Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA GHS

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SECTION 1: Identification of the substance/mixture and of the company/ undertaking

· **1.1 Product identifier**

· **Trade name: Detonators, Electronic (Class 1.1B)**

· **Article number:** 1152
· **Other product identifiers:**
DigiShot®
DigiShot® Plus
GeoShot
SmartShot™
DriftShot™
DriftShot Starter™
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.

· **Application of the substance / the mixture**
Explosive product.
Commercial blasting applications

· **1.3 Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
Dyno Nobel Inc.
2795 East Cottonwood Parkway, Suite 500
Salt Lake City, Utah 84121
Phone: 801-364-4800
Fax: 801-321-6703
E-Mail: dnna.hse@am.dynonobel.com

· **1.4 Emergency telephone number:**
CHEMTREC
1-800-424-9300 (US/Canada)
+01 703-527-3887 (International)

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**
Classifications listed also are applicable to the OSHA GHS Hazard Communication Standard (29CFR1910.1200).


exploding bomb

Expl. 1.1 H201 Explosive; mass explosion hazard.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

E; Explosive

R2: Risk of explosion by shock, friction, fire or other sources of ignition.
· **Information concerning particular hazards for human and environment:**
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

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· **Classification system:**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.
· **Additional information:**
There are no other hazards not otherwise classified that have been identified.
0 percent of the mixture consists of component(s) of unknown toxicity

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is additionally classified and labelled according to the Globally Harmonized System within the United States (GHS).
The product is classified and labelled according to the CLP regulation.
· **Hazard pictograms**

GHS01

· **Signal word** Danger

· **Hazard-determining components of labelling:**
pentaerythritol tetranitrate (PETN)
lead diazide
lead
· **Hazard statements**
H201 Explosive; mass explosion hazard.
· **Precautionary statements**

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P250	Do not subject to grinding/shock/friction.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P240	Ground/bond container and receiving equipment.
P273	Avoid release to the environment.
P373	DO NOT fight fire when fire reaches explosives.
P370+P380	In case of fire: Evacuate area.
P372	Explosion risk in case of fire.
P401	Store in accordance with local/regional/national/international regulations.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Additional information:**
EUH201 Contains lead. Should not be used on surfaces liable to be chewed or sucked by children.
EUH209 Can become highly flammable in use.
· **Hazard description:**
· **WHMIS-symbols:** Explosive products are not classified under WHMIS.
· **NFPA ratings (scale 0 - 4)** Not available.

· **HMIS-ratings (scale 0 - 4)**
Warning: Contains lead salt(s). Long-term health hazard.

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Not available

· **HMIS Long Term Health Hazard Substances**	
7439-92-1	lead
13424-46-9	lead diazide

· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Explosive Product Notice**
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.

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**	
CAS: 7439-92-1 EINECS: 231-100-4	lead T Repr. Cat. 1 R60-61-48/23/25; N R50/53 Repr. 1A, H360FD; STOT RE 1, H372 Aquatic Acute 1, H400; Aquatic Chronic 1, H410
CAS: 78-11-5 EINECS: 201-084-3 Index number: 603-035-00-5	pentaerythritol tetranitrate (PETN) E R3 Unst. Expl., H200
CAS: 13424-46-9 EINECS: 236-542-1 Index number: 082-003-00-7	lead diazide T Repr. Cat. 1, 3 R61; Xn R62-20/22; E R3; N R50/53 R33 Unst. Expl., H200 Carc. 1B, H350; Repr. 1A, H360Df; STOT RE 2, H373 Aquatic Acute 1, H400; Aquatic Chronic 1, H410 Acute Tox. 4, H302; Acute Tox. 4, H332

· **SVHC**	
13424-46-9	lead diazide

· **Additional information:**
For the listed ingredients, the identity and exact percentages are being withheld as a trade secret.

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For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:** No special measures required.
· **After inhalation:**
Unlikely route of exposure.
Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Generally the product does not irritate the skin.
Wash with soap and water.
If skin irritation is experienced, consult a doctor.
· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Unlikely route of exposure.
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; call for medical help immediately.
· **4.2 Most important symptoms and effects, both acute and delayed** Blast injury if mishandled.
· **Hazards** Danger of blast or crush-type injuries.
· **4.3 Indication of any immediate medical attention and special treatment needed**
Product may produce physical injury if mishandled. Treatment of these injuries should be based on the blast and compression effects.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:** DO NOT fight fire when fire reaches explosives.
· **For safety reasons unsuitable extinguishing agents:** None.
· **5.2 Special hazards arising from the substance or mixture**
DO NOT ATTEMPT TO FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Evacuate all personnel to a predetermined safe location, no less than 2,500 feet in all directions. Can explode or detonate under fire conditions. Burning material may produce toxic vapors. It is recommended that users of explosives material be familiar with the Institute of Makers of Explosives Safety Library publications.
Explosive; mass explosion hazard.
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
· **Additional information**
Eliminate all ignition sources if safe to do so.
Flammability Classification: (defined by 29 CFR 1910.1200) Explosive. Can explode under fire conditions. Individual devices will randomly explode. Mass explosion of multiple devices is possible under certain conditions. Burning material may produce toxic and irritating vapors. In unusual cases, shrapnel may be thrown from exploding devices under containment. See 2012 Emergency response Guidebook for further

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information.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Remove persons from danger area.
Ensure adequate ventilation
Wear protective clothing.
Protect from heat.
Evacuate area.
Isolate area and prevent access.
· **6.2 Environmental precautions:** No special measures required.
· **6.3 Methods and material for containment and cleaning up:**
Pick up mechanically.
Send for recovery or disposal in suitable receptacles.
Dispose unusable material as waste according to item 13.
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Open and handle receptacle with care.
Handle with care. Avoid jolting, friction and impact.
Use only in well ventilated areas.
Do not subject to grinding/shock/friction.
· **Information about fire - and explosion protection:**
Protect from heat.
Prevent impact and friction.
Emergency cooling must be available in case of nearby fire.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Avoid storage near extreme heat, ignition sources or open flame.
· **Information about storage in one common storage facility:** Store away from foodstuffs.
· **Further information about storage conditions:**
Store under lock and key and with access restricted to technical experts or their assistants only.
Keep away from heat.
· **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
7439-92-1 lead	
PEL (USA)	Long-term value: 0,05* mg/m³ *see 29 CFR 1910,1025
REL (USA)	Long-term value: 0,05* mg/m³ *8-hr TWA,excl. lead arsenate;See PocketGuideApp.C
TLV (USA)	Long-term value: 0,05* mg/m³ *and inorganic compounds, as Pb; BEI
EL (Canada)	Long-term value: 0,05 mg/m³ R; IARC 2B
EV (Canada)	Long-term value: 0,05 mg/m³ as Pb, Skin (organic compounds)
13424-46-9 lead diazide	
PEL (USA)	Long-term value: 0,05 mg/m³ as Pb; See 29 CFR 1910,1025
REL (USA)	Long-term value: 0,05* mg/m³ as Pb;*8-hr TWA; See Pocket Guide App. C
TLV (USA)	Long-term value: 0,05 mg/m³ as Pb; BEI
EL (Canada)	Long-term value: 0,05 mg/m³ as Pb; IARC 2A, R

· **DNELs** No further relevant information available.

· **PNECs** No further relevant information available.

· **Ingredients with biological limit values:**	
7439-92-1 lead	
BEI (USA)	30 µg/100 ml Medium: blood Time: not critical Parameter: Lead 10 µg/100 ml Medium: blood Time: not critical Parameter: Lead (women of child bearing potential)
13424-46-9 lead diazide	
BEI (USA)	30 µg/100 ml Medium: blood Time: not critical Parameter: Lead

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· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
· **Respiratory protection:**
Not required under normal conditions of use.
Respiratory protection may be required after product use.
· **Protection of hands:**
Wear gloves for the protection against mechanical hazards according to NIOSH or EN 388.
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Safety glasses

Face protection
· **Body protection:** Impervious protective clothing
· **Limitation and supervision of exposure into the environment**
No further relevant information available.
· **Risk management measures**
Organizational measures should be in place for all activities involving this product.

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Solid material
Colour:	According to product specification
· **Odour:**	Odourless
· **Odour threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Not Determined.
Boiling point/Boiling range:	Undetermined.

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· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Explosive; mass explosion hazard.
· **Auto/Self-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Self-igniting:**	Product is not self-igniting.
· **Danger of explosion:**	Risk of explosion by shock, friction, fire or other sources of ignition.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapour pressure:**	Not applicable.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapour density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with water:**	Variable, dependent upon product composition and packaging.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **9.2 Other information**	No further relevant information available.

SECTION 10: Stability and reactivity

· **10.1 Reactivity**
· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
· **10.3 Possibility of hazardous reactions**
Danger of explosion.
Toxic fumes may be released if heated above the decomposition point.
· **10.4 Conditions to avoid** No further relevant information available.
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Nitrogen oxides
Leadoxide vapour
Hydrocarbons

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SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**		
7439-92-1 lead		
Oral	LD50	>2000 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:**
Not a skin irritant in unused form. Vapors/particles from used product are possibly irritating to skin.
· **on the eye:**
Not an eye irritant in unused form. Vapors/particles from used product are possibly irritating to eyes.
· **Sensitisation:** Not determined.
· **Subacute to chronic toxicity:** No further relevant information available.
· **Additional toxicological information:** May cause cancer.
· **Acute effects (acute toxicity, irritation and corrosivity):** Danger of blast or crush-type injuries.
· **Repeated dose toxicity:** No further relevant information available.

SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** Toxic for aquatic organisms
· **12.2 Persistence and degradability** No further relevant information available.
· **12.3 Bioaccumulative potential** May be accumulated in organism
· **12.4 Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Remark:** Very toxic for fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
The product contains heavy metals. Avoid transfer into the environment. Specific preliminary treatments are necessary
Very toxic for aquatic organisms
Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment can not be excluded.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Other adverse effects** No further relevant information available.

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SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Damaged materials pose a danger to anyone in the immediate area; consult experts for disposal of damaged products.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· **14.1 UN-Number**
· **DOT, ADR, IMDG** UN0030
· **IATA** FORBIDDEN
· **14.2 UN proper shipping name**
· **DOT** Detonators, Electric
· **ADR** 0030, DETONATORS, ELECTRIC
· **IMDG** DETONATORS, ELECTRIC
· **IATA** FORBIDDEN
· **14.3 Transport hazard class(es)**

· **DOT**

· **Class** 1.1
· **Label** 1.1

· **ADR, IMDG**

· **Class** 1.1
· **Label** 1.1B

· **IATA**
· **Class** FORBIDDEN
· **Label** -
· **14.4 Packing group**
· **DOT, ADR, IMDG** II
· **IATA** FORBIDDEN

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· **14.5 Environmental hazards:**
· **Marine pollutant:** Yes
· **Special marking (IATA):** FORBIDDEN BY AIR.
· **14.6 Special precautions for user** Not applicable.
· **EMS Number:** F-B, S-
· **Segregation groups** Lead and its compounds
· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **ADR**
· **Limited quantities (LQ)** 0
· **Excepted quantities (EQ)** Code: E0
Not permitted as Excepted Quantity
· **Tunnel restriction code** (1)

· **IATA** FORBIDDEN.
· **UN "Model Regulation":** UN0030, DETONATORS, ELECTRIC, 1.1B, II

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **United States (USA)**
· **SARA**

· **Section 355 (extremely hazardous substances):**
None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

7439-92-1	lead
13424-46-9	lead diazide

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65 (California):**

· **Chemicals known to cause cancer:**

7439-92-1	lead
13424-46-9	lead diazide

· **Chemicals known to cause reproductive toxicity for females:**

7439-92-1	lead

· **Chemicals known to cause reproductive toxicity for males:**

7439-92-1	lead

· **Chemicals known to cause developmental toxicity:**

7439-92-1	lead
13424-46-9	lead diazide

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· **Carcinogenic Categories**

· **EPA (Environmental Protection Agency)**		
7439-92-1	lead	B2
13424-46-9	lead diazide	B2

· **IARC (International Agency for Research on Cancer)**		
7439-92-1	lead	2B
13424-46-9	lead diazide	2A

· **TLV (Threshold Limit Value established by ACGIH)**		
7439-92-1	lead	A3
13424-46-9	lead diazide	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

· **Canada**

· **Canadian Domestic Substances List (DSL)**

All ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

7439-92-1	lead

· **Canadian Ingredient Disclosure list (limit 1%)**

None of the ingredients are listed.

· **Other regulations, limitations and prohibitive regulations**
This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

· **Substances of very high concern (SVHC) according to REACH, Article 57**	
13424-46-9	lead diazide

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

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· **Relevant phrases**

H200	Unstable explosives.
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H350	May cause cancer.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H360FD	May damage fertility. May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
R20/22	Harmful by inhalation and if swallowed.
R3	Extreme risk of explosion by shock, friction, fire or other sources of ignition.
R33	Danger of cumulative effects.
R48/23/25	Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R60	May impair fertility.
R61	May cause harm to the unborn child.
R62	Possible risk of impaired fertility.

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Expl. 1.1: Explosives, Division 1.1
Unst. Expl.: Explosives, Unstable explosives
Acute Tox. 4: Acute toxicity, Hazard Category 4
Carc. 1B: Carcinogenicity, Hazard Category 1B
Repr. 1A: Reproductive toxicity, Hazard Category 1A
Repr. 1A: Reproductive toxicity, Hazard Category 1A
STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1
STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2
Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1

· **Sources**

SDS Prepared by:
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902

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Website: www.chemtelinc.com

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according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA GHS

Printing date 22.05.2015 Revision: 22.05.2015

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

· **1.1 Product identifier**

· **Trade name: Detonators, Electronic (1.4B)**

· **Article number:** 1152
· **Other product identifiers:**
DigiShot®
DigiShot® Plus
GeoShot
SmartShot™
DriftShot™
DriftShot Starter™
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.

· **Application of the substance / the mixture**
Explosive product.
Commercial blasting applications

· **1.3 Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
Dyno Nobel Inc.
2795 East Cottonwood Parkway, Suite 500
Salt Lake City, Utah 84121
Phone: 801-364-4800
Fax: 801-321-6703
E-Mail: dnna.hse@am.dynonobel.com

· **1.4 Emergency telephone number:**
ChemTel Inc.
(800)255-3924, +1 (813)248-0585

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**
Classifications listed also are applicable to the OSHA GHS Hazard Communication Standard (29CFR1910.1200).


exploding bomb

Expl. 1.4 H204 Fire or projection hazard.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
R5: Heating may cause an explosion.
· **Information concerning particular hazards for human and environment:**
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

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· **Classification system:**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.
· **Additional information:**
There are no other hazards not otherwise classified that have been identified.
0 percent of the mixture consists of component(s) of unknown toxicity

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is additionally classified and labelled according to the Globally Harmonized System within the United States (GHS).
The product is classified and labelled according to the CLP regulation.
· **Hazard pictograms**

GHS01

· **Signal word** Warning
· **Hazard statements**
H204 Fire or projection hazard.
· **Precautionary statements**

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P250	Do not subject to grinding/shock/friction.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P240	Ground/bond container and receiving equipment.
P373	DO NOT fight fire when fire reaches explosives.
P370+P380	In case of fire: Evacuate area.
P372	Explosion risk in case of fire.
P401	Store in accordance with local/regional/national/international regulations.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Additional information:**
EUH201 Contains lead. Should not be used on surfaces liable to be chewed or sucked by children.
EUH209 Can become highly flammable in use.
· **Hazard description:**
· **WHMIS-symbols:**
Explosive products are not classified under WHMIS.
Not hazardous under WHMIS.
· **NFPA ratings (scale 0 - 4)** Not available.

· **HMIS-ratings (scale 0 - 4)**
Warning: Contains lead salt(s). Long-term health hazard.
Not available

· **HMIS Long Term Health Hazard Substances**	
13424-46-9	lead diazide

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7439-92-1	lead

· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Explosive Product Notice**
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.

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 13424-46-9 EINECS: 236-542-1 Index number: 082-003-00-7	lead diazide T Repr. Cat. 1, 3 R61; Xn R62-20/22; E R3; N R50/53 R33 Unst. Expl., H200 Carc. 1B, H350; Repr. 1A, H360Df; STOT RE 2, H373 Aquatic Acute 1, H400; Aquatic Chronic 1, H410 Acute Tox. 4, H302; Acute Tox. 4, H332	25-50%
CAS: 78-11-5 EINECS: 201-084-3 Index number: 603-035-00-5	pentaerythritol tetranitrate (PETN) E R3 Unst. Expl., H200	10-25%
CAS: 7439-92-1 EINECS: 231-100-4	lead T Repr. Cat. 1 R60-61-48/23/25; N R50/53 Repr. 1A, H360FD; STOT RE 1, H372 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	10-25%

· **SVHC**

13424-46-9	lead diazide

· **Additional information:**
For the listed ingredients, the identity and exact percentages are being withheld as a trade secret.

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For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:** No special measures required.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Do not induce vomiting; call for medical help immediately.
· **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **Hazards** No further relevant information available.
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:** DO NOT fight fire when fire reaches explosives.
· **For safety reasons unsuitable extinguishing agents:** None.
· **5.2 Special hazards arising from the substance or mixture**
DO NOT ATTEMPT TO FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Evacuate all personnel to a predetermined safe location, no less than 2,500 feet in all directions. Can explode or detonate under fire conditions. Burning material may produce toxic vapors. It is recommended that users of explosives material be familiar with the Institute of Makers of Explosives Safety Library publications.
Fire or projection hazard.
Product may explode if burned in confined space. Individual cartridges may explode. Mass explosion of many cartridges at once is unlikely.
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
· **Additional information**
Eliminate all ignition sources if safe to do so.
Flammability Classification: (defined by 29 CFR 1910.1200) Explosive. Can explode under fire conditions. Individual devices will randomly explode. Will not mass explode if multiple devices are involved. Burning material may produce toxic and irritating vapors. In unusual cases, shrapnel may be thrown from exploding devices under containment. See 2008 Emergency response Guidebook for further information.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation

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Protect from heat.
· **6.2 Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.
· **6.3 Methods and material for containment and cleaning up:**
Pick up mechanically.
Dispose unusable material as waste according to item 13.
Send for recovery or disposal in suitable receptacles.
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Handle with care. Avoid jolting, friction and impact.
Use only in well ventilated areas.
· **Information about fire - and explosion protection:**
Protect from heat.
Emergency cooling must be available in case of nearby fire.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Store away from foodstuffs.
· **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
13424-46-9 lead diazide	
PEL (USA)	Long-term value: 0,05 mg/m³ as Pb; See 29 CFR 1910,1025
REL (USA)	Long-term value: 0,05* mg/m³ as Pb;*8-hr TWA; See Pocket Guide App. C
TLV (USA)	Long-term value: 0,05 mg/m³ as Pb; BEI

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EL (Canada)	Long-term value: 0,05 mg/m³ as Pb; IARC 2A, R
7439-92-1 lead	
PEL (USA)	Long-term value: 0,05* mg/m³ *see 29 CFR 1910,1025
REL (USA)	Long-term value: 0,05* mg/m³ *8-hr TWA,excl. lead arsenate;See PocketGuideApp.C
TLV (USA)	Long-term value: 0,05* mg/m³ *and inorganic compounds, as Pb; BEI
EL (Canada)	Long-term value: 0,05 mg/m³ R; IARC 2B
EV (Canada)	Long-term value: 0,05 mg/m³ as Pb, Skin (organic compounds)

· **DNELs** No further relevant information available.
· **PNECs** No further relevant information available.

· **Ingredients with biological limit values:**	
13424-46-9 lead diazide	
BEI (USA)	30 µg/100 ml Medium: blood Time: not critical Parameter: Lead
7439-92-1 lead	
BEI (USA)	30 µg/100 ml Medium: blood Time: not critical Parameter: Lead 10 µg/100 ml Medium: blood Time: not critical Parameter: Lead (women of child bearing potential)

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
· **Respiratory protection:** Not required under normal conditions of use.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

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· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Safety glasses

· **Limitation and supervision of exposure into the environment**
No further relevant information available.
· **Risk management measures**
Organizational measures should be in place for all activities involving this product.

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Solid material
Colour:	According to product specification
· **Odour:**	Odourless
· **Odour threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Not Determined.
Boiling point/Boiling range:	205 °C (401 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not determined.
· **Auto/Self-ignition temperature:**	202 °C (396 °F)
· **Decomposition temperature:**	Not determined.
· **Self-igniting:**	Product is not self-igniting.
· **Danger of explosion:**	Heating may cause an explosion.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapour pressure:**	Not applicable.
· **Density:**	Not determined.

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· **Relative density**	Not determined.
· **Vapour density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with water:**	Insoluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
Organic solvents:	0,0 %
Solids content:	20,0 %
· **9.2 Other information**	No further relevant information available.

SECTION 10: Stability and reactivity

· **10.1 Reactivity**
· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **10.3 Possibility of hazardous reactions** No dangerous reactions known.
· **10.4 Conditions to avoid** No further relevant information available.
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Hydrocarbons
Nitrogen oxides
Leadoxide vapour

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**		
7439-92-1 lead		
Oral	LD50	>2000 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitisation:** No sensitising effects known.
· **Subacute to chronic toxicity:** No further relevant information available.

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· **Repeated dose toxicity:** No further relevant information available.

SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** Toxic for aquatic organisms
· **12.2 Persistence and degradability** No further relevant information available.
· **12.3 Bioaccumulative potential** May be accumulated in organism
· **12.4 Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Remark:** Very toxic for fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
The product contains heavy metals. Avoid transfer into the environment. Specific preliminary treatments are necessary
Very toxic for aquatic organisms
Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment can not be excluded.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· **14.1 UN-Number**
· **DOT, ADR, IMDG, IATA** UN0255
· **14.2 UN proper shipping name**
· **DOT, IMDG, IATA** DETONATORS, ELECTRIC

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· **ADR** 0255 DETONATORS, ELECTRIC
· **14.3 Transport hazard class(es)**

· **DOT**

· **Class** 1.4
· **Label** 1.4

· **ADR, IMDG, IATA**

· **Class** 1.4
· **Label** 1.4B
· **14.4 Packing group**
· **DOT, ADR, IMDG, IATA** II
· **14.5 Environmental hazards:**
· **Marine pollutant:** No
· **14.6 Special precautions for user** Not applicable.
· **EMS Number:** F-B,S-X
· **Segregation groups** Lead and its compounds
· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
· **Transport/Additional information:**

· **ADR**
· **Limited quantities (LQ)** 0
· **Excepted quantities (EQ)** Code: E0
Not permitted as Excepted Quantity
· **Tunnel restriction code** (1)

· **IMDG**
· **Limited quantities (LQ)** 0
· **Excepted quantities (EQ)** Code: E0
Not permitted as Excepted Quantity
· **UN "Model Regulation":** UN0255, DETONATORS, ELECTRIC, 1.4B, II

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **United States (USA)**
· **SARA**

· **Section 355 (extremely hazardous substances):**
None of the ingredients are listed.

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· **Section 313 (Specific toxic chemical listings):**

13424-46-9	lead diazide
7439-92-1	lead

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65 (California):**

· **Chemicals known to cause cancer:**

13424-46-9	lead diazide
7439-92-1	lead

· **Chemicals known to cause reproductive toxicity for females:**

7439-92-1	lead

· **Chemicals known to cause reproductive toxicity for males:**

7439-92-1	lead

· **Chemicals known to cause developmental toxicity:**

13424-46-9	lead diazide
7439-92-1	lead

· **Carcinogenic Categories**

· **EPA (Environmental Protection Agency)**

13424-46-9	lead diazide	B2
7439-92-1	lead	B2

· **IARC (International Agency for Research on Cancer)**

13424-46-9	lead diazide	2A
7439-92-1	lead	2B

· **TLV (Threshold Limit Value established by ACGIH)**

13424-46-9	lead diazide	A3
7439-92-1	lead	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

· **Canada**

· **Canadian Domestic Substances List (DSL)**

All ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

7439-92-1	lead

· **Canadian Ingredient Disclosure list (limit 1%)**

None of the ingredients are listed.

· **Other regulations, limitations and prohibitive regulations**

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

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· **Substances of very high concern (SVHC) according to REACH, Article 57**

13424-46-9	lead diazide

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Disclaimer

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· **Relevant phrases**

H200 Unstable explosives.
H302 Harmful if swallowed.
H332 Harmful if inhaled.
H350 May cause cancer.
H360Df May damage the unborn child. Suspected of damaging fertility.
H360FD May damage fertility. May damage the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

R20/22 Harmful by inhalation and if swallowed.
R3 Extreme risk of explosion by shock, friction, fire or other sources of ignition.
R33 Danger of cumulative effects.
R48/23/25 Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R60 May impair fertility.
R61 May cause harm to the unborn child.
R62 Possible risk of impaired fertility.

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists

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EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Expl. 1.4: Explosives, Division 1.4
Unst. Expl.: Explosives, Unstable explosives
Acute Tox. 4: Acute toxicity, Hazard Category 4
Carc. 1B: Carcinogenicity, Hazard Category 1B
Repr. 1A: Reproductive toxicity, Hazard Category 1A
Repr. 1A: Reproductive toxicity, Hazard Category 1A
STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1
STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2
Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1

· **Sources**

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