JOHNEX explosives

EZIPUMP DV®

EZIPUMP DV® is a primer sensitive pumped emulsified explosive. It is a water in oil emulsion with a similar viscosity to grease, has excellent water resistance and has a buttery creamy colour. EZIPUMP DV® is prepared on site using an industry standard surface or underground MPU.

APPLICATION

EZIPUMP DV® is used in surface and underground operations. It is manufactured on site using a JOHNEX designed mobile processing unit (MPU) which combines EZIPUMP ANE emulsion with EZIGASSER to deliver the product into the blast holes. The density of the product can be varied to suit various ground conditions and blast designs.

The EZIPUMP DV® range is suitable for use in down holes, up holes and development headings. EZIPUMP DV® 4000 and EZIPUMP DV® 5000 are specifically designed for use in reactive ground.

	EZIPUMPDV ® base emulsions						
APPLICATION	1000	1500	2000	3000	4000	5000	5500
Surface Mining	✓		✓	✓	✓	✓	
Underground Mining		✓					✓
Large Boreholes > 127mm	✓		✓			✓	
Small Boreholes < 127mm		✓		✓	✓		✓
Uphole Retention		✓					✓
Metalliferous mines	✓	✓	✓	✓	✓	✓	✓
Iron Ore / Coal mines	✓		✓	✓	✓	✓	
Quarries				✓			
Pumped emulsion		✓					✓
Pumped / Augered blends	✓		✓	✓	✓	✓	
Mildly Reactive Ground					✓	✓	✓
Highly Reactive Ground						✓	✓
Available as single gassing	✓	✓			✓		✓
Available as double gassing	✓	✓	✓	✓	✓	✓	✓
East Coast	✓	✓	✓	✓	✓	✓	✓
West Coast	✓	✓		✓	✓	✓	✓

FEATURES AND BENEFITS

- EZIPUMP ANE is a precursor (Class 5.1) that can be stored as such for up to 90 days. EZIPUMP DV® is formed by adding EZIGASSER to EZIPUMP ANE just prior to charging. This action sensitises the EZIPUMP ANE and therefore reduces the requirement for magazine storage of packaged explosives on site.
- EZIPUMP DV® is a pumpable emulsion which reduces product spillage and has exceptional water resistance; diminishing nitrate leaching into the ground and the resulting environmental impact.
- The density of EZIPUMP DV® can be varied from 0.8g/cm^3 to 1.25g/cm^3. The VOD can be varied between 4200m/s and 6200 m/s. The Relative Bulk Strength can be increased and decreased depending on the hole diameter and EZIPUMP DV® density. This can all be done on site to suit specific requirements of the ground conditions.
- Full coupling of the emulsion eliminates misfires caused by gapping which is common when using cartridge explosives.
- Post-blast fumes are reduced when using EZIPUMP DV®.
- Increased speed of charging allows for greater turnaround times.

STANDARD PACKAGING

EZIPUMP DV® is a gas-sensitised waterproof explosive that is transported in bulk and pumped into blast holes. It is then sensitised and pumped into the blast holes using a specialised MPU.

STORAGE AND HANDLING

EZIPUMP DV® is classified as a class 5.1 dangerous good in its ungassed state (EZIPUMP ANE UN3375) and therefore can be transported and stored as such until such time as you require the product.

EZIPUMP DV® is not cap sensitive. It is advisable to use a minimum 75g Pentolite Booster (Mighty Atom) for efficient initiation.

The EZIPUMP ANE emulsion (Class 5.1) is transported to the mine site and stored at the mine for up to 90 days

SHELF LIFE

Once loaded EZIPUMP DV® has a sleep time of 7 days. Factors that can influence the sleep time include the chosen density, blast hole diameter, ground conditions and initiation methods used.

Refer to hole diameter vs explosives initiation combinations for shelf life recommendations.

Contact a JOHNEX Technical Representative for site specific advice.

PHYSICAL PROPERTIES	PUMPED Blend Ratio (Emulsion: PPAN)						
EZIPUMP DV® 1000	ANFO	100:0	90:10	80:20	70:30	60:40	50:50
Nominal density (g/cm^3)	0.70 - 0.85	0.80 - 1.25	0.80 - 1.25	0.80 - 1.25	0.80 - 1.25	0.80 - 1.25	0.80 - 1.25
Minimum blast hole diameter (mm)	60	42	56	76	100	100	100
Vod (m/s)	3000 - 4500	4500 - 6200	4200 - 5900	4200 - 5800	4200 - 5700	4200 - 5600	4200 - 5500
Energy (MJ/kg)	2.3	2.04	2.13	2.22	2.31	2.41	2.49
Relative weight strength* (%)	100	91	94	97	100	105	109
Relative bulk strength* (%)	100	129	136	143	150	158	164
		Explosive 1.1D	UN Number 0241				

* Relative weight strength and relative bulk strength are calculated using an in-house thermodynamic code. This traditional way of calculating energy is directly related to density and does not take into account the distribution of energy.

EZIPUMP DV®

SAFETY

The post detonation fume characteristics of EZIPUMP DV® make it suitable for use in surface and underground blasting applications. Users should ensure that adequate ventilation is provided prior to re-entry into the blast area.

EZIPUMP DV® 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. No adverse health effects are expected if the product is handled according to directions. If it comes into contact with any part of the body, wash with large amounts of soapy water.

More detailed information can be found in the product Material Safety Data Sheet.

GROUND CONDITIONS

EZIPUMP DV® is available for use in ground temperatures from 0°C to a maximum of 55°C.

OTHER INFORMATION

GASSING:
The gassing rate of EZIPUMP DV® is temperature dependant. Typical gassing time is around thirty minutes at 30°C. Sixty minutes should be allowed between loading and firing blast holes at 25°C or less.

HOLE DIAMETER VS EXPLOSIVES INTIATION COMBINATIONS

	42mm	64mm	76mm	89mm	102mm	115mm	127mm	140mm	150mm
75g Mighty Atom	✓								
100g Megaprime	✓	✓	✓						
150g Megaprime		✓	✓	✓	✓	✓			
400g Megaprime					✓	✓	✓	✓	✓
Shelf Life (Days)	90	90	120	120	180	180	180	180	180
Sleep Time (Days)	7	7	7	7	7	7	7	7	7

- Please note that this table does not detail all the initiation combinations or blast conditions. Please contact JOHNEX explosives for specialist advice.