**Description**

Fortel™ Tempus™ packaged emulsion explosive is a robust, booster sensitive explosive. The explosive is white in colour with a firm putty-like consistency.

**Application**

Fortel™ Tempus™ is a large diameter water resistant packaged explosive designed for as a medium density column explosive, in mining and general blasting work. Fortel™ Tempus™ can be used to build a toe charge out of water in conjunction with a column charge.

**Key Benefits**

- *Fortel™ Tempus™* is a cost effective, emulsion formulation suitable for a range of blasting applications.
- *Fortel™ Tempus™* reduces post-blast fumes and improves turnaround time.
- *Fortel™ Tempus™* is highly water resistant, which minimises leaching and reduces environmental impact.

**Technical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>1.20 - 1.25 g/cc</td>
</tr>
<tr>
<td>Relative Effective Energy</td>
<td>113%</td>
</tr>
<tr>
<td>Relative Weight Strength</td>
<td>113%</td>
</tr>
<tr>
<td>Relative Bulk Strength</td>
<td></td>
</tr>
<tr>
<td>• to ANFO @ 0.8g/cc</td>
<td>177%</td>
</tr>
<tr>
<td>Velocity of Detonation</td>
<td>4.3 - 6.6 km/s</td>
</tr>
<tr>
<td>CO₂</td>
<td>84 kg/ton</td>
</tr>
</tbody>
</table>

**Packaging**

Fortel™ Tempus™ is distinctively packaged in blue plastic film, to clearly differentiate it from detonator sensitive packaged explosives. Standard cartridge sizes are as follows:

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>Nominal Length (mm)</th>
<th>Nominal Mass (g)</th>
<th>Nominal count per case</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>660</td>
<td>4000</td>
<td>6</td>
</tr>
</tbody>
</table>

**Recommendations for Use**

**Blasthole Depth**

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

**Priming and Initiation**

Fortel™ Tempus™ is a booster sensitive emulsion explosive and must be in direct contact with the largest possible diameter Senatel™ detonator explosive or an appropriately sized Pentex™ booster. Use of detonating cord with Fortel™ Tempus™ is not recommended as it will reduce the energy of the explosive and may cause a misfire in a blasthole less than 75mm in diameter.

**Charging**

Cartridges may be placed into blastholes intact or, where maximum energy is required, may be slit lengthways prior to loading to achieve a higher degree of coupling. Care should be taken when loading slit cartridges into wet blastholes as the explosive could bridge at the air-water interface.

**Sleep Time Within Blastholes**

The sleep-time in a blasthole is influenced by the extent of damage to the packaging and by the nature of any water present. Fortel™ Tempus™ will give good performance after two weeks immersion.
Storage And Handling

Product Classification

Authorised Name: Fortel™ Tempus™
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 Fortel™ Tempus™ in a suitably licensed magazine for Class 1.1D explosives. The cases should be stacked in the manner designated on the cases.

Fortel™ Tempus™ has a storage life of up to 12 months in an approved magazine, even in hot and humid extremes.

Fortel™ Tempus™ is best stored at temperatures above -15°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 Fortel™ Tempus™ 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.

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

Trademarks

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Disclaimer

Explosives based on Ammonium Nitrate such as Fortel™ Tempus™ 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 Mining Services 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 Mining Services 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/cm³. 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 and degree of confinement. The VOD range is based on minimum unconfined and calculated ideal.
3. Carbon Dioxide is the main greenhouse gas produced. The output is calculated assuming ideal detonation.