

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:** Screening Smoke Grenade, HC
- **Product code:** MP-2S-HC
- **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.
Carc. 2 H351 Suspected of causing cancer.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Label elements

GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms:



GHS01 GHS08

- **Signal word:** Warning
- **Hazard statements:**
H204 Fire or projection hazard.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P250 Do not subject to grinding/shock/friction.
- P260 Do not breathe dust.
- P280 Wear protective gloves / eye protection / face protection.
- P373 DO NOT fight fire when fire reaches explosives.
- P370+P380 In case of fire: Evacuate area.
- P372 Explosion risk in case of fire.

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- P314 Get medical advice/attention if you feel unwell.
P401 Store in accordance with local/regional/national/international regulations.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **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 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:**

67-72-1	hexachloroethane ☠ Carc. 2, H351; STOT RE 2, H373	40-60%
1314-13-2	zinc oxide	40-60%
7429-90-5	aluminium powder (pyrophoric) ⚠ Pyr. Sol. 1, H250; Water-react. 2, H261	<10%
7757-79-1	potassium nitrate ⚠ Ox. Sol. 2, H272	<2%
9004-70-0	Nitrocellulose, colloided, granular ⚠ Expl. 1.1, H201	<2%
7440-21-3	silicon ⚠ Flam. Sol. 2, H228	<2%

· **Additional information:**

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements refer to section 16.

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4 First-aid measures

- **Description of first aid measures**

- **General information:**

Information is only applicable to product contents, and not to product as normally supplied. This information is applicable to damaged, leaking, or spilled product as contact with contents is possible under these conditions.

- **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:**

Unlikely route of exposure.

Do not induce vomiting; immediately call for medical help.

- **Most important symptoms and effects, both acute and delayed:**

Blast injury if mishandled.

Mechanical irritation to eyes.

- **Danger:**

Danger of blast or crush-type injuries.

Suspected of causing cancer.

May cause damage to organs through prolonged or repeated exposure.

- **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**

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

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

- **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.

Cool endangered receptacles with water spray.

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

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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.

6 Accidental release measures

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

Wear protective equipment. Keep unprotected persons away.

Remove persons from danger area.

Ensure adequate ventilation.

Protect from heat.

Isolate area and prevent access.

- **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.

- **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:** Handle with care. Avoid jolting, friction and impact.

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

Protect from heat.

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:**

Avoid storage near extreme heat, ignition sources or open flame.

- **Information about storage in one common storage facility:**

Store away from foodstuffs.

Store away from flammable substances.

- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.

- **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:

67-72-1 hexachloroethane

PEL (USA)	Long-term value: 10 mg/m ³ , 1 ppm Skin
REL (USA)	Long-term value: 10 mg/m ³ , 1 ppm Skin; See Pocket Guide Apps. A and C
TLV (USA)	Long-term value: 9.7 mg/m ³ , 1 ppm Skin
EL (Canada)	Long-term value: 1 ppm Skin; IARC 2B
EV (Canada)	Long-term value: 1 ppm
LMPE (Mexico)	Long-term value: 1 ppm A3, PIEL

1314-13-2 zinc oxide

PEL (USA)	Long-term value: 15* 5** mg/m ³ *total dust **respirable fraction and fume
REL (USA)	Short-term value: 10** mg/m ³ Long-term value: 5 mg/m ³ Ceiling limit value: 15* mg/m ³ *dust only **fume
TLV (USA)	Short-term value: 10* mg/m ³ Long-term value: 2* mg/m ³ *as respirable fraction
EL (Canada)	Short-term value: 10 mg/m ³ Long-term value: 2 mg/m ³
EV (Canada)	Short-term value: 10 mg/m ³ Long-term value: 2 mg/m ³ respirable
LMPE (Mexico)	Short-term value: 10* mg/m ³ Long-term value: 2* mg/m ³ *fracción respirable

7429-90-5 aluminium powder (pyrophoric)

PEL (USA)	Long-term value: 15*; 5** mg/m ³ *Total dust; ** Respirable fraction
REL (USA)	Long-term value: 10* 5** mg/m ³ as Al*Total dust**Respirable/pyro powd./welding f.
TLV (USA)	Long-term value: 1* mg/m ³ as Al; *as respirable fraction
EL (Canada)	Long-term value: 1.0 mg/m ³ respirable, as Al

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EV (Canada)	Long-term value: 5 mg/m ³ aluminium-containing (as aluminium)
LMPE (Mexico)	Long-term value: 1* mg/m ³ A4, *fracciòn respirable
7440-21-3 silicon	
PEL (USA)	Long-term value: 15* 5** mg/m ³ *total dust **respirable fraction
REL (USA)	Long-term value: 10* 5** mg/m ³ *total dust **respirable fraction
TLV (USA)	TLV withdrawn
EL (Canada)	Long-term value: 10* 3** mg/m ³ *total dust; **respirable fraction
EV (Canada)	Long-term value: 10 mg/m ³ total dust
LMPE (Mexico)	Short-term value: 20 mg/m ³ Long-term value: 10 mg/m ³ (e)

- **Exposure controls**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

- **Engineering controls:** Provide adequate ventilation.

- **Breathing equipment:**

Use suitable respiratory protective device when high concentrations are present.

NIOSH or EN approved organic vapor respirator equipped with a dust/mist prefilter should be used.

- **Protection of hands:**

Wear gloves for the protection against mechanical hazards according to OSHA and NIOSH rules.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- **Eye protection:**



Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

- **Body protection:** Protective work clothing

- **Limitation and supervision of exposure into the environment**

No relevant information available.

- **Risk management measures**

Organizational measures should be in place for all activities involving this product.

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9 Physical and chemical properties

· Information on basic physical and chemical properties

· Appearance:

Form:	Solid metal cylinder
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.

Flash point:	Not applicable.
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Flammability (solid, gaseous):	Fire or projection hazard.
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Auto-ignition temperature:	Not determined.
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Decomposition temperature:	Not determined.
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Danger of explosion:	Heating may cause an explosion.
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· Explosion limits

Lower:	Not determined.
Upper:	Not determined.

Vapor pressure:	Not applicable.
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Density:	Not determined.
Relative density:	Not determined.
Vapor density:	Not applicable.
Evaporation rate:	Not applicable.

Solubility in / Miscibility with Water:	Insoluble.
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Partition coefficient (n-octanol/water):	Not determined.
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· Viscosity

Dynamic:	Not applicable.
Kinematic:	Not applicable.

Other information	No relevant information available.
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10 Stability and reactivity

Reactivity:	No relevant information available.
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· Chemical stability:

· Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications.

· Possibility of hazardous reactions:

Fire or projection hazard.

Toxic fumes may be released if heated above the decomposition point.

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Reacts with strong acids and alkali.

- **Conditions to avoid:**

Excessive heat.

Sources of ignition, open flame, incompatible materials.

- **Incompatible materials:** Oxidizers, strong bases, strong acids

- **Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Nitrogen oxides

Sulfur oxides (SO_x)

11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

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

1314-13-2 zinc oxide

Oral LD50 > 5000 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.

- **Sensitization:** Based on available data, the classification criteria are not met.

- **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):**

67-72-1	hexachloroethane	R
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:**

Skin contact.

Eye contact.

Inhalation.

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

- **Repeated dose toxicity:**

Suspected of causing cancer.

May cause damage to organs through prolonged or repeated exposure.

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- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
Carc. 2
- **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.

12 Ecological information

· Toxicity

· Aquatic toxicity

67-72-1 hexachloroethane

LOEC | 1.9 ppm (fish)

- **Persistence and degradability** No relevant information available.
- **Bioaccumulative potential:** May be accumulated in organism
- **Mobility in soil:** No relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Harmful to fish
- **Additional ecological information**
- **General notes:**
Avoid release to the environment.
The product contains heavy metals. Avoid transfer into the environment. Specific preliminary treatments are necessary.
Harmful to aquatic organisms
Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment can not be excluded.
- **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. After prior treatment product has to be disposed of in an incinerator for hazardous waste adhering to the regulations pertaining to the disposal of particularly hazardous waste.

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.

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14 Transport information

· UN-Number	UN0303
· DOT, ADR, IMDG, IATA	
· UN proper shipping name	AMMUNITION, SMOKE
· DOT, ADR, IMDG, IATA	
· Transport hazard class(es)	
· DOT	
	
· Class	1.4G
· Label	1.4G
· ADR, IMDG, IATA	
	
· Class	1.4G
· Label	1.4G
· Packing group	II
· DOT	
· Environmental hazards	Product contains environmentally hazardous substances: hexachloroethane, zinc oxide
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· 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.

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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):

None of the ingredients are listed.

· Section 313 (Specific toxic chemical listings):

67-72-1 hexachloroethane

1314-13-2 zinc oxide

7429-90-5 aluminium powder (pyrophoric)

7757-79-1 potassium nitrate

· TSCA (Toxic Substances Control Act)

All ingredients are listed.

· Proposition 65 (California)

· Chemicals known to cause cancer:

67-72-1 hexachloroethane

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

· Chemicals known to cause reproductive toxicity for males:

10294-40-3 barium chromate

· Chemicals known to cause developmental toxicity:

10294-40-3 barium chromate

· Carcinogenic categories

· EPA (Environmental Protection Agency):

67-72-1 hexachloroethane

L

1314-13-2 zinc oxide

D, I, II

· IARC (International Agency for Research on Cancer):

67-72-1 hexachloroethane

2B

10294-40-3 barium chromate

1

7440-02-0 nickel

2B

592-87-0 lead dithiocyanate

2B

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

67-72-1	hexachloroethane
10294-40-3	barium chromate
7440-02-0	nickel

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
 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
 Expl. 1.1: Explosives – Division 1.1
 Expl. 1.4: Explosives – Division 1.4
 Flam. Sol. 2: Flammable solids – Category 2
 Pyr. Sol. 1: Pyrophoric solids – Category 1
 Water-react. 2: Substances and mixtures which in contact with water emit flammable gases – Category 2
 Ox. Sol. 2: Oxidizing solids – Category 2
 Carc. 2: Carcinogenicity – Category 2
 Carc. 2: Carcinogenicity – Category 2
 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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