



# Material Safety Data Sheet (MSDS-SC)

PRODUCT IDENTIFICATION	
Product Name	Shaped Charges
Trade Names and Synonyms <sup>1</sup>	Casing cutters, Junk Shots, Linear Shaped Charges (LSC), Perforators, Severing Tools, Tubing Cutters, Split Shot <sup>®</sup> Cutters
Manufacturer/Distributor	Various
Transportation Emergency	800-255-3924 (24 hrs -- <i>CHEM • TEL</i> )

## PREVENTION OF ACCIDENTS IN THE USE OF EXPLOSIVES

The prevention of accidents in the use of explosives is a result of careful planning and observance of the best known practices. The explosives user must remember that he is dealing with a powerful force and that various devices and methods have been developed to assist him in directing this force. He should realize that this force, if misdirected, may either kill or injure both him and his fellow workers.

### **WARNING**

**All explosives are dangerous** and must be carefully handled and used following approved safety procedures either by or under the direction of competent, experienced persons in accordance with all applicable federal, state, and local laws, regulations, or ordinances. If you have any questions or doubts as to how to use any explosive product, **DO NOT USE IT** before consulting with your supervisor, or the manufacturer, if you do not have a supervisor. If your supervisor has any questions or doubts, he should consult the manufacturer before use.

<sup>1</sup> If needed, an MSDS Supplement Page is available to describe specific item references

HAZARDOUS COMPONENTS			
Material or Component	CAS No.	TLV	PEL
<b>RDX</b> (Cyclotrimethylenetrinitramine)	00121-82-4	1.5 mg/m <sup>3</sup>	1.5 mg/m <sup>3</sup>
<b>HMX</b> (Cyclotetramethylenetetranitramine)	026914-41-0	NE	NE
<b>HNS</b> (Hexanitrostilbene)	20062-22-0	NE	NE
<b>PYX</b> (Picrylaminodinitropyridine)	38082-89-2	NE	NE
<b>Desensitizing Wax</b>	N/A	NE	NE
<b>Aluminum</b>	07429-90-5	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
<b>Corrosion resistant steel</b>	N/A	NE	NE
<b>Iron</b>	07439-89-6	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
<b>Graphite</b>	07782-42-5	15mppcf (TWA)	2.5 mg/m <sup>3</sup>
<b>Copper</b>	07440-50-8	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>
<b>Lead</b>	07439-92-1	0.15 mg/m <sup>3</sup>	50 µg/m <sup>3</sup>
<b>Tungsten</b>	07440-33-7	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
<b>Zinc</b>	07440-66-6	NE	NE
N/A = Not assigned    NE = Not established			

PHYSICAL DATA
Explosives shaped charges contained in metal, glass, or ceramic cases.

HAZARDOUS REACTIVITY	
<b>Instability</b>	Detonates with friction, impact, heat, low level electrical current, electrostatic or RF energy.
<b>Incompatibility</b>	Acids and alkalis
<b>Hazardous decomposition</b>	Detonation produces hazardous fragments. Gases produced may contain carbon monoxide and nitrogen oxides.
<b>Polymerization</b>	Polymerization will not occur.

FIRE AND EXPLOSION DATA	
<b>Flashpoint</b>	Not applicable
<b>Extinguishing media</b>	None
<b>Special fire fighting procedures</b>	<b>ALL EXPLOSIVES: DO NOT FIGHT EXPLOSIVES FIRES.</b> Try to keep fire from reaching explosives. Isolate area. Guard against intruders.  Division 1.1 Explosives: Evacuate the area for 5000 feet (1 mile). Consult <i>the 2000 Emergency Response Guidebook, Guide 112</i> for further details.  Division 1.4 Explosives: Evacuate the area for 1500 feet (1/3 mile). Consult <i>the 2000 Emergency Response Guidebook, Guide 114</i> for further details.
<b>Unusual fire and explosion hazards</b>	May detonate with impact or on heating.

<b>HEALTH HAZARDS</b>	
<b>General</b>	<p>Shaped Charges do not present health hazards in normal handling and use; however, the products are Division 1.1 or 1.4 explosives, and detonation may cause severe physical injury, including death. All explosives are dangerous and must be handled carefully and used following approved safety procedures under the direction of competent, experienced persons in accordance with all applicable federal, state, and local laws, regulations, and ordinances.</p> <p>Inhalation of explosives powders may cause nervous system irregularities including headaches and dizziness.</p> <p>Nitrogen oxides generated during use are skin, eye, and respiratory tract irritants.</p>
<b>Carcinogenicity</b>	None of the components of shaped charges are listed as a carcinogen by NTP, IARC, or OSHA.

<b>FIRST AID</b>	
<b>Inhalation</b>	Not a likely route of exposure. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably by mouth-to-mouth. If breathing is difficult, give oxygen. Seek prompt medical attention.
<b>Eye and skin contact</b>	Not a likely route of exposure.
<b>Ingestion</b>	Not a likely route of exposure.
<b>Injury from detonation</b>	Seek prompt medical attention.



<b>SPILL OR LEAK PROCEDURES</b>	
<b>Spill/leak response</b>	Use appropriate personal protective equipment. Isolate area and remove sources of friction, impact, heat, low level electrical current, electrostatic or RF energy. Only competent, experienced persons should be involved in cleanup procedures. Sweep up with non-sparking tools and remove.
<b>Waste disposal</b>	Dispose of in compliance with federal regulations under the authority of the <i>Resource Conservation and Recovery Act</i> (40 CFR Parts 260-271).

<b>SPECIAL PROTECTION INFORMATION</b>	
<b>Ventilation</b>	Use only with adequate ventilation.
<b>Respiratory</b>	NIOSH approved particle masks for dust and mist.
<b>Eye</b>	Safety glasses or goggles.
<b>Gloves</b>	Impervious rubber gloves.
<b>Other</b>	Cotton overalls, undergarments, and socks. Conductive soled shoes.

<b>SPECIAL PRECAUTIONS</b>	
Keep away from friction, impact, and heat. Do not consume food, drink, or tobacco in areas where they may become contaminated with these materials.	

<b>STORAGE CONDITIONS</b>	
Store in accordance with the requirements of <i>Subpart K, ATF: Explosives Law and Regulations</i> (27 CFR 555.201-555.219).	

### SHIPPING INFORMATION

<b>Basic Description</b>	<p>This MSDS applies to any of the following DOT Basic descriptions. If supplying this MSDS in fulfillment of the requirements of 49 CFR 172.602, place a check mark in the box next to the basic description being transported.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> UN0288, Charges, shaped, flexible, linear, 1.1D</li> <li><input type="checkbox"/> UN0059, Charges, shaped, 1.1D</li> <li><input type="checkbox"/> UN0440, Charges, shaped, 1.4D</li> <li><input type="checkbox"/> UN0441, Charges, shaped, 1.4S</li> <li><input type="checkbox"/> UN0349, Articles, explosive, n.o.s. (Casing cutter without Detonator, unassembled)</li> <li><input type="checkbox"/> UN0352, Articles, explosive, n.o.s. (Casing cutter without Detonator, unassembled)</li> <li><input type="checkbox"/> UN0463, Articles, explosive, n.o.s. (Casing cutter without Detonator, unassembled)</li> </ul>	
<b>DOT Label &amp; Placard</b>	DOT Label	<p>Products described in this MSDS may bear one of the following labels on each outer packaging. The actual label present will depend upon the hazard classification approved by the U.S. Department of Transportation.</p> <div style="text-align: center; margin: 10px 0;">  </div> <p style="text-align: center;">1.1D Products      1.4D Products      1.4S Products</p>
	DOT Placard	<p>Transport vehicles transporting products described in this MSDS may be placarded in accordance with DOT requirements utilizing one or more of the following placards. The actual placard(s) present will depend upon the hazard classification approved by the U.S. Department of Transportation.</p> <div style="text-align: center; margin: 10px 0;">  </div> <p style="text-align: center;">1.4D Products      1.4S Products      ◀ OR ▶ 1.4D/1.4S Products</p>

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