

Superior® Smoke Generator

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 04/29/2015

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Supersedes: 01/18/2011

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

1.1. Product identifier

Product form : Mixture
Trade name : Superior® Smoke Generator
CAS No : NA
Product code : NA

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Restricted to professional users

1.3. Details of the supplier of the safety data sheet

SUPERIOR SIGNAL COMPANY LLC
P.O. Box 96
Spotswood, NJ 08884
Phone: 732-251-0800
Fax: 732-251-9442
Email: info@superiorsignal.com

1.4. Emergency telephone number

Emergency number : 732-251-0800

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Carc. 1B H350

Full text of H-phrases: see section 16

NOTE: Exposure is highly unlikely when product is used as directed. Product is sealed in heavy cardboard tube or metal canister. After ignition, product slowly combusts and hexachloroethane is consumed. Direct contact with product does not occur.

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS08

Signal word (GHS-US) : Danger
Hazard statements (GHS-US) : H350 - May cause cancer (Dermal, oral)
Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P280 - Wear protective clothing
P308+P313 - If exposed or concerned: Get medical advice/attention
P405 - Store locked up
P501 - Dispose of contents/container to in accordance with local regulations

2.3. Other hazards

Other hazards not contributing to the classification : After ignition, Smoke Generator emits smoke (mild Zinc Chloride solution) that can be irritating to the eyes, respiratory tract, and mucous membranes. When used as directed exposure should be limited, and normally poses no hazard. Persons with known respiratory sensitivity should not be exposed to smoke. Moderate exposure may temporarily result in irritation, inflammation, and difficulty breathing – moving to fresh air will reverse these effects. Heavy exposure may result in coughs, chills, fever, and pulmonary edema, requiring medical treatment. Overwhelming exposure can be dangerous and is to be avoided. Persons who will be exposed to sustained heavy smoke should wear Self Contained Breathing Apparatus (SCBA).

2.4. Unknown acute toxicity (GHS-US)

Not applicable

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SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Hexachloroethane	(CAS No) 67-72-1	30 - 55	Carc. 1B, H350

Full text of H-phrases: see section 16

Remaining product components are not considered hazardous.

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.
- First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
- First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries : May cause cancer.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Carbon dioxide. Dry powder. Sand. Foam. Water spray.
- Unsuitable extinguishing media : Do not use a heavy water stream. Do not use extinguishing media containing water.

5.2. Special hazards arising from the substance or mixture

- Reactivity : May react with water, producing smoke.

5.3. Advice for firefighters

- Firefighting instructions : Fight fire with normal precautions from a reasonable distance. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
- Protection during firefighting : Self-contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : After ignition, Smoke Generator emits smoke that can be irritating to the eyes, respiratory tract, and mucous membranes (mild Zinc Chloride solution). When used as directed exposure should be limited, and normally poses no hazard.
- Precautions for safe handling : Persons with known respiratory sensitivity should not be exposed to smoke. Moderate exposure may temporarily result in irritation, inflammation, and difficulty breathing – moving to fresh air will reverse these effects. Heavy exposure may result in coughs, chills, fever, and pulmonary edema, requiring medical treatment. Overwhelming exposure can be dangerous and is to be avoided. Persons who will be exposed to sustained heavy smoke should wear Self Contained Breathing Apparatus (SCBA). Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
- Safe use of the product : Generate smoke to obscure, signal, trace airflow, or for other visual effects.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from ignition sources. Keep only in original container. Store in a dry place. Store in original container. Prevent moisture contact. Keep only in the original container in a cool, well ventilated place away from ignition sources. Keep container closed when not in use.
- Incompatible products : Strong bases. Strong acids.
- Incompatible materials : Mixture may be water reactive, releasing smoke (mild zinc chloride solution). Sources of ignition.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Superior® Smoke Generator (NA)		
ACGIH	Not applicable	
OSHA	Not applicable	
Hexachloroethane (67-72-1)		
ACGIH	ACGIH TWA (ppm)	1 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	10 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1 ppm

8.2. Exposure controls

- Personal protective equipment : Avoid all unnecessary exposure.
- Hand protection : Wear protective gloves.
- Eye protection : Chemical goggles or safety glasses.
- Respiratory protection : Wear appropriate mask.
- Other information : Do not eat, drink or smoke during use. NOTE: Exposure is highly unlikely when product is used as directed. Product is sealed in heavy cardboard tube or metal canister. After ignition, product slowly combusts and hexachloroethane is consumed. Direct contact with product does not occur.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Solid
- Appearance : Powder contained in sealed tube or canister.
- Color : Gray
- Odor : Mothballs
- Odor threshold : No data available
- pH : No data available

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Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: No data available
Relative density	: No data available
Relative vapor density at 20 °C	: No data available
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information

Minimum ignition energy	: ≈
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SECTION 10: Stability and reactivity

10.1. Reactivity

May react with water, producing smoke.

10.2. Chemical stability

Product is stable. Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Moisture. High temperature. High humidity.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

zinc chloride. Smokes. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified
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Hexachloroethane (67-72-1)	
LD50 oral rat	4460 mg/kg
LD50 dermal rabbit	32000 mg/kg
ATE US (oral)	4460.000 mg/kg body weight
ATE US (dermal)	32000.000 mg/kg body weight

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: May cause cancer (Dermal, oral).

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Hexachloroethane (67-72-1)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	1 - Evidence of Carcinogenicity, 3 - Reasonably anticipated to be Human Carcinogen
In OSHA Hazard Communication Carcinogen list	Yes

Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Hexachloroethane (67-72-1)	
LC50 fish 1	967 - 1250 µg/l (Exposure time: 96 h - Species: Pimephales promelas)
LC50 fish 2	712 - 1030 µg/l (Exposure time: 96 h - Species: Lepomis macrochirus)

12.2. Persistence and degradability

Superior® Smoke Generator (NA)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Superior® Smoke Generator (NA)	
Bioaccumulative potential	Not established.

Hexachloroethane (67-72-1)	
Log Pow	4.14

12.4. Mobility in soil

Superior® Smoke Generator (NA)	
Ecology - soil	None.

12.5. Other adverse effects

Effect on the global warming	: No known ecological damage caused by this product.
Other information	: Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to ...
Ecology - waste materials	: Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT
Not regulated for transport

Additional information

Other information	: No supplementary information available.
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ADR

No additional information available

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Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Hexachloroethane (67-72-1)	
SARA Section 313 - Emission Reporting	0.1 %
Zinc (7440-66-6)	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
SARA Section 313 - Emission Reporting	1.0 % (dust or fume only)

15.2. International regulations

CANADA

All components listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

All components listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]

No additional information available

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified

National regulations

All components listed on the AICS (Australian Inventory of Chemical Substances)
All components listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
All components listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
All components listed on the Korean ECL (Existing Chemicals List)
All components listed on NZIoC (New Zealand Inventory of Chemicals)
All components listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
All components listed on INSQ (Mexican national Inventory of Chemical Substances)

15.3. US State regulations

Hexachloroethane (67-72-1)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
Yes	No	No	No	20 µg/day
Hexachloroethane (67-72-1)				
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List				
Zinc (7440-66-6)				
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List				

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Zinc oxide (1314-13-2)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

Carc. 1B	Carcinogenicity Category 1B
H350	May cause cancer

Revision date : 04/29/2015

Other information : **DISCLAIMER OF LIABILITY** The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

MATERIAL SAFETY DATA SHEET (MSDS)



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Revision Date: 11/1/02
For the following products:
#1A, 2B, 3C White Smoke Candles

SECTION I: MATERIAL IDENTIFICATION

Material Name: Safe-Vue™ Smoke Candles
Chemical Family: Screening Smoke
Trade Name: Safe-Vue™ Smoke for air flow studies.

UN Number: none
CAS Registry Number: none

SECTION II: INGREDIENTS AND HAZARDS (SMOKE)

Component	Amount		Hazard Data
Hydrated Zinc Chloride	TLV 1 mg/m ³	PEL 1 mg m ³	8-hour, time weighted averages Neither TLV nor PEL is applicable because product is intended for use in short term tests.
Water Condensate	-	-	
Carbon Monoxide	55 mg/m ³	55 mg/m ³	
All other ingredients are present in negligible amounts and/or are non-hazardous.			

SECTION III: PHYSICAL DATA (SMOKE)

Boiling Point: n/a
Vapor Pressure: n/a
Vapor Density: n/a
Water Solubility at 20°C: Soluble

pH: No Data

Appearance and Odor: Gray to white with an odor of burning paper.

SECTION IV: FIRE AND EXPLOSION DATA

Flash Point and Method (Smoke): None
Autoignition Temp. (Smoke): n/a
Flammability Limits in Air (Smoke): n/a
Extinguishing Media (Solid Product): Use media suitable for surrounding fire.
Special Fire Fighting Procedures (Smoke and Solid Product): Self-contained breathing apparatus and full protective clothing.
Unusual Fire and Explosion Hazards: None known.

SECTION V: REACTIVITY DATA

Stable: Yes, under normal conditions.
Hazardous Decomposition Products: See section II.
Polymerization: None known.

SECTION VI: HEALTH HAZARD INFORMATION

*Safe-Vue*TM white smoke can be used without hazard if applied as directed. The main effects of the smoke are some minimal irritation of the throat, an awareness of an odd odor, and the appearance of smoke. These effects act as a warning and are desirable to prevent voluntary overexposure. Individuals should be urged not to accept exposures that cause minor irritation, but to leave the area and ventilate well to dissipate the smoke. Persons with respiratory ailments must never be exposed to any smoke. **Warning:** the #10-200 and #10-210 Smoke Grenades generate huge volumes of white smoke that would quickly accumulate to concentrations hazardous in confined spaces. Never use these items in an interior or enclosed space.

Ingestion: Not a significant route of exposure.

Eye Contact: Acute exposure is not likely to induce eye irritation.

Skin Absorption: Not a significant route of exposure.

Inhalation: Acute exposure can cause irritation of the respiratory tract and mucous membranes. Irritation is a warning property of smoke materials. In itself irritation is not usually regarded as a toxic effect unless it is sufficient to cause inflammation and then inflammation, not irritation, is the toxic effect.

Effects of Overexposure: Irritation of the respiratory passages; cough; nausea. Gross overexposure to dense smoke concentrations could result in throat irritation and mucous membrane congestion requiring medical treatment. Coughs, chills, fever and pulmonary edema can result from overwhelming exposure. Increasingly severe overexposure is likely to result in increasingly severe irritation and inflammation to all mucous membranes contacted by the smoke with most severe effects usually appearing in the respiratory tract.

FIRST AID: Remove to fresh air. If breathing is difficult, get medical attention.

SECTION VII: SPILL, LEAK AND DISPOSAL PROCEDURES

(Smoke): Ventilate area. Use local exhaust to keep exposure to a minimum. The duration of smoke would be short and the length of exposure could be reduced further by opening doors and windows for a few minutes, if and when smoke appears.

(Solid Product): Dispose in chemical disposal area in a manner that complies with local, state and federal regulations.

SECTION VIII: SPECIAL PROTECTION INFORMATION

Respiratory Protection: See section IV.

Ventilation: Use product in a well-ventilated area.

Protective Gloves:

Other Protective Equipment: Use self-contained breathing apparatus and full protective clothing when treating spills or fighting fires.

SECTION IX: SPECIAL PRECAUTIONS AND COMMENTS

Store in a cool, dry place. Keep product out of the reach of children.

Use only in a well-ventilated place.

Do not use or store around food or food products. Before eating, drinking or smoking, hands and face must be thoroughly washed.

Product should be used only by those familiar with all safety documentation.

This MSDS is provided as a guideline for the use of our products only. E. Vernon Hill, Inc. disclaims responsibility for damage or injury resulting from the improper use of these products. Contact E. Vernon Hill, Inc. for a "Product Information Sheet."

We believe all information given is accurate. It is offered in good faith, but without guarantee. Since conditions of product use are beyond our control, all risks of use are assumed by the user. Nothing herein shall be construed as a recommendation for uses which infringe valid patents or as extending a license under valid patents.

Ref. S.S. "SD/1A & SD/2A 2/1/93"