



SAFETY DATA SHEET

ELECTRIC NPED DETONATOR



SECTION 1: Identification of the substance/mixture and of the company/undertaking

Date issued 23.02.2011

1.1. Product identifier

Product name ELECTRIC NPED DETONATOR
 Synonyms Electric NPED detonator ("NT", "U", "VA", "XS"/"HU")
 Article no. Internal No.: 0030-01.eng.01
 Product group Borehole detonator (NPED) for electrical initiation of explosives in classes 1, 2, 3 and 4 respectively (corresponding to the groups A/S/NT, U, VA and XS/HU).

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

Company name Orica Sweden AB
 Postal address Gyttorp
 Postcode SE-713 82
 Place name Nora
 Country SWEDEN
 Tel +46 587 850 00
 Fax +46 587 255 35
 E-mail johan.svaerd@orica.com

1.4. Emergency telephone number

Emergency telephone Securitas larmcentral:020-85 00 01

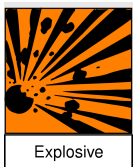
SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to 67/548/EEC or 1999/45/EC E; R2

2.2. Label elements

Hazard symbol



R phrases R2 Risk of explosion by shock, friction, fire or other sources of ignition.
 S phrases S35 This material and its container must be disposed of in a safe way.
 S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3. Other hazards

Physicochemical effect Risk of explosion, an uncontrolled explosion may cause great physical damage.
 Health effect Risk of splinters from uncontrolled detonations. At a detonation, approximately 1 liter gases are formed. Adverse health effects caused by inhalation are therefore considered negligible.

Environmental effect The product is not classified as harmful to the environment.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Component name	Identification	Classification	Contents
DETONATOR:			
Hexogen (RDX)	CAS no.: 121-82-4 EC no.: 204-500-1	E; R2 T; R25 Expl. 1.1; H201 Acute tox. 3; H301	< 1 g
Pentaerythritol tetranitrate	CAS no.: 78-11-5 EC no.: 201-084-3 Index no.: 603-035-00-5	E; R3 unst. expl.; H200	< 1 g
Aluminium (detonator case)	CAS no.: 7429-90-5		
Sealing plug (thermoplastic polyolefin, TPO)			
WIRE INSULATION MATERIAL:			
Polyethylene	CAS no.: 25087-34-7		
Polypropene	CAS no.: 9003-07-0		
CONDUCTORS:			
Iron	CAS no.: 7439-89-6 EC no.: 231-096-4		
Brass	CAS no.: 12597-71-6		
Copper	CAS no.: 7440-50-8 EC no.: 231-159-6		
Column headings	CAS no. = Chemical Abstracts Service; EU (Eines or Elincs number) = European inventory of Existing Commercial Chemical Substances; Ingredient name = Name as specified in the substance list (substances that are not included in the substance list must be translated, if possible). Contents given in; %, %wt/wt, %vol/wt, %vol/vol, mg/m3, ppb, ppm, weight%, vol%		
HH/HF/HE	T+ = Very toxic, T = Toxic, C = Corrosive, Xn = Harmful, Xi = Irritating, E = Explosive, O = Oxidizing, F+ = Extremely flammable, F = Very flammable, N = Environmental hazard		
Component comments	See section 16 for explanation of H- and R-phrases listed above. The total amount of explosives in the detonator is approx. 1 g. The product is an aluminium detonator containing conductors of iron/brass/copper isolated with PE/PP.		

SECTION 4: First aid measures

4.1. Description of first aid measures

General	If in doubt, seek medical advice.
Inhalation	Fresh air and rest. Get medical attention if any discomfort continues.
Skin contact	Detonator splinter may cause damage. Get medical attention immediately - Infected wounds may lead to sepsis.
Eye contact	Detonator splinter may cause damage. Get medical attention immediately.
Ingestion	Rinse mouth thoroughly. Obtain medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Acute symptoms and effects	Inhalation: The gases formed by explosion may cause irritation in the respiratory system and lungs. Skin contact: Exposure is not likely with normal use. Detonator splinter may cause damage. Infected wounds may lead to sepsis. Eye contact: May irritate the eyes. Ingestion: Not a likely route of entry under normal use. Toxic if swallowed.
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4.3. Indication of any immediate medical attention and special treatment needed

Other Information	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish surrounding fires with suitable extinguisher.
Improper extinguishing media	Do not fight fires involving explosives, risk of explosion! Fire in explosives can not be extinguished with any fire equipment.

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards	Risk of explosion by shock, friction, fire or other sources of ignition.
Hazardous combustion products	Carbon dioxide (CO ₂). Carbon monoxide (CO). Oxides of nitrogen (NO _x)

5.3. Advice for firefighters

Personal protective equipment	Self-contained breathing apparatus may be required by rescue workers. In case of evacuation, use escape mask where possible.
Other Information	Evacuate all personell to a predetermined safe location. Notify authorities in accordance with emergency response procedures. Containers close to fire should be removed immediately or cooled with water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Use protective equipment as referred to in section 8. Avoid contact with skin and eyes.
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6.1.1. For non-emergency personnel

6.1.2. For emergency responders

6.2. Environmental precautions

Environmental precautions	Do not allow to enter into sewer, water system or soil.
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6.3. Methods and material for containment and cleaning up

Methods for cleaning	Blasting explosives and detonators must be kept apart. Use a spark-free shovel to collect detonators. Dispose in an approved and labelled container for the intended use. Defective and damaged detonators should be destroyed according to the manufacturer's recommendations.
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6.4. Reference to other sections

Other instructions	See also sections 8 and 13.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling	Only to be handled by authorized personnel. The explosives must be under supervision and unavailable for persons not concerned. Keep away from sources of ignition - No smoking. Protect against high temperatures. Protect against physical damage and/or friction. Take precautionary measures against static discharges.
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Protective Measures

7.2. Conditions for safe storage, including any incompatibilities

Storage	Store in a dry well ventilated place. Storage room must be locked and secured from fire. Store separated from: explosives and other sources of ignition. To be stored at temperatures between 0 and 30 °C. Store at temperature below 50°C.
Special risks and properties	Risk of explosion by shock, friction, fire or other sources of ignition.

7.3. Specific end use(s)

Specific use(s) See section 1.1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Other Information about threshold limit values Contains no substances with occupational exposure limit values.

DNEL / PNEC

Precautionary measures to prevent exposure

Appropriate environmental exposure control

8.2. Exposure controls

Exposure controls

Occupational exposure controls Do not eat, drink or smoke during work. Wash hands at the end of each work shift and before eating, smoking and using the toilet.

Eye / faceprotection

Eye protection Normally not necessary.

Skin protection

Hand protection Use gloves suitable for the work.

Skin protection (other than of the hands) Wear appropriate protective clothing to protect against skin contact.

Respiratory protection

Respiratory protection Normally not required.

Thermal hazards

Other Information Eye wash facilities should be available when handling this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Aluminium detonator containing conductors of iron/brass/copper isolated with polyethylene
Odour	None.
Solubility description	Insoluble in organic solvents
Solubility in water	Insoluble.
Specific gravity	Value: 1500 kg/m ³ Comments: Value for the insulation.
Melting point/melting range	Value: > 120 °C Comments: Value for the insulation. The melting point of the explosive PETN is 141 °C.
pH (as supplied)	Comments: Not relevant.
Flash point	Comments: Not available.
Spontaneous combustability	Value: 202 °C
Partition coefficient: n-octanol/water	Comments: Not available.

9.2. Other information

Other physical and chemical properties

Comments See the Technical Data Sheet.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity The product is stable at the recommended storing conditions.

10.2. Chemical stability

Stability	Stable under recommended use.
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	No hazardous reactions known.
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10.4. Conditions to avoid

Conditions to avoid	May detonate with impact, friction or on heating. Do not expose to temperatures above 50 °C.
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10.5. Incompatible materials

Materials to avoid	Blasting explosives and detonators must be kept apart.
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10.6. Hazardous decomposition products

Hazardous decomposition products	Carbon monoxide (CO). Carbon dioxide (CO ₂). Nitrous gases (NO _x).
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SECTION 11: Toxicological information

Components' toxicological data

Component	Hexogen (RDX)
LD50 oral	Value: 100 mg/kg Test animal species: rat (literature)

Other information regarding health hazards

General	Splinter from uncontrolled detonations may cause wounds and burns on the body and in the eyes.
Inhalation	The gases formed by explosion may cause irritation in the respiratory system and lungs.
Skin contact	Exposure is not likely with normal use. Detonator splinter may cause damage. Infected wounds may lead to sepsis.
Eye contact	May irritate and cause redness and pain.
Ingestion	Not a likely route of entry under normal use. Toxic if swallowed.
Chronic effects	No known chronic or acute health hazards.
Sensitisation	Sensitizing properties are not known.
Carcinogenicity	Carcinogenic properties are not known.
Teratogenic properties	Effects on fetus development are not known.
Reproductive toxicity	Effects harmful to reproduction are not known.
Mutagenicity	Mutagenic properties are not known.

SECTION 12: Ecological information

12.1. Toxicity

Components' toxicological data

Component	Hexogen (RDX)
Acute aquatic, fish	Value: 3,6 mg/l Method of testing: LC50 (literature) Species: Lepomis macrochirus Duration: 96h
Distribution coefficient	Comments: Log Pow: 0,86
Bioconcentration factor (BCF)	Value: 4,7

Other ecological information

Ecotoxicity	The product is not classified as dangerous for the environment.
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12.2. Persistence and degradability

Persistence and degradability	Not readily biodegradable.
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12.3. Bioaccumulative potential

Bioaccumulative potential	Data not available.
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12.4. Mobility in soil

Mobility	Insoluble in water.
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12.5. Results of PBT and vPvB assessment

PBT assessment results	PBT / vPvB assessment not available as chemical safety assessment not is required / not is conducted for the substances in this product.
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12.6. Other adverse effects

Environmental details, conclusion	Do not allow to enter into sewer, water system or soil.
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SECTION 13: Disposal considerations

Product classified as hazardous waste	Yes
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13.1. Waste treatment methods

Specify the appropriate methods of disposal	Contact supplier for disposal information. Dispose of in a regulated landfill site or other method for hazardous or toxic wastes. Residues of explosives must immediately be removed for intermediate storage and disposed for safely destruction. Product and package is hazardous waste. Deliver to approved depot.
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SECTION 14: Transport information

Dangerous goods ADR	UN no.: 0456 Class: 1.4S Proper shipping name: DETONATORS, ELECTRIC
Dangerous goods RID	UN no.: 0456 Class: 1.4S Proper shipping name: DETONATORS, ELECTRIC
Dangerous goods IMDG	UN no.: 0456 Class: 1.4S EmS: F-B, S-X Proper shipping name: DETONATORS, ELECTRIC
Dangerous goods ICAO/IATA	Status: Yes UN no.: 0456 Class: 1.4S Proper shipping name: DETONATORS, ELECTRIC Other applicable information.: Other classes than 1.4S are forbidden for transport by air

14.6. Special precautions for user

Special precautions for user	UN-No: 0030 may also be used, but the class is then changed to 1.1B (forbidden by air).
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14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Other applicable information.	Not relevant
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SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

References (laws/regulations)	Directive (EC) No 1907/2006 (REACH) Annex II: Safety data sheets. Occupational Exposure Limits. EH40/2007. CHIP Regulations. The Chemicals (Hazard Information and Packaging for Supply) Regulation. The Hazardous Waste (England and Wales) Regulations 2005 with amendments. REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Dangerous Goods regulations ADR/RID 2009
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15.2. Chemical safety assessment

chemical safety assessment has been carried out	No
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SECTION 16: Other information

Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]	Unst. expl.;H200; Expl. 1.1;H201; Acute tox. 3;H301;
List of relevant R phrases (under headings 2 and 3).	R2 Risk of explosion by shock, friction, fire or other sources of ignition. R25 Toxic if swallowed. R3 Extreme risk of explosion by shock, friction, fire or other sources of ignition.
List of relevant H-phrases (Section 2 and 3).	H200 Unstable explosives. H201 Explosive; mass explosion hazard. H301 Toxic if swallowed.
Recommended restrictions on use	The product can only be handed out to licenced personnel.
Information which has been added, deleted or revised	New Safety Data Sheet.
Supplier's notes	The information contained in this SDS must be made available to all those who handle the product.
Checking quality of information	This SDS is quality controlled by National Institute of Technology in Norway, certified according to the Quality Management System requirements specified in ISO 9001:2008. This SDS is quality controlled by National Institute of Technology in Norway or by Teknologisk Lab AB in Sweden, certified according to the Quality Management System requirements specified in ISO 9001:2008.
Responsible for safety data sheet	Orica Sweden AB
Prepared by	Teknologisk Institut, Göteborg v/ Milvi Rohla