


MATERIAL SAFETY DATA SHEET

ELECTRIC DETONATORS - ERGODET, NITRODET

	43-150 Bieruń Plac Alfreda Nobla 1 tel.: +48 32 46 61 900 fax: +48 32 46 61 357 e-mail: nitroerg@nitroerg.pl	Version No: 1	
		Released on: 06.01.2011	
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1 PRODUCT AND COMPANY IDENTIFICATION

1.1 Product name:

ELECTRIC DETONATORS – ERGODET, NITRODET

1.2 Intended use:

Electric detonators are intended to initiate explosives in various operating conditions in underground and opencast mining, and in civil engineering works.

Group	Intended use	Trade name
Methane detonators	For underground coal mining plants, and opencast mining plants, characterized by risk of methane and/or coal dust explosion.	ERGODET 0,20 A N ERGODET 0,20 A 25 ms (1-18) ERGODET 0,45 A N ERGODET 0,45 A 25 ms (1-18) ERGODET 2,0 A N ERGODET 2,0 A 25 ms (1-18) ERGODET 0,20 A 250 ms (1-18) ERGODET 0,45 A 9,8 MPa 70 °C
Coal Mining detonators	For underground coal mining plants, and opencast mining plants, characterized by risk of coal dust explosion.	ERGODET 0,20 A 500 ms (1-15) ERGODET 0,45 A 500 ms (1-15) ERGODET 2,0 A 500 ms (1-10)
Rock detonators	For underground coal mining plants, and opencast mining plants, where there is NO RISK of methane and/or coal dust explosion.	ERGODET 0,20 A 25 ms (1-12) WZI ERGODET 0,20 A WZI ERGODET 0,45 A WZI ERGODET 0,45 A 25 ms (1-12) WZI ERGODET 2,0 A 500 ms (1-12) WZI NITRODET 0,2 NITRODET 0,45 NITRODET LP 0,20 (1-10) NITRODET VA 1,2 A 25 MS (1-18)

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1.3 Manufacturer:

NITROERG S.A.
43-150 Bieruń
Plac Alfreda Nobla 1

1.4 Emergency phone

48 32 46 61 183 (available 24H)

2. HAZARD IDENTIFICATION

2.1 Classification

E; R 2

2.2 Explosion Risk

E Explosives R 2

The product may pose explosion risk caused by mechanical shock, friction, or effects of fire.

Other hazards

2.3 Toxicological hazards

Not applicable.

2.4 Fire hazards

The product may explode if exposed to a direct fire. When burning toxic gas are released, including CO, NO_x and lead vapors. Fire may also occur as a secondary effect of explosion.

2.5 Ecotoxicological hazard

Not applicable.

3 CHEMICAL COMPOSITION AND INFORMATION ON INGREDIENTS

3.1 Penthrite (pentaerythritol tetranitrate (V))

Substance classification:

E; R 3

Index number: 603-035-00-5

CAS number: 78-11-5

EINECS number: 201-084-3

3.2 Hexogen (RDX)

Substance classification:

E; R 2

Index number: -

CAS number: 121-8-24

EINECS number: 204-500-1

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3.3 Lead (II) azide

Substance classification:

E; R 3
Repro.Kat.3 R 62
X_n ; R20/22
R33
N;R50-53

Index number: 082-003-00-7

CAS number: 13424-46-9

EINECS number: 236-542-1

EChA application number: 05-2114121064-67-0000

Application report: BR152140-46

Application date: July 25, 2008.

3.4 Lead (II) trinitroresorcinate

Substance classification:

E; R 3
Repro.Kat.1 R 61
Repro.Kat.3 R 62
X_n ; R20/22
R33
N;R50-53

Index number: 609-019-00-4

CAS number: 15245-44-0

EINECS number: 239-290-0

3.5 Lead (II , IV) oxide

Substance classification:

Repro.Kat.3 R 62
X_n ; R20/22
R33
N;R50-53

Index number: 082-001-00-6

CAS number: 1314-41-6

EINECS number: 215-235-6

3.6 Potassium (VII) manganate

Substance classification: O;

R8

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X_n; R22

Index number: 025-002-00-9

CAS number: 7722-64-7

EINECS number: 231-760-3

3.7 Lead (II) dinitro-o-cresolate

Substance classification:

Repro.Kat.3 R

62 X_n ; R20/22

R33

N; R50-53

Index number: 082-001-00-6

CAS number: -

EINECS number: -

3.8 Aluminum

Substance classification:

F; R15

R10

Index number: 013-002-00-1

CAS number: -

EINECS number: 231-072-3

Product's index number: - not defined.

Product's CAS number: - not defined.

Product's EINECS number: - not defined.

4 FIRST AID MEASURED

The product poses hazards caused by gaseous products of its combustion, or of its explosive decomposition. In case of intoxication by after-dump gases take the injured person off the place and **call medical service**.

Skin contamination: in case of contact of product's substances with the skin rinse contaminated places with abundant quantities of running water and soap. In case of local changes on the skin or malaise get a medical assistance.

Eye contamination: not applicable.

Intoxication by alimentary tract: nor applicable.

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5 FIRE FIGHTING MEASURES

Alarm all persons within the place on the risk of explosion.

If the product is involved by the fire, don't try to extinguish it. Evacuate all persons who happen to be within the endangered area.

If the product is not directly involved by the fire, use fire extinguishing means and methods that are adapted to and try to contain and prevent the fire from spreading on the product.

Call Fire Brigades and Police.

Extinguishing media: water from a safe distance, carbon dioxide, extinguishing powders, alcohol resistant foams. Don't use water if electrical equipments are involved by the fire.

Special personal protections to be worn during emergency actions: wear gas-proof protective clothes, and a gas mask to isolate your respiratory tracts.

Caution: combustion and/or decomposition products are toxic.

Emergency phone: 112

Fire Department: 998

Police: 997

Medical Emergency Service: 999

6 ACCIDENTAL RELEASE MEASURES

Alarm all persons within the place. Protect the product and the endangered place, and ensure that no unauthorized persons have access to it. Eliminate all sources of ignition (extinguish any open fire, announce smoking ban). Avoid to breath in product's vapors. In case of a major accident or danger call Fire Brigades and Police. If packages have been damaged collect carefully all spilled product (avoiding any sparking) and put it into a tight packaging (for instance: PE bag). Wear protective gloves while collecting spilled products. Prevent the product from penetrating sewage systems and surface waters. Any wastes of the product shall be eliminated in accordance with paragraph 13.

7 HANDLING AND STORAGE

7.1 Handling: Take necessary precaution measures when handling the product: don't smoke, don't drink, don't use sparking tools, prevent the product from any naked flame, high temperatures and/or mechanical shocks. Prevent the product from adverse atmospheric conditions (direct solar radiation, precipitations, and so on).

7.2 Storage: Keep the product only in stores which fully comply with legal regulations relating to explosives. The required storage temperatures: from 0 °C to +45 °C.

7.3 Storing with other materials: Exclusively with Class 1.1B and 1.4 B material from the compatibility group B and S in accordance to the ADR and IMDG regulations.

For non-electric detonators with qualify code 1.4 S common storing with dangerous materials class 1, groups of conformity: C, D, E, G and S is possible.

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Quantities of the product in stores are being regulated strictly with the user's internal regulations

8 EXPOSURE CONTROL AND PERSONAL PROTECTIONS

8.1 Types of exposure

No personal protections are required for persons working with the product. After the work always wash your hands.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Explosive object, made of a shell filled with a blasting explosive and with initiating explosive, firmly interconnected by electric conductors.
Melting point:	Not applicable.
Boiling point:	Not applicable.
Solubility in water:	Not applicable.
Specific weight:	Not applicable.
Vapor pressure:	Not applicable.
Flash point:	Not applicable.
Flammability:	Explosive. Avoid any source of ignition.

10 STABILITY AND REACTIVITY

In ambient temperatures the product is stable. The product is sensitive to mechanical, thermal and electrical stimuli. Prevent it from contact with naked flames, high temperatures and static electricity. Prevent it from mechanical shocks, friction and other energy media.

11 TOXICOLOGICAL INFORMATION

There is no toxicological risk caused by the detonators. A long-term exposure to low concentrations of lead (when firing detonators in poorly ventilated rooms) may cause decreased hemoglobin levels, anemia, damage to kidneys, and damage to nervous system.

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12 ECOLOGICAL INFORMATION

Not applicable.

13 MANAGEMENT OF WASTES

The wastes of electric detonators, which are classified as “Other explosives” with reference code 16 04 03*, must be eliminated through detonating them.

The wastes of packaging materials contaminated with substances used as electric detonators’ ingredients, are classified as “Packaging materials containing residues of dangerous substances or contaminated by them, reference code 15 01 10*” must be eliminated using D10 thermal transformation process (out of plant, in open air), in accordance with art. 13.4 of the Waste Act (consolidated text, Official Journal 01.112.1206).

The elimination of wastes must be done only by an authorized contractor. NITROERG S.A. will accept any wastes of electric detonators and packaging materials contaminated by substances used as ingredients of products it has previously marketed.

14 SHIPPING INFORMATION

General rules of safe transporting

The packaging of electric detonators and its marking are undergoing suitable RID/ADR regulations in case of the rail and road transport, IMDG in case of the sea transport and DGR/IATA in case of the air transport.

The marking on the package has to contain the transit name at least in the Polish language, and if the product is being transported pose borders of Poland in the German or French or English and the distinctive number of the product, preceded with UN letters. These requirements refer to the road and air, rail transport

Additionally on every package has to be put suitable warning sticker.

Electric detonators: ERGODET and NITRODET are dangerous products. Classification of electric detonators depends on the kind of the transport and the method of packing and it is following:

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The rail and road transport RID/ADR

No identification of material:	UN 0030	UN 0255	UN 0456
Correct transit name: Polish: English: German: French:	ZAPALNIKI ELEKTRYCZNE DETONATORS, ELECTRIC SPRENGKAPSELN, ELEKTRISCH DÉTONATEURS ÉLECTRIQUES		
Class:	1	1	1
Classification code:	1.1 B	1.4 B	1.4 S

Other requirements / restrictions

There is forbidden flatly to transport the electric detonators with classification code **1.1 B** and **1.4 B** in one vehicle together with other dangerous materials except the dangerous materials of the class 1, groups of conformity B and S. Container transport have to be marked according to IMDG regulations.

For electric detonators with classification code **1.4 S** is possible the common transport together with the other hazardous goods except goods marked with warning labels **No 4.1 + 1** and **5.2 + 1** and of dangerous materials of the class 1, group of conformity **A** and **L**.

The marking of the vehicle isn't required in case of the transport of detonators with the classification code 1.4 S.

Plate of the orange colour:



Warning label:



Marking of vehicles

Marking of vehicles and labeling packages for detonators with the classification code 1.1 B and 1.4 B

Marking of labeling packages for detonators with the classification code 1.4 S

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The sea transport IMDG

No identification of material:	UN 0030	UN 0255	UN 0456
Correct transit name: Polish: English: German: French:	ZAPALNIKI ELEKTRYCZNE DETONATORS, ELECTRIC SPRENGKAPSELN, ELEKTRISCH DÉTONATEURS ÉLECTRIQUES		
Class:	1	1	1
Classification code:	1.1 B	1.4 B	1.4 S

Other requirements / restrictions

There is forbidden flatly to transport the electric detonators with classification code **1.1 B** and **1.4 B** in one container together with other dangerous materials except the dangerous materials of the class 1, groups of conformity B and S. Container transport have to be marked according to IMDG regulations.

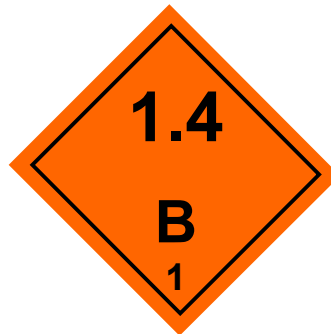
For electric detonators with classification code **1.4 S** is possible the common transport together with the other hazardous goods except goods marked with warning labels **No 4.1 + 1** and **5.2 + 1** and of dangerous materials of the class 1, group of conformity **A** and **L**.

The marking of the container isn't required in case of the transport of detonators with the classification code 1.4 S.

Plate of the orange colour:



Warning label:




Marking of vehicles

Marking of vehicles and labeling packages for detonators with the classification code 1.1 B and 1.4 B

Marking of labeling packages for detonators with the classification code 1.4 S

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Aircraft transport

No identification of material:	UN 0456
Correct transit name:	
Polish:	ZAPALNIKI ELEKTRYCZNE
English:	DETONATORS, ELECTRIC
German:	SPRENGKAPSELN, ELEKTRISCH
French:	DÉTONATEURS ÉLECTRIQUES
Class:	1
Classification code:	1.4 S

In case of the air's transport a marking of packages with the warning sticker is necessary.

Warning sticker:



Marking of packages
for detonators with the
classification code 1.4 S

The temperatures during transportation and short periods of keeping the product in containers before unloading it: from -30 °C to +65 °C.

15 INFORMATION ON LEGAL REGULATIONS

Purchasing and storing of explosives is subject of special authorization to be obtained in accordance with the Law on explosives for civil use or Law on economic activity in the sphere of manufacturing of and trade in explosives, arms, ammunition and technology of military or police use.

Legal regulations:

- Law of April 27, 2001, on wastes (consolidated text, Official Journal 07.39.251).

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- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council, of December 18, 2006, concerning the registration, evaluation, authorization and restriction of chemicals (REACH), establishing an European Chemicals Agency, amending the Directive 1999/45/EC and repealing the Council Regulation (EEC) No. 793/93 and the Commission Regulation (EC) No. 1488/94 as well as the Council Directive 76/769/EEC and the Commission Directives no. 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended.
- Decree of the Minister of Environment of September 27, 2001 on the catalogue of wastes (Official Journal 01.112.1206).
- Law of May 11 on packaging materials and wastes of packaging materials (Official Journal 01.63.638, as amended).
- Law of June 21, 2002 on explosives for civil use (Official Journal 02.117.1007).
- Law of 22 June, 2001 on economic activity in the sphere of manufacturing of and trade in explosives, arms, ammunition and technology of military or police use (Official Journal 01.67.679).
- Law of October 28, 2002 on road transportation of dangerous goods (Official Journal 02.199.1671).
- Decree of the Minister of Economy of June 17, 2002 on safety and hygiene of work, industrial operation and specialized fire protection in open pits mining basic mineral raw materials (Official Journal 02.96.858, as amended);
- Decree of the Minister of Economy of June 28, 2002 on safety and hygiene of work, industrial operation and specialized fire protection in open pits mining mineral raw materials using bore-holes method (Official Journal 02.109.961, as amended);
- Decree of the Minister of Economy of October 28, 2002 on storage rooms and facilities intended for explosives, arms, products of military or police use (Official Journal, 02.190.1589);
- Decree of the Minister of Labour and Social Policy of November 29, 2002 on maximal allowed concentrations and intensities of agents harmful to the human health in the environment of work (Official Journal 02.217.1833, as amended);
- Decree of the Minister of the Economy, Labour, and Social Policy of July 9, 2003 on work safety and hygiene during manufacturing, internal handling and trading in explosives, including pyrotechnic products (Official Journal 03.163.1577);
- Decree of the Minister of Health of September 2, 2003 on criteria for classification of chemical substances and chemical preparations (Official Journal, 03.171.1666, as amended);
- Decree of the Minister of the Economy and Labour of July 5, 2004 on limitations, bans and conditions for manufacturing, trading in and using of dangerous substances, dangerous preparations and products containing them (Official Journal 04. 168.1762, as amended);

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- Decree of the Minister of Health of September 28, 2005 on list of dangerous substance including their classification and marking (Official Journal, 05.201.1674);
- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).

Product's classification

E Explosives

Chemical Safety Assessment for this product is not required.

Chemical Safety Assessment for the product's ingredients has been not carried through.

Risk Phrases (R):

R2 - Risk of explosion by shock, friction, fire or other sources of ignition.

Safety Phrases (S) :

S35 This product and its container must be disposed of in a safe way.

16 OTHER INFORMATION

This Material Safety Data Sheet has been prepared on the basis of following source data:

1. Material Safety Data Sheet for Penthrite, prepared by Société Suisse des Explosifs.
2. Material Safety Data Sheet for Penthrite, prepared by IPO, (IPO Reference no. 178).
3. Material Safety Data Sheet for hexogene, prepared by NITRO-CHEM S.A.
4. Material Safety Data Sheet for red lead, prepared by Złoty Stok.
5. Material Safety Data Sheet for potassium (VII) manganate, prepared by Standard Sp. z o.o.

All information and data included to this Material Safety Data Sheet have been prepared on the basis of available Internet databases, and valid legal regulations on dangerous substances and chemical preparations, as well as on the basis of our experience. These data shall be read only as a description of safety issues relating to the product and must not be interpreted as parameters guaranteed by the Manufacturer. The User is solely responsible for creating necessary conditions for safe storage and use of explosives. In preparing this Material Safety Data Sheet only intended use has been taken into account. The User will bear the full responsibility for damages caused by any incompliant handling or unintended use of the product.