

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 formatting described in the REACH Annex II Amendment (EU) 2015/830, and described in CLP Regulation (EC) No 1272/2008 and subsequent amendments.

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

1.1 Product identifier

Product Name: SPA Frog Bromine Cartridge
Chemical Name: 1-bromo-3-chloro-5,5-dimethylhydantoin
CAS Number: 32718-18-6
EINECS Number: 251-171-5

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

+44 1271 378100

Manufacturer:

King Technology Inc,
530 11th Avenue South,
Hopkins, MN 55343
U.S.A.
sdsinfo@kingtechnology.com
+1 952 933 6118

1.4 Emergency telephone number

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

Section 2. Hazards Identification

SUBSTANCE:

2.1 Classification of the substance

Classification according to Regulation (EC) No. 1272/2008.	Ox. Sol. 3; H272 May intensify fire; oxidizer Acute Tox 4; H302 Harmful if swallowed. Skin Corr. 1B; H314 Causes severe skin burns and eye damage. Skin Sens. 1; H317 May cause an allergic skin reaction. Aquatic Acute; 1 H400 Very toxic to aquatic life. EUH031; Contact with acids liberates toxic gases.
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2.2 Label elements

Regulation (EC) No 1272/2008:



Signal word

Danger

Hazard Statements

H272:	May intensify fire; oxidizer
H302:	Harmful if swallowed.
H314:	Causes severe skin burns and eye damage.
H317:	May cause an allergic skin reaction.
H400:	Very toxic to aquatic life.
EUH031	Contact with acids liberates toxic gas.

Precautionary statements:

P210:	Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
P220:	Keep/Store away from combustible materials.
P221:	Take any precaution to avoid mixing with combustibles.
P260:	Do not breathe dust/fumes/gas/mist/vapours/spray.
P273:	Avoid release to the environment.
P280:	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331+P312:	IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell.
P303+P361+P353:	IF ON SKIN (or hair): Immediately remove all contaminated clothing. Rinse skin with water/shower.
P304+P340:	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310:	Immediately call Poison Control Center or doctor.

P333+P313:	If skin irritation or rash occurs get medical advice/attention.
P362+P364:	Remove all contaminated clothing and thoroughly wash before reuse.
P370 + P378:	In case of fire: use foam, carbon dioxide, dry powder, or water fog to extinguish.
P391:	Collect spillage.
P405:	Store locked up.

2.3 Other hazards

May form explosive dust-air mixture if disbursed.

PBT / vPvB:	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 Regulation (EC) No. 1272/2008	REACH Registration Number
1-bromo-3-chloro-5,5-dimethylhydantoin	32718-18-6	251-171-5	96-99.5%	Ox. Sol. 3 H272 Acute Tox. 4 H302 Acute Tox. 4 H332 Skin Corr. 1B H314 Skin Sens. 1 H317 Aquatic Acute 1 H400	N/A

Section 4. First Aid Measures

4.1 Description of first aid measures

Inhalation

Remove victim to fresh air. Keep victim warm and at rest, preferably in a comfortable upright sitting position. Seek immediate medical attention.

Skin contact

Take off all contaminated clothing. Immediately flush the skin immediately with plenty of water; continue for 15-20 minutes. Seek medical attention if irritation persists after washing.

Accidental eye contact

Flush eyes with water thoroughly and continuously for at least 15 minutes. Keep eyes wide open while rinsing. Protect unharmed eye. If there are signs of irritation or other symptoms, seek medical attention.

Ingestion

Do not induce vomiting. Clean mouth with water and drink plenty of water afterwards. Do not give anything by mouth to an unconscious person. Seek medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed

-Ocular	Corrosive.
-Dermal	Corrosive. Exposure to wet skin may cause burns.
-Inhalation	Irritant to upper respiratory tract.
-Ingestion	Harmful if swallowed.
-Sensitization	May cause skin sensitization.

4.3 Indication of any immediate medical attention and special treatment needed

Please refer to the recommendations provided in Section 4.1.

Section 5. Firefighting Measures

5.1 Extinguishing media

Dry powder, carbon dioxide, or water spray. Water spray may be ineffective. In case of exothermic decomposition and appearance of smoke, water should be used to suppress it. Do not use dry chemical extinguisher containing ammonia compounds.

5.2 Special hazards arising from the substance or mixture

Fire may cause the formation of toxic gases. On combustion, hazardous products may include toxic gases/vapours/fumes of bromine or chlorine and oxides of carbon or nitrogen.

5.3 Advice for fire-fighters

Cool containers with water spray. In closed stores, provide fire fighters with self-contained breathing apparatus in positive pressure mode.

Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate area. Use respirator with combined filter (inorganic gas and dust), gloves, chemical safety goggles and body covering clothes. If material is decomposing, use self-contained breathing apparatus and a fully encapsulated suit. Wash thoroughly after dealing with a spillage.

6.2 Environmental precautions

Provide ventilation and confine spill. Do not allow runoff to sewers. The treated water should not be discharged directly to surface waters.

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 generation and spreading of dust. 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 8 and/or Section 13 of SDS for personal protection details.

Section 7. Handling and Storage

7.1 Precautions for safe handling

Avoid handling product in a way that dust may be formed. If air contamination is above accepted levels, use an approved respirator. Do not use in a confined space without adequate ventilation and/or respirator. Avoid spillages and any contact with the skin or eyes.

7.2 Condition for safe storage, including any incompatibilities

Keep in original container. Keep container closed when not in use. Keep in a cool, dry, ventilated storage place. Protect from light, including direct sun rays. Avoid contact with any acids and combustible materials.

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

Components	Weight %	ACGIH-TLV Data	UK (WEL) – TWA	Germany MAK (TRGS 900) data
1-bromo-3-chloro-5,5-dimethylhydantoin 32718-18-6	96-99.5%	Not determined	Not determined	Not determined

Manufacturer's TLV-TWA Recommendation 0.01 mg/m³

Manufacturer's Recommendation 0.01 mg/m³

8.2 Exposure controls

Appropriate Engineering Controls

Use appropriate engineering controls in the form of adequate ventilation 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.

Skin protection

Wear appropriate protective clothing (overalls) to prevent any possibility of skin contact.

Thermal Hazards

No information provided.

Environmental Exposure Controls

No additional information provided.

Section 9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance:	Off-white granular solid.
Odour:	Slight odour
Odour Threshold:	Lower = not applicable Upper = not applicable
pH:	3.5 (diluted solution)
Melting point/range:	Not applicable (decomposes)
Boiling point/range:	Not applicable
Decomposition temperature:	160°C
Flash point:	Not applicable
Flammability/Explosion Limits:	Not available
Evaporation rate (ether = 1):	Not applicable under standard conditions
Vapour pressure:	9.35x10 ⁽⁻³⁾ Pa (25°C)
Vapour density:	Not applicable under standard conditions
Specific gravity:	1.8-2.0
Solubility:	
- Solubility in water:	0.22 g/100ml at 25°C
- Solubility in other solvents:	Benzene: 2.5 g/100ml at 25°C
Partition coefficient (n-octane/water)	Kow = <1 (pH 5-9)
Auto-ignition temperature:	Not available
Viscosity:	Not applicable
Explosive properties:	Dust may form a weak explosive mixture with air (class St1), but is considered insensitive to ignition from electrostatic discharges.
Oxidizing properties:	Expected to have oxidizing properties
Particle size:	Not available

9.2 Other information

No additional information.

Section 10. Stability and Reactivity

10.1 Reactivity

Combustible materials. Oxidizing agents. Bases.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Will not polymerize. Contact with combustible materials may initiate decomposition of the material and emission of smoke.

10.4 Conditions to avoid

Avoid contact with oxidisers or reducing agents, acids or alkalis. Avoid contact with moisture during storage.

10.5 Incompatible materials

Bases. Oxidizing agents. Combustible organic materials.

10.6 Hazardous decomposition products

Toxic gases, vapours or fumes of hydrogen bromide, bromine, hydrogen chloride and chlorine. Oxides of carbon and nitrogen may also be formed.

Section 11. Toxicological Information

11.1 Information on toxicological effects

Acute Oral Toxicity:

Following oral administration of the substance to rats, the LD₅₀ was determined to be 929 mg/kg.

Acute Dermal Toxicity:

Following dermal application of the substance to the skin of rabbits, the LD₅₀ was determined to be >2000mg/kg.

Skin Corrosion/Irritation:

The substance is expected to cause burns.

Serious eye damage/irritation:

The substance is expected to cause burns.

Respiratory or skin sensitisation:

No information available. Based on available data the classification criteria are not met.

Carcinogenicity:

Not expected to be carcinogenic.

Germ cell Mutagenicity:

A reverse bacterial mutagenicity study (Ames test) indicated negative results, meaning the substance is not mutagenic.

Reproductive toxicity:

No information available. Based on available data the classification criteria are not met.

STOT-single exposure:

No information available. Based on available data the classification criteria are not met.

STOT-repeated exposure:

No information available. Based on available data the classification criteria are not met.

Aspiration hazard:

No information available. Based on available data the classification criteria are not met.

Route of exposure:

The expected route of exposure is *via* the dermal route.

Symptoms related to the physical, chemical and toxicological characteristics:

Following exposure to SPA Frog Bromine Cartridge, burns to the eyes and skin may result. If SPA Frog Bromine Cartridge is ingested, damage may be caused to internal organs.

Section 12. Ecological Information

12.1 Toxicity

Aquatic toxicity

96 hour – LC50, Fish	1.2 mg/l (Eastern oyster, Acute flow through)
	1.9 mg/l (Mysid shrimp, Acute flow through)
	0.4 mg/l (Rainbow trout, Static)
	0.46 mg/l (Bluegill sunfish, Static)
	1.6 mg/l (Sheepshead minnow, Acute flow through)
48 hour – LC50, Daphnia magna	0.75 mg/l (Static)

Avian toxicity

Oral LD50, Bobwhite quail	1839 mg/l
Dietary LC50, Mallard duck	>5620 ppm
Dietary LC50, Bobwhite quail	>5620 ppm

12.2 Persistence and degradability

Degradable by hydrolysis.

12.3 Bioaccumulative potential

Expected to be of low bioaccumulative potential.

12.4 Mobility in soil

No information provided.

12.5 Results of PBT and vPvB assessment

Since the substance is regulated under BPR, Regulation (EU) 528/2012, there is no PBT and vPvB assessment presented in the same format as per the REACH Regulation

12.6 Other adverse effects

Not applicable.

Section 13. Disposal Considerations

13.1 Waste treatment methods

Disposal of product: Dispose of in accordance with all waste regulations at a legal waste disposal facility. Do not reuse empty containers. Rinse thoroughly before discarding.

Disposal of packaging: Dispose of packaging with residue of product in the same manner as the product. Dispose of in accordance with all waste regulations at a legal waste disposal facility.

Waste Code: EAL 200129

Section 14. Transport Information

14.1 UN number

UN3085

14.2 UN proper shipping name

Oxidising Solid, Corrosive, N.O.S. (contains 1-bromo-3-chlor-5, 5-dimethylhydantoin)

14.3 Transport hazard class(es)

5.1+8

14.4 Packing group

III

14.5 Environmental hazards

Yes

14.6 Special precautions for user

No additional information

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

No additional information provided.

Section 15. Regulatory Information

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

No information provided. Going through active BPR regulation registration process.

15.2 Chemical safety assessment

Not applicable as substance is being regulated in accordance with BPR 528/2012.

15.3 Use Biocides safely

Section 16. Other Information

Other information

This safety data sheet is prepared in accordance with REACH Annex II Amendment (EU) 2015/830.

H272 – May intensify fire; oxidizer in the classification of the substance

H302 – Harmful if swallowed

H314 – Causes severe skin burns and eye damage

H317 – May cause an allergic skin reaction

H400 – Very toxic to aquatic life

EUH031 – Contact with acids liberates toxic gas

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 revision number
- Section 2.1: Added "Ox. Sol. H272: May intensify fire; oxidizer in the classification of the substance."
- Section 2:2: Added oxidizing pictogram and the following phrases:
 - Ox. Sol. H272: May intensify fire; oxidizer in the classification of the substance.
 - P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
 - P220: Keep/Store away from combustible materials.
 - P221: Take any precaution to avoid mixing with combustibles.
 - P370 + P378: In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish
- Section 3: updated to include Ox. Sol H272
- Section 9: updated to include Odour Threshold
- Section 14.2: added "(contains 1-bromo-3-chlor-5, 5-dimethylhydantoin)"
- Section 16: updated to include Ox. Sol H272

List of definitions:

BPR: Biocidal Product Regulation

CAS number: Chemical Abstracts Service Registry number

EEC: European Economic Community

EC: European Commission/Community

EC₅₀: Half maximal effective concentration.

EINECS: European Inventory of Existing Commercial Chemical Substances.

LC₅₀: Lethal Concentration at which 50% of the population tested died.

PBT: Persistent Bioaccumulative Toxic

SDS: Safety Data Sheet

vPvB: very Persistent very Bioaccumulative.