

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200)

Printing date: 06/23/2016

Revision: 06/23/2016

1 Identification

- **Product identifier**
- **Trade name:** Fuze, Igniter & Training
- **Product code:** MP-228
- **Recommended use and restriction on use**
- **Recommended use:** Explosive product.
- **Restrictions on use:** Contact manufacturer
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
NonLethal Technologies, Inc.
9419 Rt 286 Hwy W
Homer City, PA 15748
USA
+1 724-479-5100
nlt@nonlethaltechnologies.com
- **Emergency telephone number:** 1-800-255-3924 (Intl.: +1 813-248-0585) (CHEMTEL # MIS9685256)

2 Hazard(s) identification

- **Classification of the substance or mixture**
Expl. 1.4 H204 Fire or projection hazard.
- **Label elements**
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**



GHS01

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

P210 P250 P280 P373 P370+P380 P372 P401 P501	Keep away from heat/sparks/open flames/hot surfaces. No smoking. Do not subject to grinding/shock/friction. Wear protective gloves / eye protection / face protection. DO NOT fight fire when fire reaches explosives. In case of fire: Evacuate area. Explosion risk in case of fire. Store in accordance with local/regional/national/international regulations. Dispose of contents/container in accordance with local/regional/national/international regulations.
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- **Other hazards** There are no other hazards not otherwise classified that have been identified.
- **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

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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.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

10294-40-3	barium chromate ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	40-60%
7440-02-0	nickel powder ⚠ Carc. 2, H351; STOT RE 1, H372 ⚠ Skin Sens. 1, H317	10-20%
7778-74-7	potassium perchlorate ⚠ Ox. Sol. 1, H271 ⚠ Acute Tox. 4, H302	10-20%
7440-67-7	zirconium powder (pyrophoric) ⚠ Pyr. Sol. 1, H250; Water-react. 1, H260	<10%
7440-32-6	titanium ⚠ Self-heat. 1, H251; Water-react. 1, H260	<2%
3811-04-9	potassium chlorate ⚠ Ox. Sol. 1, H271 ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	<2%
592-87-0	lead dithiocyanate ⚠ Repr. 1A, H360; STOT RE 2, H373 ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	<2%
108-05-4	vinyl acetate ⚠ Flam. Liq. 2, H225 ⚠ Carc. 2, H351 ⚠ Acute Tox. 4, H332; STOT SE 3, H335	<2%
10022-31-8	barium nitrate ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	<2%

· **Additional information:**

For the wording of the listed Hazard Statements refer to section 16.

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.

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4 First-aid measures

- **Description of first aid measures**

- **General information:**

This is a sealed unit that will not result in exposure to the contents under normal and reasonable conditions of use. In the unlikely event of exposure to contents, appropriate first aid should be administered.

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.

- **After skin contact:**

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:**

Rinse out mouth and then drink plenty of water.

A person vomiting while lying on their back should be turned onto their side.

Do not induce vomiting; immediately call for medical help.

Immediately call a doctor.

- **Most important symptoms and effects, both acute and delayed:** Blast injury if mishandled.

- **Danger:** Danger of blast or crush-type injuries.

- **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.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

DO NOT fight fire when fire reaches explosives.

Flood area with water. If no water is available, carbon dioxide, dry chemical or earth may be used. If the fire reaches the cargo, withdraw and let fire burn.

- **For safety reasons unsuitable extinguishing agents:** None.

- **Special hazards arising from the substance or mixture**

Product may explode if burned in confined space. Individual cartridges may explode. Mass explosion of many cartridges at once is unlikely.

During heating or in case of fire poisonous gases are produced.

- **Advice for firefighters**

- **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

- **Additional information:**

Cool endangered receptacles with water in flooding quantities.

In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

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6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures:**

- Remove persons from danger area.
- Ensure adequate ventilation.
- Protect from heat.
- Keep away from ignition sources.
- Wear protective equipment. Keep unprotected persons away.

- **Environmental precautions:**

- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- **Methods and material for containment and cleaning up:**

- Pick up mechanically.
- Send for recovery or disposal in suitable receptacles.
- Dispose of the collected material according to regulations.

- **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.

7 Handling and storage

- **Handling**

- **Precautions for safe handling:**

- Use only in well ventilated areas.
- Handle with care. Avoid jolting, friction and impact.

- **Information about protection against explosions and fires:**

- Keep ignition sources away - Do not smoke.
- Protect from heat.
- Keep respiratory protective device available.
- Emergency cooling must be available in case of nearby fire.

- **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 flammable substances.
- Do not store together with oxidizing and acidic materials.
- Store away from foodstuffs.

- **Further information about storage conditions:**

- Protect from heat and direct sunlight.
- Protect from humidity and water.

- **Specific end use(s):** No relevant information available.

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8 Exposure controls/personal protection

· Control parameters

· Components with limit values that require monitoring at the workplace:

10294-40-3 barium chromate

PEL (USA)	Long-term value: 0.005* mg/m ³ Ceiling limit value: 0.1** mg/m ³ *as Cr(VI) **as CrO ₃ ; see 29 CFR 1910.1026
REL (USA)	Long-term value: 0.0002 mg/m ³ as Cr; See Pocket Guide Apps. A and C
TLV (USA)	Long-term value: 0.01 mg/m ³ as Cr
EL (Canada)	Long-term value: 0.01 mg/m ³ as Cr; ACGIH A1, IARC 1
LMPE (Mexico)	Long-term value: 0.01 mg/m ³ A1; como Cr

7440-02-0 nickel powder

PEL (USA)	Long-term value: 1 mg/m ³
REL (USA)	Long-term value: 0.015 mg/m ³ as Ni; See Pocket Guide App. A
TLV (USA)	Long-term value: 1.5* mg/m ³ elemental, *inhalable fraction
EL (Canada)	Long-term value: 0.05 mg/m ³ ACGIH A1, IARC 2B
EV (Canada)	Long-term value: 1 mg/m ³ Inhalable fraction
LMPE (Mexico)	Long-term value: 1.5* mg/m ³ *elemental:A5, fracción inhalable

7440-67-7 zirconium powder (pyrophoric)

PEL (USA)	Long-term value: 5 mg/m ³ as Zr
REL (USA)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as Zr
TLV (USA)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as Zr
EL (Canada)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as Zr

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EV (Canada)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as zirconium
LMPE (Mexico)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ A4; como Zr

592-87-0 lead dithiocyanate

PEL (USA)	Long-term value: 5 mg/m ³ as CN; Skin
EV (Canada)	Long-term value: 0.05 mg/m ³ as Pb, Skin (organic compounds)

108-05-4 vinyl acetate

REL (USA)	Ceiling limit value: 15* mg/m ³ , 4* ppm *15-min
TLV (USA)	Short-term value: 53 mg/m ³ , 15 ppm Long-term value: 35 mg/m ³ , 10 ppm
EL (Canada)	Short-term value: 15 ppm Long-term value: 10 ppm IARC 2B
EV (Canada)	Short-term value: 15 ppm Long-term value: 10 ppm
LMPE (Mexico)	Short-term value: 15 ppm Long-term value: 10 ppm A3

10022-31-8 barium nitrate

PEL (USA)	Long-term value: 0.5 mg/m ³ as Ba
REL (USA)	Long-term value: 0.5 mg/m ³ as Ba
TLV (USA)	Long-term value: 0.5 mg/m ³ as Ba
EL (Canada)	Long-term value: 0.5 mg/m ³ as Ba
LMPE (Mexico)	Long-term value: 0.5 mg/m ³ A4; como Ba

Ingredients with biological limit values:
10294-40-3 barium chromate

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BEI (USA)	25 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Total chromium (fume)
	10 µg/L Medium: urine Time: increase during shift Parameter: Total chromium (fume)

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Do not eat, drink, smoke or sniff while working.
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Do not inhale dust / smoke / mist.
- **Engineering controls:** Provide adequate ventilation.
- **Breathing equipment:** Use suitable respiratory protective device when high concentrations are present.
- **Protection of hands:**
Wear gloves for the protection against mechanical hazards according to OSHA and NIOSH rules.
- **Material of gloves** Strong gloves
- **Eye protection:**



Safety glasses

Face protection

Follow relevant national guidelines concerning the use of protective eyewear.

- **Body protection:** Protective work clothing

- **Risk management measures**

Organizational measures should be in place for all processing activities involving this material. Specialist advice recommended.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **Appearance:**

Form:	Sealed metal body
Color:	According to product specification

- **Odor:** Odorless
- **Odor threshold:** Not determined.

- **pH-value:** Not applicable.
- **Melting point/Melting range:** Not determined.
- **Boiling point/Boiling range:** Not determined.

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· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Highly flammable.
· Auto-ignition temperature:	Not determined.
· Decomposition temperature:	Not determined.
· Danger of explosion:	Not determined.
· Explosion limits	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure:	Not applicable.
· Density:	
Relative density:	Not determined.
Vapor 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.
· Other information	No relevant information available.

10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
Risk of explosion if heated under confinement.
- **Possibility of hazardous reactions:**
Fire or projection hazard.
Contact with acids releases flammable gases.
Contact with acids releases toxic gases.
Acts as an oxidizing agent on organic materials such as wood, paper and fats.
Exothermic reaction.
- **Conditions to avoid:**
Keep ignition sources away - Do not smoke.
Store away from oxidizing agents.
- **Incompatible materials:** Contact with acids liberates toxic gas.
- **Hazardous decomposition products:**
Possible in traces.
Toxic metal oxide smoke

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Bariumoxide vapor
 Leadoxide vapor
 Irritant gases/vapors
 Poisonous gases/vapors

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

3811-04-9 potassium chlorate

Oral	LD50	1870 mg/kg (rat)
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10022-31-8 barium nitrate

Oral	LD50	355 mg/kg (rat)
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· **Primary irritant effect:**

· **On the skin:** No irritant effect.

· **On the eye:** No irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Carcinogenic categories**

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

10294-40-3	barium chromate	1
7440-02-0	nickel	2B
592-87-0	lead dithiocyanate	2B

· **NTP (National Toxicology Program):**

10294-40-3	barium chromate	K
7440-02-0	nickel	R
592-87-0	lead dithiocyanate	R

· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

· **Probable route(s) of exposure:** None

· **Acute effects (acute toxicity, irritation and corrosivity):** Danger of blast or crush-type injuries.

· **Repeated dose toxicity:** From product as supplied: None.

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

· **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

· **Carcinogenicity:** Based on available data, the classification criteria are not met.

· **Reproductive toxicity:** Based on available data, the classification criteria are not met.

· **STOT-single exposure:** Based on available data, the classification criteria are not met.

· **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

· **Aspiration hazard:** Based on available data, the classification criteria are not met.

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12 Ecological information

- **Toxicity**
- **Aquatic toxicity** The product contains materials that are harmful to the environment.
- **Persistence and degradability** The product is partially biodegradable. Significant residuals remain.
- **Bioaccumulative potential:** May be accumulated in organism
- **Mobility in soil:** No relevant information available.
- **Ecotoxical effects:**
- **Remark:** Very toxic for fish
- **Additional ecological information**
- **General notes:** Do not allow product to reach ground water, water course or sewage system.
- **Other adverse effects:** No relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Incinerate in accordance with local, state and federal regulations.
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 packagings**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|-----------------|
| · UN-Number | |
| · DOT, ADR, IMDG, IATA | UN0317 |
| · UN proper shipping name | |
| · DOT, ADR, IMDG, IATA | FUZES, IGNITING |
| · Transport hazard class(es) | |
| · DOT | |
|  | |
| · Class | 1.4G |

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· **Label** 1.4G

· **ADR, IMDG, IATA**

· **Class** 1.4G

· **Label** 1.4G

· **Packing group**

· **DOT** II

· **Environmental hazards**

· **Marine pollutant:** No

· **Special precautions for user** Not applicable.

· **Poison inhalation hazard:** No

· **Danger code (Kemler):** -

· **EMS Number:** F-B,S-X

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **IATA**


Cargo Aircraft Only.

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 304 (emergency release notification):**

None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**

108-05-4 vinyl acetate

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

10294-40-3 barium chromate

7440-02-0 nickel

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592-87-0	lead dithiocyanate
108-05-4	vinyl acetate
10022-31-8	barium nitrate

· TSCA (Toxic Substances Control Act)

All ingredients are listed.

· Proposition 65 (California)
· Chemicals known to cause cancer:

10294-40-3	barium chromate
7440-02-0	nickel
592-87-0	lead dithiocyanate

· Chemicals known to cause reproductive toxicity for females:

10294-40-3	barium chromate
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· Chemicals known to cause reproductive toxicity for males:

10294-40-3	barium chromate
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· Chemicals known to cause developmental toxicity:

10294-40-3	barium chromate
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· Carcinogenic categories
· EPA (Environmental Protection Agency):

10294-40-3	barium chromate	A(inh), D(oral), K/L(inh), CBD(oral)
7778-74-7	potassium perchlorate	NL
10022-31-8	barium nitrate	D, CBD(inh), NL(oral)

· IARC (International Agency for Research on Cancer):

10294-40-3	barium chromate	1
7440-02-0	nickel	2B
592-87-0	lead dithiocyanate	2B

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

10294-40-3	barium chromate
7440-02-0	nickel

· Information about limitation of use:

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Date of preparation / last revision 06/23/2016 / -
· Abbreviations and acronyms:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation

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IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEL: Biological Exposure Limit
LDLo: Lowest Lethal Dose Observed
Expl. 1.4: Explosives – Division 1.4
Flam. Liq. 2: Flammable liquids – Category 2
Pyr. Sol. 1: Pyrophoric solids – Category 1
Self-heat. 1: Self-heating substances and mixtures – Category 1
Water-react. 1: Substances and mixtures which in contact with water emit flammable gases – Category 1
Ox. Sol. 1: Oxidizing solids – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
Repr. 1A: Reproductive toxicity – Category 1A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

• Sources

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor_internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

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