

Force Super P1

Description

Force Super P1 is a permissible detonator sensitive packaged emulsion explosive. It is formulated to meet rigid MSHA (Mine Safety & Health Administration which is organization of United States Department of Labour) requirements for use in underground coal and gaseous mines. The emulsion is white in colour with a firm putty-like consistency. It is plastic wrapped with steel wire end clips.

Application

Force Super P1 is a water resistant packaged explosive suitable for shooting coal "off the solid" and undercut coal seams containing hard binders.

Force Super P1 1000 is a water resistant packaged Explosive for use in all applications that require the use of a P1 classified explosive.

Key Benefits

- *Force Super P1* is specially formulated for underground use in coal and gaseous mines.
- *Force Super P1* 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

Priming and Initiation

Force Super P1 must be primed with a permissible electric detonator such as No8* strength copper detonators.

Force Super P1 must only be pricked using a non-metallic pricker.

Detonating cords are not recommended for use with *Force Super P1*

Technical Properties

| Product | <i>Force Super P1</i> |
|---|-----------------------|
| Density (g/cm ³) ⁽¹⁾ | 1.12 |
| Minimum Cartridge Diameter (mm) | 27 |
| Hole Type | Wet and dry |
| Typical VOD (km/s) ⁽²⁾ | 5.101 |
| Min. VOD. @ 27*225 (m/s) | ≥3.500 |
| Water Resistance | 20m (0,2 MPa) |
| Transmission of Detonation Value (cm) | 2 |
| Relative Effective Energy (REE) ⁽³⁾ | |
| Relative Weight Strength (%) | 88 |
| Relative Bulk Strength (%) | |
| ▪ to ANFO @ 0.8 g/cm ³ | 123 |
| ▪ to ANFO @ 0.95 g/cm ³ | 94 |
| CO ₂ Output (kg/t) ⁽⁴⁾ | 160 |

Charging

Force Super P1 can be safely used in gassy underground applications (stone headings, shaft sinking and raise boring) not closer than five meters to pre-mined galleries and having a coal seam thickness less than 30 cm. All charging process must be done according to regulatory restrictions.

In small diameter blast holes maximum energy per meter of Blast hole can be achieved by tamping the explosive with a Wooden tamping rod appropriate to the hole diameter.

No metal implement 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, *Force Super P1* may be charged and fired several months later (provided the product remains within its recommended shelf life). If the explosive package is damaged, the sleep-time in a blasthole is influenced by the extent of the 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.

Force Super P1

Packaging

Force Super P1 packaging cases and film are labeled with *Force Super P1* Cartridges are packed in cases having capacity of net 20 kg. Standard cartridge size is as follows:

| Diameter (mm) | Nominal Length (mm) | Nominal Mass (g) | Nominal count per case |
|---------------|---------------------|------------------|------------------------|
| 32 | 200 | 200 | 100 |

Storage and Handling

Explosive Classification

Authorised Name: *Force Super P1*
 Proper Shipping Name: Explosive, Blasting, Type E
 UN No.: 0241
 Classification: 1.1D

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

Storage

Storage can be done for *Force Super P1* in a suitably licensed explosive magazine. The cases should be stacked in the manner designated on the cases.

Force Super P1 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.

Force Super P1 is best stored at temperatures above -15 °C & should be stored between -15 - +30 °C. This is especially important in cold weather "load and shoot" worksites where there is insufficient inhole warm-up time.

Transport

Force Super P1 should be transported between -15 °C and +30 °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 Nobel Explosives representative for information on safe practices.

Safety

The post detonation fume characteristics of *Force Super P1* make it suitable for underground applications. Users should ensure that adequate ventilation is provided prior to re-entry to the blast site.

Explosive fumes may contain carbon monoxide, nitrous gases, other gases, vapours or airborne solid residues and before the first use shall be determined the conditions according to the local regulations.

Force Super P1 can be initiated by extremes of shock, friction or mechanical impact. As with all explosives, *Force Super P1* should be handled and stored with care. *Force Super P1* does not burn easily, but it must be kept clear of flame and excessive heat.

Disclaimer

Explosives based on Ammonium Nitrate such as *Force Super P1* may react with pyretic materials in the ground and create potentially hazardous situations. Nobel accepts no responsibility for any loss or liability arising from use of the product in ground containing pyretic or other reactive material.

The manufacturer reserves the right to modify products without prior notice. All information in this brochure is believed up-to-date at the time of publication. Because Nobel Explosives cannot anticipate or control the conditions under which this information and its products may be used, Nobel does not take any responsibility for their suitability for use in any particular application other than liabilities implied mandatorily by law and which cannot be disclaimed. The user is expressly responsible to verify the suitability of the information and the product for use in any particular application. Nobel Explosives 's general terms and conditions of contract, a copy of which is available upon request, apply to all sales and are incorporated by reference.

Nobel Explosives

Patlayıcı Mad. San. Ve Tic A.Ş.
 Hülya Sokak No:45, 06700
 G.O.P. – Ankara / Turkey
 Phone: +90 312 446 16 00
 Fax: +90 312 446 15 55
 Email: info@nobelexplosives.com

Emergency Telephone Numbers

Within Turkey: 312.4461600
 Outside Turkey: +90.312.4461600

Force Super P1

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.