



## Product Information

### Benzalkonium chloride SigmaUltra

Product Number **B6295**  
Store at Room Temperature

#### Product Description

CAS Number: 63449-41-2  
Structure:  $[C_6H_5CH_2N(CH_3)_2R]Cl$  where R is predominantly  $n-C_{12}H_{25}$  (product also contains  $C_{14}$  and  $C_{16}$  homologs)  
Molecular weight (approximately): 360<sup>1</sup>; 375 by perchloric acid titration  
Melting point: 34-37 °C  
Synonyms: Alkyl Dimethylbenzyl Ammonium Chloride; Alkyldimethyl(phenylmethyl) Quaternary Ammonium Chloride

Trace Elemental Analysis have been performed on the SigmaUltra benzalkonium chloride. The Certificate of Analysis provides lot-specific results. SigmaUltra benzalkonium chloride is for applications requiring tight control of elemental content.

Benzalkonium chloride (BC) is a quaternary ammonium salt with antiseptic properties and similar uses to other cationic surfactants. The mode of action of quaternary ammonium compounds appears to be associated with the effect on the cytoplasmic membrane, which controls cell permeability. Extensive data are reported for effective concentrations and affected bacterial species.<sup>4</sup> BC is not effective against Gram negative bacteria or picornaviruses.<sup>5</sup> It has been reported that BC inactivates HIV and HSV *in vitro*.<sup>3</sup>

Benzalkonium chloride is reportedly incompatible with soaps and other anionic surfactants, citrates, iodides, nitrates, permanganates, salicylates, silver salts, and tartrates. Incompatibilities have been demonstrated with ingredients of some commercial rubber mixes or

plastics. Incompatibilities have also been reported with other substances including aluminum, cotton, fluorescein sodium, hydrogen peroxide, kaolin, hydrous wool fat, and some sulphonamides.<sup>3,5</sup> The preservative effect of BC can be neutralized by the addition of TWEEN<sup>®</sup> 80 and lecithin.<sup>6</sup>

#### Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

#### Preparation Instructions

This product is soluble in water (100 mg/ml), yielding a clear, colorless to faint yellow solution. It is also very soluble in alcohol and acetone, slightly soluble in benzene, and almost insoluble in ether.<sup>2</sup> Solutions may be autoclaved or aseptically filtered.<sup>3</sup>

#### References

1. USP, **22**, p. 1905.
2. The Merck Index, 11th ed., Entry# 1066.
3. Martindale The Extra Pharmacopoeia, 31st ed., Reynolds, J. E. F., ed., Royal Pharmaceutical Society (London, England: 1996), p. 1117.
4. Disinfection, Sterilization and Preservation, 4th ed., Block, S. S., ed., Lea & Febiger (Philadelphia, PA: 1991), pp. 225-255.
5. Disinfection, Sterilization and Preservation, 4th ed., Block, S. S., ed., Lea & Febiger (Philadelphia, PA: 1991), p. 633.
6. Disinfection, Sterilization and Preservation, 4th ed., Block, S. S., ed., Lea & Febiger (Philadelphia, PA: 1991), p. 884.

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