

	MATERIAL SAFETY DATA SHEET	DATE	02/07/2017
	EXP30	AUTHORISED	
	 EURONEL 2	PAGE	1 OF 11
		ISSUE Supersedes	2 1

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product Identifier	<p>Euronel 2 non-electric detonator assemblies: Euronel 2 connector (1.1B and 1.4S) Euronel 2 starter line (1.1B and 1.4S) Euronel 2 in-hole detonators (1.1B and 1.4S) Euronel 2 Tunnel detonators (1.1B and 1.4S) Euronel 2 Duo detonators 1.1B only</p>
1.2 Use of the Product:	<p>Connector – A surface initiation system for explosive charges, particularly in open cast, open pit mining, quarry blasting and underground mining applications underground mining applications.</p> <p>Starter line –A connector detonator with a longer length of shock-tubing to act as a lead-in line.</p> <p>In-Hole – A down-hole initiation system for explosive charges, particularly in open cast, open pit mining and quarry blasting.</p> <p>Tunnel – An in-hole initiation system for explosive charges, particularly in development tunnelling in underground mining.</p> <p>Duo – A combined down-hole and surface initiation system for explosive charges used in open pit/cast mining, quarry blasting and underground applications.</p> <p>Euronel 2 detonators are not suitable for use in underground mines where there is a risk of methane gas and/or coal dust explosion.</p>
1.3 Details of the Supplier of the MSDS:	
Name	EPC-UK EXPLOSIVES / MINING EXPLOSIVES LTD
Address:	ROUGH CLOSE WORKS CARNFIELD HILL SOUTH NORMANTON ALFRETON DERBYSHIRE, DE55 2BE
Telephone Number:	01773 832253
Contact e-mail	info@epc-groupe.co.uk
1.4 Emergency Telephone Number:	01773 832253

	MATERIAL SAFETY DATA SHEET	DATE	02/07/2017
	EXP30	AUTHORISED	
		PAGE	2 OF 11
		ISSUE	2
		Supersedes	1

2. HAZARD IDENTIFICATION

2.1 Classification of Substance / Mixture

Classification According to EC Regulation 1272/2008

Explosive Class 1.1B OR Explosive Class 1.4 S depending on packaging

2.2 Label elements

According to EC Regulation 1272/2008

Class 1.1B

H201 Mass explosion Hazard

P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

P250 Do not subject to shock impact or friction.

P280 Wear protective gloves / protective/clothing/eye protection

P234 Keep in original container

P370/P380/P372 Explosion risk in case of fire: evacuate area

P373 DO NOT fight fire when fire reaches explosives.

P401 Store in accordance with the Explosives regulations 2014

P501 Dispose of contents/container to in accordance with local/ regional/national/international regulations



Danger

Class 1.4S

H204 Fire or projection hazard

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P250 Do not subject to grinding/shock/friction.

P234 Keep only in original container

P370+3372+380 Explosion Risk in case of fire: Evacuate area

P374 Fight fire with normal precautions from a reasonable distance.

P401 Store in accordance with local/regional/national regulations

No Hazard Symbol











Warning

2.3 Other Hazards

The detonator assemblies may explode if exposed to fire, releasing toxic gas, including CO, NOx and lead vapours. Fire may also occur as a secondary effect of explosion

	MATERIAL SAFETY DATA SHEET		DATE	02/07/2017
	EXP30		AUTHORISED	
			PAGE	3 OF 11
			ISSUE	2
			Supersedes	1

3. COMPOSITION/INFORMATION ON THE INGREDIENTS

Dangerous substance	Quantity	EINECS / EC Number	CAS Number	CLP Classification	ECHA Registration
Pentaerythritol tetranitrate (PETN)	Connector and starter line: 0.14g / assembly. In-hole and tunnel: 0.7g / assembly Duo detonator: 0.84g/ assembly	201-084-3	78-11-5	Unst. Expl: H200  DANGER	05-2114281184-50-0000 EURENCO Bofors AB, SWEDEN
Lead (II) Azide	Duo 160-200 mg / assembly Others 80-100 mg / assembly	236-542-1	13424-46-9	Unst. Expl.: H200 Repr. 1A: H360Df Acute Tox. 4: H332 Acute Tox. 4: H302 STOT RE 2: H373 Aquatic Acute 1: H400 Aquatic Chronic 1: H410     DANGER	05-2114121064-67-0000
Lead (II) (IV) Oxide		215-235-6	1314-41-6	Repr. 1A: H360Df Acute Tox. 4: H302 Acute Tox. 4: H332 STOT RE 2: H373 Aquatic Acute 1: H400 Aquatic Chronic 1: H410    DANGER	05-2117100997-39-0000
HMX (Octogen; Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)	Contains ca 10-20mg of HMX per metre of shock tube	220-260-0	2691-41-0	Expl. 1.1; H201 Acute Tox. 4: H302 Acute Tox. 3: H311   DANGER	

	MATERIAL SAFETY DATA SHEET	DATE	02/07/2017
	EXP30	AUTHORISED	
		PAGE	4 OF 11
		ISSUE Supersedes	2 1

4. FIRST AID MEASURES

4.1 Description of First Aid Measures

- General** Components are contained in a shell: User cannot be in direct contact during normal handling.
In case of accidental initiation when nearby:
- For any injury due to splinters proceed with first- aid treatment and evacuate to hospital.
- Have ears and hearing checked (hearing test) by a specialist.
- First Aid – Eyes:** In the event of substances contained within the article coming in contact with the eye wash with water
- First Aid – Skin:** In the event of substances contained within the article coming in contact with the skin wash with soap and water
- First Aid – Ingestion:** In the event of substances contained within the article, seek medical advice
- First Aid – Inhalation:** Pre-use: Hazardous materials are encapsulated, no exposure during normal handling is therefore expected. Post use: Toxic gases are released. Minimal exposure is expected as quantities of hazardous components used are small, and operator is at a safe distance

4.2. Most Important Symptoms and Effects, Both Acute and Delayed

- Eye contact:** Not applicable
- Skin contact** Not applicable
- Inhalation or ingestion** If affected by fumes, remove to fresh air

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If affected by fumes or feel unwell seek medical attention.

5. FIRE FIGHTING MEASURES

- 5.1 Extinguishing Media:** **Do not fight the fire** if it has reached, or if it will reach, the detonator assemblies.
If fire may be prevented from reaching the explosives, water, carbon dioxide, extinguishing powders or alcohol resistant foams may be used. Don't use water if electrical equipment is involved.
- 5.2 Special Hazards Arising from Product:** Product will detonate in a fire. May produce toxic gasses containing carbon monoxide and oxides of nitrogen.
- 5.3 Advice for Firefighters:** Evacuate to a safe distance.
Wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. Fire-fighters' protective clothing will provide limited protection **DO NOT FIGHT FIRE WHEN IT REACHES MATERIAL**. Withdraw from fire and let it burn. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. First move people out of line of the sight of the scene away from windows.

	MATERIAL SAFETY DATA SHEET	DATE	02/07/2017
	 EXP30 	AUTHORISED	
		PAGE	5 OF 11
		ISSUE Supersedes	2 1

6. ACCIDENTAL RELEASE MEASURES

- 6.1. Personal precautions, protective equipment and emergency procedures:** Evacuate surrounding areas. Prevent access to the area by unauthorised persons. Extinguish any sources of ignition. Protect from any shock or impact.
If detonators have been damaged, particularly if they have been broken open, do not touch, seek specialist advice.
- 6.2. Environmental Precautions:** Prevent the product from entering sewage systems and surface waters.
- 6.3. Methods and material for containment and cleaning up** Undamaged detonators may be carefully picked up and put in packaging similar to the original. Remove any loose grit before packing.
- 6.4. Reference to other sections** Refer to section 13 for disposal

7. HANDLING AND STORAGE

- 7.1. Precautions for Safe Handling:** Take necessary precaution measures when handling the product: don't smoke, drink or eat in work areas. If ingested, seek medical advice immediately and show the container or the label.
Keep away from heat / naked flames. Keep away from sources of ignition. Avoid mechanical shocks. Wear suitable protective clothing.
The control and handling of detonators must be carried out by authorised staff
- 7.2. Conditions for safe storage , including any incompatibilities:** Store in a segregated, approved and labelled area, complying with the legal requirements. Keep container in a cool, well ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Earth all stores containing detonators.
Do not store with hazardous goods of classes other than class 1, nor with incompatible goods of Class 1.
Storage temperatures: from 0°C to + 45°C.
Under these conditions storage lifefor tunnel detonators is up to 12 months.
For all other detonators it is up to 24 months
1.1B detonators should be stored as Hazard Type HT1 and 1.4S detonators as Hazrad Type HT4. However if 1.4S detonators have been removed from some or all of their packaging, they should be treated as Hazard Type HT1
See Section 15 for specific regulations.
- 7.3. Specific end use(s)** Not applicable

	MATERIAL SAFETY DATA SHEET	DATE	02/07/2017
	 EXP30 	AUTHORISED	
		PAGE	6 OF 11
		ISSUE Supersedes	2 1

8. EXPOSURE CONTROL / PERSONAL PROTECTION

- 8.1 Control Parameter:** The hazardous substances are contained within the detonator. There is no exposure during normal handling.
- 8.2 Exposure controls** Not applicable

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Basic physical and chemical properties

- (a) Appearance/ colour: Explosive article, consisting of an aluminium shell containing initiating and secondary explosives, crimped to a length of shock tube. The shock tube is red (for connector detonators) or yellow (other detonators)
- (b) Odour: None
- (c) Odour threshold: Not applicable
- (d) pH: Not applicable
- (e) Melting / Freezing Point: Not applicable. Solid item, will detonate if heated sufficiently
- (f) Initial Boiling point and boiling range: Not applicable
- (g) Flash point: Not applicable, explosive article
- (h) Evaporation Rate: Not applicable.
- (i) Flammability: Not applicable
- (j) Upper / lower flammability or explosive limits: Not applicable
- (k) Vapour pressure,: Not applicable,
- (l) Vapour density: Not applicable
- (m) Relative Density: Not applicable
- (n) Solubility(ies): Casing/tubing not soluble in water. Casing may be dissolved by acids / strong bases
- (o) Partition coefficient (n-octanol / water): Not applicable
- (o) Auto-ignition temperature: Autoignition temperature of PETN is 190°C. Heated detonators may explode at significantly lower temperatures
- (p) Decomposition temperature
- (q) Viscosity: Not applicable, solid
- (r) Explosive properties: Explosives article, detonation possible by open flames, sparks, static discharge or shocks
- (s) Oxidising properties: Not applicable

	MATERIAL SAFETY DATA SHEET	DATE	02/07/2017
	EXP30	AUTHORISED	
		PAGE	7 OF 11
		ISSUE Supersedes	2 1

10. STABILITY AND REACTIVITY

- 10.1 Reactivity:** Explosive article, detonation possible by flames, sparks, static discharge, impact.
- 10.2 Chemical Stability** Stable under normal handling conditions
- 10.3 Possibility of hazardous Reactions** Explodes if initiated
- 10.4 Conditions to avoid** Avoid any exposure to high temperature, to impact, friction and electrostatic discharges or stray currents.
- 10.5 Incompatible materials** Acids and alkalis
- 10.6 Hazardous Decomposition Products:** Carbon oxides (CO, C O₂) nitrogen oxides (NO, NO₂), Lead fume.

11. TOXICOLOGICAL INFORMATION

- 11.1 Information on toxicological effects** **The hazardous substances are contained within the article and there is no exposure under normal circumstances;**
Toxicological information on the contents of the article is as follows.
- (a) acute toxicity PETN: Acute Toxicity 4;
Lead Azide and Lead Oxide: Acute Toxicity 4 May be harmful if swallowed, May be harmful if inhaled
HMX Acute Toxicity 4; May be harmful if swallowed, Acute toxicity 3. Toxic in contact with the skin
- (b) skin corrosion / irritation PETN: Not irritating; Lead Azide: study not technically feasible. Lead Oxide; non-irritant.
- (c) Serious eye damage / irritation PETN no data: Lead Azide: study not technically feasible; Lead Oxide non-irritant
- (d) Respiratory or skin sensitisation PETN not skin sensitising; Lead Azide: study not technically feasible. Lead oxide is not a skin sensitiser
- (e) Germ Cell Mutagenicity Lead Azide and Lead Oxide: Repr 1A May damage fertility or the unborn child
- (f) carcinogenicity
- (g) reproduction toxicity Lead Azide may damage the unborn child suspected damaging to fertility
- (h) STOT – single exposure Lead Azide: No data
- (i) STOT –repeated exposure Lead Azide and Lead Oxide: STOT RE 2. May cause damage to organs through prolonged or repeated exposure
- (j) aspiration hazard Not applicable

	MATERIAL SAFETY DATA SHEET	DATE	02/07/2017
	 EXP30 	AUTHORISED	
		PAGE	8 OF 11
		ISSUE Supersedes	2 1

12. ECOLOGICAL INFORMATION

12.1 Toxicity:	Not Applicable
12.2 Persistence and Degradability:	Not Applicable
12.3 Bioaccumulation potential;	Not Applicable
12.4 Mobility in soil	Not Applicable
12.5 Result of PBT and vPvB Assessment:	Not Applicable
12.6 Other Adverse Effects	Negligible impact of the fumes on the environment following the initiation of the detonator

13. DISPOSAL CONSIDERATIONS

Product and Packaging disposal

13.1 Waste treatment methods:

Waste must be disposed of in accordance with national and local control regulations. Disposal of this product should only be done by trained personnel. The HSE and the CBI EIG have issued "Guidance for the Safe Management of the Disposal of Explosives". Preferred methods of disposal include destruction by detonation for the detonators and burning of the packaging. A thorough examination of the packaging before burning is required to ensure no detonators are present. Detonators must not be disposed of by landfill or via the sewage disposal system

	MATERIAL SAFETY DATA SHEET		DATE	02/07/2017
	EXP30		AUTHORISED	
			PAGE	9 OF 11
			ISSUE	2
		Supersedes	1	

14. TRANSPORT INFORMATION

14.1 UN Number :	UN0360	UN0500
14.2 UN Proper Shipping Name :	DETONATOR ASSEMBLIES, NON ELECTRIC, for blasting	DETONATOR ASSEMBLIES, NON ELECTRIC, for blasting
14.3 Transport Hazard Class:	1.1B	1.4S
14.4 Packing Group :	Not applicable	Not applicable
14.5 Environmental Hazards	Detonator assemblies are not an environmentally hazardous substance and they are not classed as a marine pollutant in the IMDG code.	Detonator assemblies are not an environmentally hazardous substance and they are not classed as a marine pollutant in the IMDG code.
14.6 Special Precautions for User	User must comply with the requirements for the control and traceability of explosives.	User must comply with the requirements for the control and traceability of explosives.
14.7 Transport in bulk, etc.	Not applicable	Not applicable

15. REGULATORY INFORMATION

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

UK Legislation:	Explosive Regulations 2014 (see also guidance to the regulations) Carriage of Dangerous Goods Regs 2009, as amended – implementing ADR Classification (Hazard Information and Packaging for Supply) Regs 2009, as amended. Control of Substances Hazardous to Health regs 2002, as amended Control of Lead at work regulations Control of Major Accident Hazard Regulations 2015
EC Regulations	Registration Evaluation, Authorisation and Restriction of Chemicals Regulations 2006, as amended Classification Labelling and Packaging Regulations 2008, as amended

	MATERIAL SAFETY DATA SHEET	DATE	02/07/2017
	EXP30	AUTHORISED	
		PAGE	10 OF 11
		ISSUE Supersedes	2 1

16. OTHER INFORMATION

MSDS first issued: 17/06/15

(a) Changes

Issue	Issue Date	Changes
1	17/06/15	New Issue
2	02/07/17	Change of logos Added references to 1.4S packaging (section 1.1, section 2.1 and 2.2, section 7.2, section 15 Added to hazard and precautionary statement list in section 16

Changed portions, other than logos, are marked:

(b) Abbreviations and acronyms

Expl. 1.1	explosive material, subclass 1.1
Unst. Expl.	unstable explosive material
Repro.Cat.3	fertility hazard, category 3
Repr.1A	fertility hazard, category 1A
Acute Tox. 4	acute toxicity, cat. 4
STOT RE 2	specific target organ toxicity repeated exposure, cat. 2
Aquatic Acute 1	acute toxicity for aquatic environment, cat 1
Aquatic Chronic 1	chronic toxicity for aquatic environment, cat.1
IMDG	International Maritime Dangerous Goods
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road

(c) References

Guidance L150: Explosive Regulation 2014, Safety provisions
Guidance L151: Explosive Regulation 2014, Security provisions

(d) Evaluation method for mixtures

(e) Relevant Hazard Statements and Precautionary statements

Hazard Statements
H200 Unstable explosive
H201 Mass explosion Hazard
H204 Fire or projection hazard
H360Df May damage fertility or the unborn child
H302 May be harmful if swallowed
H311 Toxic in contact with skin
H332 Harmful if inhaled
H373 May cause damage to organs through prolonged or repeated exposure
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

	MATERIAL SAFETY DATA SHEET	DATE	02/07/2017
	EXP30	AUTHORISED	
		PAGE	11 OF 11
		ISSUE Supersedes	2 1

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

P234 Keep only in original container

P250 Do not subject to shock impact or friction.

P280 Wear protective gloves/protective clothing/eye protection

P234 Keep in original container

P370/P380/P372 Explosion risk in case of fire: evacuate area

P373 DO NOT fight fire when fire reaches explosives.

| P374 Fight fire with normal precautions from a reasonable distance.

P401 Store in accordance with the Explosives regulations 2014

P501 Dispose of contents/container to in accordance with local/ regional/national/international regulations

(f) Advice on training

Training for shotfirers and Explosive Supervisors is available. Please contact the EPC-UK Explosives Engineering Department

**Notice: FOR FURTHER INFORMATION CONTACT
EPC-UK EXPLOSIVES EXPLOSIVE ENGINEERING DEPARTMENT**
