

# Fortan™ Advantage System

## Description

The *Fortan™ Advantage* Bulk System heavy ANFO blends is specifically designed for difficult blasting applications found in open cut hard rock mining.

## Application

*Fortan™ Advantage* is designed to increase explosive energy in dry blastholes, however the higher density emulsion blend of *Fortan™ Advantage 50* can be used in dewatered blast holes. It is not suitable for ground containing reactive sulphide.

## Key Benefits

- *Fortan™ Advantage* is reliable in dry and dewatered blastholes.
- High densities of *Fortan™ Advantage* maximises fragmentation and muckpile displacement to improve mine to mill productivity.
- The integrated product and delivery systems of the *Fortan™ Advantage* Bulk System ensures accuracy, productivity and dependability of supply.
- *Fortan™ Advantage* can be loaded at varying energies and densities within individual blastholes.
- The high bulk strength of *Fortan™ Advantage* enables blast pattern expansion and reduced cost of drill and blast.
- Manufacturing rates of *Fortan™ Advantage* up to 400kg/min delivers high on-bench productivity

## Recommendations for Use

### Blasthole Charge Length

*Fortan™ Advantage* is suitable for use in holes of up to 30 metres in length, depending on hole diameter, inclination and presence of water. Please contact Orica Technical Services Personnel for further information.

### Priming and Initiation

*Fortan™ Advantage* must be initiated using a *Pentex™* 450g primer in conjunction with an *Exel™* detonator. Use of detonating cord with *Fortan™ Advantage* is not recommended.

## Technical Properties

|   | Fortan™ Advantage System |          |               |           |
|---|--------------------------|----------|---------------|-----------|
| Property  | 20                       | 30       | 40            | 50        |
| Density (g/cm <sup>3</sup> ) <sup>(1)</sup>                 | 0.85-1.0                 | 1.05-1.2 | 1.1-1.25      | 1.25-1.38 |
| Minimum Blasthole Diameter (mm)                             | 89                       | 89       | 102           | 150       |
| Maximum Blasthole Depth (m)                                 | 30                       | 30       | 30            | 30        |
| Maximum charge length (m)                                   | 25                       | 25       | 25            | 25        |
| Hole Type   | Dry                      |          | Dry/Dewatered |           |
| Delivery System   | Augured                  |          |               |           |
| Recommended <i>Pentex™</i> Primer for minimum hole diameter | <i>Pentex™</i> 450g      |          |               |           |
| Typical VOD (km/s) <sup>(2)</sup>                           | 2.5-5.8                  | 2.8-6.1  | 3.1- 6.3      | 3.2-6.4   |
| <b>Relative Effective Energy (REE) <sup>(3)</sup></b>       |                          |          |               |           |
| Relative Weight Strength                                    | 107-108                  | 110-112  | 116-118       | 118-120   |
| Relative Bulk Strength                                      | 134-135                  | 151-154  | 185-190       | 204-207   |
| CO <sub>2</sub> Output (kg/tonne) <sup>(4)</sup>            | 172                      | 172      | 158           | 149       |
| Sleep Time <sup>(5)</sup>                                   | 7 days                   |          |               |           |

## Charging

The *Fortan™ Advantage* Bulk System is part of the range of bulk products delivered by Orica's Mobile Manufacturing Units (MMU™). *Fortan™ Advantage* is manufactured on the MMU™ and augured into blastholes on demand.

## Sleep-Time Within Blastholes

The recommended maximum sleep time is 7 days. Sleep time is dependent on factors such as hole diameter, density, ground water conditions and initiation system. Orica Mining Services Technical Personnel should be consulted if special conditions exist.

## Ground Temperature

These products are available for use in ground temperatures 0° to a maximum of 55°C. If your application requires you to operate outside this temperature range please contact your local Orica Account Manager.



## Fortan™ Advantage System

### Storage and Handling

#### Product Classification

Authorised Name: *Fortan™ Advantage Series*  
 Correct Shipping Name: Explosive, Blasting, Type E  
 UN No: 0332  
 Classification: 1.5D

### Disposal

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

### Safety

*Fortan™ Advantage* is relatively insensitive to accidental initiation by shock, friction or mechanical impact under normal conditions of use. Detonation may occur from heavy impact or excessive heating particularly under conditions of confinement.

Explosives based on Ammonium Nitrate such as the *Fortan™ Advantage* 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.

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### Notes:

- (1.) Nominal Density Only.
- (2.) The actual VOD depends on the conditions of use including the diameter of the hole and the degree of confinement.
- (3.) REE is the Effective Energy relative to ANFO at a density of 0.8 g/cm<sup>3</sup>. ANFO has an effective energy of 2.30 MJ/kg. Energies quoted are based on theoretical detonation calculations taking into account factors which influence performance in a blasthole such as blasthole diameter, rock type and characteristics and explosive reaction behaviour. Calculations use a 100Mpa cut off pressure.
- (4.) Carbon dioxide is the main greenhouse gas produced. The output is calculated assuming ideal detonation.
- (5.) Please contact your Orica Mining Services representative if longer sleep times are required.

