# MATERIAL SAFETY DATA SHEET

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| **Product identifier:** | **DX Cartridges** (Also called shots, loads, powerloads, safety cartridges, or safety boosters) |
| **Product description / use:** | 22, 25 and 27 calibre blank cartridges for use in powder actuated tools |
| **Supplier:** | Hilti (Canada) Corporation, 2360 Meadowpine Blvd., Mississauga, Ontario L5N 6S2 |
| **Originator** | Hilti, Inc., P. O. Box 21148, Tulsa, Oklahoma, USA 74121 |
| **Emergency phone number:** | Chem-Trec: 1 800 424 9300 |

## INGREDIENTS INFORMATION

| Ingredient | CAS Number | % (wt.) | $LC_{50}$, (rat) | $LD_{50}$ (rat) | TLV | STEL |
|---|---|---|---|---|---|---|
| Nitroglycerin | 00055-63-0 | 5 -10 | N/Av | 105 mg/kg | 0.05 mg/m$^3$ (S) | 0.1 mg/m$^3$ (S) |
| Nitrocellulose | 09004-70-0 | 7 -13 | N/Av | >5000 mg/kg | N/E | N/E |
| Lead styphnate | 15245-44-0 | 0.1-1 | N/Av | N/Av | N/E | N/E |
| Barium nitrate | 10022-31-8 | < 0.1 | N/Av | 355 mg/kg | 0.5 mg/m$^3$ | N/E |
| Tetracene | 00109-27-3 | < 0.1 | N/Av | N/Av | N/E | N/E |

## PHYSICAL PROPERTIES

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| **Appearance / Physical state:** | Blank brass cartridges. | **Odour:** | Not applicable. |
| **Specific gravity (at 20°C):** | Not applicable. | **Odour threshold:** | Not applicable. |
| **Vapour pressure (at 20°C):** | Not applicable. | **Vapour density:** | Not applicable. |
| **Evaporation rate:** | Not applicable. | **Boiling point:** | Not applicable. |
| **Freezing point:** | Not applicable. | **pH:** | Not applicable. |
| **Coefficient of $H_20$ / oil distrib:** | Not applicable. | **Solubility in water:** | Not applicable. |

## FIRE AND EXPLOSION DATA

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| **Flash point / Method:** | Not applicable. | **Flammable limits:** | Not applicable. |
| **Conditions of flammability:** | Not applicable. | **Auto-ignition temperature:** | Not applicable. |
| **Means of extinction:** | Water. | | |
| **Special fire fighting procedures:** | Flood area with water or keep cartridges cool with water spray. | | |
| **Hazardous combustion products:** | Oxides of nitrogen, oxides of carbon, oxides of lead, metallic lead and acrid fumes. | | |
| **Sensitivity to mechanical impact / static discharge:** | Susceptible to mechanical impact. | | |

## REACTIVITY DATA

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| **Stability:** | Explosive material. | **Conditions of reactivity:** | Explosive material. |
| **Incompatible materials:** | Strong acids and oxidizing materials. | | |
| **Conditions to avoid:** | Acids, excess heat, crushing and electrical currents. | | |
| **Hazardous decomposition products:** | Oxides of nitrogen, oxides of carbon, oxides of lead, metallic lead and acrid fumes. | | |

## TOXICOLOGICAL PROPERTIES

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| **Routes of exposure:** | ☐ N/Ap ☒ Skin contact ☒ Skin absorption ☒ Eye contact ☒ Inhalation ☐ Ingestion |
| **Exposure limits:** | See "Ingredients" section above. |
| **Acute effects 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. |
| **Chronic effects of exposure:** | Chronic (long-term) overexposure to lead can result in damage to blood-forming, nervous, urinary and reproductive systems. 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". |
| **Synergistic materials:** | None known. |

## FIRST AID MEASURES

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| **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. |

## PREVENTIVE MEASURES

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| **Engineering controls:** | General (i.e., natural or mechanically induced fresh air movements). |
| **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. Impermeable gloves are recommended for cleaning, 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 should be worn when firing powder actuated tools |
| **Handling procedures and equipment:** | For industrial use only. Keep out of reach of children. Use with adequate ventilation. Use only in powder actuated tools designed to handle these boosters. All employees should be familiarized with the safe operating procedures and requirements for powder operated tools as described in ANSI A10.3. Practice good hygiene; i.e. wash after using and before eating or smoking. |
| **Storage requirements:** | 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. |
| **Spill, leak or release:** | Not applicable. |
| **Waste disposal:** | Misfires should be stored in a closed container until disposal or as otherwise required by local, state, and provincial safety, health and environmental regulations. The recommended disposal method is in a burner specifically designed to destroy ammunition. Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, provincial, and federal safety, health and environmental regulations. |
| **Special shipping instructions:** | None known. |

## REGULATORY INFORMATION

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| **WHMIS classification:** | None (Exempt - Explosives) |
| **HMIS codes:** | Health 1, Flammability 1, Reactivity 3, PPE B (Glasses with side-shields, Gloves) |
| **ICAO/IATA Shipping Name:** | Cartridges, power device, Class 1.4S, UN0323 |
| **TDG shipping name:** | Cartridges, power device, Class 1.4S, UN0323 |
| **DOT shipping name:** | Consumer commodity, ORM-D |

## PREPARATION INFORMATION / CONTACTS

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| **Prepared by:** | Hilti, Inc., Tulsa, OK USA | Date of Preparation: October 27,2009 | **Emergency phone number:** | 1 800 424 9300 |
| **Customer Service:** | Hilti (Canada) Corporation, Mississauga, Ontario; 1 800 363 4458 | | | |
| **Health / Safety contacts:** | Hilti, Inc., Tulsa, OK USA; 1 800 879 6000, Jerry Metcalf (x1003704) | | | |
| **Abbreviations used:** | **N/E** = None Established. **N/A** = Not Applicable. **N/Av** = Not Available. **(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. **IARC:** International Agency for Research on Cancer. **HMIS:** Hazardous Materials Identification System | | | |

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