

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

1.1. Product identifier

Product name : Binary Bottle A

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

The following classification is applicable for shipping purposes only when packaged with Binary Bottle B.

Classification (GHS-US)

Expl. 1.4 H204

Ox. Sol. 3 H272

Acute Tox. 4 (Oral) H302

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

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
P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P312 - If swallowed: Call a poison center/doctor if you feel unwell
P330 - Rinse mouth
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.

2.3. Other hazards

No additional information available

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

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. 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 - 100	Not classified
Strontium nitrate	(CAS No) 10042-76-9	0 - 100	Not classified
Potassium nitrate	(CAS No) 7757-79-1	0 - 100	Ox. Sol. 3, H272 Aquatic Acute 3, H402
Silica, amorphous, fumed, crystalline-free	(CAS No) 112945-52-5	0 - 1	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

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.
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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

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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 perchlorate (7778-74-7)	
ACGIH	Not applicable
OSHA	Not applicable
Strontium nitrate (10042-76-9)	
ACGIH	Not applicable
OSHA	Not applicable
Silica, amorphous, fumed, crystalline-free (112945-52-5)	
ACGIH	Not applicable
OSHA	Not applicable
Potassium nitrate (7757-79-1)	
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

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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

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.

Binary Bottle A	
ATE US (oral)	500.000 mg/kg body weight
Strontium nitrate (10042-76-9)	
LD50 oral rat	2750 mg/kg
Silica, amorphous, fumed, crystalline-free (112945-52-5)	
LD50 oral rat	3160 mg/kg
ATE US (oral)	3160.000 mg/kg
Potassium nitrate (7757-79-1)	
LD50 oral rat	3015 mg/kg
ATE US (oral)	3015.000 mg/kg body weight

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Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

Silica, amorphous, fumed, crystalline-free (112945-52-5)

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

Specific target organ toxicity (repeated exposure)	: Not classified
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Aspiration hazard	: Not classified
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SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

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

The following transport information is applicable when this product is combined with Binary Bottle B because the combination forms an explosive mixture.

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

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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 perchlorate (7778-74-7)

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

Strontium nitrate (10042-76-9)

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

Potassium nitrate (7757-79-1)

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

15.2. US State regulations

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

Strontium nitrate (10042-76-9)

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 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

SECTION 16: Other information

Full text of H-phrases::

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
H204	Fire or projection hazard
H272	May intensify fire; oxidizer
H302	Harmful if swallowed
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