

Safety Data Sheet

White Smoke Pellet

SECTION 1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY OR UNDERTAKING

Product Identifier

- 1.1. Product Name: White Smoke Pellet
Contains Guanidinium nitrate and Potassium chlorate
UFI: U300-D0D8-N004-23S6
- 1.2. Relevant identified uses of the substance or mixture and uses advised against: A smoke generation pellet for the marking of airflows, for theatrical or special effects

1.3. Details of the supplier of the safety data sheet

Company: Arctic Hayes Ltd
Glover Way, Leeds, LS11 5JP, West Yorkshire
Phone: +44 (0) 113 271 5245
Website: www.arctic-hayes.com
Email: sales@arctic-hayes.com

- 1.4. Emergency telephone number: +44 (0) 113 271 5245 (Mon-Thur: 8:30-17:00 / Fri: 8:30 - 16:00)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

- Classification (Regulation (EC) No 1272/2008) [CLP/GHS]: Eye Dam. 1. H318; Acute Tox. 4, H332; Aquatic Chronic 3, H412
- Additional Information: For full text of Hazard and EU Hazard-statements: see section 16

2.2 Label elements



Signal word: Danger

SECTION 2: HAZARDS IDENTIFICATION (....)

Hazard statements

H318	Causes serious eye damage.
H332	Harmful if inhaled.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

P261	Avoid breathing dust /smoke
P273	Avoid release to the environment.
P280	Wear protective eye / face protection.
P305 + P351 + P338+P310	If in Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P501	Dispose of contents/container in accordance with local / regional / international regulations.

Supplemental Hazard Information (EU)

- None

2.3 Other hazards

- Ignites readily. Product burns without a flame to give a dense white harmful smoke.
- Combustion products include ammonium chloride
- This product contains <1% respirable silica
- Not a PBT according to Reach Annex XIII
- Not a vPvB according to Reach Annex XIII

- SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances: N.A.

3.2. Mixture

Contains the following hazardous ingredients or ingredients with a workplace exposure limit

Chemical Name	Conc.	CAS No.	EC No.	Classification according to Regulation (EC) No 1278/2008 (CLP).	REACH Registration Number	WEL/OEL
Kaolin	50-60%	1332-58-7	310-194-1	Not classified	-	Yes
Guanidinium nitrate	10 -20%	506-93-4	208-060-1	Acute Tox. 4, H302: Eye Dam. 1, H318; Acute tox. 4, H332	01-2119452053-50-xxxx	No
Potassium chlorate	10 -20% w/w	3811-04-9	223-289-7	Ox. Liq. H271; Acute Tox. H302; Acute Tox 4 H332; Aquatic Chronic 2, H411	01-2119494917-18-xxxx	No
Quartz (crystalline silica)	<1%	14808-60-7	238-878-4	STOT RE 1, H372	-	Yes

SECTION 4: FIRST AID MEASURES

Rescuers should take suitable precautions to avoid becoming casualties themselves

4.1 Description of First Aid Measures General Advice:

Show this safety data sheet to the doctor in attendance

Contact with eyes:

If substance has got into eyes, immediately wash out with plenty of water for several minutes. Irrigate eyes thoroughly whilst lifting eyelids.

Remove contact lenses, if present and easy to do. Continue rinsing.

Get immediate medical advice/attention

Contact with skin:

Take off contaminated clothing and wash it before reuse.

Wash affected area with plenty of soap and water.

If skin irritation occurs: Get medical advice/attention

Inhalation:

If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

If unconscious, place person in recovery position

Apply artificial respiration only if patient is not breathing but **do not** use mouth to mouth resuscitation. Get immediate medical advice/attention.

Ingestion:

Rinse mouth with water (do not swallow).

Give 200-300mls (half pint) water to drink.

Do NOT induce vomiting. Get medical advice/attention.

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

Contact with eyes

- May cause severe damage with formation of corneal ulcers and permanent impairment of vision. Causes redness and swelling.

Contact with skin

- May cause redness and irritation.
- In cases of severe exposure, blistering of the skin may develop.

Ingestion

- Can form methaemoglobin in the blood, causing cyanosis.
- May cause burns to mouth and throat.
- May cause stomach pain.
- May cause nausea/vomiting.
- There may be bleeding from the mouth or nose.

Inhalation

- May cause shortness of breath.
- May cause coughing and tightness of chest.
- Prolonged and/or massive inhalation of respirable crystalline silica dust may cause lung fibrosis, commonly referred to as silicosis. Principal symptoms of silicosis are cough and breathlessness

4.3. Immediate Medical Attention

Risk of methemoglobinemia. Not to be treated with methylthionine. - Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media:

Suitable extinguishing media: Sand/earth; foam; water spray; carbon dioxide. - Unsuitable extinguishing media: Do not use water jets; Dry agent extinguishers are unsuitable and should not be used.

5.2. Special Hazards arising from the mixture:

- Ignites readily.
- Contains an oxidising agent; may assist combustion.
- May form explosive dust/air mixtures.
- Gives off irritating or toxic fumes (or gases) in a fire.
- Decomposition products may include oxygen, ammonium chloride, carbon oxides, nitrogen oxides, ammonia, hydrocyanic acid (HCN).

5.3. Advice for fire-fighters:

- Collect contaminated fire extinguishing water separately. This MUST not be discharged into drains. Prevent fire extinguishing water from contaminating surface or ground water.
- Special protective equipment: Wear self-contained breathing apparatus (SCBA). Wear full protective clothing including chemical protection suit.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

- No action shall be taken involving any personal risk or without suitable training.
- Only trained and authorised personnel should carry out emergency response. - Avoid formation of dust.
- Shut off all ignition sources
- Personal precautions for non-emergency personnel: Avoid breathing dust/fume/gas/mist/vapours/spray; Avoid contact with skin and eyes; Wear protective clothing as per section 8; Wash thoroughly after handling; Eyewash bottles should be available.
- Personal precautions for emergency responders: Evacuate the area and keep personnel upwind; Wear chemical protection suit; Wear self-contained breathing apparatus (SCBA).

6.2. Environmental precautions:

- Avoid release to the environment.
- Do not allow to enter public sewers and watercourses.
- If contamination of drainage systems or water courses is unavoidable, immediately inform appropriate authorities.

6.3. Methods and material for containment and cleaning up:

- Do not absorb spillage in sawdust or other combustible material.
- Avoid formation of dust.
- Shut off all ignition sources.
- Take action to prevent static discharges.
- Do not allow to enter public sewers and watercourses.

- Small spills Wipe up spillage with damp absorbent cloth or towel.
Wash spill site with water and detergent.

- Large spills Evacuate the area and keep personnel upwind.
Damp down to avoid dust generation.
Absorb spillage in earth or sand.
Sweep or shovel-up spillage and remove to a safe place.
Place in appropriate container.
Seal containers and label them.
Remove contaminated material to safe location for subsequent disposal.
Ventilate the area and wash spill site after material pick-up is complete.

6.4. Reference to other sections:

- See section(s): 7, 8 & 13

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

- Read the label before use.
- Prevent formation of dust.
- Take precautionary measures against static discharges.
- Ensure adequate ventilation.
- In case of inadequate ventilation wear respiratory protection.
- Avoid contact with skin and eyes.
- Do not eat, drink or smoke when using this product.
- Keep away from heat and sources of ignition. - Avoid contact with acids and alkalis.
- Avoid release to the environment.
- Take off contaminated clothing.
- Contaminated work clothing should not be allowed out of the workplace.
- Contaminated clothing should be laundered before reuse.
- Eyewash bottles should be available.

7.2. Conditions for storage, including any incompatibilities

- Shelf life: 2 years when stored in the original unopened sales container at ambient temperatures.
- Store in a cool, dry well-ventilated place. Keep container tightly closed.
- Keep away from combustible material.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Keep out of reach of children.

7.3. Specific end use

A smoke generation pellet for the marking of airflows, for theatrical or special effects.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

- For currently recommended monitoring procedures, see HSE series 'Methods for the Determination of Hazardous Substances' (MDHS).
- Occupational exposure to respirable crystalline silica dust should be monitored and controlled.

- Kaolin

WEL (long term) 2 mg/m³ (respirable dust, UK)

- Guanidinium nitrate

DNEL (inhalational) 3.5 mg/m³ Industry, Long Term, Systemic Effects

DNEL (inhalational) 10.5 mg/m³ Industry, Acute/Short Term, Systemic Effects

DNEL (dermal) 1 mg/kg (bw/day) Industry, Long Term, Systemic Effects

DNEL (inhalational) 870 ug/m³ Consumer, Long Term, Systemic Effects

DNEL (dermal) 500 ug/kg (bw/day) Consumer, Long Term, Systemic Effects

DNEL (oral) 500 ug/kg (bw/day) Consumer, Long Term, Systemic Effects

- Potassium chlorate

DNEL (inhalational) 5.76 mg/m³ Industry, Long Term, Systemic Effects

DNEL (dermal) 3.5 mg/kg (bw/day) Industry, Long Term, Systemic Effects

DNEL (inhalational) 300 ug/m³ Consumer, Long Term, Systemic Effects

DNEL (dermal) 130 ug/kg (bw/day) Consumer, Long Term, Systemic Effects

DNEL (oral) 60 ug/kg (bw/day) Consumer, Long Term, Systemic Effects PNEC aqua (freshwater)

1.15 mg/l PNEC aqua (marine water) 1.15 mg/l PNEC (STP) 115 mg/l PNEC terrestrial (soil) 3.83 mg/kg

- Quartz (crystalline silica)

(EU) OELV (long term TWA) 0.1 mg/m³

WEL (long term) 0.1 mg/m³ (UK)

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION (....)

- Ammonium chloride (produced as part of combustion chemical reaction)
WEL (long term) 10 mg/m³ (fume or respirable dust, UK)
WEL (short term) 20 mg/m³ (fume or respirable dust, UK)
DNEL (inhalational) 33.5 mg/m³ Industry, Long Term, Systemic Effects
DNEL (dermal) 128.9 mg/kg (bw/day) Industry, Long Term, Systemic Effects
DNEL (inhalational) 9.4 mg/m³ Consumer, Long Term, Systemic Effects
DNEL (dermal) 55.2 mg/kg (bw/day) Consumer, Long Term, Systemic Effects
DNEL (oral) 11.4 mg/kg (bw/day) Consumer, Long Term, Systemic Effects
DNEL (oral) 55.2 mg/kg (bw/day) Consumer, Acute/Short Term, Systemic Effects
PNEC aqua (freshwater) 250 - 1 200 ug/l
PNEC aqua (intermittent releases, freshwater) 430 - 1 200 ug/l
PNEC aqua (marine water) 25 - 11 200 ug/l
PNEC (STP) 16.2 mg/l
PNEC terrestrial (soil) 163 - 50 700 ug/kg

8.2. Exposure controls

- Selection and use of personal protective equipment should be based on a risk assessment of exposure potential.

- Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Where a reusable half mask respirator is required, use EN 140, with gas/vapour filter EN 14387 type ABEK, or EN 405; EN 1827 and EN 143 particle filter.

Where a full face mask respirator is required, use EN 136, with gas/vapour filter EN 14387 type ABEK and particle filter EN 143.

- Skin protection

Wear suitable protective clothing.

Wear protective gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and standard EN 374. The selection of a suitable glove depends on work conditions and whether the product is present on its own or in combination with other substances. Breakthrough time is dependent on the characteristics of the brand of glove used and the supplier should be consulted. PVC or rubber gloves are recommended.

- Eye/face protection

Wear goggles giving complete eye protection approved to standard EN 166.

- Hygiene measures

Contaminated clothing should be laundered before reuse.

Do not eat, drink or smoke when using this product.

Eyewash bottles should be available.

- Environmental exposure controls

Avoid release to the environment.

Do not empty into drains

Compressed product unlikely to be released unless damaged.



SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Colour:	Off-white.
Physical State:	Compressed pellet
Odour:	Odourless.
Melting Point:	Not applicable.
Boiling point:	Not applicable.
Flash-Point:	Does not flash.
Autoignition temperature	Not available
Minimum Ignition temp.	Not available.
Minimum Ignition:	Not available
Oxidizing properties:	Contains an oxidising agent; may assist combustion.
Energy Explosive properties	Not applicable
Vapour pressure:	Not available.
Solubility:	Partly soluble in/with water.
pH-value (quant.):	Not available.
Partition coeff. (n-octanol/water):	Not available.
Density:	Not available.

9.2 Other Information:

- No information available

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

- No hazardous reactions known if used for its intended purpose

10.2 Chemical stability

- Considered stable under normal conditions.

10.3 Possibility of hazardous reactions

- Reacts with combustible material.
- Reacts with acids liberating toxic gas (chlorine).

10.4 Conditions to avoid

- Avoid formation of dust.
- Keep away from heat and sources of ignition.
- Keep away from static electricity.

10.5 Incompatible materials

- Incompatible with strong acids.
- Incompatible with alkalis (strong bases).
- Incompatible with halogenated substances.

10.6 Hazardous decomposition products

- Decomposition products may include oxygen, ammonium chloride, carbon oxides, nitrogen oxides, ammonia, hydrocyanic acid (HCN).

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

- Acute Toxicity

Harmful if inhaled.

Classification based on calculation and concentration thresholds.

ATE mix (oral) > 2 000 mg/kg

ATE mix (inhal) 4.95 mg/l/4h (dust/mist)

Chemical name	LD50 (oral, rat)	LC50 (inhalation, rat)	LD50 (dermal, rabbit)
Kaolin	>2000 mg/kg	No data available	>2000 mg/kg
Guanidinium nitrate	729.8 mg/kg	853 mg/m ³ air	2000 mg/kg
Potassium chlorate	500 mg/kg	4 mg/l (4 hr)	>2000 mg/kg
Quartz (crystalline silica)	No data available	No data available	No data available
Ammonium chloride (produced as a part of combustion chemical reaction)	1410 mg/kg	No data available	>2000 mg/kg (rat)

SECTION 11. TOXICOLOGICAL INFORMATION (....)

- Skin corrosion/irritation

Based on available data, the classification criteria are not met.

- Serious eye damage/irritation

Causes serious eye damage.

Classification based on calculation and concentration thresholds.

- Respiratory or skin sensitisation

Based on available data, the classification criteria are not met.

- Germ cell mutagenicity Based on available data, the classification criteria are not met.

Quartz (SiO₂) is listed in Annex III of REACH as # Suspected mutagen: The outcome in CTA assay is positive according to ISSCTA.

- Carcinogenicity Based on available data, the classification criteria are not met.

Quartz (SiO₂) is listed in Annex III of REACH as # Suspected carcinogen: IARC monographs classified the substance as carcinogenic or probably/possibly carcinogenic.

Crystalline silica in the form of quartz or cristobalite dust is carcinogenic to humans (Group 1). (IARC Monograph 100, 2012).

Exposure in high concentrations or over prolonged periods of time can lead to lung disease (silicosis) and an increased risk of lung cancer.

- Reproductive toxicity No evidence of reproductive effects

Chemical Name	NOAEL (oral, rat)
Guanidinium nitrate	300 mg/kg bw/day (effect fertility) 350 mg/kg bw/day (effect on developmental toxicity)

- Specific target organ toxicity (STOT) - single exposure

Based on available data, the classification criteria are not met.

- Specific target organ toxicity (STOT) - repeated exposure

Based on available data, the classification criteria are not met.

Chemical Name	NOAEL (oral, rat)
Guanidinium nitrate	100 mg/kg bw/day

- Aspiration hazard

Based on available data, the classification criteria are not met.

- Contact with eyes

May cause severe damage with formation of corneal ulcers and permanent impairment of vision. Causes redness and swelling.

- Contact with skin

May cause redness and irritation.

In cases of severe exposure, blistering of the skin may develop.

- Ingestion Can form methaemoglobin in the blood, causing cyanosis

May cause burns to mouth and throat.

May cause stomach pain.

May cause nausea/vomiting.

There may be bleeding from the mouth or nose.

- Inhalation Causes shortness of breath.

May cause coughing and tightness of chest.

Prolonged and/or massive inhalation of respirable crystalline silica dust may cause lung fibrosis, commonly referred to as silicosis. Principal symptoms of silicosis are cough and breathlessness.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

- Harmful to aquatic life with long lasting effects.
- Classification based on calculation and concentration thresholds.

- Kaolin

LC50 (fish) > 1 000 mg/l (4 days)

EC50 (daphnia) > 1 000 mg/l (48 hr)

IC50 (algae) > 1 000 mg/l (72 hr)

- Guanidinium nitrate

LC50 (fish) 690 - 1 850 mg/l (4 days)

EC50 (aquatic invertebrates) 70.2 mg/l (48 hr)

EC50 (aquatic algae) 11.8 - 33.5 mg/l (72 hr)

- Potassium chlorate

LC50 (fish) 1 g/l (4 days)

EL50 (aquatic invertebrates) 1 g/l (48 hr)

EL50 (aquatic algae) 1.9 - 500 mg/l (72 hr)

- Ammonium chloride (produced as part of combustion chemical reaction)

LC50 (fish) 42.91 - 209 mg/l (4 days)

EC50 (aquatic invertebrates) 101 - 136.6 mg/l (48 hr)

EC50 (aquatic algae) 2.7 g/l (18 days)

12.2 Persistence and degradability

- Kaolin This substance is not readily biodegradable
- Guanidinium nitrate Biodegradable
- Potassium chlorate Biodegradable

12.3 Bio accumulative potential

- Chlorate is converted to chlorite in plants, which accumulates in cells until toxic concentrations are reached, when the plant dies

12.4 Mobility in soil

- No information available

12.5 Results of PBT and vPvB assessment

- Not a PBT according to REACH Annex XIII
- Not a vPvB according to REACH Annex XIII

12.6 Other adverse effects

- No information available

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. WASTE TREATMENT METHODS

- Do not discharge into drains or the environment, dispose to an authorised waste collection point
- Dispose of product and packaging in accordance with national waste regulations.
- This material and/or its container must be disposed of as hazardous waste.

13.2 Classification

- The waste must be identified according to the List of Wastes (2000/532/EC).
- Hazardous Property Code(s): HP 4 Irritant; HP 6 Acute Toxicity; HP 14 Ecotoxic

SECTION 14. TRANSPORT INFORMATION

Not classified as hazardous for transport

14.1 UN number

- UN No.: Not applicable

14.2 UN proper shipping name

- Proper Shipping Name: Not applicable

14.3 Transport hazard class(es)

- Hazard Class: Not applicable

14.4 Packing group

- Packing Group: Not applicable

14.5 Environmental hazards

- Not Classified

14.6 Special precautions for user

- Not Classified

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

- Not applicable

14.8 Road/Rail (ADR/RID)

- Proper Shipping Name: Not applicable
- ADR UN No.: Not applicable
- ADR Hazard Class: Not applicable
- ADR Packing Group: Not applicable
- Tunnel Code: Not applicable

14.9 Sea (IMDG)

- Proper Shipping Name: Not applicable
- IMDG UN No.: Not applicable - IMDG Hazard Class: Not applicable
- IMDG Pack Group.: Not applicable

14.10 Air (ICAO/IATA)

- Proper Shipping Name: Not applicable
 - ICAO UN No.: Not applicable - ICAO Hazard Class: Not applicable –
 - ICAO Packing Group: Not applicable
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SECTION 15. REGULATORY INFORMATION

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

- This safety data sheet is provided in compliance with REACH Regulation (EC) No 1907/2006 as amended by Regulation (EU) 2015/830.
- Regulation (EC) No. 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) applies in Europe.
- The COSHH Regulations apply in the UK.
- Quartz (crystalline silica) is listed in Annex III of REACH as # Suspected carcinogen: IARC monographs classified the substance as carcinogenic or probably/possibly carcinogenic # Suspected mutagen: The outcome in CTA assay is positive according to ISSCTA.

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16. OTHER INFORMATION

Information contained in this data sheet is accurate to the best of our knowledge and belief and is given in good faith. It is intended to describe our product from the point of view of safety requirements and is not intended to guarantee any particular properties.

Sources of data: Information from published literature and supplier safety data sheets

Revision No. 4. Revised March 2020.

Changes made: Revised to add in H332 to potassium chlorate in table 3.2

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Eye Dam. 1, H318: Classification based on calculation and concentration thresholds

Acute Tox. 4, H332: Classification based on calculation and concentration thresholds

Aquatic Chronic 3, H412: Classification based on calculation and concentration thresholds

Text not given with phrase codes where they are used elsewhere in this safety data sheet:

- H271: May cause fire or explosion; strong oxidiser
- H302: Harmful if swallowed
- H318: Causes serious eye damage
- H332: Harmful if inhaled
- H372: Causes damage to organs through prolonged or repeated exposure
- H411: Toxic to aquatic life with long lasting effects
- H412: Harmful to aquatic life with long lasting effects

Acronyms

- CAS: Chemical Abstracts Service
- DNEL: Derived No-Effect Level
- EC: European Community
- EC50: Effective Concentration, 50%
- GHS: Globally Harmonised System
- IARC: International Agency for Research on Cancer
- IC50: Half-maximal inhibitory concentration
- LC50: Lethal Concentration, 50%
- LD50: Lethal Dose, 50%
- NOAEC: No observed adverse effect concentration
- NOAEL: No observed adverse effect level
- NOEC: No observed effect concentration
- OEL: Occupational Exposure Limit
- PBT: Persistent, Bioaccumulative and Toxic
- PNEC: Predicted No-Effect Concentration
- REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
- vPvB: very Persistent and very Bioaccumulative
- WEL: Workplace Exposure Limit

Previous revisions should be destroyed.
