

# Pentaerythritol Tetranitrate

## Section 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Product name: Penthrite/PETN/Pentaerythritol Tetranitrate  
CAS Number: 78-11-5  
EC Number: 201-084-3

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

Identified use: Raw material for the manufacture of other explosives and/or pyrotechnic devices

### 1.3 Details of the supplier of the safety data sheet

Company name: East Harbour Group Ltd  
20 Clough Road, Severalls Industrial Park  
Colchester, Essex, CO4 9QS  
United Kingdom

Telephone: +44 (0) 333 242 0100  
Email: [info@eastharbourgroup.com](mailto:info@eastharbourgroup.com)

### 1.4 Emergency telephone number

Emergency telephone: 0800 246 1274

## Section 2: Hazardous identification

### 2.1 Classification of the substance or mixture

#### Classification according to SGA - 5<sup>o</sup> Edition

Physical hazards

Explosives – Division 1.1 – Danger

#### Human and environmental – specific hazards:

Substances and goods that present a risk of mass explosion

### 2.2 Label elements

Labelled according to UE norms:



Warning:

Hazard

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Danger indications:	H201 Explosive; mass explosion hazard
Caution advice:	
P210	Keep away from heat, hot surfaces, sparks, open flames and other sources of ignition. Do not smoke
P230	Keep humidified with greater than 25% humidity.
P234	Keep only in the original packaging.
P240	Container and receiving equipment earthing and equipotential link
P250	Avoid abrasion/shock/friction/...
P280	Use gloves/protective clothing/eye and face protection

## 2.3 Other hazards

Non-applicable

## Section 3: Composition/information on ingredients

### 3.1 Substances

Chemical name:	Pentaerythritol Tetranitrate
Synonyms:	PENTRA, Penthrite, PETN
Chemical formula:	$C_5H_8N_4O_{12}$
Molecular weight:	316.1 g/mol
CAS number:	78-11-5
Concentration:	>95%

### 3.2. Mixtures

Non-applicable

## Section 4: First aid measures

### 4.1 Description of first aid measures

#### Inhalation:

Take the person to open air and keep them at rest in a comfortable position for breathing. If impaired breathing use artificial breathing. Seek medical advice immediately.

#### Skin contact:

Wash with plenty of water and soap for at least 15 minutes. Take off contaminated clothes and footwear. Seek medical advice.

#### Eye contact:

Wash with plenty of water for 15 minutes, maintaining the eyelids open. Seek medical advice.

#### Ingestion:

Wash mouth with water. Never offer anything to eat to an unconscious person or if the person has seizures. If the person is conscious, do not induce vomiting. Seek medical care immediately.

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

The substance can affect the cardiovascular system and lower blood pressure. May produce vertigo, headache.

### 4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## Section 5: Fire-fighting measures

### 5.1 Fire Fighting Media and Instructions:

Suitable extinguishing media: do not extinguish fires. Evacuate personnel immediately. Let the fire extinguish by itself.

### 5.2 Special hazards arising from the substance or mixture

Can explode when exposed to intense heating, fire or shock and/or severe friction (or electrostatic discharge when in dry condition). Do not breathe toxic gases from combustion.

### 5.3 Advice for firefighters

Special protective equipment: Do not extinguish fires. Use positive pressure self-contained breathing equipment. Firefighter equipment will provide only limited protection.

### Additional information:

Tire or vehicle fire: use plenty of water and flood the fire. If there is no water available, use CO<sub>2</sub>, dry chemical powder or mud. If the fire is on the charge, do not extinguish it. Evacuate immediately.

## Section 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Evacuate the area and isolate at least 500 meters. Use breathing apparatus in the event of exposure to dusts/fumes/aerosols. Ventilate closed spaces before entering. Avoid all sources of heat, flames, electrostatic discharge. Do not smoke. Avoid all kinds of shock and friction.

### 6.2 Environmental precautions

Do not spill in culverts, gutters or drainages.

### 6.3 Methods and material for containment and cleaning up

Pick up and place spilled material in suitable cardboard or plastic containers for immediate disposal. Do not smoke or initiate fire near the spill area. All the equipment used during the handling of the product must be electrically grounded. Use adequate personal protection equipment.

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## Section 7: Handling and storage

### 7.1 Precautions for safe handling

Technical measures: Use proper protective equipment.

Precautions: Protect containers from physical damage.

Recommendations on safe handling: Avoid contact with incompatible materials.

Take steps to prevent a build-up of electrostatic discharge. Keep away from flames, hot surfaces and sources of ignition. It is prohibited to eat, drink or smoke in the work areas.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Requirements regarding warehouses and containers:

Store in closed original containers until use, at room temperature and in a dry and well-ventilated place. Keep away from heat, open flames and ignition sources.

#### Information about storage in a single warehouse:

Technical measures: the substance should be kept wet. Fire-proof. Store away from incompatible materials and substances.

**Storage conditions:** Do not expose to sunlight.

**Incompatible products:** Strong alkali or acids.

**Packaging materials:** Cardboard boxes and polyethylene bags.

**Recommended storage temperature:** No data available

## Section 8: Exposure controls/personal protection

### 8.1 Control parameters

No national control limit values are available. Exposition should be evaluated according to applicable local rules.

### 8.2 Exposure controls

Reduce the number of individuals at the work area to the minimum. Authorised personnel only.

### 8.3 Personal protective equipment

#### Protective and hygiene measures

Reduce the number of individuals at the risk area to the minimum.

#### Breathing protection

Not required under normal conditions

#### Protection for hands

Not required, except to avoid injuries by abrasion and to reduce contact with the skin.

#### Material of gloves

Neoprene, natural rubber.

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**Eye protection**

Use security glasses

**Protection for the body**

Use appropriate clothing

## Section 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance	Crystal White
Physical State	Solid
Odor	Odourless
Melting Point/Range	140°C
Flash Point	198°C
Ignition temperature	Not available
Decomposition temperature	190°C
Deflagration point	202°C
Auto flammability	Not available
Danger of explosion	Yes
Density	0.85 – 1.00 g/cm <sup>3</sup>
Density at 20°C	Not available
Solubility in water at 20°C	Insoluble

## Section 10: Stability and Reactivity

10.1 Reactivity	Avoid contact with oxidizing agents and strong acid
10.2 Chemical Stability	Stable under normal conditions
10.3 Possibility of hazardous reactions	Hazardous polymerization will not occur
10.4 Conditions to avoid	Sandy impurities (highly increase sensitivity to detonation). Avoid fire, shock, friction or electrical discharge
10.5 Incompatible materials	Strong alkali or acids
10.6 Hazardous decomposition products	Gaseous nitrogen oxides and carbon oxides in case of fire

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## Section 11: Toxicological Information

### Product Information

#### Acute Toxicity

No data available

#### Primary irritating effects:

On the skin: non-irritating

On the eyes: non-irritating

#### Sensitisation

No data available

#### Additional toxicological information

Non applicable

#### Information about possible routes of exposure

The substance can be absorbed by inhalation and ingestion

#### Symptoms related to the physical, chemical and toxicological characteristics

The substance can affect the cardiovascular system and lower blood pressure. May produce vertigo, headache

## Section 12: Ecological Information

### 12.1 Toxicity

Aquatic toxicity:

Toxicity for other daphnias: CE50(Daphnia magna) 48hs: 49mg/L.

### 12.2 Persistence and degradability

Not available

### 12.3 Bio accumulative potential

Not available

### 12.4 Mobility in soil

Not available

### 12.5 Results of PBT and vPvB assessment

Not available

### 12.6 Other adverse effects

Not available

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## Section 13: Disposal considerations

### 13.1 Waste treatment methods

#### Recommendation

Dispose material according to local or state regulations, under the direct supervision of qualified personnel. This product can be hazardous under certain conditions, and it must be picked, tagged and disposed immediately.

#### Packaging without cleaning:

Recommendations: Incineration

## Section 14: Transport Information

- 14.1 UN Number**  
ADR, IMDG, IATA 0150
- 14.2 UN Shipping name**  
ADR PENTAERYTHRITOL TETRANITRATE, HUMIDIFIED  
MERCOSUR PENTAERYTHRITOL TETRANITRATE, HUMIDIFIED  
IMDG PENTAERYTHRITOL TETRANITRATE, HUMIDIFIED  
IATA PENTAERYTHRITOL TETRANITRATE, HUMIDIFIED
- 14.3 Transport hazard class**  
ADR:  
Class: 1.1 D  
Tunnel restriction code 1 (B1000C)  
IMDG  
Class: 1.1 D  
IATA  
Class: 1.1 D  
Observations Prohibited
- 14.4 Packing Group**  
Label
- 
- 14.5 Risk Label**  
ADR, IMDG Non-applicable

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<b>14.6</b>	<b>Environmental Risk</b>	
	Sea contaminant	No
<b>14.7</b>	<b>Special precautions for use</b>	
	Warning	Do not transport with incompatible materials. Do not use flammable materials for stowage of packages. Do not transport with live animals.
	Danger code (Kemler)	Non-applicable
	EMS number	F-B, S-Y
<b>14.8</b>	<b>Code of bulk transport</b>	Not listed
	<b>According to ANNEX II of MARPOL73/78 and IBC</b>	

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

### Section 15: Regulatory Information

#### 15.1 Regulations/safety, hygiene and environment legislation for the substance or mixture

##### National Regulation:

Act 19587 Regulatory decree 351/79 and Decree 295/2003  
Act 20429 and decree 302/83

##### 15.2 Chemical security assessment:

No chemical safety assessment has been carried out

### Section 16: Other Information

#### References and acronyms

**IMDG Code:** International Maritime Code for dangerous goods transportation

**IATA-DGR:** Association of International Air Transport – Regulations on Dangerous Goods

**MERCOSUR:** Southern Common Market – Agreement on Transport of Dangerous Goods

**ADR:** European Agreement concerning the international transport of Dangerous Goods by road.

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