Technical Data Sheet

The Power of Partnership

Senatel™ Pulsar™

Description

Senatel™ *Pulsar*™ packaged emulsion explosive is a robust, high strength, detonator sensitive explosive. The explosive is grey in colour with a firm putty-like consistency.

Application

Senatel™ *Pulsar*™ is a water resistant packaged explosive designed for priming applications, and as a high density column explosive, in surface and underground mining and general blasting. The high detonation velocity and the robust nature of *Senatel*™ *Pulsar*™ make it an ideal primer for the initiation of ANFO columns.

Key Benefits

- *Senatel*™ *Pulsar*™ delivers excellent fragmentation with easy mucking.
- *Senatel*™ *Pulsar*™ reduces post-blast fumes and improves turnaround time.
- *Senatel*™ *Pulsar*™ is highly water resistant, which minimises leaching and reduces environmental impact.
- OH&S issues around the handling and storage of nitroglycerine are eliminated.

Technical Properties

Nominal Density	1.22g/cc
Relative Effective Energy[1]	
Relative Weight Strength	116%
Relative Bulk Strength ▪ to ANFO @ 0.8g/cc	175%
Minimum Velocity of Detonation [2]	3.7km/s

Recommendations for Use

Blasthole Depth

Senatel™ *Pulsar*™ is suitable for use in holes of any practical depth providing contained water does not exceed 20m depth.

Packaging

Senatel™ *Pulsar*™ is packaged in white plastic film, colour highlighted in red. Standard cartridge sizes are as follows:

Diameter (mm)	Nominal Length (mm)	Net Weight Per Case (Kg)
25	200	25
25	300	25
25	400	25
32	200	25
32	300	25
32	400	25
32	700	25
38	700	25
45	400	25
50	200	25
50	400	25
55	400	25
80	400	25
90	400	25
35	200	20
55 (x1 kg)	360	20
65 (x1.25 kg)	320	20
75 (x2 kg)	385	20
90 (x2.5 kg)	330	20

Priming and Initiation

Either an electric No.8* or an *Exel*™ detonator can reliably initiate *Senatel*™ *Pulsar*™ at temperatures higher than -20°C. Use of detonating cord to initiate *Senatel*™ *Pulsar*™ is not recommended.

Charging

In small diameter blastholes the maximum energy per metre of blasthole can be achieved by tamping the explosive with a wooden tamping rod appropriate to the hole diameter. No metal instrument should be used to tamp explosives. The primer cartridge containing a detonator must not be tamped.

Sleep Time Within Blastholes

In dry blastholes, given the explosives packaging is undamaged, *Senatel*™ *Pulsar*™ may be charged and fired several months later (provided the product remains within its recommended shelf life). If the explosives packaging are

damaged, the sleep-time in a blasthole is influenced by the extent of damage to the packaging and by the nature of any water present. Even with full length slitting of cartridges, the explosive will give good performance after two weeks immersion.

Storage And Handling

Product Classification

Authorised Name:	*Senatel™ Pulsar™*
Shipping Name:	Explosive, Blasting, Type E
UN No:	0241
Class Code:	1.1D

All regulations pertaining to the handling and use of such explosives apply.

Storage

Store *Senatel™ Pulsar™* in a suitably licensed magazine for Class 1.1D explosives. The cases should be stacked in the manner designated on the cases.

Senatel™ Pulsar™ has a storage life of up to 12 months in an approved magazine, however exposure to hot or cold extremes may cause the product to deteriorate prematurely. *Senatel™ Pulsar™* is best stored at temperatures above 0°C.

Disposal

Disposal of explosive materials can be hazardous.

Methods for safe disposal of explosives may vary depending on the user's situation. Please contact a local Orica representative for information on safe practices.

Safety

The post detonation fume characteristics of *Senatel™ Pulsar™* make the product suitable for both underground and surface blasting applications. Users should ensure that adequate ventilation is provided prior to re-entry into the blast area.

Senatel™ Pulsar™ can be initiated by extremes of shock, friction or mechanical impact. As with all explosives, *Senatel™ Pulsar™* should be handled and stored with care and must be kept clear of flame and excessive heat.

Senatel™ Pulsar™ does not burn easily, but it must be kept clear of flame and excessive heat.

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Disclaimer

Explosives based on Ammonium Nitrate such as *Senatel™ Pulsar™* may react with pyritic materials in the ground and create potentially hazardous situations. Orica accepts no responsibility for any loss or liability arising from use of the product in ground containing pyritic or other reactive material. All information contained in this data sheet is accurate and up-to-date as at the issue date specified below. Since Orica cannot anticipate or control the conditions under which this information and its products may be used, each user should review the information in the specific context of the intended application. To the maximum extent permitted by law, Orica will not be responsible for damages of any nature resulting from the use of or reliance upon the information in this data sheet. No express or implied warranties are given other than those implied mandatory by law.

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Notes

1. REE is the Effective Energy relative to ANFO at a density of 0.8g/cc. ANFO has an effective energy of 2.30 MJ/kg. Energies quoted are based on ideal detonation calculations with a 100MPa cut-off pressure. Non-ideal detonation energies are also available on request. These take account of blasthole diameter, rock type and explosive reaction behaviour.
2. VOD will depend on application including explosive density blasthole diameter, temperature and degree of confinement. The minimum VOD quoted is based on unconfined test firing data.
3. Carbon dioxide is the main greenhouse gas produced. The output is calculated assuming ideal detonation.