



# SAFETY DATA SHEET

## Spa Frog® Mineral Cartridge

This Safety Data Sheet contains information concerning the potential risks to those involved in handling, transporting and working with the material, as well as describing potential risks to the consumer and the environment. This information must be made available to those who may come into contact with the material or are responsible for the use of the material. This Safety Data Sheet is prepared in accordance with Regulation (EU) No 453/2010 and Regulation (EC) No 1272/2008 (CLP). This SDS conforms to OSHA Hazard Communication Standard 29 CFR 1910.1200.

### Section 1. Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Product Name: Spa Frog® Mineral Cartridge  
Chemical Name: Contains Silver Chloride

#### 1.2 Relevant identified uses of the substances or mixture and uses advised against

Only for use in the treatment of water used in spas, hot tubs and other venues meant for human bathing.

#### 1.3 Details of the supplier of the safety data sheet

##### European Contact:

Golden Coast Ltd.  
Fishleigh Road  
Barnstaple, Devon EX31 3UA

swimmer@goldenc.com

+44 1271 378100

##### Manufacturer:

King Technology Inc,  
530 11<sup>th</sup> Avenue South  
Hopkins, MN 55343  
USA

customer.service@kingtechnology.com

+1-952-933-6118

#### 1.4 Emergency telephone number

Emergency telephone number: Chemtrec: +1-703-741-5970 (Operational 24 hours a day)



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### Section 2. Hazards Identification

**MIXTURE:**

**2.1 Classification of the mixture**

**2.1.1 Classification in accordance with Regulation (EC) No. 1272/2008 [CLP]:**

Aquatic Acute 1, H400,  
Aquatic Chronic 1, H410.

**Hazard Statements:**

H400: Very toxic to aquatic life  
H410: Very toxic to aquatic life with long-lasting effects.

**2.1.2 Classification according to Directive 1999/45/EEC:**

**List of Risk Phrases:**

R38: Irritating to the skin.  
R50: Very toxic to aquatic organisms.  
Xi: Irritant  
N: Dangerous for the Environment

**Physicochemical hazards:** No known physicochemical hazards.

**Human health hazards:** May cause irritation to the skin and eye.

**Environmental Hazards:** Very toxic to aquatic organisms with long-lasting effects.

**2.2 Label elements**

**Labelling in accordance with the CLP Regulation EC (No) 1272/2008**



<b>Signal word</b>	Warning
<b>Hazard statements</b>	H400: Very toxic to aquatic life H410: Very toxic to aquatic life with long lasting effects
<b>Precautionary statements</b>	P102: Keep out of the reach of children P234: Keep only in original container P264: Wash thoroughly after handling P305+P351+P338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P273: Avoid release to the environment P501: Dispose of contents/container according to local legislation P391: Collect spillage



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### 2.3 Other hazards

The mixture is in a granular form with not more than 1% silver chloride and is not known to be corrosive to metals in this form.

<b>PBT / vPvB:</b>	Not expected to be PBT/vPvB
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### Section 3. Composition/Information on ingredients.

Name	CAS Number	EINECS Number	% Composition	Classification according to Directive 67/548/EEC	Classification according to Regulation (EC) No. 1272/2008	REACH Registration number
Limestone granules (calcium carbonate)	471-34-1	207-439-9	>98	Not classified	Not classified	
Silver chloride	7783-90-6	232-033-3	<1	N, R50,53.	Aquatic Acute 1, H400, (M-factor = 1000) Aquatic Chronic 1, H410 (M-factor = 100)	01-2119967399-16-XXXX

### Section 4. First Aid Measures

#### 4.1 Description of first aid measures

##### Inhalation

Inhalation exposure is unlikely. However, in the event of exposure, seek medical attention if required.

##### Skin contact

Flush the skin immediately with plenty of water. Seek medical attention if irritation persists after washing.

##### Accidental eye contact

Eye contact is unlikely. In the event of exposure, flush eyes with water thoroughly and continuously for at least 15 minutes. Seek medical attention if required.

##### Ingestion

Ingestion of significant amounts of minerals is unlikely. In the event of exposure, seek medical attention if required.

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

Possible skin burn may occur following contact with the skin. In addition to this, respiratory tract irritation and eye irritation may occur following exposure to the product. Where large amounts are ingested, digestive tract irritation with nausea, vomiting and diarrhoea may occur, in addition to cyanosis and argyria, due to accumulation of silver in the body.

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

Please refer to the recommendations provided in Section 4.1.



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### Section 5. Firefighting Measures

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#### 5.1 Extinguishing media

Use appropriate extinguishing media, including water spray, fog or mist or alcohol resistant foam.

#### 5.2 Special hazards arising from the substance or mixture

There are no unusual fire and explosion hazards with this material. As the cartridge is made of plastic, it is possible that hazardous combustion products may be generated in a fire.

#### 5.3 Advice for fire-fighters

Normal safe practices should be employed, with no known additional protective measures required.

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### Section 6. Accidental Release Measures

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#### 6.1 Personal precautions, protective equipment and emergency procedures

The product ingredients are securely held within the cartridge and should not be released even during use. If the canister opens and mineral spillage occurs, the product may be considered an under foot safety hazard due to reduced traction.

#### 6.2 Environmental precautions

Confine the spill using appropriate methods. Do not empty into drains.

#### 6.3 Methods and material for containment and cleaning up

Collect any spilled material and reclaim or dispose of in sealed containers in licensed waste. Avoid contact with water while the product is in storage. If the product is released prior to use, it should be recovered dry prior to the use of water in the final clean up.

#### 6.4 Reference to other sections

Refer to section 16 of SDS for personal protection details.

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### Section 7. Handling and Storage

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#### 7.1 Precautions for safe handling

If used according to instructions, no specific conditions or protection are required. Do not attempt to remove the contents of the cartridge. If skin becomes contaminated with contents of cartridge, wash with water. Remove contaminated clothing and wash before re-use.

#### 7.2 Condition for safe storage, including any incompatibilities

Cartridges should not be removed from their packaging during storage. Cartridges should be stored in a dry location and should not be stored near acids.



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### 7.3 Specific end use(s)

The product is only for use in spas and hot tubs.

## Section 8. Exposure Controls/Personal Protection

### 8.1 Control parameters

Workers:

#### Operational Exposure Limits for Limestone granules (calcium carbonate):

France	10 mg/m <sup>3</sup> inhalable aerosol (Eight hour limit value)
Latvia	6 mg/m <sup>3</sup> (Eight hour limit value)
Poland	10 mg/m <sup>3</sup> (Eight hour limit value)
Spain	10 mg/m <sup>3</sup> inhalable aerosol (Eight hour limit value)
United Kingdom	10 mg/m <sup>3</sup> inhalable aerosol (Eight hour limit value)
	4 mg/m <sup>3</sup> respirable aerosol (Eight hour limit value)

The EU IOELV for soluble silver compounds is 0.01 mg/m<sup>3</sup> for an 8-hour TWA.

#### DNELS

##### Silver Chloride (source: REACH disseminated on ECHA website)

			DNEL
Workers	Inhalation route	Systemic long term exposure	0.13 mg/m <sup>3</sup>
	Eyes	Local effects	No hazard identified
General population	Inhalation route	Systemic long term exposure	0.053 mg/m <sup>3</sup>
	Oral	Systemic long term exposure	1.59 mg/kg bw/day
	Eyes	Local effects	No hazard identified

##### Limestone (calcium carbonate) (source: REACH disseminated on ECHA website)

			DNEL
Workers	Inhalation route	Systemic long term exposure	10 mg/m <sup>3</sup>
		Systemic Acute/short term	No-threshold effect and/or no dose-response information available
		Local effects long term exposure	No-threshold effect and/or no dose-response information available
		Local effects acute/short term	No-threshold effect and/or no dose-response information available
	Dermal	Systemic long term exposure	Exposure based waiving
		Systemic Acute/short term	No-threshold effect and/or no dose-response information available
		Local effects long term exposure	Exposure based waiving
		Local effects acute/short term	No-threshold effect and/or no dose-response information available



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General population	Inhalation route	Systemic long term exposure	10 mg/m <sup>3</sup>
		Systemic Acute/short term	No-threshold effect and/or no dose-response information available
		Local effects long term exposure	No-threshold effect and/or no dose-response information available
		Local effects acute/short term	No-threshold effect and/or no dose-response information available
	Dermal route	Systemic long term exposure	Exposure based waiving
		Systemic Acute/short term	No-threshold effect and/or no dose-response information available
		Local effects long term exposure	Exposure based waiving
		Local effects acute/short term	No-threshold effect and/or no dose-response information available
	Oral route	Systemic long term exposure	6.1 mg/kg bw/day
		Systemic Acute/short term	6.1 mg/kg bw/day

### PNECs

#### Silver chloride (source: REACH disseminated on ECHA website)

	PNEC
Aqua freshwater	0.04 µg/L
Aqua marine water	0.86 µg/L
STP	0.025 mg/L
Sediment freshwater	438.13 mg/kg sediment dw
Sediment marine water	438.13 mg/kg sediment dw
Soil	0.794 mg/kg soil dw

#### Limestone (source: REACH disseminated on ECHA website)

STP	100 mg/L
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## 8.2 Exposure controls

### Appropriate Engineering Controls

Use appropriate engineering controls to reduce air contamination to permissible exposure levels in the event that dust particles may migrate to the grooves and divots of the cartridge moulding during setting of the cartridge to the required setting.

### Respiratory protection

All handling operations should take place in well ventilated areas, with the use of specific dust masks if required in non-ventilated areas in the event that dust particles may migrate to the grooves and divots of the cartridge moulding.

### Hand protection

Suitable gloves should be worn. Suitable gloves to provide short-term protection from splashes include those made from rubber, neoprene or PVC. Gloves should be discarded and replaced if signs of degradation are observed.

### Eye protection

Wear approved safety goggles or face shield.



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### Skin protection

As the product is non-dusty, operators are not required to use specific skin protection. If the contents get on clothes, remove clothing and launder. No special laundering procedures are required and clothing may be re-used after cleaning.

### Thermal Hazards

No information provided.

### Environmental Exposure Controls

Product should be used according to the instructions only.

## Section 9. Physical and Chemical Properties

### 9.1 Information on basic physical and chemical properties

<b>Appearance:</b>	White granular solid
<b>Mesh:</b>	<1/4 inch (0.65 cm) and > 8 mesh (0.3cm)
<b>Odour:</b>	None
<b>pH:</b>	6.7 – 6.8
<b>Melting point/freezing point °C:</b>	The main inorganic constituent >800 °C. Silver Chloride >450 °C
<b>Flash point:</b>	Not applicable to any constituent
<b>Evaporation rate:</b>	Not applicable to the main inorganic constituent. No data available for silver chloride
<b>Flammability:</b>	Not flammable
<b>Upper/lower flammability or explosive limit:</b>	Not flammable
<b>Vapour pressure:</b>	Not applicable to the main inorganic constituent Silver chloride is negligible
<b>Relative Density:</b>	2.7 – 2.8 g/mL
<b>Bulk density:</b>	1.3 – 1.4 g/mL
<b>Solubility:</b>	The main inorganic constituent is sparingly soluble. Silver chloride is slightly soluble in water.
<b>Partition Coefficient: n-octanol/water:</b>	Not applicable to any constituent
<b>Auto-ignition temperature:</b>	Not auto ignitable
<b>Decomposition temperature:</b>	No data available
<b>Viscosity:</b>	Not applicable mixture is a solid
<b>Explosivity:</b>	Not explosive
<b>Oxidising:</b>	Not expected to have oxidising properties

### 9.2 Other information

**Corrosion characteristics:** Expected to be entirely non-corrosive. The mixture is in a granular form with not more than 1% silver chloride and is not known to be corrosive to metals in this form.

**Dielectric breakdown:** Not required as not a conductive liquid and will not be used around electrical equipment.



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### Section 10. Stability and Reactivity

#### 10.1 Reactivity

The product is stable under normal conditions of use.

#### 10.2 Chemical stability

The product is stable under normal conditions.

#### 10.3 Possibility of hazardous reactions

Under normal conditions of use, there should be no risk of hazardous reactions.

#### 10.4 Conditions to avoid

Under the normal conditions of use for this product, there are no specific conditions that would cause a dangerous reaction.

#### 10.5 Incompatible materials

Spa Frog® Mineral Cartridge will react with acid to form carbon dioxide.

#### 10.6 Hazardous decomposition products

The product will react with acid to form carbon dioxide which is an asphyxiation hazard.

### Section 11. Toxicological Information

#### 11.1 Information on toxicological effects

The information outlined in the sections below has been taken from the original Safety Data Sheet, with no additional information researched.

##### Acute Oral Toxicity:

Spa Frog® Mineral Cartridge is expected to be practically non-toxic following ingestion. However, ingestion of large amounts may cause gastrointestinal irritation and blockage.

##### Acute Inhalation Toxicity:

Dusts from Spa Frog® Mineral Cartridge may irritate the nose, throat and respiratory tract by mechanical abrasion. Coughing, sneezing and shortness of breath may occur following exposures in excess of appropriate exposure limits.

##### Skin Corrosion/Irritation:

Direct contact with the skin may cause irritation by mechanical abrasion. However, skin absorption is not expected to be a significant route of exposure.

##### Serious eye damage/irritation:

Direct contact with dust particles of Spa Frog® Mineral Cartridge may cause irritation by mechanical abrasion.





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**Sensitization:**

Spa Frog® Mineral Cartridge is not considered to be a sensitizer.

**Carcinogenicity:**

No evidence of carcinogenicity.

**Germ cell Mutagenicity:**

No evidence of mutagenicity following *in vitro* and *in vivo* studies.

**Reproductive Toxicity:**

No evidence of reproductive toxicity.

**Route of exposure:**

The expected route of exposure is *via* the dermal and inhalation routes.

**Symptoms related to the physical, chemical and toxicological characteristics:**

Skin, eye and respiratory irritation may occur by mechanical abrasion following exposure to Spa Frog.

### Section 12. Ecological Information

#### 12.1 Toxicity

As the main inorganic limestone constituent is considered to be a ubiquitous natural mineral, it is considered to be of no ecotoxicological concern.

Silver chloride is classified as Aquatic Acute Cat 1 H400 and Aquatic Chronic H410 according to the REACH registration. Data from the disseminated REACH registration is given in the table below

Aquatic toxicity	Exposure time	Species	Evaluation	Remarks
Acute fish toxicity	96h	<i>Pimephales promelas</i>	LC <sub>50</sub> : 1.2 µg/L	When tested using silver nitrate.
Chronic fish toxicity	196 day	<i>Oncorhynchus mykiss</i>	EC <sub>10</sub> : 0.17 µg/L	When tested using silver nitrate.
Acute invertebrate toxicity	48h	<i>Daphnia magna</i>	NOEC: 1.48 µg/L	When tested using silver nitrate.
Algal growth inhibition	15 day	<i>Nostoc muscorum</i>	0.57µg/L	When tested using silver chloride.

#### 12.2 Persistence and degradability

Due to silver being rapidly absorbed by sediments and organic materials in aquatic systems it is not readily available to the environment.

#### 12.3 Bioaccumulative potential

Not applicable.



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### 12.4 Mobility in soil

Silver chloride is likely to be of low mobility in soil.

### 12.5 Results of PBT and vPvB assessment

According to Annex XIII of regulation (EC) 1907/2006 a PBT and vPvB assessment shall not be conducted for inorganic substances. Silver chloride is an inorganic substance; thus, a PBT and vPvB assessment is not required.

### 12.6 Other adverse effects

No other specific effects on the environment are expected based on the environmental fate and ecotoxicological behaviour of the constituents.

## Section 13. Disposal Considerations

### 13.1 Waste treatment methods

**Disposal operations** To dispose of the cartridge, after four months of use or when draining and refilling the spa with fresh water, discard Spa Frog® Mineral Cartridge in the refuse, even if it appears that there is spent media left inside the cartridge. Once wetted, the time released minerals are effective for up to four months.

**Disposal of packaging** Do not reuse empty containers. Do not attempt to open the cartridge or remove contents

**Please follow all local, regional, national and international laws.**

## Section 14. Transport Information

This product is not subject to dangerous goods transport regulations due to the fact that the substance is contained within a cartridge in a granular form with not more than 1% silver chloride and as packaged and offered for transport does not pose an environmental hazard.

### 14.1 UN number

The product is not regulated by international transport regulations for any modes of transport.

### 14.2 UN proper shipping name

The product is not regulated by international transport regulations for any modes of transport.

### 14.3 Transport hazard class(es)

The product is not regulated by international transport regulations for any modes of transport.

### 14.4 Packing group

The product is not regulated by international transport regulations for any modes of transport.



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### 14.5 Environmental hazards

The product is not regulated by international transport regulations for any modes of transport.

### 14.6 Special precautions for user

The product is not regulated by international transport regulations for any modes of transport.

### 14.7 Transport in bulk

This product is not transported in bulk

## Section 15. Regulatory Information

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

No information provided.

### 15.2 Chemical safety assessment

Not applicable

### 15.3 Use Biocides safely

## Section 16. Other Information

### Other information

This safety data sheet is prepared in accordance with Regulation (EU) No 453/2010.

**Note:** The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

### Details of change from previous version:

- New Product SDS. CLP Classification has been moved from Section 15 to Section 2.

### List of Precautionary Statements

P102 – Keep out of the reach of children

P234 – Keep only in original container

P264 – Wash thoroughly after handling

P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes

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

P273: Avoid release to the environment

P501: Dispose of contents/container according to local legislation

P391: Collect spillage



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**List of definitions:**

CAS number: Chemical Abstracts Service Registry number

DNEL's: Derived No Effects Level

DMEL's: Derived Minimal Effects Level

EEC: European Economic Community

EC: European Commission/Community

EC<sub>50</sub>: Half maximal effective concentration.

EINECS: European Inventory of Existing Commercial Chemical Substances.

LC<sub>50</sub>: Lethal Concentration at which 50% of the population tested died.

PBT: Persistent Bioaccumulative Toxic

SDS: Safety Data Sheet

vPvB: very Persistent very Bioaccumulative