



According to regulation US (C29 CFR 1900.1200) and Canadian (WHMIS 2015)

SDS: SDS-ASD-007

Date of issue: 12.09.2019

Version: 2

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**Bn SECTION 1: IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND THE COMPANY****1.1. Product identifier**

Product name : Electronic detonator  
Synonyms : E\*STAR series  
SDS :

**1.2. Relevant identified uses of the substance or mixture and uses advised against****1.2.1. Relevant identified uses**

Main use category : As a commercial explosive.

Intended users : For use only under strictly controlled conditions and only by qualified personnel who are fully trained in the handling and use of this product.

**1.2.2. Uses advised against**

No additional information available

**1.3. Details of the supplier of the safety data sheet****Supplier**

AUSTIN STAR DETONATOR Co.

901 Cantu Rd.

Brownsville, TX 78521

956-831-7751 during normal business hours

877-836-8286 Toll Free 24/7

[www.austinpowder.com](http://www.austinpowder.com)

**1.4. Emergency telephone number**

Country	Organisation/Company	Address	Emergency number	Comment
United States of America	CHEMTREC	Not available	TOLL FREE 24/7: (800) 424-9300 Domestic 1-703-527-3887 International and Marine	<a href="http://www.chemtrec.com">www.chemtrec.com</a>





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## SECTION 2: HAZARDS IDENTIFICATION

**Note:** All the hazardous materials in these products are completely sealed within the metal detonator capsule

## 2.1. Classification of the substance or mixture – Hazard Statements (GFHS-US)

## Physical Hazards:

H204 – Explosives, Division 1.4

## Health Hazards:

Not available

## Adverse physicochemical, human health and environmental effects:

No additional information available

## 2.2. Label elements

Signal Word: Fire or projection hazard

Hazard pictograms (GHS-US)

:



GHS01

Signal word:

Hazardous ingredients

Precautionary statements (CLP)

: Fire or projection hazard.

: Lead azide, Pentaerythritol tetranitrate (P.E.T.N).

: H201 – Explosive; mass explosion hazard.

H204 – Hazard class: Fire or projection hazard

H302 – Harmful or projection hazard.

H351 – Suspected of causing cancer.

H360Df – May damage the unborn child. Suspected of damaging fertility.

H362 – May cause harm to breast-fed children

H372 – Cause damage to organs through prolonged or repeated exposure.

P201 – Obtain special instructions before to use.

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

P250 – Do not subject to grinding, friction, impact, or shock.

P270 – Do not eat, drink, or smoke when using this product.

P280 – Wear eye protection.

P308+P313 – IF exposed or concerned: Get medical advice/attention.

P370+P372+P373+P380 – In case of fire: Extreme risk of explosion. Evacuate area. **DO NOT** fight fire when fire reaches explosives.

P401+P403+P405 – Store locked-up in a ventilated space, in accordance with all applicable regulations.

P501 – Dispose of contents/container in accordance with all applicable regulations.

## 2.3. Other hazards

Other hazards not contributing to the classification

Unknown Acute Toxicity (GHS-US)

: None expected

: Not available

## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

## 3.1. Substances

Not applicable



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## 3.2. Mixtures

Comments

: The hazardous substances in Table 1 are sealed inside the metal detonator capsule. The values in column 3 are shown as a percent of the total detonator capsule weight and do not include the wire leading to the detonator capsule.

Name	Product identifier	% (w/w)
Zinc	(CAS-No.) 7440-66-6	0-60%
Copper	(CAS-No.) 7440-50-8	0-60%
Pentaerythritol tetranitrate (PETN)	(CAS-No.) 121-82-4	0-21%
Lead Azide	(CAS-No.) 13424-46-9	0-2%

Comments

: The hazardous substances in Table 2 are sealed inside the electric fusehead. The values in column 3 are shown as a percent of the total weight of electric fusehead.

Table 2

Name	Product identifier	% (w/w)
Zirconium powder (pyrophoric)	(CAS No.) 7440-67-7	0-32%
Nitrocellulose	(CAS No.) 9004-70-0	0-7%
Aluminum powder (pyrophoric)	(CAS No.) 7429-90-5	0-5%
Potassium perchlorate	(CAS No.) 7778-74-7	0-24%

Comments

: The hazardous substances in Table3 are sealed inside the wire. The values in column 3 are shown as a percent of the total weight of wire. The wire length may vary depending on the specific product.

Table 3

Name	Product identifier	% (w/w)
Copper	(CAS-No.) 7440-50-8	0 – 70%
PE (Polyethylene)	(CAS No.) 9002-88-4	0 – 40%
Iron	(CAS No.) 7439-89-6	0 – 50%
Copper	(CAS No.) 7440-50-8	0 – 50%
Manganese	(CAS No.) 7439-96-5	0 – 1%
Carbon	(CAS No.) 7440-44-0	0 – 1%
Silicon	(CAS No.) 7740-21-3	0 – 1%
Nickel	(CAS No.) 7440-02-0	0 – 1%
Chromium	(CAS No.) 7440-47-3	0 – 1%
Lead	(CAS No.) 7439-02-01	0 – 1%
Aluminum	(CAS No.) 25038-54-4	0 – 20%
Nylon	(CAS No.) 25038-54-4	0 – 40%



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## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, get medical attention, show the label where possible.
First-aid measures after inhalation	: Not an expected route of exposure.
First-aid measures after skin contact	: Not an expected route of exposure.
First-aid measures after eye contact	: Not an expected route of exposure.
First-aid measures after ingestion	: Not an expected route of exposure.

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

Symptoms/effects after inhalation	: Not an expected route of exposure.
Symptoms/effects after skin contact	: Not an expected route of exposure.
Symptoms/effects after eye contact	: Not an expected route of exposure.
Symptoms/effects after ingestion	: Not an expected route of exposure.

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

No special means are stated.  
If any health troubles appear or in case of doubt, please inform the doctor and provide the information from this safety sheet.

## SECTION 5: FIREFIGHTING MEASURES

**DO NOT fight fires involving Explosives.** There is an extreme risk that explosives involved in a fire may detonate, especially if confined. Evacuate the area in all directions for 1 mile or more if any amount of explosives are involved in a fire. Evacuation is recommended if the initial (incipient) fire, not involving explosives, becomes intense. General extinguishers may be used on the initial fire, not involving explosives, such as electrical equipment fires, tire fires or a general plant fire. Water may be used to cool explosives not involved in the initial fire. Consult the most current Emergency response Guidebook (ERG), Guide 112 for additional information.

### 5.1. Extinguishing media

Suitable extinguishing media	: None
Unsuitable extinguishing media	: For fires near explosives, dry chemical, foams, steam and smothering devices are not effective, can lead to possible explosion and must not be used

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

Fire hazard	: If a building containing the product is on fire, a high risk of explosion is involved. Perform an urgent evacuation of the building and its surroundings. Notify the Integrated Rescue System. Don't inhale the gasses of the fire because they contain heavy metals (lead). The combustion residues and contaminated extinguishing liquids must be disposed of according to valid regulations.
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### 5.3. Advice for firefighters

Precautionary Measures	: It is recommended that the amount and location of any explosives stored near a fire be determined prior to committing firefighters to fight the fire.
Firefighting instructions	: When fighting the initial fire, not involving explosives, firefighters should follow standard firefighting procedures for the materials involved.
Hazardous Combustion Products	: No unusual combustion products are expected. However, toxic fumes will be present.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

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

General measures	: Contact manufacturer or CHEMTREC. No smoking, open flames or flame/spark producing items in the area.
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#### 6.1.1. For non-emergency personnel

Protective equipment	: Use appropriate personal protection equipment (PPE)
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Emergency procedures : Isolate the area from unnecessary personnel.

### 6.1.2. For emergency responders

Protective equipment : Provide cleanup crew with proper PPE.

### 6.2. Environmental precautions

Avoid release to the environment

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

Methods for cleaning up : Contact manufacturer or Chemtrec

### 6.4. Reference to other sections

See Section 8 and 13 of this safety data sheet.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Precautions for safe handling : Avoid heating explosives in a confined space. Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained. A "hot work" program consistent with OSHA requirements at 29 CFR 1910.252 must be used when performing hot work on explosive process equipment, storage areas or containers.

Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures.

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

Technical measures : Smoking, open flames and unauthorized sparking or flame-producing devices are prohibited.

Incompatible materials : Strong acids, strong bases and organic solvents.

Storage conditions : Storage areas should be inspected regularly by an individual trained to identify potential hazards and ensure that all safety and security control measures are being properly implemented. All explosives storage sites must comply with ATF or NRCAN regulations.

Special rules on packaging : Packaging in accordance with USDOT or NRCAN regulations.

## SECTION 8: EXPOSURE CONTROL / PERSONAL PROTECTION

### 8.2. Occupational control limits

Not applicable, sealed item

### 8.1. Exposure controls

#### Appropriate engineering controls:

Product should be handled and used under strictly controlled conditions.

#### Personal protective equipment:

Eye/face protection: Use protective glasses if needed.

Hands protection: Not required.

Respiratory protection: Not required.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

Appearance : Plastic coated wire attached to a sealed metal detonator capsule

Odor : Odorless

Odor threshold : Not relevant

Vapor density : Not relevant

pH : Not relevant

Melting point : Not relevant

Initial boiling point and boiling range : Not relevant

Flash point (oil) : Not relevant



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Evaporation rate	: Not relevant
Flammability	: Not relevant
Upper / Lower flammability or exposure limits	: Not relevant
Partition coefficient: n-octol/water	: Not relevant
Auto-ignition temperature	: Not relevant
Decomposition temperature	: Not relevant
Viscosity	: Not relevant
Explosive properties	: Mass detonation hazard when involved in a fire
Explosion Data – Sensitivity to Mechanical Impact	: Sensitive to mechanical impact
Explosion Data – Sensitivity to Static Discharge	: Sensitive to static discharge

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity and chemical stability

Stable and non-reactive under normal conditions of transportation, storage, handling and use.

### 10.2. Possibility of hazardous reactions

Polymerization will not occur.

### 10.3. Conditions to avoid

Open flame and elevated temperatures.

### 10.4. Incompatible materials

Strong acids, strong bases and organic solvents.

### 10.5. Hazardous decomposition products

No unusual fumes or decomposition products expected. However, toxic fumes will be present.

## SECTION 11: TOXICOLOGY INFORMATION

### 11.1. Information on toxicological effects

Acute toxicity	: Not classified
LD50 and LC50 Data	: Not classified
Skin corrosion/Irritation	: Not classified
Eye Damage/Irritation	: Not classified
Respiratory or Skin Sensitization	: Not classified
Germ Cell Mutagenicity	: Not classified
Teratogenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive Toxicity	: Not classified
Specific Target Organ Toxicity (single exposure)	: None
Specific Target Organ Toxicity (repeated exposure)	: None
Aspiration Hazard	: Not classified
Symptoms/Injuries after Inhalation	: Not an expected route of exposure
Symptoms/Injuries after Skin Contact	: Not an expected route of exposure
Symptoms/Injuries after Eye Contact	: Not an expected route of exposure
Symptoms/Injuries after Ingestion	: Not an expected route of exposure
Chronic Symptoms	: None

Information on toxicological Effects, Ingredients

**LD50 and LC50 Data:**

Pentarythritol tetranitrate (PETN), CAS No. 78-11-5	
LD50 oral rat	LD50 oral rat 19500 mg/kg of body



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Lead azide, CAS No. 13424-46-9	
LD50 oral rat	500 mg/kg of body weight
LC50 inhalation rat	1.5 mg/l/4h

Electric fuse head with ignition EPZ, electric igniter	
ATE CLP (oral)	1785.714 mg/kg bodyweight

Lead dioxide, CAS No. 1309-60-0	
LD 50 oral rat	220 ml/kg (SDS)

Orange lead CAS No. 1314-41-6	
LD50 oral rat	>10000 mg/kg (EU Data base ECB/ESIS,2000)

Copper CAS No. 7440-50-8	
LC50 Fishes 1	0.0068-0.0156 mg/l (exposure time:96 h - Species: Pimephales promelas)
EC50Daphnia 1	0.03 mg/l (Exposure time: 48 h – Species: Daphnia magna [static])
EC50 other aquatic organism 1	0.0426 – 0.0535 mg/l (Exposure time: 72 h – Species: Pseudokirchneriella subcapitata [static])
LC50 fish 2	< 0.3 mg/l (Exposure time: 96 h – Species: Phimephales promelas[static])
EC50 other aquatic organism 2	0.031 – 0.054 mg/l (Exposure time: 96 h -Species: Pseudokirchneriella subcapitata [static])

Iron CAS No. 7439-89-6	
LD50 oral rat	= 984 mg/kg

Manganese CAS No. 7439-96-5	
LD50 oral rat	= 9 mg/kg (EU Data base ECB/ESIS,2000)

Carbon CAS No. 7440-44-0	
LD50 oral rat	>10000 mg/kg

Nickel CAS No.7440-02-0	
LD50 oral rat	>9000 mg/kg

**SECTIONS 12 – 15:** These sections are not required by OSHA or CCOSH. The general information shown is not intended to be a comprehensive listing of all data or information available.

## SECTION 12: ECOLOGY INFORMATION

### 12.1. Toxicity

Ecology - general : Not available

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

No additional information available







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## SECTION 13: DISPOSAL CONSIDERATIONS

## 13.1. Waste treatment methods

Call manufacturer or CHEMTREC

## SECTION 14: Transport information

When packaged as a 1.4B:							
Agency	UN Number	Proper shipping Name	Hazard Class	Label Codes	PG	Marine Pollutant	Other
US DOT	UN0512	Detonators electronic, for blasting	1.4B	1.4B	II	No	ERG-114
Canadian TDG	UN0512	Detonators electronic, for blasting	1.4B	1.4B	II	No	--
IMDG (Vessel)	UN0512	Detonators electronic, for blasting	1.4B	1.4B	II	No	EMs-No, Fire: F-B Spillage: S-X
IATA (Air)	Contact the manufacturer.						

Note 1: Aircraft shipment of material is for Cargo Aircraft only and each package not to exceed 75kg (165 lbs.)

Net Explosive Weight. See 49CFR 172.101 HMT, Column 9.

## SECTION 15: REGULATORY INFORMATION

## 15.1. US Federal Regulations:

Emergency Planning and Community Right-To-Know Act (EPCRA), a/k/a Superfund Amendments and Reauthorization Act (SARA) Title III

SARA section 311/312	Fire hazard, Sudden Release of pressure hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard
TSCA	All ingredients are listed on the United States TSCA (Toxic Substances Control Act) inventory

## 15.2. Canadian Regulations:

Domestic substances List (DSL)

Workplace Hazardous Materials Information Systems (WHMIS)

WHMIS Classification	Note: Explosives are regulated by NRCAN and not classified under WHMIS
DSL	All ingredients are listed on the Canadian DSL (Domestic Substances List)

## SECTION 16: OTHER INFORMATION, INCLUDING DATE OF LAST REVISION

This SDS was prepared in accordance with US (29 CFR 1900.1200) and Canadian (WHMIS 2015) Requirement

SDS: SDS-ASD-007

Initial Issue Date:

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Version: Original

## Party Responsible for the Preparation of This Document:

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*This information is based on Austin Powder Company's current knowledge and is intended to describe the product for the purposes of health and safety requirements only. It should not be construed as guaranteeing any specific property of the product.*