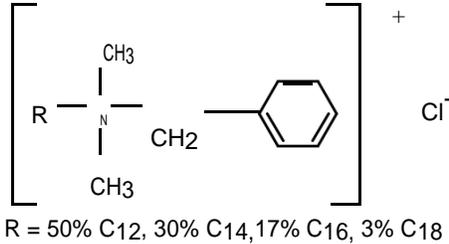


# Product Bulletin

# ANTIMICROBIALS

## Benzalkonium Chloride

Product Name  
Chemical Structure



Chemical Description

n-Alkyl Dimethyl Benzyl Ammonium Chloride

INCI Name

Benzalkonium Chloride

CAS

Registry No.

68391-01-5

EPA

Registration No.

1839-27

PCP

Registration No.

BTC 50

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Applications

Benzalkonium are cationic materials for formulation into antimicrobial products for use in agricultural/ farm premises, structures, buildings, and equipment; dairy farm milk handling facilities, equipment, storage rooms, houses and sheds; food processing plant, food handling, food distribution equipment and premises; eating establishment premises and equipment; commercial, institutional, and industrial premises and equipment (floors, walls, storage areas); domestic dwellings, food handling areas, bathroom premises (hard surfaces), indoor premises; medical, institutional, critical care and noncritical premises; laundry; and wood preservative—seasoned wood pressure/thermal treatment and non-pressure treatment (joinery/remedial), and sapstain treatment. For formulation into antimicrobial products for use in air conditioner/refrigeration condensate water systems, air washer and industrial scrubbing systems, once-through and recirculating industrial/commercial cooling water systems, pulp/paper mill water systems, and swimming pools. Formulators using this product are responsible for providing data for the EPA registration of their formulated products.

Composition

Active Ingredients, %	<b>BTC 50</b>
n-Alkyl (50% C <sub>12</sub> , 30% C <sub>14</sub> , 17% C <sub>16</sub> , 3% C <sub>18</sub> ) Dimethyl Benzyl Ammonium Chloride .....	50
n-Alkyl (67% C <sub>12</sub> , 25% C <sub>14</sub> , 7% C <sub>16</sub> , 1% C <sub>18</sub> , C <sub>10</sub> , C <sub>11</sub> , C <sub>13</sub> ) Dimethyl Benzyl Ammonium Chloride .....	0
Inert Ingredients, % .....	50
Total, % .....	100

Typical Properties

Appearance at 25°C .....	Clear liquid
pH, 10% aqueous .....	7.8
Free amine and amine hydrochloride, % .....	1.0 max
Color, APHA .....	100 max
Viscosity, cps at 25°C .....	75
Pour Point, °C (°F) .....	-8 (18)
Cloud Point, as is, °C (°F) .....	-2 (28)
Flash Point, PMCC, °C (°F) .....	52 (126)
Density, g/ml (lbs/U.S. gal) .....	0.97 (8.1)
RVOC, U.S. EPA, % Ethanol .....	5

Environmental Effects

Benzalkonium products are biodegradable. A detailed biodegradability statement is available upon request.

Health Effects

Benzalkonium are moderately to slightly toxic orally (LD<sub>50</sub> between 50-500 mg/kg) and cause severe skin irritation at 2% active and minimal eye irritation at 0.3% active.

Storage & Handling

Handle liquid Benzalkonium products with care; use away from sparks and open flame. Use in well ventilated area. Avoid contact with eyes, nose or skin. Gloves, protective clothing, safety goggles and face shield should be worn when handling Benzalkonium products. Wash thoroughly after handling material.

**Standard Packaging:** Benzalkonium products are available in drums (425 lb, 193 kg) and in bulk quantities.

It is recommended that BTC products be stored in sealed containers and kept in a cool, dry place. If material is frozen, it should be heated gently and stirred to ensure it is homogeneous before use.

**Bulk Storage Information:** Benzalkonium can be stored in vessels of 316 stainless steel or fiberglass with a corrosion liner. Contact between quaternaries and anionic materials must be avoided. At use dilution, quaternaries are non-corrosive to most plastics, natural rubber, stainless steel, monel metal, iron, brass, aluminum, lead and tin; however, quaternaries as supplied, may be corrosive to the materials listed above.

Liquid BTC products should be stored between 85 - 120°F. An internal hairpin coil of 316 stainless steel with low pressure steam (under 50 psig) should be used if heating is required. Mild agitation is recommended while storing to maintain homogeneity. Pumps, pipes and transfer lines should be 316 stainless steel. Rubber hoses with Teflon cross-linked polyethylene with 316 S.S. fittings are recommended for loading and unloading.

Workplace Exposure

Occupational exposure can occur primarily through skin contact or via inhalation of vapors and mists.

Engineering controls, personal protective equipment, and other workplace practices should be used to control these exposures.

Clearances

All components of Benzalkonium are listed in the following countries; Europe (EINECS 269-919-4), Japan (ENCS 3-2694), Canada (DSL

68391-01-5), Australia (AICS 68391-01-5), Korea (ECL Serial No. KE-00775), Philippines (PICCS 68391-01-5) and China (IECSC 68491-01-5).

**It is the responsibility of the end-user to review the chemical control regulations for each country.**

All components of BTC 65 are listed in the following countries; Europe (EINECS 264-151-6), Canada (DSL 63449-41-2), Australia (AICS 63449-41-2), Korea (ECL Serial No. KE-05-1137), New Zealand (NZIoC 63449-41-2), Philippines (PICCS 63449-41-2) and China (IECSC 63449-41-2).

**It is the responsibility of the end-user to review the chemical control regulations for each country.**

BTC 65 and BTC 50 quaternaries are cleared under 40CFR180.940, tolerance exemptions for active and inert ingredients for use in antimicrobial formulations (food contact surface sanitizing solutions).

The BTC 50 and BTC 65 are available as Kosher Certified.

Registration

In the U.S., all products used on inanimate surfaces which are sold and claimed to be bacteriostatic, germicidal, algacidal or to kill or inhibit organisms in any way are required to be registered with the U.S. Environmental Protection Agency. Formulators are responsible for any additional data which may be required by local, state or country agencies.

Product Stewardship

This product bulletin has been written in accordance with ACC's Product Stewardship guidelines.

Additional Safety Information

A Safety Data Sheet is available upon request.



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