Technical Data Sheet

ANFO-F

Packaged ANFO

The Power of Partnership

Description

ANFO-F is a porous prilled Ammonium Nitrate based packaged explosive formulated for a range of blasting applications. *ANFO-F* is formulated to increase explosive energy by increasing the charge weight per unit length of borehole. The *Force Anfo* range is not suited for use in reactive environments.

Application

The ANFO-F is suitable for use where the blastholes are dry and will remain dry until firing. It can be used as a column charge of up holes in underground applications and for general blasting. *ANFO-F* has been specifically developed for base charges. The *ANFO-F* range can be loose poured into blastholes.

Key Benefits

- *ANFO-F* is formulated for increased product strength to improve fragmentation
- *ANFO-F* is reliable and easy to use, providing consistent results
- *ANFO-F* products provide fully coupled explosive charges to maximise blasting outcomes.
- *ANFO-F* is formulated for easy charging to up holes in underground applications.

Recommendations for Use

Blasthole Diameter

The minimum recommended hole diameter for *ANFO-F* is 41 mm.

Priming and Initiation

A *Force Max* packaged explosive cartridge of the largest possible diameter for the blasthole is recommended for priming of *ANFO-F*. The use of detonating cord with *ANFO-F* is not recommended.

Charging

The recommended pressure for pneumatic loading of *ANFO-F* is 350-400 kPa. During pneumatic loading a build-up of static electricity can occur. Precautions such as the use of a semi-conductive loading hose must be taken. The pneumatic loader must also be properly earthed. Pneumatic loading over bare detonators is not recommended. Never load *ANFO-F* into wet blastholes.

Technical Properties

Product	***ANFO-F***
Density (g/cm^3) (1)	0.90
Minimum Blasthole Diameter (mm) (2)	41
Hole Type	Dry
Typical VOD (km/s) (3)	5.190
Relative Effective Energy (REE) (4)	
Relative Weight Strength (%)	102
Relative Bulk Strength (%)	115
CO_2 Output (kg/t) (5)	188
Sleep Time (d)	30

Blasthole Depth

ANFO-F can be used in holes of any practical depth.

Ground Temperature

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

Sleep Time within Blastholes

In dry blastholes the maximum recommended sleep time for *ANFO-F* is 30 days. Sleep time is dependent on ground temperature or environmental humidity and becomes shorter as the temperature or humidity increases.

Packaging

ANFO-F is packaged in polypropylene bags coloured to differentiate each product type. See table below for package weight and colour. Contact your local Orica representative for further information.

Packaging	Net weight (kg)	Colour
Bag	25	White

Storage and Handling

Product Classification

Authorised Name: *ANFO-F*
Proper Shipping Name: Explosive, Blasting, Type B
UN No: 0082
Classification: 1.1D

All regulations on the handling and use of such explosives apply.

NOBEL

ANFO-F
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Storage

Store *ANFO-F* is a suitably licensed magazine for Class 1.1D explosives. *ANFO-F* has a storage life of 3 months in stable, temperate conditions. Applicants may face difficulties on up holes charging after 30 days.

ANFO-F is best stored at ambient temperatures. Extreme changes in temperature, which cause *ANFO-F* to cycle through -18 °C or 32 °C, will reduce its shelf life, and make it lumpy and hard to handle.

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 Nobel Explosives representative for information on safe practices.

Safety

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

ANFO-F can be initiated by extremes of shock, friction or mechanical impact. As with all explosives, *ANFO-F* should be handled and stored with care. *ANFO-F* must be kept clear of flame and excessive heat. *ANFO-F* is readily desensitised by water.

Disclaimer

Explosives based on Ammonium Nitrate such as *ANFO-F* may react with pyretic 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 pyretic or other reactive material.

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Notes

1. Nominal Density Only.
2. Contact your local Nobel Explosives Representative for further advice on loading at minimum hole diameters.
3. 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.
4. 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.
5. Carbon Dioxide is the main greenhouse gas produced. The output is calculated assuming ideal detonation.