SECTION 1: IDENTIFICATION

Product Identifier: Non-Electric Detonators
Product Names and Synonyms: Shock*Star series, In-Hole Delays, Surface Delay Connectors, Quick-Relay Connectors, Dual*Delays, Shorty, Long Period Delays, STD (Shock Tube with Detonator), Quick*Start, MS Connector
Intended Use: 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.

Name, Address, and Telephone of the Responsible Party:

Austin Powder Company
25800 Science Park Dr.
Cleveland, OH 44122
216-464-2400 during normal business hours
877-836-8286 Toll Free 24/7
www.austinpowder.com

In Case of Emergency Call CHEMTREC – TOLL FREE 24/7
800-424-9300 DOMESTIC
1-703-527-3887 INTERNATIONAL AND MARINE

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Item ("Article"):

Code	Hazard Class	Hazard Category
H201	Explosives	Division 1.1

Label Elements

Danger

Hazard Statements

Explosive, mass explosion hazard

Precautionary Statements

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not subject to grinding, friction, impact or shock.
Do not eat, drink or smoke when using this product.
Wear eye protection.
In case of fire: Extreme risk of explosion. Evacuate area. **DO NOT** fight fire when fire reaches explosives.
Store locked-up in a ventilated space, in accordance with all applicable regulations.
Dispose of contents/container in accordance with all applicable regulations.

Other Hazards: None expected

Unknown Acute Toxicity: Not available

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

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 tube leading to the detonator capsule.

Table 1

Name	Product Identifier	% (w/w)
Copper	CAS No. 7440-50-8	0-60%
Zinc	CAS No. 7440-66-6	0-60%
Aluminum	CAS No. 7429-90-5	0-40%
Hexanitrostilbene (HNS)	CAS No. 20062-22-0	0-15%
Cyclonite (RDX)	CAS No. 121-82-4	0-15%
Pentaerythritol tetranitrate (PETN)	CAS No. 78-11-5	0-15%
Barium chromate	CAS No. 10294-40-3	0-5%
Boron	CAS No. 7440-42-8	0-5%
Lead Azide	CAS No. 13424-46-9	0-5%
Lead tetraoxide	CAS No. 1314-41-6	0-5%
Tungsten (W)	CAS No. 7440-33-7	0-5%
Silicon	CAS No. 7440-21-3	0-2%

The hazardous substances in Table 2 are sealed inside the plastic tube. The values in column 3 are shown as a percent of the total weight of tube. The tube length may vary depending on the specific product.

Table 2

Name	Product Identifier	% (w/w)
Aluminum	CAS No. 7429-90-5	0-0.2%
Octogen (HMX)	CAS No. 2691-41-0	0-0.4%

SECTION 4: 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.

Inhalation: Not an expected route of exposure.

Skin Contact: Not an expected route of exposure.

Eye Contact: Not an expected route of exposure.

Ingestion: Not an expected route of exposure.

Most Important Symptoms and Effects both Acute and Delayed:

Inhalation: Not an expected route of exposure.

Skin Contact: Not an expected route of exposure.

Eye Contact: Not an expected route of exposure.

Ingestion: Not an expected route of exposure.

SECTION 5: FIRE FIGHTING 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 one (1) mile or more if any amount of explosives is 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.

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.

Special Hazards Arising from the Item ("Article"):

Fire Hazard: There is an extreme risk that explosives involved in a fire may detonate.

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

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Contact the manufacturer or CHEMTREC. No smoking, open flames or flame/spark producing items in the area.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Isolate the area from unnecessary personnel.

For Emergency Personnel

Protective Equipment: Provide cleanup crew with proper PPE.

Emergency Precautions: Avoid release to the environment.

Methods and Material for Containment and Cleaning Up Contact manufacturer or CHEMTREC.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards when Processed: 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 related to the intended use.

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

Conditions for Safe Storage, Including Any Incompatibilities

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

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, OSHA or NRCAN regulations.

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

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

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure limits: Not applicable, sealed item

Exposure Controls:

Appropriate Engineering Controls: Product should be handled and used under strictly controlled conditions.

Personal Protective Equipment:

Hand Protection: Not required.

Eye Protection: Safety glasses.

Respiratory Protection: Not required.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Physical and Chemical Properties:

Appearance:	Long plastic tube that may be attached to a sealed metal capsule
Odor:	None
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
Evaporation rate:	Not relevant
Flammability:	Not relevant
Upper / lower flammability or explosive limits:	Not relevant
Vapor pressure:	Not relevant
Density:	Not relevant
Solubility:	Not soluble in water
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

Reactivity and Chemical Stability: Stable and non-reactive under normal conditions of transportation, storage, handling and use.

Possibility of Hazardous Reactions: Polymerization will not occur.

Conditions to Avoid: Open flame and elevated temperatures.

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

Hazardous Combustion Products: No unusual combustion products are expected. However, toxic fumes will be present.

SECTION 11: TOXICOLOGY INFORMATION

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 available

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 expected to be a hazard under normal conditions of use.

Symptoms/Injuries. after Skin Contact: Not expected to be a hazard under normal conditions of use

Symptoms/Injuries after Eye Contact: Not expected to be a hazard under normal conditions of use.

Symptoms/Injuries after Ingestion: Not expected to be a hazard under normal conditions of use.

Chronic Symptoms: None

LD50 and LC50 Data (ingredients):

Boron, CAS No. 7440-42-8	
LD50 Oral Rat	650 mg/kg of body weight

Octogen (HMX), CAS No. 2691-41-0	
LD50 Oral Rat	1,670 mg/kg of body weight
LD50 Dermal Rat	982 mg/kg species: New Zealand White

Cyclonite (RDX), CAS No. 121-82-4	
LD50 Oral Rat	71 mg/kg of body weight

Lead azide, CAS No. 13424-46-9	
LD50 Oral Rat	500 mg/kg of body weight
LC50 Inhalation Rat	1.5 mg/l/4h

Copper, CAS No. 7440-50-8	
LD50 Oral Mouse	413 mg/kg of body weight

Lead tetraoxide, CAS No. 1314-41-6	
LD50 Oral Rat	500 mg/kg of body weight
LC50 Inhalation Rat	1.5mg/l/4h
Included in OSHA Hazard Communication Carcinogen List	

Silicon, CAS No. 7440-21-3	
LD50 Oral Rat	3,160 mg/kg of body weight

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

Tungsten (W) CAS No. 7440-33-7	
LD50 Oral Rat	2000 mg/kg of body weight

SECTION 12: ECOLOGY INFORMATION

Not available

SECTION 13: DISPOSAL CONSIDERATIONS

Call manufacturer or CHEMTREC.

SECTION 14: TRANSPORTATION INFORMATION

Depending on product and packaging configuration, these products may be classified as either a 1.1B, 1.4B or 1.4S.

When packaged as a 1.1B:

Agency	UN Number	Proper Shipping Name	Hazard Class	Label Codes	PG	Marine Pollutant	Other
US DOT	UN0360	Detonator assemblies, non-electric, *for blasting.*	1.1B	1.1B		No	ERG-112
Canadian TDG	UN0360	Detonator assemblies, non-electric, *for blasting.*	1.1B	1.1B		No	--
IMDG (Vessel)	UN0360	Detonator assemblies, non-electric, *for blasting.*	1.1B	1.1B		No	EmS-No, Fire: F-B Spillage: S-X
IATA (Air)	Contact the manufacturer						

When packaged as a 1.4B:

Agency	UN Number	Proper Shipping Name	Hazard Class	Label Codes	PG	Marine Pollutant	Other
US DOT	UN0361	Detonator assemblies, non-electric, *for blasting.*	1.4B	1.4B		No	ERG-114
Canadian TDG	UN0361	Detonator assemblies, non-electric, *for blasting.*	1.4B	1.4B		No	--
IMDG (Vessel)	UN0361	Detonator assemblies, non-electric, *for blasting.*	1.4B	1.4B		No	EmS-No, Fire: F-B Spillage: S-X
IATA (Air)	Contact the manufacturer						

When packaged as a 1.4S:

Agency	UN Number	Proper Shipping Name	Hazard Class	Label Codes	PG	Marine Pollutant	Other
US DOT	UN0349	Articles explosive n.o.s., (HMX, aluminum powder)	1.4S	1.4S		No	ERG-114
Canadian TDG	UN0349	Articles explosive n.o.s., (HMX, aluminum powder)	1.4S	1.4S		No	--
IMDG (Vessel)	UN0349	Articles explosive n.o.s., (HMX, aluminum powder)	1.4S	1.4S		No	EmS-No, Fire: F-B Spillage: S-X
IATA (Air)	Contact the manufacturer						

SECTION 15: REGULATORY INFORMATION

US Federal Regulations:

Emergency Planning and Community Right-To-Know Act (EPCRA), a/k/a Superfund Amendments and Reauthorization Act (SARA) Title III
Toxic Substances Control Act (TSCA)
TSCA Section 8

SARA Section 311/312	Fire hazard Sudden Release of pressure hazard. Immediate (acute) health hazard Delayed (chronic) health hazard
TSCA	All the ingredients are on the United States TSCA inventory.

Canadian Regulations:

Domestic Substances List (DSL)
Workplace Hazardous Materials Information System (WHMIS)

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

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) requirements.

SDS: P-10 Initial Issue Date: 6/1/2015 Last Revision Date: 03/17/2017 Version: 7

Party Responsible for the Preparation of This Document:
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Cleveland, OH 44122
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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.