



Material Safety Data Sheet (MSDS-CET)

PRODUCT IDENTIFICATION	
Product Name	Bi-directional boosters, Class 1.4 (Class C) Explosive
Trade Names and Synonyms	Components, explosive train, n.o.s.
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.

HAZARDOUS COMPONENTS			
Material or Component	CAS No.	TLV	PEL
Black Powder	N/A	NE	NE
CP (Pentaamine(5-cyano-2H-tetrazolato-N ²) Cobalt(III)perchlorate)	N/A	NE	NE
HMX (Cyclotetramethylenetetranitramine)	026914-41-0	NE	NE
HNS (Hexanitrostilbene)	20062-22-0	NE	NE
Nona (2,2',2"-4,4',4"-6,6',6"-Nonanitroterphenyl)	N/A	NE	NE
PETN (Pentaerythritol Tetranitrate)	00078-11-5	NE	NE
PYX (Picrylaminodinitropyridine)	38082-89-2	NE	NE
RDX (Cyclotrimethylenetrinitramine)	00121-82-4	1.5 mg/m ³	1.5 mg/m ³
Aluminum	07429-90-5	5 mg/m ³	10 mg/m ³
Corrosion resistant steel	N/A	NE	NE
Iron	07439-89-6	5 mg/m ³	10 mg/m ³
Copper	07440-50-8	1 mg/m ³	1 mg/m ³
<i>Bi-directional boosters may contain and/or be constructed of one or more of the items listed above</i> N/A = Not assigned NE = Not established			

PHYSICAL DATA
Metal shells containing explosives

HAZARDOUS REACTIVITY	
Instability	Detonates with impact, may detonate when burned
Incompatibility	Acids and alkalis
Hazardous decomposition	Detonation produces hazardous fragments. Gases produced may contain iron, lead, carbon and nitrogen oxides
Polymerization	Polymerization will not occur

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

HEALTH HAZARDS	
General	<p>Bi-directional boosters do not present health hazards in normal handling and use; however, the products are Division 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>Overexposure to lead may cause adverse effects to the blood forming, nervous, urinary, reproductive systems, including weakness, weight loss, insomnia, constipation, anemia, motor weakness, and encephalopathy. Lead may penetrate the placental barrier and has caused congenital abnormalities in animals. Several animal studies have indicated that high doses of lead may be carcinogenic.</p> <p>Nitrogen oxides generated during use are skin, eye, and respiratory tract irritants.</p>
Carcinogenicity	None of the components of bi-directional boosters are listed as a carcinogen by NTP, IARC, or OSHA.

FIRST AID	
Inhalation	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.
Eye and skin contact	Not a likely route of exposure.
Ingestion	Not a likely route of exposure.
Injury from detonation	Seek prompt medical attention.

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

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

SPECIAL PRECAUTIONS

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

STORAGE CONDITIONS

Store in accordance with the requirements of *Subpart K, ATF: Explosives Law and Regulations (27 CFR 55.201-55.219)*.

SHIPPING INFORMATION

Basic Description	UN0384, Components, explosive train, n.o.s. (Bi-directional booster containing ____), 1.4S Note: If using this MSDS to fulfill the requirements of 49 CFR 172.602, fill in the blank at the end of the Basic Description with the type of powder contained in the bi-directional booster	
DOT Label & Placard	DOT Label	
	DOT Placard	

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