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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**

<b>1.1 Product Identifier</b>	Dunarit D5 and D6 Boosters
<b>1.2 Use of the Product:</b>	Boosters for firing explosives These Boosters are designed for picking up and amplifying the initiating impulse and subsequent initiation of high-order detonation in low sensitivity commercial explosives (powders, suspensions, emulsions) used in the mining industry – in open quarries and underwater, where no risk of explosion from ignition of gas or dust exists
<b>1.3 Details of the Supplier of the MSDS:</b>	
<b>Name</b>	EPC-UK EXPLOSIVES
<b>Address:</b>	ROUGH CLOSE WORKS CARNFIELD HILL SOUTH NORMANTON ALFRETON, DERBYSHIRE, DE55 2BE
<b>Telephone Number:</b>	01773 832253
<b>Contact e-mail</b>	info@epc-groupe.co.uk
<b>1.4 Emergency Telephone Number:</b>	01773 832253

**SECTION 2. HAZARD IDENTIFICATION**

**2.1 Classification of Mixture**

H201: Explosive, mass explosion hazard  
H301: Toxic if swallowed  
H315: Causes skin irritation

**2.2 Label elements**

**Pictogram**




- Signal word
- Warning

GHS01  
Danger  
H201: Explosive, mass explosion hazard  
H301: Toxic is swallowed



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

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H315: Causes skin irritation

- Prevention

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

P250: Do not subject to grinding/shock/.../friction

P280: Wear protective gloves/protective clothing/eye protection/face protection

- Measures

P370+P380: In case of fire, evacuate the area. Due to explosion hazard, fight fire from a reasonable distance

P372: Explosion risk in case of fire

P373: DO NOT fight fire when fire reaches explosives

**2.3 Other Hazards**

Not applicable

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**SECTION 3. COMPOSITION/INFORMATION ON THE INGREDIENTS**

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**3.2 Mixtures**

The cast booster D5 and D6 is a plastic cylindrical shell containing an explosive mixture. The shell has a central longitudinal tunnel. The top of the booster is tightly closed with a plastic cover with a central hole. On the bottom, around the central hole, the booster has one (D5) or two (D6) detonator wells intended for the initiating device. The explosive of the cast booster consists of TNT, RDX, PETN and aluminium powder (Al). The explosive is in 2 parts, the main body and a sensitizing pellet around the bottom of the detonator pocket(s).

Name	Composition (%)	CAS No	EINECS	Classification
Main charge				
Trinitrotoluene (TNT)	32±5	118-96-7	204-289-6	Expl. 1.1: H201 Acute Tox. 3 H301, H311, H331 STOT RE 2 H373 Aquatic Chronic 2 H411
Hexogen ( RDX )	57±5	121-82-4	204-500-1	Expl. 1.1: H201 Acute Tox. 3 H301, STOT SE 1 H370 STOT RE 2 H373
Aluminium powder	11±5	7429-90-5	231-072-3	Flam. Sol. 1 H228 Water-react. 2 H261
Pentritol Np 10T:				
PETN	88.5-91.0	78-11-5	201-084-3	Unst. Expl. H200
Trinitrotoluene (TNT)	9.0-11.5	118-96-7	204-289-6	Expl. 1.1: H201 Acute Tox. 3 H301, H311, H331 STOT RE 2 H373 Aquatic Chronic 2 H411

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## SECTION 4. FIRST AID MEASURES

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### 4.1 Description of First Aid Measures

- General** Untrained and uninstructed persons shall not handle this material nor its packaging
- First Aid – Inhalation:** If necessary, perform artificial respiration. Call the doctor immediately.
- First Aid – Skin:** Immediately remove contaminated clothing, wash with soap and water and rinse immensely. Get medical attention of necessary
- First Aid – Eyes:** Flush thoroughly eyes for several minutes with running water while keeping your eyelids open, then consult the doctor.
- First Aid – Ingestion:** Rinse your mouth out thoroughly. Consult a doctor. Seizure is possible in case of exposure to the explosive mixture, loss of consciousness, weakness, dizziness, irritability, insomnia.

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

- Eye contact:** Irritation of the eye
- Skin contact** Irritant and allergic contact dermatitis, yellowish colouring of skin.
- Inhalation** Symptoms: eye and skin irritation, headache, annoyance, tiredness, dizziness, vomiting, disturbed sleep.
- ingestion** Results in fainting, status epilepticus, nausea, vomiting.

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


Treat symptomatically

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## SECTION 5. FIRE FIGHTING MEASURES

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- 5.1 Extinguishing Media:** Water, carbon dioxide  
- **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:** The explosive can explode upon impact (sensitive to impact, not less than 15J), friction (friction sensitivity, above 360N), fire or other ignition sources.

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## SECTION 5. FIRE FIGHTING MEASURES (cont)

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- 5.3 Advice for Firefighters:** Do not attempt to fight a fire which is near to or has reached the explosives. Evacuate to a safe distance.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

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- 6.1. Personal precautions, protective equipment and emergency procedures:** Secure the area. Wear suitable personal protection equipment. Unprotected persons are not allowed to access the area.
- 6.2 Environmental Precautions:** Prevent substance from soaking into soil, water, drains, underground waters
- 6.3. Methods and material for containment and cleaning up** Collect with non-sparking tools and fill into properly labelled containers and transfer for disposal by specialized teams
- 6.4. Reference to other sections** See section 8 for 8hr TWA for TNT, and section 13 about disposal of waste

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## SECTION 7. HANDLING AND STORAGE

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- 7.1 Precautions for Safe Handling:** Only personnel with appropriate professional expertise and qualification are allowed to handle this product. The packed boosters shall be stored in rooms intended for the purpose. Keep away from sources of heat, impact, friction. The quantity of boosters under temporary storage shall not exceed the quantity required for one shift at the site.
- 7.2 Conditions for safe storage, including any incompatibilities:** 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. In general storage must be licensed as required by the Explosives regulations  
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.

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## SECTION 8. EXPOSURE CONTROL / PERSONAL PROTECTION

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**8.1 Control Parameter:** EH40  
Trinitrotoluene 8 hr TWA: 0.5 mg/m<sup>3</sup>

### 8.2 Exposure controls

Hand protection	Impermeable gloves covered with fabric.
Eye protection	Not required for normal handling.
Body protection	Cotton workwear
Industrial hygiene:	Do not eat, drink, smoke when working. Remove all strongly contaminated or soaked clothing. Always wash hands before breaks and at end of work. Avoid substance contact with skin and eyes.


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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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### 9.1 Basic physical and chemical properties

- |  |   |
|--|---|
| (a) Appearance/ colour:                            | External appearance is that of the orange plastic shell. The main charge inside the shell is a cast solid |
| (b) Odour:   | Not available   |
| (c) Odour threshold                                | Not available   |
| (d) pH:  | Not applicable  |
| (e) Melting point / Freezing Point                 | Not available   |
| (f) Initial Boiling point and boiling range        | Not available   |
| (g) Flash point:                                   | Not available   |
| (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                               | At least 1.6 g/ml   |
| (n) Solubility(ies)                                | Not available   |
| (o) Partition coefficient (n-octanol / water):     | Not available   |
| (o) Auto-ignition temperature                      | Not available   |
| (p) Decomposition temperature                      | Not available   |
| (q) Viscosity:                                     | Not available   |

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### 9.1 Basic physical and chemical properties (cont)

- (r) Explosive properties      Velocity of detonation: at least 7,000 m/s  
Sensitivity to impact: Not less than 15 J  
Sensitivity to Friction: 360 Newtons
- (s) Oxidising properties      Not applicable

### 9.2 Other information

#### Information on ingredients


Feature	TRINITROTOLUENE	HEXOGEN	ALLUMINIUM POWDER	Pentritol Np 10T
Colour	Light yellow to yellow	White	Grey Metallic	Pink to red
Odour	Odourless			
Melting point, C°	80,8	206-207	660	
Flammability	Extremely flammable, develops into detonation	We do not have data		
Burning temperature, C°	250	240	We do not have data	
Flame characteristics	Thin layers burn with flame; in thicker layers – explodes	We do not have data		
Decomposition temperature, C°	300	215-229	We do not have data	
Solubility in water, %	Practically insoluble	0,03	In 20° C (reaction)	We do not have data
Solubility in acetone at 200C,g/dm3	We do not have data	6,81	We do not have data	
Heat of formation, kJ/mol	We do not have data	37,7	We do not have data	

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## SECTION 10. STABILITY AND REACTIVITY

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- 10.1 Reactivity:**                      Explosive. May detonate if subjected to fire or excessive impact or friction.
- 10.2 Chemical Stability**              The product is chemically stable under normal conditions
- 10.3 Possibility of hazardous Reactions**      May explode if treated incorrectly
- 10.4 Conditions to avoid**              Protect from impact, friction and heat.

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**10.5 Incompatible materials**    Organic amines, acids, bases.

**10.6 Hazardous Decomposition Products:**    Nitrogen oxides, carbon oxides

## **SECTION 11. TOXICOLOGICAL INFORMATION**

### **11.1 Information on toxicological effects**

- |                                       |                        |
|---------------------------------------|------------------------|
| (a) acute toxicity                    | Toxic if swallowed     |
| (b) skin corrosion / irritation       | Causes skin irritation |
| (c) Serious eye damage / irritation   | Causes eye irritation  |
| (d) Respiratory or skin sensitisation | Data not available     |
| (e) Germ Cell Mutagenicity            | Data not available     |
| (f) carcinogenicity                   | Data not available     |
| (g) reproduction toxicity             | Data not available     |
| (h) STOT – single exposure            | Data not available     |
| (i) STOT –repeated exposure           | Data not available     |
| (j) aspiration hazard                 | Not applicable         |

## **SECTION 12. ECOLOGICAL INFORMATION**

**12.1 Toxicity:**    Data not available


**12.2 Persistence and Degradability:**    The product is practically insoluble in water. The product may entail environmental hazard, if decomposed or in case of explosion.

**12.3 Bioaccumulation potential;**    Data not available

**12.4 Mobility in soil**    Data not available

**12.5 Result of PBT and vPvB Assessment:**    Data not available

**12.6 Other Adverse Effects**    Data not available

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### SECTION 13. DISPOSAL CONSIDERATIONS

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#### 13.1 Waste treatment

##### methods:

Product and Container disposal

Waste and used empty containers shall be disposed in accordance with the national and local Safety Regulation for handling explosives. See the CBI/EIG "Guidance for the Safe Management and Disposal of Explosives"

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### SECTION 14. TRANSPORT INFORMATION

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- 14.1 UN Number :** UN 0042
- 14.2 UN Proper Shipping Name :** BOOSTERS without detonator
- 14.3 Transport Hazard Classes:** 1.1D
- 14.4 Packing Group :** Not assigned but explosives usually treated as PGII
- 14.5 Environmental Hazards** Not classed as environmentally hazardous
- 14.6 Special Precautions for User** As an explosive, the product is a high consequence dangerous good and adequate transport precaution must be taken for its security
- 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable

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### SECTION 15. REGULATORY INFORMATION


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#### 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  
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





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**15.2 Chemical Safety Assessment**

Not available

**SECTION 16. OTHER INFORMATION**

**MSDS first issued:**

(a) Changes

Issue	Issue Date	Changes
1	02/01/2017	New issue, based on the manufacturer's MSDS

(b) Abbreviations and acronyms

(c) References

EH40/2005 Workplace Exposure limits. HSE publication.

(d) Evaluation method for mixtures

(e) Relevant hazard Statements and Precautionary statements

**Meanings of Hazard Phrases**

H200 Unst. Expl.

H201 Explosive; mass explosive hazard

H228 Flam. Sol. 1

H261 Water-react. 2

H301 Toxic, if swallowed

H311 Toxic in contact with skin

H315 Causes skin irritation

H331 Toxic, if inhaled

H370 STOT SE 1

H373 STOT RE 2

H411 Aquatic Chronic 2

**Meanings of Precautionary Phrases**

P401: Store in locked premises.

P501: Dispose of content / containers to disposal plant in accordance with the relevant regulations

(f) Advice on training

Handling of this product should only be allowed by qualified persons.

**Notice:**

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



For further information contact the Technical Service Dept at  
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