Technical Data Sheet

Senatel™ Pulsar™

The Power of Partnership

Description

Senatel™ *Pulsar*™ packaged explosive is a water resistant, maximum strength, robust detonator sensitive emulsion explosive. The explosive is grey in colour with a jelly-like consistency.

Application

Senatel™ *Pulsar*™ can be used in priming applications or as column charge in very hard rocks.

Senatel™ *Pulsar*™ cartridges can readily split during tamping to maximise coupling and bulk strength within a blasthole.

Key Benefits

- *Senatel*™ *Pulsar*™ is a maximum energy emulsion formulation with high pre-compression resistance. This gives excellent blast results in the toughest ground even with tight drilling patterns as found in shaft sinking and other extreme blasting environments.
- Specially formulated for underground use, *Senatel*™ *Pulsar*™ reduces post-blast fumes and improves turnaround time.
- *Senatel*™ *Pulsar*™ is highly water resistant, which minimises leaching and reduces environmental impact.
- Occupational Health & Safety issues around the handling and storage of nitroglycerin are eliminated.

Recommendations for Use

Blasthole Depth

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

Priming and Initiation

An electric No.8, an *Exel*™ detonator or detonating cord with minimum content 20 g/m can reliably initiate *Senatel*™ *Pulsar*™.

Charging

In small diameter blastholes 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.

Technical Properties

Product	*Senatel*™ *Pulsar*™
Density (g/cm^3) (1)	1.20
Minimum Cartridge Diameter (mm)	28
Hole Type	Wet and Dry
Velocity of Detonation Range (m/s) (2)	6050
Relative Effective Energy (REE) (3)	
Relative Weight Strength (%)	134
Relative Bulk Strength (%)	201
CO_2 Output (kg/t) (4)	158

Sleep Time within Blastholes

In dry blastholes, given the explosives packaging is undamaged; *Senatel*™ *Pulsar*™ may be charged and fired several months later. 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.

Ground Temperature

These products are available for use in ground temperatures -18 °C to a maximum of 49 °C. If your application requires you to operate outside this temperature range please contact your local Orica representative.

Packaging

Both the *Senatel*™ *Pulsar*™ packaging cases and film are colour highlighted in red. It is packaged in white plastic film with coloured printing. Standard cartridge sizes are as follows:

Diameter (mm)	Nominal Length (mm)	Nominal Mass (g)	Nominal count per case	Box content (kg)
28*	250	185	136	25
40*	500	833	30	25
32	500	480	52	25
35	500	570	44	25
50	220	625	40	25
50	500	1250	20	25
55*	500	1465	17	25
60	500	1785	14	25
65*	500	2085	12	25
70*	500	2280	11	25
75	500	2500	10	25
80	500	3130	8	25
85*	470	3125	8	25

* Dimensions available according to the customer specific request.

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Storage and Handling

Product Classification

Authorised Name:	*Senatel*™ *Pulsar*™
Proper Shipping Name:	Explosive, Blasting, Type E
UN No.:	0241
Classification:	1.1D
EC Type Certificate:	ENB/B/019/11

All regulations on 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. *Senatel*™ *Pulsar*™ is best stored at temperatures between -10 °C and 40 °C.

Transport

Senatel™ *Pulsar*™ should be transported at temperatures between -18 °C and 49 °C.

Disposal

Disposal of explosives 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.

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Notes

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