shaft sinking 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 bottom of the hole before pumping TITAN 7000 SS to optimize explosive performance.
- ALWAYS consult your Dyno Nobel representative for special equipment and loading recommendations before planning a TITAN 7000 SS blast program that requires collar loading.
- ALWAYS check any TITAN 7000 SS 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.
- Always use Dyno Nobel's DYNOMINER® Shaft Pressure Vessel to maximize safety when loading TITAN 7000 SS 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.
- NEVER use TITAN 7000 SS in the presence of reactive ground, as defined by the AEISG Elevated Temperature and Reactive Ground Code of Practice. In reactive ground conditions, only inhibited explosive products (products validated by testing to be suitable for the application requirements) should be used. If reactive ground is confirmed or suspected, consult your Dyno Nobel representative for recommendations on addressing these conditions.

TRANSPORTATION, STORAGE AND HANDLING

- TITAN 7000 SS 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 7000 SS 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 SS 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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