

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

1.1. Product identifier

Product name : Strobe Series

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

Use of the substance/mixture : Pyrotechnic Article

1.3. Details of the supplier of the safety data sheet

RES Specialty Pyrotechnics, Inc.
21595 286th Street
Belle Plaine, MN 56011

1.4. Emergency telephone number

Emergency number : 952-873-3113

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Expl. 1.4 H204
Ox. Sol. 3 H272
Acute Tox. 4 (Oral) H302
Skin Sens. 1 H317

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS01

GHS03

GHS07

Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H204 - Fire or projection hazard
H272 - May intensify fire; oxidizer
H302 - Harmful if swallowed
H317 - May cause an allergic skin reaction

Precautionary statements (GHS-US) : P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P220 - Keep/Store away from clothing/combustible materials
P221 - Take any precaution to avoid mixing with combustibles
P240 - Ground/bond container and receiving equipment
P250 - Do not subject to grinding/shock/friction
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P272 - Contaminated work clothing must not be allowed out of the workplace
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P312 - If swallowed: Call a poison center/doctor if you feel unwell
P302 + P352 - If on skin: Wash with plenty of water
P330 - Rinse mouth
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P362+P364 - Take off contaminated clothing and wash it before reuse
P370+P378 - In case of fire: Use water to extinguish
P370+P380 - In case of fire: Evacuate area
P372 - Explosion risk in case of fire
P373 - DO NOT fight fire when fire reaches explosives
P374 - Fight fire with normal precautions from a reasonable distance
P401 - Store locked up
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

Strobe Series

Safety Data Sheet

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Pyrotechnic mixtures in solid form containing fuels and oxidizers, pyrotechnic substances or a mixture of substances designed to produce an effect by heat, light, sound, gas, or smoke or a combination of these as the result of non-detonative self-sustaining exothermic chemical reactions. These items are classified as explosives 1.4G by the U.S. DOT. No chemical composition is exposed during normal handling, transportation and storage. The following components are present in these products as a pyrotechnic composition:

Name	Product identifier	%	Classification (GHS-US)
Potassium perchlorate	(CAS No) 7778-74-7	0 - 74	Not classified
Barium nitrate	(CAS No) 10022-31-8	0 - 65	Acute Tox. 4 (Oral), H302
Potassium nitrate	(CAS No) 7757-79-1	0 - 63	Ox. Sol. 3, H272 Aquatic Acute 3, H402
Ammonium perchlorate	(CAS No) 7790-98-9	0 - 57	Not classified
Silicon	(CAS No) 7440-21-3	0 - 38	Not classified
Barium sulfate	(CAS No) 7727-43-7	0 - 28	Not classified
celestite	(CAS No) 14291-02-2	0 - 26	Not classified
Aluminum	(CAS No) 7429-90-5	0 - 19.4	Not classified
Nitrocellulose	(CAS No) 9004-70-0	0 - 17	Not classified
Calcium sulfate hemihydrate	(CAS No) 10034-76-1	0 - 17	Not classified
Rosin	(CAS No) 8050-09-7	0 - 15	Acute Tox. 1 (Oral), H300 Skin Sens. 1, H317
Magnesium	(CAS No) 7439-95-4	0 - 14.4	Not classified
Carbon black	(CAS No) 1333-86-4	0 - 13	Not classified
Sodium sulfate	(CAS No) 7757-82-6	0 - 13	Not classified
Sulfur	(CAS No) 7704-34-9	0 - 8	Skin Irrit. 2, H315
Barium carbonate	(CAS No) 513-77-9	0 - 8	Acute Tox. 4 (Oral), H302
Copper oxide (CuO)	(CAS No) 1317-38-0	0 - 5	Not classified
Limestone	(CAS No) 1317-65-3	0 - 5	Not classified
Polyvinyl chloride	(CAS No) 9002-86-2	0 - 4	Not classified
Parlon	None	0 - 4	Not classified
Dextrin	None	0 - 4	Not classified

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Medical attention is required. Remove to fresh air. Professional assistance by a doctor is needed if irritation develops or persists.
First-aid measures after skin contact	: No immediate medical attention is required. Remove contaminated clothing as needed and launder before reuse. Wash skin thoroughly with mild soap/water. Professional assistance by a doctor is needed if irritation develops or persists.
First-aid measures after eye contact	: Medical attention is required. Immediately flush eyes with plenty of water for 15 minutes. An eye wash kit is required at the workplace. Professional assistance by a doctor is needed if irritation persists.
First-aid measures after ingestion	: Medical attention is required. Professional assistance by a doctor is needed. Induce vomiting immediately (as directed by medical personnel). Never give anything by mouth to an unconscious person.

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

Symptoms/injuries after inhalation	: Not anticipated under normal use conditions. If casing is broken, dusts may cause irritation.
Symptoms/injuries after skin contact	: Not anticipated under normal use conditions. If casing is broken, dusts may cause irritation.
Symptoms/injuries after eye contact	: Not anticipated under normal use conditions. If casing is broken, dusts may cause irritation.
Symptoms/injuries after ingestion	: Not anticipated under normal use conditions. If casing is broken, ingested dusts may cause irritation.

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

No additional information available

Strobe Series

Safety Data Sheet

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Pyrotechnics are self oxidizing. Flood with water. Fire extinguisher (Class A) may be used. Do not use suffocation methods.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : May cause fire or explosion; strong oxidizer.

Explosion hazard : These products will burn rapidly in the event of a fire. Fiery debris may be projected. Large quantities may explode in a fire.

5.3. Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Spilled composition is highly combustible. In case a device is broken open and pyrotechnic composition is spilled: Keep away any possible ignition source such as open flames, sparks and lit cigarettes. Prevent possible electrostatic discharges (for example: do not use a synthetic dustpan and brush).

Methods for cleaning up : Carefully pick up the material and place in a cardboard container. For dusts which may be released from a broken device, use dustless methods and place into a closed container for disposal. Take up wet and do not dry sweep or blow with compressed air. Care must be taken when using or disposing of chemical materials and/or their containers to prevent environmental contamination.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : All pyrotechnic devices should be handled with caution. Avoid open flames, smoking, friction, impact, excessive heat, electrostatic discharges, radio frequent interference and moisture.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in dry, cool, well-ventilated area.

7.3. Specific end use(s)

Pyrotechnics

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Potassium nitrate (7757-79-1)		
ACGIH	Not applicable	
OSHA	Not applicable	
Magnesium (7439-95-4)		
ACGIH	Not applicable	
OSHA	Not applicable	
Aluminum (7429-90-5)		
ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ (respirable fraction)

Strobe Series

Safety Data Sheet

Aluminum (7429-90-5)		
OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
Sulfur (7704-34-9)		
ACGIH	Not applicable	
OSHA	Not applicable	
Carbon black (1333-86-4)		
ACGIH	ACGIH TWA (mg/m³)	3 mg/m³ (inhalable fraction)
OSHA	OSHA PEL (TWA) (mg/m³)	3.5 mg/m³
Barium nitrate (10022-31-8)		
ACGIH	Not applicable	
OSHA	Not applicable	
Copper oxide (CuO) (1317-38-0)		
ACGIH	Not applicable	
OSHA	Not applicable	
Nitrocellulose (9004-70-0)		
ACGIH	Not applicable	
OSHA	Not applicable	
Barium sulfate (7727-43-7)		
ACGIH	ACGIH TWA (mg/m³)	5 mg/m³ (inhalable fraction, particulate matter containing no asbestos and <1% crystalline silica)
OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
Rosin (8050-09-7)		
ACGIH	Not applicable	
OSHA	Not applicable	
Calcium sulfate hemihydrate (10034-76-1)		
ACGIH	ACGIH TWA (mg/m³)	10 mg/m³ (inhalable fraction)
OSHA	Not applicable	
Limestone (1317-65-3)		
ACGIH	Not applicable	
OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
Silicon (7440-21-3)		
ACGIH	Not applicable	
OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
Barium carbonate (513-77-9)		
ACGIH	Not applicable	
OSHA	Not applicable	
Polyvinyl chloride (9002-86-2)		
ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ (respirable fraction)
OSHA	Not applicable	

Strobe Series

Safety Data Sheet

Ammonium perchlorate (7790-98-9)

ACGIH	Not applicable
OSHA	Not applicable

Celestite (14291-02-2)

ACGIH	Not applicable
OSHA	Not applicable

Potassium perchlorate (7778-74-7)

ACGIH	Not applicable
OSHA	Not applicable

Sodium sulfate (7757-82-6)

ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

Appropriate engineering controls	: None required under normal product handling conditions.
Hand protection	: None required under normal product handling conditions.
Eye protection	: None required under normal product handling conditions.
Skin and body protection	: Wear suitable working clothes.
Respiratory protection	: None required under normal product handling conditions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Contained in cardboard casing.
Odor	: None
Odor threshold	: Not Applicable
pH	: Not Applicable
Relative evaporation rate (butyl acetate=1)	: Not Applicable
Melting point	: Not Applicable
Freezing point	: Not Applicable
Boiling point	: Not Applicable
Flash point	: Not Applicable
Auto-ignition temperature	: >150°C
Decomposition temperature	: Not Applicable
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: Not Applicable
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

Strobe Series

Safety Data Sheet

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

Open flames, sparks, high temperatures, friction or impact, electrostatic discharges and radio frequent radiation.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Decomposition does not occur under normal circumstances during storage, transport and handling.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

Strobe Series	
ATE US (oral)	500.000 mg/kg body weight
Potassium nitrate (7757-79-1)	
LD50 oral rat	3015 mg/kg
ATE US (oral)	3015.000 mg/kg body weight
Magnesium (7439-95-4)	
LD50 oral rat	230 mg/kg
Sulfur (7704-34-9)	
LD50 oral rat	> 3000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 9.23 mg/l/4h
Carbon black (1333-86-4)	
LD50 oral rat	> 15400 mg/kg
Barium nitrate (10022-31-8)	
LD50 oral rat	355 mg/kg
ATE US (oral)	355.000 mg/kg body weight
Nitrocellulose (9004-70-0)	
LD50 oral rat	> 5 g/kg
Rosin (8050-09-7)	
LD50 oral rat	7600 mg/kg
LD50 dermal rabbit	> 2500 mg/kg
LC50 inhalation rat (mg/l)	1.5 mg/l/4h
ATE US (oral)	3.000 mg/kg
Silicon (7440-21-3)	
LD50 oral rat	3160 mg/kg
Barium carbonate (513-77-9)	
LD50 oral rat	418 mg/kg
ATE US (oral)	418.000 mg/kg body weight
Ammonium perchlorate (7790-98-9)	
LD50 oral rat	4200 mg/kg
LD50 dermal rat	> 3500 mg/kg
ATE US (oral)	4200.000 mg/kg body weight

Strobe Series

Safety Data Sheet

Sodium sulfate (7757-82-6)

LD50 oral rat	> 10000 mg/kg
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

Carbon black (1333-86-4)

IARC group	2B - Possibly carcinogenic to humans
In OSHA Hazard Communication Carcinogen list	Yes

Polyvinyl chloride (9002-86-2)

IARC group	3 - Not classifiable
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Sulfur (7704-34-9)

LC50 fish 1	866 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
LC50 fish 2	< 14 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

Rosin (8050-09-7)

EC50 Daphnia 1	3.8 - 5.4 mg/l (Exposure time: 48 h - Species: Daphnia magna)
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Sodium sulfate (7757-82-6)

LC50 fish 1	13500 - 14500 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	2564 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	> 6800 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

Strobe Series

Safety Data Sheet

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN0431 Articles, pyrotechnic (for technical purposes), 1.4, II

UN-No.(DOT) : UN0431

DOT Proper Shipping Name : Articles, pyrotechnic
for technical purposes

Department of Transportation (DOT) Hazard Classes : 1.4 - Class 1.4 - Explosives (with no significant blast hazard) 49 CFR 173.50

Hazard labels (DOT) : 1.4G - Explosive



Packing group (DOT) : II - Medium Danger

DOT Packaging Non Bulk (49 CFR 173.xxx) : 62

DOT Packaging Bulk (49 CFR 173.xxx) : None

DOT Packaging Exceptions (49 CFR 173.xxx) : None

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 75 kg

DOT Vessel Stowage Location : 02 - The material may be stowed "on deck" or "under deck" on a cargo vessel (up to 12 passengers) and "on deck" in closed cargo transport units or "under deck" in closed cargo transport units on a passenger vessel.

DOT Vessel Stowage Other : 25 - Shade from radiant heat

SECTION 15: Regulatory information

15.1. US Federal regulations

Potassium nitrate (7757-79-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Magnesium (7439-95-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Strobe Series

Safety Data Sheet

Aluminum (7429-90-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	1.0 % (dust or fume only)
Sulfur (7704-34-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Carbon black (1333-86-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Barium nitrate (10022-31-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Copper oxide (CuO) (1317-38-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Nitrocellulose (9004-70-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Barium sulfate (7727-43-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Rosin (8050-09-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Limestone (1317-65-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Silicon (7440-21-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Barium carbonate (513-77-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Polyvinyl chloride (9002-86-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Ammonium perchlorate (7790-98-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Potassium perchlorate (7778-74-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Sodium sulfate (7757-82-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2. US State regulations

Carbon black (1333-86-4)				
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	

Potassium nitrate (7757-79-1)				
U.S. - Massachusetts - Right To Know List				
U.S. - New Jersey - Right to Know Hazardous Substance List				
U.S. - Pennsylvania - RTK (Right to Know) List				
Magnesium (7439-95-4)				
U.S. - Massachusetts - Right To Know List				
U.S. - New Jersey - Right to Know Hazardous Substance List				
U.S. - Pennsylvania - RTK (Right to Know) List				

Strobe Series

Safety Data Sheet

Aluminum (7429-90-5)

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

Sulfur (7704-34-9)

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

Carbon black (1333-86-4)

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

Barium nitrate (10022-31-8)

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

Nitrocellulose (9004-70-0)

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

Barium sulfate (7727-43-7)

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

Rosin (8050-09-7)

U.S. - Minnesota - Hazardous Substance List

Limestone (1317-65-3)

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

Silicon (7440-21-3)

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

Polyvinyl chloride (9002-86-2)

U.S. - New Jersey - Right to Know Hazardous Substance List

Ammonium perchlorate (7790-98-9)

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

Potassium perchlorate (7778-74-7)

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

Sodium sulfate (7757-82-6)

U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List

Strobe Series

Safety Data Sheet

SECTION 16: Other information

Full text of H-phrases::

Acute Tox. 1 (Oral)	Acute toxicity (oral) Category 1
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Expl. 1.4	Explosive Category 1.4
Ox. Sol. 3	Oxidizing solids Category 3
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization Category 1
H204	Fire or projection hazard
H272	May intensify fire; oxidizer
H300	Fatal if swallowed
H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H402	Harmful to aquatic life

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