

spinifex Gassed Emulsion Blends

Technical Data Sheet



VERSION 3.0

May 2023

Product Description

Spinifex Gassed Emulsion Blends are a bulk explosive that is emulsion rich containing lower proportions of ANFO. The blends are specifically designed for use in medium to large blast hole diameter surface mining applications.

This product is not suitable in situations where reactive ground conditions exist.

Advantages and Benefits

Spinifex Gassed Emulsion Blends can be used in wet holes containing water and can be chemically gassed with either single or dual stream gassing method.

Spinifex Gassed Emulsion Blends are blended and delivered into boreholes using the customer's own Mobile Processing Units. The blend is pumped from an MPU through a loading hose to the bottom of wet blastholes

Application

This booster-sensitive bulk emulsion explosive can be used in boreholes with minimum diameters ranging from 89 to 115 mm, depending on the chosen open cup gassed density and charge length.

Open cup densities ranging from 0.90 to 1.25 g/cc can be used, depending on customer's energy requirements, ground conditions, blast hole diameter, and blast hole depth.

Blast holes should only be stemmed after full completion of the chemical gassing reaction.

Charging of Blastholes

The MPUs used to manufacture Spinifex Gassed Emulsion Blends must be calibrated and maintained on a regular basis. The customer shall ensure MPU safety systems are functioning before blending is to take place.

Technical Properties

Property	60/40	70/30	80/20	90/10	100%
Percent Emulsion	60%	70%	80%	90%	100%
Percent ANFO	40%	30%	20%	10%	0%
Minimum Diameter ¹ - mm	115	89	89	89	89
Maximum Charge Depth ² - m	Up to 25 m				
Hole Type	Dry, Wet or Dewatered				
Delivery System	Pumped				
Typical VOD ⁶ - km/s	3.7 - 6.6	3.7 - 6.5	3.7 - 6.5	3.7 - 6.4	3.7 - 6.4
Effective Energy ³ - MJ/kg	2.49	2.40	2.32	2.23	2.16
RWS ^{3,4}	112.1	108.0	104.1	100.2	96.9
RBS ^{3,4}	175.1	168.8	162.6	156.5	151.3
Maximum Sleep Time ⁵ - days	14 Days				

NOTES:

1. Minimum blast hole diameter is dependent on the gassed open cup density, ground water conditions, and the initiation system used.
2. Maximum charge length is dependent on the gassed open cup density, blasthole diameter, ground water conditions, and the initiation system used.
3. CSBP's energy values, relative weight strength, and relative bulk strength are calculated independently using an ideal detonation modelling computer program developed by Professor Martin Braithwaite (working independently via Imperial Consultants). The calculated energy is to a cut-off pressure of 100 MPa.
4. For calculation of Relative Weight Strength (RWS) and Relative Bulk Strength (RBS); ANFO - density 800 kg/m³ and effective energy of 2.23 MJ/kg.
5. When used in ideal conditions.

CSBP Limited. Kwinana Beach Road, KWINANA, Western Australia, 6167

Telephone number - Emergency telephone number: (08) 9411 8777, (Australia) 1800 093 333 (Australia), +61 8 9411 8444

Website: csbp.com.au

Disclaimer: CSBP Limited (CSBP) is the manufacturer of de-sensitised ammonium nitrate emulsion, ammonium nitrate prill and gassing solution (Constituents). CSBP does not manufacture sensitised ammonium nitrate emulsion or explosives. SPINIFEX Emulsion Blend (Product) is manufactured by CSBP's customer on their sites using Constituents supplied by CSBP. Information contained in this data sheet is accurate as at the date of issue but cannot cover every application or variation of conditions under which the Product is manufactured and used. Each user is responsible for understanding the details in this data sheet and the Product applications in the context of the intended manufacture and use. It is the sole responsibility of the user to make enquiries, obtain advice and determine the necessary safe conditions for the Product's intended use. To the extent permitted by law, CSBP will not be responsible for damages of any nature resulting from use of or reliance on the information in this data sheet.

spinifex Gassed Emulsion Blend

Technical Data Sheet



Blasthole Charge Length

Spinifex Gassed Emulsion Blends are suitable for use in explosive columns up to 25 m in depth, depending on hole diameter, density and the presence of water. Please contact CSBP Product Support for advice if intended charge lengths exceed 15 m in length.

Diameter, Density and Depth Constraints

The table below shows the relationship between the suggested open cup densities for the required average hole densities depending on charge column length. Please contact CSBP Product Support for detailed application advice.

Column Depth (m)	Average In-hole Density (g/cc)					
	1.00	1.05	1.10	1.15	1.20	1.25
5	0.92	0.98	1.04	1.10	1.16	1.23
10		0.93	0.99	1.06	1.14	1.21
15		0.90	0.96	1.03	1.11	1.19
20			0.93	1.00	1.09	
25			0.90	0.98	1.07	
	Not supported					
	For use in hole diameters > 89 mm					
	For use in hole diameters > 115 mm					

Priming and Initiation

Priming of blastholes greater than 127mm in diameter or greater than 10m in length, CSBP recommends the use of 400gm cast boosters. 150gm cast boosters can only be used in blast hole diameters less than 127mm and less than 10m in length.

The use of detonating cord in hole with Spinifex Gassed Emulsion Blends is not recommended.

Gassing Time

Allow at least 30 to 60 minutes before stemming the blast holes from the time of loading. It is recommended that CSBP's chemical gassing agent be used to gas Spinifex Blends.

Refer to the Gassing Solution for Spinifex TDS for appropriate trace chemical addition rates.

Sleep Time Within Boreholes

The recommended maximum sleep time in optimal conditions is 14 days. However, sleep time is dependent on application factors such as hole diameter, density, ground water conditions and the initiation system used. CSBP product support should be consulted if special conditions exist.

Ground Temperature

Spinifex Gassed Emulsion Blends must only be used where the ground temperature is less than 55°C and must not be used in a reactive ground area.

Authorisation and Transport

Authorised Trading Name: Spinifex Emulsion Blends (Sensitised)

Proper Shipping Name: Explosive, Blasting, Type E
UN No.: 0241

Classification: 1.1D Explosive

Disposal

Disposal of Spinifex Gassed Emulsion Blend can be hazardous. Methods of safe disposal can vary depending on the user's situation. Contact a CSBP product support representative for disposal advice.

Safety and First Aid

Spinifex Gassed Emulsion Blends are created when sensitisation occurs during the blasthole loading process.

Post detonation fumes are a health hazard. Users should ensure adequate ventilation is provided prior to re-entry into the blast area.



More detailed safety information can be found in the Spinifex Ammonium Nitrate Emulsion Blend Safety Data Sheet (SDS).

CSBP Limited. Kwinana Beach Road, KWINANA, Western Australia, 6167

Telephone number - Emergency telephone number: (08) 9411 8777, (Australia) 1800 093 333 (Australia), +61 8 9411 8444

Website: csbp.com.au

Disclaimer: CSBP Limited (CSBP) is the manufacturer of de-sensitised ammonium nitrate emulsion, ammonium nitrate prill and gassing solution (Constituents). CSBP does not manufacture sensitised ammonium nitrate emulsion or explosives. SPINIFEX Emulsion Blend (Product) is manufactured by CSBP's customers on their sites using Constituents supplied by CSBP. Information contained in this data sheet is accurate as at the date of issue but cannot cover every application or variation of conditions under which the Product is manufactured and used. Each user is responsible for understanding the details in this data sheet and the Product applications in the context of the intended manufacture and use. It is the sole responsibility of the user to make enquiries, obtain advice and determine the necessary safe conditions for the Product's intended use. To the extent permitted by law, CSBP will not be responsible for damages of any nature resulting from use of or reliance on the information in this data sheet.