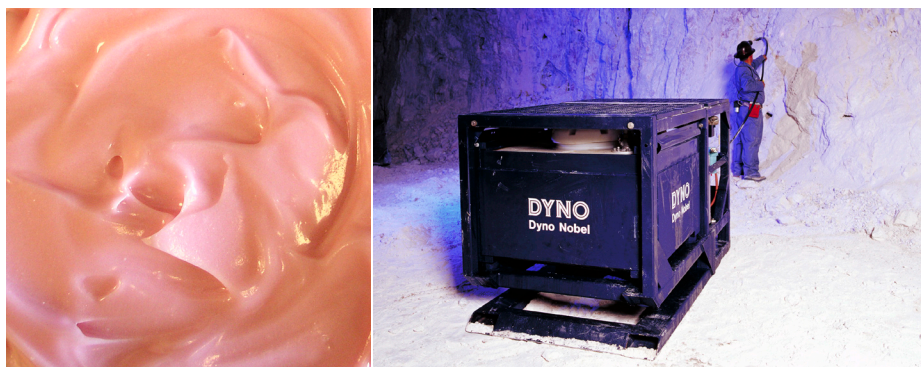


TITAN[®] 7000SX

Technical Information



Sensitized Bulk Emulsion



Product Description

TITAN 7000SX is a high performance repumpable, booster sensitive, bulk emulsion designed specifically for use in underground mining operations in which sulfide ore reactivity and secondary dust explosions are potential hazards. Dyno Nobel proprietary technology minimizes the risks of using bulk explosives in these sulfide ore environments.

Application Recommendations

- **ALWAYS** use a Dyno Nobel cast booster for best results. The minimum cast booster weight recommended for use as a primer for TITAN 7000SX is 10 g @ 5° C (40° F) and above; 90 g down to -0° 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 7000SX blasting program involving the use of detonating cord
- TITAN 7000SX may be used with detonating cord only under special conditions. Consult your Dyno Nobel representative for details.
- Maximum hole depth is 45 m (150 ft).

Properties

MSDS
#1062

Density	(g/cc) Avg	1.20
Energy ^a	(cal/g) (cal/cc)	680 815
Relative Weight Strength ^a		0.77
Relative Bulk Strength ^a		1.13
Velocity ^c	(m/sec) (ft/sec)	5,500 18,000
Detonation Pressure ^c	(Kbars)	91
Gas Volume ^a	(moles/kg)	40.9
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 50 mm (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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Application Recommendations (Continued)

- 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 underground applications.
- **ALWAYS** insert the loading hose to the back of the hole before pumping TITAN 7000SX to optimize loading density.
- **ALWAYS** consult your Dyno Nobel representative for special equipment and loading recommendations before planning a TITAN 7000SX blast program that requires collar loading.
- Specialized equipment features are necessary to enable the TITAN 7000SX emulsion explosive to remain in upholes after loading. Contact your Dyno Nobel representative for equipment recommendations.
- **ALWAYS** check any TITAN 7000SX 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 7000SX 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 7000SX 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 7000SX in compliance with federal, state, provincial and local laws governing bulk explosives.

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