

MATERIAL SAFETY DATA SHEET

1. Identification of the substance or mixture and of the supplier

A. GHS product identifier SALADDIN CAR FUMIGATION DEODORIZER_FOREST for AC SYSTEM

B. Recommended use of the chemical and restrictions on use

Recommended use Air heater fumigation cans

Restrictions on use Please do not use it other than the use.

C. Supplier

Company name Bullstone

Address 7F, Dabong Tower, 418, Teheran-ro Gangnam-gu, Seoul, 135-839, Korea

Emergency phone number 822-2106-7777

Respondent Han Dong Jin

Fax 822-2106-7911

2. Hazards identification

A. GHS classification of the substance/mixture

Skin corrosion/irritation : Category 1A-1C

Serious eye damage /eye irritation : Category 1

Specific target organ toxicity (single exposure) : Category 3 (narcotic effects)

Hazardous to the aquatic environment (acute hazard) : Category 3

B. GHS label elements, including precautionary statements

Pictogram and symbol :



Signal word : Danger

Hazard statements :

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H336 May cause drowsiness or dizziness.

H402 Harmful to aquatic life.

Precautionary statements

Precaution

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash ... thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

Treatment

P301+P330+P331 If swallowed: Rinse mouth. Do not induce vomiting.

P303+P361+P353 If on skin (or hair): Remove/Take off immediately all contaminated clothing.

Rinse skin with water/shower.

P304+P340 If inhaled: Remove victim to fresh air and keep at rest in a position 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 a poison center or doctor/physician.

P312 Call a poison center or doctor/physician if you feel unwell.

P321 Actions by referring to the first aid instructions on the additional label.

P363 Wash contaminated clothing before reuse.

Storage

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

Disposal

P501 Dispose the contents/container in accordance with local/regional/national/international regulations.

C. Other hazard information not included in hazard classification (NFPA)

Health 3

Flammability Not available

Reactivity Not available

3. Composition/information on ingredients

Chemical Name	Common Name(Synonyms)	CAS number	EC number	Content (%)
4-Isopropyl-3-methylphenol		3228-02-2	221-761-7	5~10 %
Water	Dihydrogen oxide	7732-18-5	231-791-2	30~35 %
Calcium oxide	Quicklime	1305-78-8	215-138-9	60~65 %

4. First aid measures

A. Eye contact

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Call emergency medical service.

B. Skin contact

- If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- Call a poison center or doctor/physician if you feel unwell.
- Wash contaminated clothing before reuse.
- For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat.
- Call emergency medical service.
- Remove and isolate contaminated clothing and shoes.
- For minor skin contact, avoid spreading material on unaffected skin.

C. Inhalation

- Immediately call a poison center or doctor/physician.
- If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.

D. Ingestion

- If swallowed: Rinse mouth. Do not induce vomiting.
- Call emergency medical service.

E. Indication of immediate medical attention and notes for physician

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. Fire fighting measures

A. Suitable (and unsuitable) extinguishing media

- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
- Use dry sand or earth to smother fire.

B. Specific hazards arising from the chemical

- Material may produce irritating and highly toxic gases from decomposition by heat and combustion during burning
- Containers may explode when heated.
- Some of these materials may burn, but none ignite readily.
- Non-combustible, substance itself does not burn but may decompose upon heating, then produce corrosive and/or toxic fumes.

C. Special protective equipment and precautions for fire-fighters

- Rescuers should put on appropriate protective gear.
- Evacuate area and fight fire from a safe distance.
- Substance may be transported in a molten form.
- Dike fire-control water for later disposal; do not scatter the material.
- Move containers from fire area if you can do it without risk.
- Fire involving Tanks; Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Fire involving Tanks; Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks; Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Fire involving Tanks; Always stay away from tanks engulfed in fire.
- Fire involving Tanks; For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

6. Accidental release measures**A. Personal precautions, protective equipment and emergency procedures**

- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Clean up spills immediately, observing precautions in Protective Equipment section.
- Eliminate all ignition sources.
- Stop leak if you can do it without risk.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Cover with plastic sheet to prevent spreading.
- Prevent dust cloud.
- Please note that there are materials and conditions to avoid.

B. Environmental precautions and protective procedures

- Prevent entry into waterways, sewers, basements or confined areas.

C. The methods of purification and removal

- Absorb spills with inert material (e.g., dry sand or earth), then place in a chemical waste container.
- Absorb the liquid and scrub the area with detergent and water.
- Large Spill; Dike far ahead of liquid spill for later disposal.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.
- Powder Spill; Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- Small Spill; Take up with sand or other non-combustible absorbent material and place into containers for later disposal.

7. Handling and storage**A. Precautions for safe handling**

- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Wash ... thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Use carefully in handling/storage.
- Loosen closure cautiously before opening.
- Avoid prolonged or repeated contact with skin.

- Please note that there are materials and conditions to avoid.
- Please work with reference to engineering controls and personal protective equipment.

B. Conditions for safe storage

- Store in a well-ventilated place. Keep container tightly closed.
- Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.

8. Exposure controls/personal protection

A. Occupational Exposure limits

Korea regulation

Calcium oxide TWA = 2 mg/m³

ACGIH regulation

Calcium oxide TWA = 2 mg/m³

Biological exposure index : Not available

OSHA regulation

Calcium oxide TWA = 5 mg/m³

NIOSH regulation

Calcium oxide TWA = 2 mg/m³

EU regulation : Not available

Other

Calcium oxide UK : TWA = 2 mg/m³, STEL = 6 mg/m³(calculated), Australia : TWA = 2 mg/m³,
France : TWA = 2 mg/m³

B. Appropriate engineering controls

- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- Facilities for storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

C. Personal protective equipment

Respiratory protection

- Wear NIOSH or European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment when necessary.
- In case exposed to particulate material, the respiratory protective equipments as follow are recommended. ;facepiece filtering respirator or air-purifying respirator, high-efficiency particulate air(HEPA) filter media or respirator equipped with powered fan, filter media of use(dust, mist, fume)
- In lack of oxygen(< 19.5%), wear the supplied-air respirator or self-contained breathing apparatus.oxygen

Eye protection

- Wear breathable safety goggles to protect from particulate material causing eye irritation or other disorder.
- An eye wash unit and safety shower station should be available nearby work place.

Hand protection

- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

Body protection

- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.

9. Physical and chemical properties

A. Appearance

Description Solid

Color Yellowish powder

B. Odor Product-specific odor

C. Odor threshold Not available

D. pH Not available

- E. Melting point/freezing point** Not available
- F. Initial boiling point and boiling range** Not available
- G. Flash point** Not available
- H. Evaporation rate** Not available
- I. Flammability (solid, gas)** Not applicable
- J. Upper/lower flammability or explosive limits** Not available
- K. Vapor pressure** Not available
- L. Solubility (ies)** Not available
- M. Vapor density** Not available
- N. Specific gravity** Not available
- O. Partition coefficient: n-octanol/water** Not available
- P. Auto ignition temperature** Not available
- Q. Decomposition temperature** Not available
- R. Viscosity** Not available
- S. Molecular weight** Not available

10. Stability and reactivity

A. Chemical stability and Possibility of hazardous reactions:

- Containers may explode when heated.
- Some of these materials may burn, but none ignite readily.
- Non-combustible, substance itself does not burn but may decompose upon heating, then produce corrosive and/or toxic fumes.
- Fire will produce irritating, corrosive and/or toxic gases.

B. Conditions to avoid:

- Heat, sparks or flames

C. Incompatible materials:

- Combustibles, reducing agents

D. Hazardous decomposition products:

- Material may produce irritating and highly toxic gases from decomposition by heat and combustion during burning
- Corrosive and/or toxic fume

11. Toxicological information

A. Information of Health Hazardous:

Acute toxicity

Oral Not classified

- **Calcium oxide** : Rat LD₅₀ > 2,000 mg/kg (female)(OECD TG 425, GLP)

Dermal Not classified

- **Calcium oxide** : Rabbit LD₅₀ > 2,500 mg/kg (OECD TG 402)

Inhalation Not classified

Skin corrosion/ irritation Category 1A-1C

- **Calcium oxide** : In skin irritation test with rabbits, no irritation was observed (OECD TG 404, GLP).

Serious eye damage/ irritation Category 1

- **Calcium oxide** : In eye irritation test with rabbits, very severe eye reactions were observed with a slight chemosis, a necrotised appearance of the conjunctiva, and total opacity of the cornea (OECD TG 405, GLP).

Respiratory sensitization Not classified

Skin sensitization Not classified

- **Calcium oxide** : Not sensitising.

Carcinogenicity Not classified

KOREA-ISHL, IARC, NTP, OSHA, ACGIH, EU Regulation 1272/2008: not listed

Calcium oxide : In carcinogenicity study with rats, no toxicity or carcinogenic activity were seen (NOAEL(carcinogenicity)= 2280 mg/kg bw/day)(female, read-across ; CAS No. 814-80-2).

Mutagenicity Not classified

- **Calcium oxide** : In vitro Bacterial Reverse Mutation Assay was negative.(OECD TG 471, GLP)

Reproductive toxicity Not classified

- **Calcium oxide** : In developmental toxicity study with rats, no significant adverse effects and evidence of malformations were observed.(NOAEL(developmental toxicity) = 680 mg/kg bw/day)(OECD TG 414)

Specific target organ toxicity (single exposure) Category 3 (narcotic effects)

- **Calcium oxide** : In acute oral toxicity study with rats, no effects were seen other than reversible clinical signs such as hunched posture in three of five animals, slight sedation in one animal.(female, OECD TG 425, GLP)

Specific target organ toxicity (repeat exposure) Not classified

- **Calcium oxide** : In repeated oral toxicity test with rats for 52 weeks, five of 72 animals died.(read-across ; CAS No. 207-439-9)

Aspiration Hazard Not classified

12. Ecological information

A. Ecological toxicity

- Acute toxicity : Category 3 (ATEmix = 23.94506mg/ℓ)

- Chronic toxicity : Not classified

Fish

- **4-Isopropyl-3-methyphenol** : 96hr-LC₅₀ (other) = 1.837 mg/L (ECOSAR Class; Phenols)

- **Calcium oxide** : 96hr-LC₅₀ = 50.6 mg/L (OECD TG 203, GLP, read-across ; CAS No. 1305-62-0)

crustacean

- **4-Isopropyl-3-methyphenol** : 48hr-LC₅₀ (other) = 1.087 mg/L (ECOSAR Class; Phenols)

- **Calcium oxide** : 48hr-EC₅₀ = 49.1 mg/L (pH 10.9)(OECD TG 202, GLP, read-across ; CAS No. 1305-62-0), 14d-NOEC (Crangon septemspinosa) = 32 mg/L (read-across ; CAS No. 1305-62-0)

Algae

- **4-Isopropyl-3-methyphenol** : 96hr-EC₅₀ (other) = 4.313 mg/L (ECOSAR Class; Phenols)

- **Calcium oxide** : 72hr-EC₅₀ = 184.57 mg/L (OECD TG 201, GLP, read-across ; CAS No. 1305-62-0), 72hr-NOEC (Scenedesmus subspicatus) = 48 mg/L (OECD TG 201, GLP, read-across ; CAS No. 1305-62-0)

B. Persistence and degradability

Persistence

- **4-Isopropyl-3-methyphenol** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = 3.52) (estimated)

- **Calcium oxide** : Low persistency (log Kow is less than 4 estimated.) (Log Kow = -0.57) (estimated)

Degradability

Not available

C. Bioaccumulative potential

Bioaccumulation

- **4-Isopropyl-3-methyphenol** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 97.03) (estimated)

- **Calcium oxide** : Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 3.162) (estimated)

Biodegradation

Not available

D. Mobility in soil

- **4-Isopropyl-3-methyphenol** : High potency of mobility to soil. (Koc = 1094) (estimated)

- **Calcium oxide** : Low potency of mobility to soil. (Koc = 0.3198) (estimated)

E. Other hazardous effect

- **Calcium oxide** : (Kd = 11.3)(OECD TG 106)

13. Disposal considerations

A. Disposal method

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

B. Disposal precaution

Consider the required attentions in accordance with waste treatment management regulation.

14. Transport information

A. UN Number 1760

B. UN Proper shipping name CORROSIVE LIQUID, N.O.S.

C. Transport Hazard class 8

D. Packing group III

E. Marine pollutant No

F. Special precautions

in case of fire F-A

in case of leakage S-B

15. Regulatory information

A. Occupational Safety and Health Regulation

Calcium oxide : Occupational exposure limits listed

B. Toxic Chemical Control Act

4-Isopropyl-3-methyphenol : Non-Toxic Chemicals (2009-3-3769)

Water : Existing Chemical Substance (KE-35400)

Calcium oxide : Existing Chemical Substance (KE-04588)

C. Dangerous Material Safety Management Regulation

4-Isopropyl-3-methyphenol : Dangerous Material Safety Management Regulation

D. Wastes Control Act

Calcium oxide : Wastes Control Act Controlled wastes

E. Other regulation (internal and external)**Internal information**

Persistent Organic Pollutants Acts Not regulated

External information**EU classification(classification)**

4-Isopropyl-3-methyphenol : Classification Not classified

Water : Classification Not classified

Calcium oxide : Classification Not classified

EU classification(risk phrases)

4-Isopropyl-3-methyphenol : Hazard statements Not applicable

Water : Hazard statements Not applicable

Calcium oxide : Hazard statements Not applicable

EU classification(safety phrases)

4-Isopropyl-3-methyphenol : Precautionary statements Not applicable

Water : Precautionary statements Not applicable

Calcium oxide : Precautionary statements Not applicable

EU SVHC list Not regulated

EU Authorisation List Not regulated

EU Restriction list Not regulated

U.S.A management information (OSHA Regulation) Not regulated

U.S.A management information (CERCLA Regulation) Not regulated

U.S.A management information (EPCRA 302 Regulation) Not regulated

U.S.A management information (EPCRA 304 Regulation) Not regulated

U.S.A management information (EPCRA 313 Regulation) Not regulated

Substance of Roterdame Protocol Not regulated

Substance of Stockholme Protocol Not regulated

Substance of Montreal Protocol Not regulated

Foreign Inventory Status

4-Isopropyl-3-methyphenol

Japan management information Existing and New Chemical Substances (ENCS): (4)-57; (3)-521

China management information Inventory of Existing Chemical Substances (IECSC): Present 40427

Canada management information Domestic Substances List (DSL): Present

Australia management information Inventory of Chemical Substances (AICS): Present

New Zealand management information Inventory of Chemicals (NZIoC): May be used as a single component chemical under an appropriate group standard.

Philippines management information Inventory of Chemicals and Chemical Substances (PICCS): Present

Water

U.S.A management information Section 8(b) Inventory (TSCA): Present

Japan management information Industrial Safety and Health Law Substances (ISHL): 2-(4)-1220

China management information Inventory of Existing Chemical Substances (IECSC): Present 32224

Canada management information Domestic Substances List (DSL): Present

Australia management information Inventory of Chemical Substances (AICS): Present

New Zealand management information Inventory of Chemicals (NZIoC): May be used as a single component chemical under an appropriate group standard.

Philippines management information Inventory of Chemicals and Chemical Substances (PICCS): Present

Calcium oxide

U.S.A management information Section 8(b) Inventory (TSCA): Present

Japan management information Existing and New Chemical Substances (ENCS): (1)-189

China management information Inventory of Existing Chemical Substances (IECSC): Present 37497

Canada management information Domestic Substances List (DSL): Present

Australia management information Inventory of Chemical Substances (AICS): Present

New Zealand management information Inventory of Chemicals (NZIoC): HSNO Approval: HSR002926

Philippines management information Inventory of Chemicals and Chemical Substances (PICCS): Present

16. Other information

A. Information source and references

U.S. National library of Medicine(NLM) Hazardous Substances Data Bank(HSDB);

<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>

Emergency Response Guidebook 2008;

http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/erg2008_eng.pdf

EPISUITE v4.1; <http://www.epa.gov/opt/exposure/pubs/episuitedl.htm>

National Emergency Management Agency-Korea dangerous material inventory management system;

<http://www.nema.go.kr/hazmat/main/main.jsp>

Korea Occupational Health & Safety Agency; <http://www.kosha.net>

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; <http://monographs.iarc.fr>

AKRON; <http://ull.chemistry.uakron.edu/erd>

National Chemicals Information System; <http://ncis.nier.go.kr/ncis/>

TOMES-LOLI®; <http://www.rightanswerknowledge.com/loginRA.asp>

Waste Control Act enforcement regulation attached [1]

The Chemical Database -The Department of Chemistry at the University of Akron;

<http://ull.chemistry.uakron.edu/erd/>

National Toxicology Program; http://ntp-apps.niehs.nih.gov/ntp_tox/index.cfm

American Conference of Governmental Industrial Hygienists TLVs and BEIs.

NIOSH Pocket Guide; <http://www.cdc.gov/niosh/ntp/npgcdcas.html>

REACH information on registered substances; <http://apps.echa.europa.eu/registered/registered-sub.aspx>

EU CLP; <http://esis.jrc.ec.europa.eu/index.php?PGM=cla>

Chemicalbook; http://www.chemicalbook.com/ProductIndex_EN.aspx

International Uniform Chemical Information Database(IUCLID); <http://esis.jrc.ec.europa.eu/>

UN Recommendations on the transport of dangerous goods 17th

B. Issuing date 2014.08.22.

C. Revision number and date

revision number

date of the latest revision

D. Others

- Revised Material Safety Data Sheet based on the amendments made on the Ministry of Employment and Labor Public Notice on Standard for Classification Labeling of Chemical Substance and Material Safety Data Sheet.
- This MSDS is authored in pursuant to the Article 41 of the Occupational Safety and Health Act.
- The content is based on the latest information and knowledge that we currently possess.
- This MSDS was authored to aid buyer, processor or any other third person who handles the chemical of subject in the MSDS; additionally, it does not warrant suitability of the chemical for special purposes or the commercial use of statements that approves the use of it in combination with other chemicals as well as technical or legal liabilities.
- The content of the MSDS may vary depending on the country or the region and may not coincide with the actual regulations. Therefore, the buyer or the processor of the chemical is responsible for observing responsible government's or the region's regulations.