

QED Bioscience Inc.
Surf's Up® Surfactant Kit
Surfactant No. 2 Benzalkonium chloride

NOTE: Chemicals in the Surf's Up® Surfactant Kit are provided as 10% solutions. The following information pertains to the chemicals in an undissolved/undiluted state.

1. PRODUCT

Product Name **Benzalkonium chloride**

2. COMPOSITION

Synonyms: Alkyldimethylbenzylammonium chloride
Alkylbenzyltrimethylammonium chloride

	CAS No.	EC No.	Index No.
Benzalkonium chloride	63449-41-2	264-151-6	612-140-00-5

3. HAZARDS IDENTIFICATION

Emergency Overview: Corrosive. Toxic by ingestion. Harmful by skin absorption..

HAZARD RATINGS	HMIS	NFPA
Health	3	3
Flammability	0	0
Reactivity	0	0

Potential Health Effects

Inhalation May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin Harmful if absorbed through skin. Causes skin burns.
Eyes Causes eye burns.
Ingestion Toxic if swallowed. Causes burns.

4. FIRST AID MEASURES

Eyes Continue rinsing eyes during transport to hospital. Rinse thoroughly with water for at least 15 minutes and seek medical attention.
Skin Immediately flush skin with large amounts of water. Remove contaminated clothing and shoes immediately. Seek medical attention.
Inhalation Move victim to fresh air. If not breathing give artificial respiration. Seek medical attention.
Ingestion DO NOT induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious person. Seek medical attention.

5. FIRE FIGHTING MEASURES

Flash Point No data available
Ignition temperature No data available
Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
Fire Fighting Equipment/Instructions Wear self-contained breathing apparatus and protective clothing if necessary.

6. ACCIDENTAL RELEASE MEASURES

Spill And Leak Procedures Use personal protective equipment. Avoid dust formation. Evacuate area. Isolate spill or leak area immediately. Keep unauthorized personnel

away from the area. Stay upwind. Ventilate closed spaces before entering. Do not touch or walk through spilled material. Stop leak if it is possible to do so without risk. Wear appropriate personal protective equipment during cleanup. For small spills, absorb with earth, sand, or other non-combustible material and transfer to containers for later disposal. Use clean, non-sparking tools to collect absorbed material. For large spills, confine liquid spill for later disposal. Prevent contamination of waterways, sewers, basements, or confined areas. Discharge into the environment must be avoided. Surfaces may become slippery after spillage.

7. HANDLING AND STORAGE

Handling Procedures Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection. As with all chemicals, good industrial hygiene practices should be followed when handling this material.

Storage Procedures Keep container tightly sealed in a dry and well-ventilated place. Hygroscopic; store under inert gas.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Engineering Controls Use only in a chemical fume hood.

Personal Protective Equipment Wear chemical goggles and face shield if splashing is possible. Wear suitable protective clothing. Use impervious gloves. If vapors are present or irritation is experienced, NIOSH-approved respiratory protection for ammoniacal vapors should be worn. Eye wash fountain and emergency showers are recommended. Wash contaminated clothing before reuse. Discard contaminated shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	Crystalline
Color	Light yellow

Safety Data

pH	No data available
Flash point	No data available
Melting point	No data available
Boiling point	No data available
Ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Water solubility	No data available

10. STABILITY AND REACTIVITY

Chemical Stability Stable under recommended storage conditions. Protect from moisture.

Incompatibility Avoid strong oxidizing agents.

Hazardous Decomposition Hazardous decomposition products formed under fire conditions. Nature of decomposition products not known.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral – Mouse – 150mg/kg

Observations: Behavioral: Somnolence (general depressed activity); Blood: Hemorrhage.

LD50 Dermal – Rat – 1,420mg/kg

Observations: Behavioral: Somnolence (general depressed activity); Blood: Hemorrhage.

Irritation and corrosion

No data available

Sensitization

No data available

Chronic exposure

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Signs and Symptoms of Exposure

Cough, shortness of breath, headache, nausea, vomiting.

Potential Health Effects

Inhalation May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin Harmful if absorbed through skin. Causes skin burns.

Eyes Causes eye burns.

Ingestion Toxic if swallowed. Causes burns.

Additional Information

RTECS: BO3151000

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

No data available.

Ecotoxicity effects

Toxicity to fish mortality LOEC – *Oncorhynchus kisutch* – 17.8mg/l – 3 d

LC50 – *Lepomis macrochirus* – 0.31mg/l – 96 h

mortality NOEC – *Oncorhynchus kisutch* – 10.0mg/l – 3 d

Further information on ecology

An environmental hazard cannot be excluded in the event of improper handling or disposal.

13. DISPOSAL CONSIDERATIONS

Product: Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN Number 2923 Class 8 (6.1) Packing group III
Proper shipping name: Corrosive solids, toxic, n.o.s. (Benzalkonium chloride)
Marine pollutant: No
Poison inhalation hazard: No

IMDG

UN Number 2923 Class 8 (6.1) Packing group III EMS No. F-A, S-B
Proper shipping name: Corrosive solid, toxic, n.o.s. (Benzalkonium chloride)
Marine pollutant: No

IATA

UN Number 2923 Class 8 (6.1) Packing group III
Proper shipping name: Corrosive solid, toxic n.o.s. (Benzalkonium chloride)

15. REGULATORY INFORMATION

OSHA Hazards

Toxic by ingestion, harmful by skin absorption, corrosive.

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute health hazard

Massachusetts Right to Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right to Know Components

Benzalkonium chloride CAS No. 63449-41-2

New Jersey Right to Know Components

Benzalkonium chloride CAS No. 63449-41-2

California Prop. 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the

present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. QED Bioscience Inc. shall not be held liable for any damage resulting from handling or from contact with the above product.