SAFETY DATA SHEET

according to Regulation (EC) No 1272/2008 (CLP)

Benzalkonium chloride 50% solution

Shanghai Bosman Industrial Co., Limited

Product name	**Benzalkonium chloride 50% solution**	SDS number	**BM-SDS-9028**
Version	**3.0**	Revision date	**03 November 2026**
Supersedes	**Version 2.1**	Print date	**03 November 2026**
Language	**EN**	Format	**GHS / CLP - 16 sections**

1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name	Benzalkonium chloride 50% solution
Product type	Plant protection product / formulated mixture
Active substance	Benzalkonium chloride solution (CAS 8001-54-5)

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified use	Active substance / technical material intended for further formulation into plant-protection products. Not for direct application to crops.
Uses advised against	Any use other than the identified use. Not for domestic or residential use. Do not use on crops or sites not stated on the label.

1.3 Details of the supplier of the safety data sheet

Supplier	Shanghai Bosman Industrial Co., Limited
Address	No. 1611, North Sichuan Road, Hongkou District, Shanghai 200080, P.R. China
Telephone	+86 21 6306 5878
Fax	+86 21 6091 1557
E-mail	info@bosmangroup.com
Website	www.bosmangroup.com

1.4 Emergency telephone number

24-hour emergency line	+86 21 6356 6528 (Shanghai Bosman Industrial Co., Limited, 24 h)
Poison centre	Contact your local poisons information centre or emergency services (e.g. 120 in mainland China) in case of poisoning.

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP), Annex I.

H302	Acute toxicity, oral, Category 4 — Harmful if swallowed.

2.2 Label elements



SIGNAL WORD
WARNING

H302	Harmful if swallowed.

Precautionary statements - Prevention

P264	Wash hands and face thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.

Precautionary statements - Response

P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P330	Rinse mouth.

Precautionary statements - Disposal

P501	Dispose of contents and container to a licensed hazardous-waste contractor.

2.3 Other hazards

No additional hazards are identified.

This mixture does not contain any substance that is identified as having endocrine-disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100, at a concentration of 0.1 % (w/w) or higher.

3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable - this product is a mixture.

3.2 Mixtures

Component	CAS No.	EC No.	Concentration	Classification (CLP)
Benzalkonium chloride	8001-54-5	-	Balance	Acute Tox. 4 (oral) (H302)
Other formulation ingredient	68391-01-5	-	50%	-
Not hazardous	68424-85-1	-	Balance	Acute Tox. 4 (oral) (H302)

The classification stated in Section 2 applies to this substance.

4 FIRST AID MEASURES

4.1 Description of first aid measures

General advice Move the person out of the contaminated area. Show this safety data sheet to the doctor in attendance. Never give anything by mouth to an unconscious person.

After inhalation Move the person into fresh air and keep at rest in a position comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. Call a physician.

After skin contact Take off all contaminated clothing immediately. Wash the skin thoroughly with soap and plenty of water. If skin irritation or a rash develops, seek medical advice.

After eye contact Rinse cautiously with water for at least 15 minutes, holding the eyelids open. Remove contact lenses if present and easy to do. Continue rinsing. Get medical advice if irritation develops.

After ingestion Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Swallowing may be harmful or fatal; the product may cause nausea, vomiting and abdominal discomfort. See Section 4 for the detailed first-aid measures.

4.3 Indication of any immediate medical attention and special treatment needed

No specific antidote. Treat symptomatically and supportively. In all cases of doubt, or if symptoms persist, seek medical advice and show this safety data sheet to the attending physician.

5 FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable media	Water spray, dry powder, foam or carbon dioxide.
Unsuitable media	Do not use a solid water stream - it may scatter and spread the fire.

5.2 Special hazards arising from the substance or mixture

Thermal decomposition may release toxic and irritant gases (oxides of carbon and nitrogen). Closed containers exposed to heat may rupture.

5.3 Advice for firefighters

Wear self-contained breathing apparatus and full protective clothing. Contain fire water run-off; do not allow it to enter drains or watercourses. Cool closed containers with water spray. Collect contaminated fire-fighting water separately.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate non-essential personnel. Wear the personal protective equipment specified in Section 8. Avoid breathing vapour, mist or spray. Avoid contact with skin and eyes. Ensure adequate ventilation. Remove all sources of ignition where the product is flammable.

6.2 Environmental precautions

Do not allow the product to enter drains, sewers, watercourses or groundwater. Prevent the material from spreading. Notify the relevant authorities if the product has entered a watercourse or sewer, or has contaminated soil or vegetation.

6.3 Methods and material for containment and cleaning up

Sweep up or absorb the material with an inert absorbent (sand, earth, vermiculite) and place in a labelled, closed container for disposal. Wash the contaminated area with water and detergent. Prevent entry into drains and watercourses.

6.4 Reference to other sections

See Section 8 for personal protection and Section 13 for disposal.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

- Keep containers tightly closed and labelled. Handle in well-ventilated areas, away from food, feed and drinking water.
- Avoid contact with skin, eyes and clothing. Do not breathe vapour, mist, dust or spray. Wash hands and face thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

- Store in the original, tightly closed container in a cool, dry, well-ventilated place, protected from direct sunlight and frost.
- Keep locked up and out of the reach of children and unauthorised persons. Store separately from food, feed, seed and drinking water, and away from incompatible materials.
- Observe the product label and any national storage restrictions for plant-protection products.

7.3 Specific end use(s)

Active substance / technical material intended for further formulation into plant-protection products. Not for direct application to crops.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Component	Limit value	Type	Basis
Not established for the mixture	—	—	No binding OEL listed in source; apply the general hygiene standards of good occupational practice and the precautionary measures in Section 8.

8.2 Exposure controls

Use only in well-ventilated areas, preferably under local exhaust ventilation. Mechanical ventilation should give at least 6 to 10 air changes per hour where the product is used. Avoid generating mist, dust or vapour.

Protective equipment	Requirement
Eye protection	Tight-fitting protective goggles (EN 166) conforming to the eye-protection requirement for the hazard class.
Skin protection - hands	Chemical-resistant gloves (e.g. nitrile rubber, EN 374). Check permeation data and replace gloves when contaminated or at the end of the working period.
Skin protection - body	Long-sleeved protective clothing, closed footwear and, where spray is generated, an overall with hood conforming to the relevant EN standard.
Respiratory protection	Where exposure limits may be exceeded or where mist/dust is generated, wear a suitable particulate respirator (EN 149, FFP2 or higher).

Do not eat, drink or smoke in work areas. Wash hands and face thoroughly after handling and before eating, drinking or smoking. Contaminated work clothing must not be allowed out of the workplace (see P272). Remove and wash contaminated clothing before reuse.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Property	Value
Physical state	liquid
pH	7.0-9.0
Explosive properties	Not classified as explosive
Oxidising properties	Not classified as oxidising

9.2 Other information - no additional information available.

10 STABILITY AND REACTIVITY

10.1 Reactivity

The product is stable under the recommended storage and handling conditions. No hazardous reaction is expected under normal conditions of use.

10.2 Chemical stability

Stable under normal temperature and pressure and the recommended storage conditions. Keep container tightly closed and protected from extreme temperatures.

10.3 Possibility of hazardous reactions

No hazardous polymerisation or reaction is expected under normal conditions. Contact with incompatible materials (see below) may liberate heat or hazardous gases.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources. Avoid prolonged or repeated exposure. Protect from direct sunlight and temperatures exceeding 50 °C.

10.5 Incompatible materials

Strong oxidising agents, strong acids and strong bases. Keep away from food, feed and drinking water.

10.6 Hazardous decomposition products

Combustion or thermal decomposition may form carbon oxides, nitrogen oxides and, where the molecule contains halogen, hydrogen chloride or hydrogen bromide.

11 TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Endpoint	Result	Species / basis
Acute toxicity - oral (LD50)	240 mg/kg	rat / relevant species (stated in source)
Acute toxicity (oral)	Classified - see hazard statements in Section 2	CLP cut-off / stated LD50

11.2 Symptoms and effects

Swallowing may be harmful or fatal; the product may cause nausea, vomiting and abdominal discomfort. See Section 4 for the detailed first-aid measures.

11.3 Other information

The acute toxicity data stated above are taken from the substance dossiers of the individual components. The classification in Section 2 reflects the applicable CLP hazard categories.

12 ECOLOGICAL INFORMATION

12.1 Toxicity

Organism	Result	Test condition
Aquatic toxicity	See hazard classification in Section 2	CLP Annex I

12.2 Persistence and degradability

The active substance(s) are degraded in the environment by microbial and chemical processes. Do not rely on rapid degradation; observe label restrictions on use near water and groundwater.

12.3 Bioaccumulative potential

The active substance(s) are not expected to bioconcentrate to a significant extent under normal use conditions.

12.4 Mobility in soil

Mobility in soil is determined by adsorption to soil particles and by the physicochemical properties of the formulation. Leaching to groundwater should be prevented by observing the label instructions.

12.5 Results of PBT and vPvB assessment

On the basis of the available data the mixture is not classified as PBT (persistent, bioaccumulative and toxic) or vPvB (very persistent and very bioaccumulative) under Regulation (EC) No 1907/2006 (REACH).

12.6 Endocrine disrupting properties

No endocrine-disrupting properties are identified in accordance with the criteria of Commission Delegated Regulation (EU) 2017/2100.

12.7 Other adverse effects

Do not allow the product to enter drains, sewers, watercourses or groundwater. Toxic to aquatic organisms with long-lasting effects where so classified in Section 2.

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

The product and its container must be disposed of as hazardous waste in accordance with local, national and international regulations. Do not contaminate ponds, watercourses or ditches with the product or the empty container. Triple-rinse emptied containers and add the rinsings to the spray tank.

- Do not contaminate ponds, watercourses or ditches with the product or the empty container.
- Dispose of surplus product and non-recyclable packaging through a licensed hazardous-waste contractor, in accordance with national and local regulations.
- Empty containers retain product residues and vapour; observe all label safeguards until the container has been cleaned and destroyed.
- Triple-rinse emptied containers and add the rinsings to the spray tank; then puncture or crush and offer for recycling where facilities exist.

14 TRANSPORT INFORMATION

Parameter	ADR / RID	IMDG	IATA
UN number	Not regulated	Not regulated	Not regulated
Proper shipping name	Not dangerous goods	Not dangerous goods	Not dangerous goods
Class	Not applicable	Not applicable	Not applicable
Packing group	-	-	-
Environmental hazard	No	No	No
Tunnel code	-	-	-
EmS / Special	-	-	-

14.6 Special precautions for user

Do not transport together with foodstuffs, feed or drinking water. Ensure packages are upright, secure and clearly labelled. Personnel handling the product must be trained and equipped according to the applicable dangerous-goods regulations (ADR/RID, IMDG, IATA).

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

Not applicable - the product is transported in packaged form only.

15 REGULATORY INFORMATION

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

- Regulation (EC) No 1272/2008 (CLP) on classification, labelling and packaging of substances and mixtures.
- Regulation (EC) No 1907/2006 (REACH) concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.
- Regulation (EC) No 1107/2009 concerning the placing of plant-protection products on the market.
- Dangerous Goods regulations for transport: ADR/RID (road/rail), IMDG (sea) and IATA (air).

15.2 Chemical safety assessment

A chemical safety assessment has been carried out for the active substance(s) in accordance with Regulation (EC) No 1907/2006 (REACH) and the relevant conclusions are reflected in this safety data sheet. No further chemical safety assessment is required for this mixture.

16 OTHER INFORMATION

16.1 Revision information

This safety data sheet has been revised and reformatted to meet Regulation (EC) No 1272/2008 (CLP) and the GHS 16-section layout. The hazard classification, labelling elements and precautionary statements have been updated; technical data have been carried over from the previous issue.

16.2 Full text of hazard statements referred to in Sections 2 and 3

H302	Harmful if swallowed.

16.3 Abbreviations and acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. ATE: Acute Toxicity Estimate. CAS: Chemical Abstracts Service. CLP: Classification, Labelling and Packaging (Regulation (EC) No 1272/2008). EC50: half maximal effective concentration. GHS: Globally Harmonised System. IMDG: International Maritime Dangerous Goods Code. LC50: lethal concentration, 50 %. LD50: lethal dose, 50 %. OEL: occupational exposure limit. PBT: persistent, bioaccumulative and toxic. PNEC: predicted no-effect concentration. STOT: specific target organ toxicity. vPvB: very persistent and very bioaccumulative.

16.4 Training advice

Users of this product must be trained in safe handling practice, in the correct use of personal protective equipment and in the first-aid measures described in Section 4. Label instructions and national training requirements apply.

16.5 Disclaimer

The information in this safety data sheet is based on the present state of knowledge and current legislation at the date of revision. It describes the product with regard to safety requirements and does not constitute a guarantee of any specific property. It remains the responsibility of the user to ensure that the product is used safely and in accordance with the label and applicable legislation. This safety data sheet is supplied for occupational health and safety purposes only.

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