

«NITRO SIBIR» AO

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COMMERCIAL EMULSION EXPLOSIVES



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Bulk emulsion explosives 'Sibirit'™

'Sibirit'™ bulk emulsion explosives (100% of emulsion) are intended for highly effective blasting of hard rock mass with complex structure (fractured and foliated). 'Sibirit'™ explosives are produced directly in mixing and charging trucks in the process of charging.



Physical properties	'Sibirit - 1000'™	'Sibirit - 1200'™
Explosive type	Bulk Emulsion	Bulk Emulsion
'Sibirit'™ emulsion content, %	100%	100%
Normal density	0,8-1,28	0,8-1,25
Velocity of Detonation (m/s)	4,9-5,4	4,8-5,2
Hole diameter (mm)	from 76	from 76
Nominal total energy (mj/kg)	3,05	2,58

Composite emulsion explosives 'Sibirit SM'™

'NITRO SIBIR' AO has developed a line of composite emulsion recipes 'Sibirit SM'™ with variable content of AN solid phase which are intended for rock blasting in surface mining. 'Sibirit SM'™ is produced directly in mixing and charging trucks in the process of charging.

Variations of the 'Sibirit SM'™ formulation enable to select an appropriate product with wide range of consumable properties in line with customer requirements.

Physical properties	'Sibirit SM-7500'™	'Sibirit SM-5000'™	'Sibirit SM-2500'™
Explosive type	Bulk Emulsion	Bulk Emulsion	Bulk Emulsion
'Sibirit'™ emulsion content, %	75%	50%	25%
Normal density	0,9-1,25	1,0-1,35	0,8-1,15
Nominal total energy (mj/kg)	3,00	3,3	3,6
Velocity of Detonation (m/s)	4,8-5,2	4,2-4,5	3,6-4,2
Water resistance	Water resistant	Water resistant	Not water resistant
Recommended diameter of charging	from 150	from 150	from 150

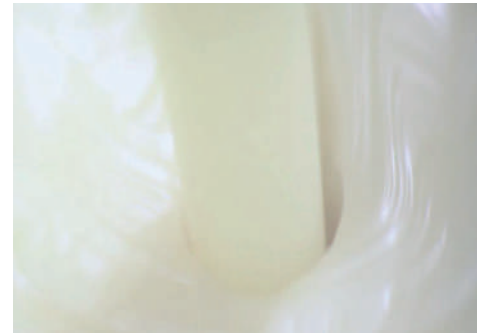
Main advantages of 'Sibirit'™ line of emulsion explosives:

- ▶ Regulation of emulsion explosive energy parameters depending on the condition of its use.
- ▶ Minimal impact on environment and human health (no nitrous oxide and carbonic oxide in the process of blasting works conduction).
- ▶ Total water resistance and chemical compatibility with rock masses; possibility of use in all mining and geological conditions.
- ▶ Automatization of production and charging process.
- ▶ High level of terror security due to application technology.
- ▶ Emulsion matrix 'Sibirit'™ is produced on the basis of original emulsifiers and certified in accordance with the European Union regulations and world standards.

Emulsion explosives 'Sibirit-700Ш'™ and 'Sibirit-800Ш'™ for underground mining

For the purpose of drifting and breakage face works 'NITRO SIBIR' AO has developed emulsion recipes intended for mechanized blasthole charging in underground mines.

Specific emulsion explosives 'Sibirit-700Ш'™ or 'Sibirit-800Ш'™ are produced in individually designed underground charging trucks directly in the process of charging in underground mines non gas and dust hazardous.



Physical properties	'Sibirit-700Ш'™	'Sibirit-800Ш'™
Explosive type	Bulk Emulsion	Bulk Emulsion
'Sibirit'™ emulsion content, %	100%	100%
Normal density	0,8-1,25	0,8-1,25
Velocity of Detonation (m/s)	4,7-5,2	4,3-5,0
Hole diameter (mm)	from 40	from 40
Nominal total energy (mj/kg)	3,1	2,9
Water resistance	Water resistant	Water resistant

Packaged emulsion explosives 'Sibirit PSM-7500'™ and 'Sibirit PM'™

'NITRO SIBIR' AO has developed original recipes of emulsion explosives, technology and equipment intended for mixing of the emulsion with the sensitizing agent and further filling of the emulsion explosive into shells and forming of cartridges. Technology of packaged 'Sibirit'™ production implies the use of emulsion matrix, the formulation of which may vary depending on conditions of application of this packaged 'Sibirit'™ type.

'Sibirit PSM-7500'™ is intended for application in surface mining in all mining and geological conditions and climatic regions as borehole charges for boreholes with any degree of water presence, including application to the rocks and ores containing sulfides.

'Sibirit PM'™ is intended for surface blasting works as blasthole charges, boosters and boreholes charges in underground mine faces.



Physical properties	'Sibirit PSM-7500'™	'Sibirit PM'™
Explosive type	Packaged Emulsion	Packaged Emulsion
Cartridge diameter (mm)	90; 120	32; 50; 60
Normal density	1,17-1,27	1,10-1,15
Nominal total energy (mj/kg)	3,1	2,93
Velocity of Detonation (m/s)	4,3-4,5	4,5-5,4
Initiation	From booster	From prime-detonator

Booster containing emulsion explosive

'Sibirit-PD' is designed to initiate charges of low-sensitivity commercial explosives in dry and water boreholes, as intermediate detonators of borehole charges during blasting operations in underground conditions, in which either there is no emission of combustible gases or explosive coal (shale) dust, or bottomhole inertization is used spaces excluding ignition of explosive atmospheres during blasting operations. Also applicable for the operations on the earth's surface. Temperature conditions of use: -50 °C - + 50 °C.



Physical properties	'Sibirit PD'™
Explosive type	Booster
Cartridge diameter (mm)	50
The mass of emulsion explosives (g)	520 ±20
Nominal total energy (mj/kg)	2,93
Velocity of Detonation (m/s)	4,7-5,0
Sensitivity to shock (lower limit, mm)	more than 500
Initiation	ED, CD non-electric and electronic systems blasting

Packaged emulsion explosive 'Sibirit-1200PM'

'Sibirit-1200PM' is intended for application in open-pit mining in all mining and geological conditions and climatic regions as borehole charges for boreholes with any degree of water presence, including application to the rocks and ores containing sulfides.



Physical properties	'Sibirit PSM-1200PM'™
Explosive type	Packaged explosives
Cartridge diameter (mm)	60; 80; 90; 120
Normal density	1,16-1,26
Nominal total energy (mj/kg)	2,58
Knock Speed (km/s)	4,5-5,6
Initiation	From intermediate detonator