# 1. PRODUCT AND COMPANY IDENTIFICATION

## 1.1 Product Identifier

<table>
<thead>
<tr>
<th>Euronel 2 non-electric detonator assemblies:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euronel 2 connector (1.1B and 1.4S)</td>
</tr>
<tr>
<td>Euronel 2 starter line (1.1B and 1.4S)</td>
</tr>
<tr>
<td>Euronel 2 in-hole detonators (1.1B and 1.4S)</td>
</tr>
<tr>
<td>Euronel 2 Tunnel detonators (1.1B and 1.4S)</td>
</tr>
<tr>
<td>Euronel 2 Duo detonators 1.1B only</td>
</tr>
</tbody>
</table>

## 1.2 Use of the Product:

- **Connector** – A surface initiation system for explosive charges, particularly in open cast, open pit mining, quarry blasting and underground mining applications.
- **Starter line** – A connector detonator with a longer length of shock-tubing to act as a lead-in line.
- **In-Hole** – A down-hole initiation system for explosive charges, particularly in open cast, open pit mining and quarry blasting.
- **Tunnel** – An in-hole initiation system for explosive charges, particularly in development tunnelling in underground mining.
- **Duo** – A combined down-hole and surface initiation system for explosive charges used in open pit/cast mining, quarry blasting and underground applications.

Euronel 2 detonators are not suitable for use in underground mines where there is a risk of methane gas and/or coal dust explosion.

## 1.3 Details of the Supplier of the MSDS:

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPC-UK EXPLOSIVES / MINING EXPLOSIVES LTD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROUGH CLOSE WORKS</td>
</tr>
<tr>
<td>CARNFIELD HILL</td>
</tr>
<tr>
<td>SOUTH NORMANTON</td>
</tr>
<tr>
<td>ALFRETON</td>
</tr>
<tr>
<td>DERBYSHIRE, DE55 2BE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Telephone Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>01773 832253</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact e-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="mailto:info@epc-groupe.co.uk">info@epc-groupe.co.uk</a></td>
</tr>
</tbody>
</table>

## 1.4 Emergency Telephone Number:

| 01773 832253 |
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

<table>
<thead>
<tr>
<th>Class 1.1B</th>
<th>Class 1.4S</th>
</tr>
</thead>
<tbody>
<tr>
<td>H201 Mass explosion Hazard</td>
<td>H204 Fire or projection hazard</td>
</tr>
<tr>
<td>P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.</td>
<td>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</td>
</tr>
<tr>
<td>P250 Do not subject to shock impact or friction.</td>
<td>P250 Do not subject to grinding/shock/friction.</td>
</tr>
<tr>
<td>P280 Wear protective gloves / protective/clothing/eye protection</td>
<td>P234 Keep only in original container</td>
</tr>
<tr>
<td>P370/P380/P372 Explosion risk in case of fire: evacuate area</td>
<td>P370+3372+380 Explosion Risk in case of fire: Evacuate area</td>
</tr>
<tr>
<td>P373 DO NOT fight fire when fire reaches explosives.</td>
<td>P374 Fight fire with normal precautions from a reasonable distance.</td>
</tr>
<tr>
<td>P401 Store in accordance with the Explosives regulations 2014</td>
<td>P401 Store in accordance with local/regional/national regulations</td>
</tr>
<tr>
<td>P501 Dispose of contents/container to in accordance with local/ regional/national/international regulations</td>
<td>No Hazard Symbol</td>
</tr>
</tbody>
</table>

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

For further information contact the Technical Service Dept at
EPC-UK Explosives Venture Crescent Alfreton Derbyshire DE55 7RA
Tel 01773 832253  Fax 01773 837683
### 3. COMPOSITION/INFORMATION ON THE INGREDIENTS

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

For further information contact the Technical Service Dept at
EPC-UK Explosives Venture Crescent Alfreton Derbyshire DE55 7RA
Tel 01773 832253 Fax 01773 837683
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 life for 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 Hazard 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

For further information contact the Technical Service Dept at EPC-UK Explosives Venture Crescent Alfreton Derbyshire DE55 7RA  Tel 01773 832253  Fax 01773 837683
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

(p) **Auto-Ignition temperature** Autoignition temperature of PETN is 190°C. Heated detonators may explode at significantly lower temperatures

(q) **Decomposition temperature**

(r) **Viscosity:** Not applicable, solid

(s) **Explosive properties** Explosives article, detonation possible by open flames, sparks, static discharge or shocks

(t) **Oxidising properties** Not applicable
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;

(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

(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 sensitisier

(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
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**

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.
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


EC Regulations Registration Evaluation, Authorisation and Restriction of Chemicals Regulations 2006, as amended Classification Labelling and Packaging Regulations 2008, as amended
16. OTHER INFORMATION

**MSDS first issued:** 17/06/15

(a) Changes

<table>
<thead>
<tr>
<th>Issue</th>
<th>Issue Date</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>17/06/15</td>
<td>New Issue</td>
</tr>
</tbody>
</table>
| 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
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

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

For further information contact the Technical Service Dept at
EPC-UK Explosives Venture Crescent Alfreton Derbyshire DE55 7RA
Tel 01773 832253 Fax 01773 837683