

BLASTGEL®

Technical Information



Large Diameter Packaged Booster Sensitive Emulsion



Product Description

BLASTGEL is a large diameter, booster sensitive, water resistant, perchlorate-free packaged emulsion (1000) or emulsion / ANFO blend (1070) explosive specifically formulated to provide cost effective, general blasting performance in open pit, quarry and construction blasting applications. BLASTGEL is packaged in tough, easy-to-handle shot bags that consist of a rugged polyethylene liner surrounded by a woven polypropylene outer package in various diameters.

BLASTGEL is an excellent choice as the complete explosive load in wet holes with a loading density which is ideal for sinking in wet holes. In addition, BLASTGEL, which maintains its consistency when the package is slit, is clean and easy to handle and use as a partial explosive load after which bulk ANFO can be loaded to complete the explosive charge.

Application Recommendations

- **ALWAYS** use a 340 g (12 oz) or larger cast booster at internal product temperatures higher than -18°C (0° F).
- **ALWAYS** use a 454 g (16 oz) or larger cast booster at internal product temperatures below -18°C (0°F) and higher than -34°C (-30°F). BLASTGEL should not be used at internal product temperatures below -34°C (-30°F). At internal product temperatures below -34°C (-30°F), adequate product warm-up time must be allowed after loading into boreholes and before initiation. Consult the Warm-Up Time Chart to determine adequate borehole residence time after loading.
- **ALWAYS** ensure continuous column loading with all shot bags in contact with either a primer or one another. For column lengths in excess of 9 m (30 ft) or whenever column separation is suspected, multiple priming is recommended.

Properties

MSDS
#1063

| | 1000 | 1070 (U.S.) ^d | 1070 (Can) ^d |
|--|----------------------------------|--------------------------|-------------------------|
| Density (g/cc) Avg | 1.22 - 1.25 | 1.27-1.29 | 1.23-1.25 |
| Energy^a (cal/g) | 650 | 730 | 730 |
| (cal/cc) | 800 | 935 | 915 |
| Relative Weight Strength^{a,b} | 0.74 | 0.83 | 0.83 |
| Relative Bulk Strength^{a,b} | 1.11 | 1.30 | 1.27 |
| Velocity^c (m/s) | 5,800 | 5,500 | 5,500 |
| (ft/s) | 19,000 | 18,000 | 18,000 |
| Detonation Pressure^c (Kbars) | 91 | 97 | 95 |
| Water Resistance | Excellent | Excellent | Excellent |
| Gas Volume^a (moles/kg) | 44 | 44 | 44 |
| Fume Class | No underground use | | |
| Shelf Life Maximum | 1 year (from date of production) | | |
| Maximum Water Depth | 45 m (150 ft) | 30 m (100 ft) | 30 m (100 ft) |

^a All Dyno Nobel Inc. energy and gas volume values are calculated using PRODET™ the 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 @ 125 mm (5 in) diameter

^d Product is manufactured at a slightly different density to respond to U.S. and Canadian market needs.

Hazardous Shipping Description

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



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- **ALWAYS** use a cast primer in contact with each 76 mm and 83 mm diameter bag or ensure internal product temperature is higher than 5°C (41°F) to overcome potential lack of adequate charge coupling and ensure reliable bag-to-bag propagation in small diameters. Alternate methods to ensure reliable bag-to-bag coupling may be acceptable. Please consult your Dyno Nobel representative for details.
- The minimum available diameter for BLASTGEL 1000 is 76 mm (3 in) for U.S. applications. The minimum available diameter for BLASTGEL 1070 is 100 mm (4 in) for U.S. applications or 76 mm (3 in) for applications in Canada.
- Use with detonating cord is not recommended.
- In wet holes where BLASTGEL is used to build the explosive column above and out of water, once the column is above the water level, **ALWAYS** load one additional cartridge before loading bulk ANFO. Slit the package with a knife near its top before loading to minimize ANFO contact with water.
- Emulsion explosives are susceptible to “dynamic shock” and may detonate at low order or fail completely when applied in very wet conditions, where explosive charges or decks are closely spaced and/or where geological conditions promote this effect. Consult your Dyno Nobel representative for alternate product recommendations when these conditions exist.

Transportation, Storage and Handling

- BLASTGEL must be transported, stored, handled and used in conformity with all applicable federal, state, provincial and local laws and regulations.
- BLASTGEL has a shelf life of one (1) year when stored at temperatures between -18°C and 38°C (0°F and 100°F). BLASTGEL emulsion explosives with a manufactured date exceeding one (1) year should be inspected prior to use. Consult your local Dyno Nobel representative for guidance. Explosive inventory should be rotated. Avoid using new materials before the old. For recommended good practices in transporting, storing, handling and using this product, see the booklet “Prevention of Accidents in the Use of Explosive Materials” packed inside each case and the Safety Library Publications of the Institute of Makers of Explosives.

Packaging

BLASTGEL is available as follows:

| | |
|-------------|---|
| In the U.S. | Diameters from 76 mm (3 in) to 178 mm (7 in) in typically 12 mm (1/2 in) increments and in weights from 4.6 kg (10 lbs) up to 22.7 kg (50 lbs) depending on package diameter and manufacturing location (U.S. or Canada). |
| In Canada | 76 mm (3.00 in) x 4.0 kg (8.8 lbs) 83 mm (3.25 in) x 4.5 kg (9.9 lbs) 95 mm (3.75 in) x 6.0 kg (13.2 lbs) 115 mm (4.50 in) x 9.2 kg (20.2 lbs) 125 mm (5.00 in) x 11.3 kg (24.9 lbs) |

Warm-Up Time Chart

Borehole Residence Time (Hours at 7°C / 45°F)

| Internal Product Temperature Before Loading | 76 mm (3 in) Diameter | | 83 mm (3.25 in) Diameter | | 95-100 mm (3.75-4 in) Diameter | | 115-125 mm (4.5-5 in) Diameter | | 140-165 mm (5.5-6.5 in) Diameter | |
|---|-----------------------|-----|--------------------------|-----|--------------------------------|-----|--------------------------------|-----|----------------------------------|-----|
| | °C | °F | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry |
| 5 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| -18 | 0 | 1.0 | 3.0 | 1.5 | 3.5 | 0 | 0 | 0 | 0 | 0 |
| -34 | -30 | 1.5 | 3.5 | 2.0 | 4.0 | 0 | 0 | 0 | 0 | 0 |
| -40 | -40 | 1.5 | 4.0 | 2.0 | 5.0 | 1.0 | 2.5 | 2.0 | 4.5 | 6.5 |

Note: All weights are approximate.

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Groundbreaking Performance