TECHNICAL DATA SHEET

SITE MIXED SYSTEM

Nonexplosive-Until-Pumped Explosives

Properties

SDS #1052

		1116	1116A	1136P	1146P	HD
Percent Emulsion		100	100	70	65	65
Density	(g/cc)	1.25	1.30	1.25	1.25	1.32
Energy[a]	(cal/g)	650	730	725	750	750
	(cal/cc)	815	950	950	940	990
Relative Bulk Strength[a]		0.74	0.83	0.83	0.85	0.85
Relative Bulk Weight[a]		1.13	1.32	1.25	1.30	1.37
Velocity[c]	(m/sec)	5,200	5,800	4,600	4,500	4,500
	(ft/sec)	17,100	19,000	15,100	14,800	14,800
Detonation Pressure[c]	(Kbars)	85	109	66	63	67
Gas Volume[a]	(moles/kg)	45.3	43.0	44.5	44.3	44.3
Water Resistance		Excellent	Excellent	Excellent	Excellent	Excellent
Minimum Diameter						
	(mm)	75	75	125	125	150
	(in)	3	3	5	5	6
Loading Method		Pump	Pump	Pump	Pump	Pump

[a] Borehole density can be varied from 1.10 to 1.32 g/cc to match applications

[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 @ 150mm (6 in) diameter at average density of 1.25 g/cc.

Hazardous Shipping Description

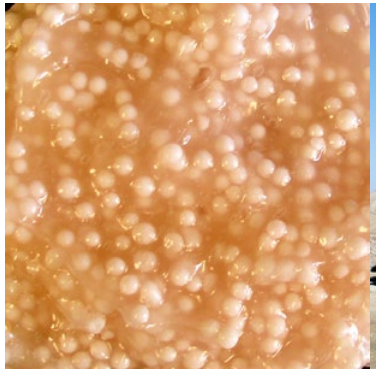
- Oxidizing Substance, Liquid, n.o.s. (Ammonium Nitrate) 5.1 UN 3139 II

PRODUCT DESCRIPTION

The Dyno Nobel SITE MIXED SYSTEM™ [SMS™] represents the most advanced and economical method to safely deliver high performance, water resistant bulk explosives to the borehole. The SMS Bulk Delivery Truck and the SMS Bulk Emulsion Explosive formulas are the key components of SMS.

The SMS Bulk Delivery Truck is a self-contained, mobile bulk emulsion manufacturing facility which produces SMS Bulk Emulsion explosives and then delivers it to the bottom of the borehole. Only non-explosive ingredients are used!

SMS bulk explosives are high performance, booster sensitive pumpable emulsion explosives specially formulated to be manufactured at the borehole and to match specific blasting requirements at the time of loading. SMS bulk explosives use Dyno Nobel chemical gassing technology to sensitize the emulsion in the borehole and the SITE MIXED SYSTEM provides many choices in explosive loading densities and energies. Refer to the data table at left for the physical properties of typical SMS bulk explosive grades.



APPLICATION RECOMMENDATIONS

- Emulsion compatible AN prills should be used to manufacture any SMS bulk explosive products.
- The minimum cast booster weight recommended for use as a primer for SMS 1136P, SMS 1146P and SMS HD is 340 gm (12 oz).
- Minimum recommended booster for SMS 1116 is a 150 gm (5 oz) cast booster.

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BULK EXPLOSIVES

SITE MIXED SYSTEM

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TRANSPORTATION, STORAGE AND HANDLING

- NEVER store SMS 1116, 1116A, 1136P, 1146P and HD. These are bulk, site-mixed booster sensitive emulsion explosives delivered directly into the borehole.
- Transport, store, handle and use SMS ingredients in compliance with federal, state, provincial and local laws governing bulk hazardous materials.

APPLICATION RECOMMENDATIONS - continued

- ALWAYS double prime when bulk explosive columns exceed 20 ft. One primer should be positioned near the bottom of the hole and the second nearer the top of the explosive column.
- Do not use detonating cord in borehole diameters less than 178 mm (7 in).
- NEVER use SMS emulsion explosives in boreholes deeper than 30 m (100 ft). Where applications require SMS emulsion explosives be used in borehole depths exceeding 100 ft (30m), the conventional alternative (solid density control) to chemical gas sensitization is optional. Before planning an SMS blasting program for deep boreholes, ALWAYS contact the Dyno Nobel representative for product recommendations.
- Borehole sleep time is two (2) weeks. Where geology is wet and extended sleep times are anticipated, ALWAYS limit ANFO percentage in Dyno Gold LD Heavy ANFO blends to less than 50%. When product will sleep overnight and less water resistant blends are being considered, consult your Dyno Nobel representative for loading recommendations.
- ALWAYS use average borehole loading density for blast design and to estimate explosive requirements. Chemically gassed emulsion explosives provide an unique loading density gradient in the borehole with highest density at the bottom and lowest density at the top. Consult the density/depth curves to determine average borehole density.
- Only the Dyno Nobel SMS Bulk Delivery Truck can be used to manufacture Dyno Nobel's SMS emulsion explosives and the SMS Bulk Delivery Truck can be operated only by personnel who have received Dyno Nobel SMS training.
- ALWAYS calibrate Dyno Nobel's SMS Bulk Delivery Trucks periodically to ensure emulsion explosive quality and explosive performance. Ensure safety systems are operational before each use.
- Routinely monitor the SMS emulsion explosive density to ensure that equipment remains in calibration during loading,

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

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