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Safety data sheet according to the REACH regulations as amended by EC Regulation 2015/0830

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product Identifier	Cartridged Emulsion Explosives: Explus TSR, Exem 55, Exem 100
1.2 Use of the Product:	Explosive mainly used in quarries, mines and public construction work
1.3 Details of the Supplier of the MSDS:	
Name	EPC-UK EXPLOSIVES
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

SECTION 2. HAZARD IDENTIFICATION

2.1 Classification of Mixture

Expl. 1.1 H201: Explosive, mass explosion hazard
Eye Irrit. 2 H319 Causes serious eye irritation.

2.2 Label elements

Pictogram



- Signal word GHS01
Danger


- Hazard Statement Warning H201: Explosive, mass explosion hazard
H319 Causes serious eye irritation.

- Precautionary Statements P210: Keep away from heat/sparks/open flames/hot surfaces. No
smoking
P280: Wear protective gloves/protective clothing/eye protection/face
protection

- Intervention P372: Explosion risk in case of fire



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P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

- storage

P401 Store in a safe and suitable place in accordance with legal requirements.

- disposal

P501 Dispose of contents/container Dispose of the product/container in accordance with local regulations on the disposal of explosive and contaminated waste.

2.3 Other Hazards

During transport, storage and handling: danger of explosion when exposed to extreme heat, an important shock, a high friction and severe electric shock.

Immediate propagation of detonation in the whole mass and possibility of transmission to other neighbor explosives.


Detonation in case of excessive heating during a combustion in heap.

Projection of solids present next to the exploding charge.

SECTION 3. COMPOSITION/INFORMATION ON THE INGREDIENTS

3.2 Mixtures

Name	CAS-Nr.	EC-Nr.	Registration-Nr.	Concentration	CLP Classification	Specific concentration limits
Ammonium nitrate	6484-52-2	229-347-8	01-2119490981-27-	30-70	Eye Irrit. 2 H319 Ox. Liq 3 H272	-
Sodium nitrate	7631-99-4	231-554-3	01-2119488221-41-	5-20	Eye Irrit. 2 H319 Ox. Liq 2 H272	-
Sodium perchlorate	7601-89-0	231-511-9	01-2119540521-50-	<10	Ox.sol.1 H271; Acute tox.4 H302 Eye Irrit. 2 H319 STOT RE 2 H373	-

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SECTION 4. FIRST AID MEASURES

4.1 Description of First Aid Measures



- General** Untrained and uninstructed persons shall not handle this material nor its packaging. Call a doctor/physician if you feel unwell.
- First Aid – Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Perform artificial respiration if breathing has stopped. Get medical attention.
- First Aid – Skin:** Wash the affected areas thoroughly with soap and plenty of water or decontaminate with acetone or 10% of sodium sulfate. If skin irritation persists: Get medical advice/attention.
- First Aid – Eyes:** Rinse thoroughly with water for at least 15 minutes. Remove contact lenses if present and easy to do – continue rinsing. If eye irritation persists, consult an ophthalmologist.
- First Aid – Ingestion:** DO NOT INDUCE VOMITING. If conscious, give some water. Get medical attention if persistence.

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

- Eye contact:** After eye contact, a serious eye irritation is likely to occur
- Skin contact** A skin irritation can occur when there is a prolonged contact with the product if leaked.
- Inhalation** Poisoning by inhalation of fumes produced during combustion or detonation.

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

Treat symptomatically


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SECTION 5. FIRE FIGHTING MEASURES

- 5.1 Extinguishing Media:** Appropriate: Large quantities of water must be used to cool and protect exposed material. A versatile powder can be used in case of aluminum combustion.
Inappropriate: not determined.
- **DO NOT ATTEMPT TO EXTINGUISH THE BURNING EXPLOSIVES! RISK OF EXPLOSION.**
- Try to remain calm and extinguish the fire before it reaches the product. In case of the risk of an explosion, do not attempt to extinguish the fire. Evacuate to a shelter located at least 300m away. Secure the site against unauthorized access.
- 5.2 Special Hazards Arising from Product:** If the product is enveloped in flames, there is an immediate risk of explosion, so evacuate as quickly as possible, to at least 300 meters from the flames, and if possible seek shelter behind a natural or artificial barrier. Product combustion generates toxic fumes and gases, mainly carbon monoxide and nitrous fumes.
- 5.3 Advice for Firefighters:** If the flames do not involve the product directly, extinguish them using the media recommended for the specific type of fire. Move the product away from the fire if possible.
If the fire directly involves the product, evacuate the area immediately to an upwind position to avoid breathing the fumes. There is an explosion risk so in case of fire so DO NOT fight fire when it reaches explosives. Only if possible, fight the fire from a protected position, wearing self-contained breathing apparatus and using large quantities of water.



SECTION 6. ACCIDENTAL RELEASE MEASURES

- 6.1. Personal precautions, protective equipment and emergency procedures:** Eliminate all potential sources of ignition and avoid any action that could cause an impact, friction, sparking or a sudden rise in temperature. Keep away from other flammable materials. Wash hands in case of contact with the product.
- 6.2 Environmental Precautions:** Do not let the product get into the soil and water. Do not dispose of with normal waste
- 6.3. Methods and material for containment and cleaning up** Pick up cartridges using rubber gloves, remove any contamination and put the waste in plastic bags without mixing with other material. After closing bags by adhesive or plastic ligation, place them in cardboard boxes ready for disposal
- 6.4. Reference to other sections** Refer to sections 7, 8 and 13.
-

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SECTION 7. HANDLING AND STORAGE

- 7.1 Precautions for Safe Handling:**
- Handle with care, bearing in mind the potential hazards.
 Earth all electrical equipment present and any conductive item.
 Keep the product well away from heat, direct sunlight and other sources of ignition, including combustible materials. Do not smoke near the product.
 When handling the product, avoid ingesting or inhaling any solid particles that are formed. Do not eat, drink or smoke when handling the product.
 Wear disposable plastic, latex or rubber gloves to prevent contact with the skin.
 Wash your hands thoroughly after handling the product
 Remove contaminated clothes and PPE before entering areas where food and drink are consumed.
- 7.2 Conditions for safe storage, including any incompatibilities:**
- In general storage must be licensed as required by the Explosives regulations
 Do not exceed the authorized amounts for the store.
 Do not store with other dangerous goods
 Only store with other compatible explosives.
 Store in a well-ventilated area where the average temperature does not exceed 35 to 40 °C. Until A TEMPERATURE OF 65°C, the storage is safe; the product can only harden.
 Do not smoke or manipulate fire in the storage area.
 Storage rooms shall comply with the fire-fighting and rescue and controlled access requirements. Store in closed packages in cool dry place. Keep locked. Access allowed only to experts.
- Storage limits for which COMAH applies for Explosives:
 10 tonnes Lower Tier;
 50 tonnes Upper Tier
- 7.3 Specific end use(s)**
- The product is supplied for use, testing and analysis by qualified personnel who have been fully trained to handle explosives.
 Do not use beyond the shelf life. Do not cut cartridges.

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SECTION 8. EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 Control Parameter:	None
8.2 Exposure controls	
Appropriate engineering controls	Provide appropriate exhaust ventilation at places where dust is formed.
Personal protective equipment	
Hand protection	Wear plastic, rubber or latex gloves. Disposable gloves are recommended to minimize cross-contamination with the explosive.
Eye protection	It is strongly recommended to use protection glasses to avoid potential projections in the eyes in case of the cartridge rupture
Body protection	The entire skin must be covered by suitable clothing. Work clothes must be antistatic, made of cotton for instance, and flame retardant.
Respiratory protection:	Not required during normal handling.
Industrial hygiene:	Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid contact with eyes, skin and clothing. Wash contaminated clothes before reuse.
Other:	Use appropriate anti-static footwear
Environmental exposure controls	Not available


SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Basic physical and chemical properties

(a) Appearance/ colour:	White/gray plastic emulsion. Immediate colour will be the colour of the plastic film of the cartridge
(b) Odour:	No odour
(c) Odour threshold	Not determined
(d) pH:	Not applicable
(e) Melting point / Freezing Point	Not applicable
(f) Initial Boiling point and boiling range	Not applicable
(g) Flash point:	Not applicable
(h) Evaporation Rate:	Not available
(i) Flammability:	Not available
(j) Upper / lower flammability or explosive limits	Not available
(k) Vapour pressure:	Not available
(l) Vapour density	Not available
(m) Relative Density	1.13-1.35

9.1 Basic physical and chemical properties (cont)



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(n) Solubility(ies)	Water: insoluble Other: not available
(o) Partition coefficient (n-octanol / water):	Not available
(p) Auto-ignition temperature	Not available
(q) Decomposition temperature	Not available
(r) Viscosity:	>3,000,000 cP
(s) Explosive properties	Impact sensitivity: no reaction at 50 J (Dried Explosive: reaction at 28.6 J) Sensitivity to friction: no reaction to 353 N (Dried Explosive: no response to 353 N)
(t) Oxidising properties	Not available
9.2 Other information	Not available

SECTION 10. STABILITY AND REACTIVITY


10.1 Reactivity:	Sensitivity to shock and friction is increased in the presence of hard material (dust, sand ...) Explosion risk in case of strong shock, or violent friction on the material to the confined state. Danger of explosion due to a sudden increase in temperature (fire). Risk of an instant transmission of the explosion to all of the explosive mass. Sensitivity of the dried product is higher than the original product's sensitivity.
10.2 Chemical Stability	Stable under the recommended storage and use conditions and at moderately elevated temperatures and pressures. The recommended shelf life is one year. Beyond one year, the product is not more dangerous, but its reliability is no longer guaranteed. Field climate recommended: -10°C to + 60°C.
10.3 Possibility of hazardous Reactions	When the product is exposed to heat, there is a risk for explosion at temperatures well below the auto-ignition temperature.
10.4 Conditions to avoid	Keep away from heat, sparks, naked flames and hot surfaces. Do not smoke. Avoid impact, shock and friction.
10.5 Incompatible materials	Avoid contact with alkalis, amines, strong acids, alkali metals, copper, and zinc. Do not store with products of the class 1.1B
10.6 Hazardous Decomposition Products:	The fumes from combustion or explosion contain CO _x and NO _x

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological



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effects

(a) acute toxicity	Ammonium Nitrate LD50 (oral, rat) = 2950 mg/Kg LD50 (skin, rat) > 5.000 mg/Kg Sodium nitrate LD50 (oral, rat) = 3430 mg/Kg LD50 (Skin, rat) > 5000 mg/Kg
(b) skin corrosion / irritation	A skin irritation can occur
(c) Serious eye damage / irritation	Ammonium nitrate is irritating to rabbit eyes. The product can induce a severe eye irritation.
(d) Respiratory or skin sensitisation	Inhalation and continuous skin contact may lead to sensitization.
(e) Germ Cell Mutagenicity	Not available
(f) carcinogenicity	Not available
(g) reproduction toxicity	Not available
(h) STOT – single exposure	Not available
(i) STOT –repeated exposure	Not available
(j) aspiration hazard	Not available

11.2. Other information

Respiratory irritation	The explosive irritates the airways and can cause sneezing and coughing. Large quantities can cause headache, lack of appetite, malaise, vomiting, dizziness, fluctuations in blood pressure and fainting.
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SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity:	<u>Aquatic toxicity of Sodium nitrate</u>	
	<i>Fish</i>	LC50 48h 447 mg/L
	<i>Daphnia</i>	CE50 48h 447 mg/L
	<i>Algae</i>	CE50 10j 1.700 mg/L
	<u>Aquatic toxicity of Ammonium nitrate</u>	
	<i>Oncorhynchus</i>	LC50 96h 7950 mg/L
	<i>Tschawytscha</i>	
	<i>Daphnia</i>	CE50 24h 8609 mg/L
	<i>Microorganism</i>	CE10 3h 180 mg/L
12.2 Persistence and Degradability:	Not available.	
12.3 Bioaccumulation potential;	Not available	

SECTION 12. ECOLOGICAL INFORMATION (CONT)

12.4 Mobility in soil	Not available
12.5 Result of PBT and	Ammonium nitrate and sodium nitrate: not concerned by PBT nor vPvB



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vPvB Assessment:

12.6 Other Adverse Effects Not available

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

Product and Container disposal	The use of the emulsion does not produce any waste other than the cardboard boxes and the polyethylene bags that must be destroyed according to the appropriate regulations. Do not put waste in general waste or landfill; destroy in licensed facilities. Contaminated packaging with traces of explosives must be carefully reviewed to ensure they are empty and put flat. They can be burned on the place of use, if the property is authorised. See the CBI/EIG "Guidance for the Safe Management and Disposal of Explosives"
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SECTION 14. TRANSPORT INFORMATION

- | | |
|---|--|
| 14.1 UN Number : | UN 0241 |
| 14.2 UN Proper Shipping Name : | EXPLOSIVE, BLASTING, TYPE E |
| 14.3 Transport Hazard Classes: | 1.1D |
| 14.4 Packing Group : | Not assigned |
| 14.5 Environmental Hazards | - |
| 14.6 Special Precautions for User | As an explosive, the product is a high consequence dangerous good and adequate transport precautions must be taken for its security. Transport by air is forbidden under ICOA/IATA codes |
| 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not available |

Label




SECTION 15. REGULATORY INFORMATION

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

UK Legislation: Carriage of Dangerous Goods Regulations 2009, as amended – implementing ADR



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Control of Substances Hazardous to Health regs 2002, as amended
Explosives Regulations 2014
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

15.2 Chemical Safety Assessment

Not available

SECTION 16. OTHER INFORMATION

MSDS first issued: 03/96

(a) Changes

Issue	Issue Date	Changes
10	26/02/2017	Completely updated. Includes Exem 55 and 100 as well as Explus TSR
11	22/03/2018	pH: changed to non-applicable

(a) Abbreviations and acronyms

ADN/ADNR: Regulations concerning the transport of dangerous substances in barges on inland waterways.

ADR/RID: European Agreement concerns the International Carriage of Dangerous Goods by Road/ Regulations concerning the international carriage of dangerous goods by rail.

ANSI: American National Standards Institute

CAS No.: Chemical Abstract Service Number

CFR: Code of Federal Regulations

CLP: Classification, Labelling and Packaging

EC No.: European Commission Number

IATA: International Air Transport Associations

IMDG: International Maritime Dangerous Goods code

NFPA: National Fire Protection Association

PBT: Persistent, Bioaccumulative, Toxic

RCRA: The Resource Conservation and Recovery Act

UN No.: United Nations Number

UVCB: Substances of Unknown or Variable composition, Complex reaction products or Biological materials

vPvB: very Persistent and very Bioaccumulative

WHMIS: Workplace Hazardous Materials Information System

(b) References

"Guidance for the Safe Management and Disposal of Explosives, HSE/CBI-EIG, 2007

(c) Evaluation method for mixtures

Nota applicable

(d) Relevant hazard Statements and Precautionary statements


Meanings of Hazard Phrases

H271 May cause fire or explosion; strong oxidizer

H272 May intensify fire; oxidizer



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H302 Harmful if swallowed

H373 May cause damage to organs through prolonged or repeated exposure

- (e) Advice on training
Unavailable

Notice:

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



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