



MATERIAL SAFETY DATA SHEET

Product name: Safety Boosters
Description: 22, 25, and 27 caliber blank cartridges for powder actuated fastening tools
Supplier: Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121; phone 1800 879 8000
Emergency # (Chem-Trec.): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	TLV:	PEL:	STEL:
Nitroglycerin	00055-63-0	0.46 mg/m ³ (S)	NE	0.1 mg/m ³ (S)
Nitrocellulose	09004-70-0	NE	NE	NE
Lead styphnate	15245-44-0	0.05 mg/m ³ *	0.05 mg/m ³ *	NE
Barium nitrate	10022-31-8	0.5 mg/m ³	0.5 mg/m ³	NE
Tetracene	00109-27-3	NE	NE	NE

Abbreviations / Symbols: * exposure limit for metallic lead. **NE** = None Established. **NA** = Not Applicable. **(S)** indicates exposure should be controlled for the cutaneous routes including the mucous membranes, eyes, and skin. Airborne exposures as well as direct contact must be considered.

PHYSICAL DATA

Appearance:	Blank brass cartridges.	Odor:	None.
Vapor Density: (air = 1)	Not applicable.	Vapor Pressure:	Not applicable.
Boiling Point:	Not applicable.	VOC Content:	Not applicable.
Evaporation Rate:	Not applicable.	Solubility in Water:	Not applicable.
Specific Gravity:	Not applicable.	pH:	Not applicable.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Not applicable.	Flammable Limits:	Not applicable.
Extinguishing Media:	Water.		
Special Fire Fighting Procedures:	Flood area with water or keep cartridges cool with water spray.		
Unusual Fire and Explosion Hazards:	Cartridges can blast if exposed to temperatures > 160°C. Mass detonation will not occur.		

REACTIVITY DATA

Hazardous Polymerization:	Will not occur.	Stability:	Stable.
Incompatibility:	Strong acids and oxidizing agents.		
Decomposition Products:	Oxides of nitrogen, oxides of carbon, acrid fumes and lead oxide.		
Conditions to Avoid:	Acids, excessive heat, crushing, and electrical currents.		

HEALTH HAZARD DATA

Known Hazards:	OSHA has established an action level of 0.03 mg/m ³ for lead. Exposures that exceed recommended limits for lead may be possible under certain conditions such as excessive firing with little air movement and/or firing in small enclosed work areas. Chronic (long-term) overexposure to lead can result in damage to blood-forming, nervous, urinary and reproductive systems.
Signs and Symptoms of Exposure:	Excessive exposure to gases might cause irritation to the eyes, skin, and respiratory system. Adverse health effects are not expected from acute exposure to fumes and gases; however, adequate ventilation, personal protective equipment, and/or good personal hygiene practices are essential to keep exposure to a minimum.
Carcinogenicity:	Organic lead compounds are not classified by IARC or NTP as carcinogens. Lead styphnate is converted to metallic lead and lead oxide during combustion. Metallic lead and lead oxide have not been tested adequately. A study by Goyer and Rhyne (1973) concluded that "there is no evidence that lead produces cancer in man".

Routes of Exposure:	Dermal. Inhalation.
Medical Conditions Aggravated by Exposure:	None anticipated.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	If irritation occurs, flush with plenty of water. Consult a physician if symptoms persist.
Skin:	Practice good hygiene; i.e. wash with soap and water after using and before meals.
Inhalation:	Move victim to fresh air. Get medical attention if symptoms persist.
Ingestion:	Get immediate medical attention.
Other:	Seek prompt medical attention if physical injury occurs from pins, rivets, debris, etc. For bleeding wounds, place a clean cloth or similar absorbent material on the wound and apply firm pressure. Elevate the wound and transport immediately to a medical facility.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (i.e., natural or mechanically induced fresh air movements that maintain vapor concentrations below recommended exposure limits).
Eye Protection:	Safety glasses with side-shields, as a minimum. Safety goggles recommended.
Skin Protection:	Cleaning powder actuated tools can result in some exposure to lead compounds. Cloth gloves are recommended, otherwise, wash hands thoroughly when finished and before eating or smoking.
Respiratory Protection:	Not normally required. Where air movement is inadequate to maintain exposure below recommended levels, wear a high efficiency particulate respirator.
Other:	Hearing protection (muffs or aural inserts) should be worn when firing powder actuated tools

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool dry place. Do not crush or drop. Keep away from excessive heat (such as extremely hot surfaces and flames), electrical current, strong acids and oxidizers. NFPA 495 requires 15 feet separation (or 1-hour firewall) from flammable liquids, flammable solids, and oxidizers. For industrial use only. Keep out of reach of children. Use with adequate ventilation. Practice good hygiene; i.e. wash after using and before eating or smoking.
Other Precautions::	Use only in powder actuated tools designed to handle these boosters. Construction industry employees must be properly trained as prescribed by OSHA regulations 29 CFR 1926.302 (e). All employees should be familiar with the safe operating procedures and requirements for powder operated tools as described in ANSI A10.3 and OSHA 29 CFR 1910.243 (d).

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 1, Flammability 1, Reactivity 3, PPE B (Glasses, Gloves)
DOT Shipping Name:	Consumer commodity, ORM-D
ICAO / IATA Shipping Name:	Cartridges. Power device, Class 1.4S, UN 0323
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product contains < 1% lead styphnate (CAS No. 15245-44-0), < 0.1% barium nitrate (CAS No. 10022-31-8), and 5 - 11% nitroglycerin (CAS No. 55-63-0) which are subject to the reporting according to Section 313 of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.
Waste Disposal Methods:	Misfires should be stored in a closed container until disposal or as otherwise required by local, state, and federal safety, health and environmental regulations. The recommended disposal method is in a burner specifically designed to destroy ammunition.
EPA Waste Code(s):	D003

CONTACTS

Customer Service:	1 800 879 8000	Technical Service:	1 800 879 8000
Health / Safety:	1 800 879 6000	Steve Gerrard (x6309)	Jerry Metcalf (x6704)
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

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