Flexibility and long term planning, greater quality in business and production and modern technology are the grounds of our work and relations with partners.
POLIEX was established in 1982 as the factory specialized for production of plastic explosives.

In order to expand our product range and to fulfill market needs through our own R&D, we have managed to start production of initiating devices for blasting in mining industry (electric detonators, non-electric detonators, detonating caps and delays for detonating cord) as well as production of semi plastic mining explosives for special applications in surface and underground blasting.

Today, "Poliex" has 50 employees which are, altogether with skillful and well experienced engineers, guarantee for quality of products and services. "Poliex" is a corporation where Montenegrin Government holds 46.4053% of the shares, Development Fund of Montenegro 4.3479% and the rest is held by small shareholders, 155 of them. The most important small shareholder is Mr. Slavko Vujisic, the General Manager of the corporation, who owns 25% of the shares.
Our management works as a team which accomplishes desired goals and objectives using existing resources effectively.

Through our business strategy we tend to fulfill our vision and our long-term objectives, and in the background of every decision is mutual hard work.

Contemporaneously to the planning process we have put the accent on forecasting method which allows us to develop the picture of future economic environment. This attitude makes factory management and the company itself prepared for future challenges.
“Poliex” has fully completed the production process of Initiating Devices, starting with line for ignition production and delay compounds and elements, ending with packing and final processing, with quality control system which is incorporated in each step of the production process as well as in the process of final testing.

In production of plastic and semi-plastic explosives we apply modern technology, based on hexogen, PETN, and ammonium nitrate, which ensures high reliability in blasting under all conditions.

Following market needs POLIEX managed to develop the system for electric mining i.e. electric detonators. Our technology includes products for methane work regime i.e. methane electric detonators and non-electric system “POLINEL”

Thanks to its own experts and existing technology, POLIEX ensured high place in family of world known producers of explosives and initiating devices.

With continuous improvements and presence on the site, we gather new experiences and monitor quality of our products. This attitude work leads to improvements of existing technological and technical solutions.
The factory has adopted ISO 900:2008 Standard (Certified Management System) and all the products are in accordance to European Union standards i.e. they have CE mark in Module B and Module D.

CERTIFICATES

- “Carinvest” Kotor
- Coal mine -Resavica
- Coal mine Pijevlja
- Crna Gora Put Podgorica
- “Jugoimport SDPR” Beograd
- “Krajina Sport” Banja Luka
- “Megalit Šumik” Raška
- “Micei internacional” Skoplje
- “Minervo” Tuzla
- “Minervo CG” Bar
- Montenegrin Ministry of Defence
- Mine Boksiti Nikšić
- “Montenegro” Bar
- Montenegro Defence Industry Podgorica
- “Montenegroput” Bijelo Polje
- “Por” Podgorica
- “Prijedor putevi” ad Prijedor
- “Prvoborac” Herceg Novi
- “Putevi” Užice
- RTB Bor
- “Sport Billy” Ulcinj
- “Tara” Mojkovac (Tara Aerospace and Defence Products ad)
- “Tehnoput” Podgorica
- “Tofi” Rožaje
- “Transpetrol” Podgorica
- “Vamko Miner” Podgorica
Safety, functionality, precise time setting and simplicity in application are the main features of POLIEX products.

Modern laboratories, testing station for functional and time characteristics of ED, NED and DR1; station for methane testing and proving ground for explosives, altogether with process control, ensure constant monitoring of products quality in all production phases.

Top reliability of our products has been verified by authorized institutions and our clients.

Factory provides complete mining service as well as the transportation of explosive materials.
APPLIANCE

- White and yellow dough with no additives,
- It is formed with hands (no waste),
- Maintains reached form (shape),
- Density…………………………min. 1,50 g/cm³,
- Detonation speed…………………min. 7400 m/s,
- Accepts detonating cord initiation impulse (minimum line density 10 g/m, weather the detonating cord is wrapped around explosive charge or the explosive charge is formed around the node of the detonating cord),
- Transmits detonation from active to passive detonating explosive charge up to 5 cm distance,
- Not sensitive to bullet shot,
- There is no excudation (liquid component separation),
- Handling and transporting is safe,
- Protected or not, does not detonate if dropped from 10 m height to solid concrete surface ,
- Does not contain material that would endanger people's health,
- Has no chemical influence to materials used to build the elements,
- Applicable with no restraints regarding hydro-meteorological conditions,
- Shaped in dependency of blasting objects and maintains reached shape,
- Can be transported in any vehicle,

Maintains physical, chemical and explosive features whilst maintaining quality of shaping and initiating, there is no decomposition or destruction and does not absorb water while reacting:

1. Salty water up to one year and up to 60 m dept,
2. River water up to two months and up to 6 m dept,
3. Atmosphere factors (sun, rain, cold) up to one year,
4. Spring water up to two months,
5. Soil up to 2,5 m dept with frequent underground waters up to 2,5 months.
DESCRIPTION

Powder explosives BERANIT - 1, BERANIT - 2 and BERANIT - 3 are ammonium nitrate - TNT based on ammonium nitrate as oxidant and trinitrotoluene (TNT) as additive with certain addition of organic fuels, substances and means that help protect explosive from moisture and curing.

APPLICATION

Since powder explosives are constant at temperature changes they are successfully applied at both low and high temperatures, with additional moisture protection due to hygroscopic features of the basic component. Depending on detonation speed and brisance, powder explosives BERANITS, are applied in blasting where soft, medium or rocks of high degree of hardness exist in mining (surface mining, pits with no risk of methane or dangerous coal dust appearance), construction works, hydro construction, tunnel construction etc.

Combining powder and semi-plastic explosives BERANITS of higher brisance excellent gives excellent results in blasting materials of high degree of hardness. All powder explosives are extremely moisture sensitive even though certain chemical additives, as well as their polyethylene packing, lower the influence of ammonium nitrate hygroscopic features.

INITIATION

Powder explosives BERANIT-1, BERANIT-2 and BERANIT-3 are initiated by a No.8 mining caps, electric detonator, non-electric detonators (system POLINEL) and detonating cord.

FEATURES - MINING & TECHNICAL

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>BERANIT - 1</th>
<th>BERANIT - 2</th>
<th>BERANIT - 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density (kg/dm³)</td>
<td>1.20 ± 0,05</td>
<td>1.15 ± 0,05</td>
<td>1.10 ± 0,05</td>
</tr>
<tr>
<td>Oxygen balance (%)</td>
<td>0,30</td>
<td>0,60</td>
<td>1</td>
</tr>
<tr>
<td>Gas volume (dm³/kg)</td>
<td>890</td>
<td>940</td>
<td>965</td>
</tr>
<tr>
<td>Explosion energy (KJ/kg)</td>
<td>4210</td>
<td>4160</td>
<td>4020</td>
</tr>
<tr>
<td>Explosion temperature (K)</td>
<td>2845</td>
<td>2802</td>
<td>2750</td>
</tr>
<tr>
<td>Detonation velocity (m/s) min.</td>
<td>4100</td>
<td>3900</td>
<td>3200</td>
</tr>
<tr>
<td>Detonation transfer (cm) min &lt; 4 Ø 28</td>
<td>3 Ø 28</td>
<td>3 Ø 38</td>
<td></td>
</tr>
<tr>
<td>Trauzl test (cm³)</td>
<td>370 ± 10</td>
<td>360 ± 10</td>
<td>310 ± 10</td>
</tr>
<tr>
<td>Impact sensitivity (J)</td>
<td>higher than 12</td>
<td>higher than 12</td>
<td>higher than 14</td>
</tr>
<tr>
<td>Initiating impulse</td>
<td>DK - 8</td>
<td>DK - 8</td>
<td>DK - 8</td>
</tr>
<tr>
<td>Water resistance</td>
<td>weak</td>
<td>weak</td>
<td>weak</td>
</tr>
<tr>
<td>Minimum usage diameter (mm)</td>
<td>28</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Warranty (months)</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>
WATER RESISTANT EXPLOSIVES BERANIT - 30 P AND BERANIT – 37

DESCRIPTIO

Water resistant plastic explosives BERANIT - 30 P and BERANIT - 37 besides AN as oxidant and TNT as combustible component also contain water and highly molecular plasticizers which help them maintain high water resistance, high density, high and stable detonation speed and above all high brisance as well as extremely safety feature.

APPLIANCE

Considering all above mentioned features these explosives are recommended whilst mining rocks of highest degree of hardness on surface drill holes (because of their negative oxygen ratio) especially where possible presence of water is expected. Since they are extremely resistant to hydrostatic pressure and since they have extremely constant detonation speed for given diameters, we recommend them even for seismic tests.

INITIATION

For not being sensitive to initial impulse of DK – 8 and detonating cord for their initiation detonation booster has to be used. In order to obtain full detonation speed we suggest molten (plastic) boosters whose diameter should be approximate to cartridge diameter. Come to booster and detonating cord, initiation is to be done from the top of the drill hole, and in case blasting is done with booster and Nonel (Polinel) detonator initiation is to be done from the bottom of the drill hole.

FEATURES - MINING & TECHNICAL

<table>
<thead>
<tr>
<th>Features</th>
<th>BERANIT - 30 P</th>
<th>BERANIT - 37 G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosion temperature, (K)</td>
<td>2500</td>
<td>2470</td>
</tr>
<tr>
<td>Explosion energy, (KJ/kg)</td>
<td>3537</td>
<td>3474</td>
</tr>
<tr>
<td>Gas volume, (dm³/kg)</td>
<td>1015</td>
<td>1020</td>
</tr>
<tr>
<td>Oxygen balance, (%)</td>
<td>-7.6</td>
<td>-10.4</td>
</tr>
<tr>
<td>Density, (kg/dm³)</td>
<td>1.4 - 1.5</td>
<td>1.4 - 1.5</td>
</tr>
<tr>
<td>Detonation transfer, (cm)</td>
<td>contact</td>
<td>contact</td>
</tr>
<tr>
<td>Detonation velocity, (m/s)</td>
<td>5000 - 5300</td>
<td>5500 - 5800</td>
</tr>
<tr>
<td>Initiation</td>
<td>ULPD300 ili PEP - 150 g</td>
<td>ULPD300 ili PEP - 150 g</td>
</tr>
</tbody>
</table>
DESCRIPTION

BERANEX-A, type ANFO is an explosive for civil usage. It is plain, relatively harmless explosive mixture composed of porous Ammonium Nitrate and diesel fuel. It is quite meuble.

APPLICATION

Since detonating characteristics of these explosives are lower than classic powder ones, they are applied in blasting where soft or rocks of medium degree of hardness exist in mining, construction works and any kind of works where meuble material is wanted. They are applied directly into the drill hole. Since it is not water resistant it is applied exclusively in dry conditions. It is not to be used in pits with methane or explosive carbon dust.

INITIATION

Since BERANEX-A is not sensitive to initial impulse of DK No.8 mining caps and detonating cord, detonation booster is used (pentolite booster - min. 200 g) or the equivalent amount of stronger explosive for the civil usage.

FEATURES - MINING & TECHNICAL

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Density (g/cm)</td>
<td>0.80 – 0.90</td>
</tr>
<tr>
<td>Oxygen balance (%)</td>
<td>balanced (0)</td>
</tr>
<tr>
<td>Gas volume(dm³/kg)</td>
<td>980</td>
</tr>
<tr>
<td>Explosion energy (kJ/kg)</td>
<td>3760</td>
</tr>
<tr>
<td>Detonation velocity (m/s) Ø70 steel pipe</td>
<td>3000±200</td>
</tr>
<tr>
<td>Detonation transfer (cm)</td>
<td>contact</td>
</tr>
<tr>
<td>Minimum initiating impulse pentolite booster</td>
<td>Ø 50 mm-40 g</td>
</tr>
<tr>
<td>Minimum usage diameter (mm)</td>
<td>Ø70</td>
</tr>
</tbody>
</table>
SEMI – PLASTIC EXPLOSIVES - BERANIT

DESCRIPTION

BERANIT is a brand new type of semi-plastic explosive, sensitive to Mining cap number 8. Depending on application conditions it can be delivered in following types 301A and 351.

APPLICATION

These explosives do not have evaporation of nitro-oils (as it usually happens with explosives based on nitroglycerine) and also they do not turn into solid mass. Therefore their resistance to external mechanical influences remains consistent for a long period. Do not use in pits with methane or explosive carbon dust!

Cartridges are in range from 28 up to 100 mm, paced in water resistant cardboard boxes dim. 350 x 300 x 300 mm, weight up to 20 kg. Cartridges density is in range from 1,30 up to 1,35 g/cm.

<table>
<thead>
<tr>
<th>Features (mining - technical)</th>
<th>301A</th>
<th>351</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density (g/cm³)</td>
<td>1,50</td>
<td>1,50</td>
</tr>
<tr>
<td>Initiation temperature (ºC)</td>
<td>190</td>
<td>186</td>
</tr>
<tr>
<td>Oxygen balance (%)</td>
<td>+ 0, 35</td>
<td>+ 1,10</td>
</tr>
<tr>
<td>Water resistance</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Gas volume (dm³/kg)</td>
<td>750</td>
<td>698</td>
</tr>
<tr>
<td>Explosion energy (kJ/kg)</td>
<td>4155</td>
<td>4250</td>
</tr>
<tr>
<td>Explosion temperature (K)</td>
<td>2932</td>
<td>2903</td>
</tr>
<tr>
<td>Detonation velocity (m/s)</td>
<td>5200</td>
<td>6000</td>
</tr>
<tr>
<td>Detonation transfer (cm)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Detonation pressure (kbar)</td>
<td>90</td>
<td>126</td>
</tr>
<tr>
<td>Trauzi test (cm³)</td>
<td>360</td>
<td>370</td>
</tr>
</tbody>
</table>

PENTOLITE BOOSTERS PP - 500 AND PP – 300

DESCRIPTION

PENTOLITE AMPLIFIERS or “BOOSTERS” are initiation explosive devices designed for initiating less sensitive explosives which do not accept initial impulse from mining caps DK - 8 or detonating cord.

APPLICATION

Trotil and penetrate mixture is used for their production. For favorable TNT and PENETRITE ratio and also for their features, molten pentolite boosters are characterized by high water resistance where their mining and technical characteristics are completely maintained and preserved. They are also characterized by high detonation pressure and high detonation speed.

INITIATION

The construction of PP - 500 and PP - 300 boosters is adapted to the process of initiation with detonating cord which is wriggled through both spouts and tied by a quadruple node, and the booster is connected to the cartridge of the water resistant explosive by adhesive tape.

<table>
<thead>
<tr>
<th>Booster type</th>
<th>Diameter (mm)</th>
<th>Length (mm)</th>
<th>Weight (g)</th>
<th>Detonation speed (m / s)</th>
<th>Detonation pressure atm</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP - 500</td>
<td>70</td>
<td>65</td>
<td>500</td>
<td>7000 ± 200</td>
<td>200.000</td>
</tr>
<tr>
<td>PP - 300</td>
<td>64</td>
<td>60</td>
<td>300</td>
<td>7000 ± 200</td>
<td>200.000</td>
</tr>
</tbody>
</table>
POLINEL

POLINEL - nonelectric initiation system used for performing different kinds of miner work (surface and underwater). Not applicable in inflammable conditions or pits with methane. Approved at Safety Institute in Belgrade.

POLINEL - PK

It is composed of initial energy tube, detonator DK-6 with appropriate (0-176) delay placed into plastic case- connector. Into this plastic case (connector) maximum 4 initial low energy POLINEL tubes can be placed.

POLINEL - MS (explosive charge initiator)

Used for initiation of explosive charge in miner drill holes, composed of low energy tube - NES and belonging detonator DK - 8 with 500 ms delay.

POLINEL - DD (dual delay)

Represents combined system of PK and MS initiators and is used for initiating explosive charge. It is made of initial low energy tube - NES. This tube has DK - 6 (connector) detonator with 0 - 176 ms delay on one, and detonator DK - 8 with 500 ms delay on the other side.

APPLIANCE

Nonelectric system POLINEL is applied in controlled blasting works and represents dot initiating mean on the given site of the explosive pole. POLINEL – PK and – Ms are applied as a single system while forming blasting network. In this manner, POLINEL - PK produces (projected) dividing blasting network to which belonging – MS systems are bound. Connector binding in system POLINEL is performed so that a loose end is left (at least 20cm).

POLINEL - DD application - with detonator DK - 8 impact cartridge is formed. This cartridge is then placed together with the tube into the drill hole, and connector from the other side of the tube is tied up to the tube from the neighbor drill hole and so on. Initiating POLINEL - DD is performed with electric detonators or DK - 8 that is connected to the pipe with adhesive tape.

System POLINEL product shelf life is 24 months provided that storage conditions are appropriate and it is kept in its original packing. The temperature should not go bellow -20°C i.e. over +30°C, the air humidity should not be higher than 75%. Storage has to be done according to the Law. Handling system POLINEL is identical to handling other initial meas. After the work is done, any unused means are to be brought back to the storage. Damaged goods are to be destroyed.
This system POLINEL offers a variety of detonators in safety (MEUD) and non safety (EUD) versions.

They are produced as:

1. **Instantaneous type:**
   - millisecond-detonator
   - polysecond-detonator

2. **Non safety ED with delays from 20 up to 500 ms are produced in following numbers:**
   - Time interval 20 ms (with stages from 1 to 12)
   - Time interval 30 ms (with stages from 1 to 15)
   - Time interval 500 ms (with stages from 1 to 10)

3. **Safety ED with delays are produced in following numbers:**
   - Time interval 20 ms (with stages from 1 to 8)
   - Time interval 30 ms (with stages from 1 to 4)

### Electric Detonators

<table>
<thead>
<tr>
<th>Class</th>
<th>Type A</th>
<th>Type B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire and cylinder material</td>
<td>Cu</td>
<td>Al</td>
</tr>
<tr>
<td>Ignition current</td>
<td>I₀(A)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.25</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>0.45</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>1.00</td>
<td>2.50</td>
</tr>
<tr>
<td>Resistance</td>
<td>2 x 2 m'</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.30</td>
<td>1.30</td>
</tr>
<tr>
<td></td>
<td>2.50</td>
<td>1.60</td>
</tr>
<tr>
<td>Delay (ms)</td>
<td>20, 30, 500</td>
<td></td>
</tr>
<tr>
<td>Initiation impulse (mj/Ω)</td>
<td>3,00</td>
<td>18,00</td>
</tr>
<tr>
<td>Electrostatic resistance</td>
<td>8/500</td>
<td>18/500</td>
</tr>
<tr>
<td></td>
<td>30/500</td>
<td>30/2500</td>
</tr>
<tr>
<td>Hermeticity</td>
<td>20 m H₂O (at 20°C) 24 h</td>
<td></td>
</tr>
<tr>
<td>Warranty period (months)</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

**Sublimitation of delays**

- 13
- 16

**Sublimitation of deferent delays**

- 13
- 11
- 10

### Delay Degrees - Numbers

- No. 1 is interval between delays

<table>
<thead>
<tr>
<th>20 ms</th>
<th>30 ms</th>
<th>500 ms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20 *</td>
<td>30 *</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>60</td>
<td>120</td>
<td>150</td>
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<td>80</td>
<td>140</td>
<td>160</td>
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<tr>
<td>100</td>
<td>180</td>
<td>200</td>
</tr>
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<td>120</td>
<td>200</td>
<td>220</td>
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<td>140</td>
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<td>240</td>
</tr>
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<td>160</td>
<td>270</td>
<td>270</td>
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<tr>
<td>180</td>
<td>300</td>
<td>300</td>
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<tr>
<td>200</td>
<td>330</td>
<td>330</td>
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<td>220</td>
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<td>240</td>
<td>390</td>
<td>390</td>
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<tr>
<td>260</td>
<td>420</td>
<td>420</td>
</tr>
<tr>
<td>280</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>300</td>
<td>5000</td>
<td>5000</td>
</tr>
</tbody>
</table>

- 500
- 1000
- 1500
- 2000
- 2500
- 3000
- 3500
- 4000
- 4500
- 5000
Appliance

Detonating caps DK 8 are means of initiation and lead to complete detonation of explosive charges, detonating cords and nonelectric system NONEL (POLINEL) on dry surface and underground workplaces with no risk of methane or dangerous coal dust appearance.

Depending on their strength, detonating caps are produced from number 1 to number 10.

Features

- **Technical Features**
  - Detonating caps are very dangerous product and have to be handled carefully; instructions are to be followed.
  - Strong detonating impulse and short detonating process cause very strong destruction effect in short distance.
  - Caps can not be thrown, tumbled or pressed. Initial charge is highly sensitive to impact, abrasion, flame or sparks.
  - Electro-conductive objects by any means can not be placed into detonator. - Completing the detonator with safety fuse is harmless because the fuse itself has high isolation features while dry.
  - Self-detonating temperature is higher than 120°C
  - Detonating caps preserve their functional feature for 24 months after production date if stored in a dry and cool, well-ventilated place where the temperature does not go bellow -20°C i.e. over +30°C and the air humidity is not higher than 75%.

- **Mining and Technical Features**
  - Penetration of leaded panel
    DK -8 penetrates 40x40x5mm leaded panel. Aperture diameter has to be bigger than outer diameter of the detonator.
    DK -8 leads to complete detonation of the explosive charge made of 60% TNT and 40% of talc.

Defensive type.

**Features**

- Plastic body shell with steel balls (2,50 – 2,90 mm)
- Weight 335 g (+/- 1%)
- Dimensions 54 x 90 mm
- Fuse handle safety angle min. 50°
- Mechanical fuse with 4-second delay
- Operating temperature range -30 to +60°C

**Effects**

- safety area 25m
GALLERY

- Administration building
- Finished goods warehouse
- Laboratory
- Testing ground
- Production facilities
- Cafeteria and canteen
- Demilitarisation
- Garage
- Semi-products and raw materials warehouse

Presentation Maine, USA
Presentation Hungary
Employee annual award ceremony
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