TECHNICAL INFORMATION

Catalog Number: 191360, 199851
Chlorhexidine Digluconate, 20% Solution

Structure:

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\text{Molecular Formula: } C_{22}H_{30}Cl_2N_{10}\cdot2(C_6H_{12}O_7)
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\text{Molecular Weight: } 897.8
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CAS # 18472-51-0

Synonyms: 1,6-Di(N-p-Chlorophenyldiguanido) hexane digluconate; Abacil; Arlacide G; Hibitane digluconate.

Form: Supplied as a 20% (w/v) aqueous solution. Solution is a clear liquid with a slightly yellow color.

Solubility: Chlorhexidine digluconate is usually soluble in water to 50% (w/v), but forms a highly viscous solution. Aqueous solutions should not be added directly to 100% alcohol because precipitation may occur.

"Dilute solutions of chlorhexidine (<1.0% w/v) may be sterilized by autoclaving at 115°C for 30 minutes or at 121-123°C for 15 minutes. Autoclaving of solutions greater than 1.0% can result in the formation of insoluble residues and is therefore unsuitable. If sterile solutions are required at such high concentrations, then filtration through a 0.22 um membrane filter is recommended. Dilute chlorhexidine solutions may be stored at room temperature, and a shelf life of at least 1 year can be expected, provided that the packaging is adequate. Prolonged exposure to high temperature or light is to be avoided because this can adversely affect the stability of chlorhexidine solutions. All dilute solutions to be stored should be either heat-treated (sterilized or pasteurized) or chemically preserved (4% isopropanol or 7% ethanol) to eliminate the possibility of microbial contamination. For autoclaved solutions the choice of container material is important, best results being achieved with neutral glass or polypropylene. If soda glass is used with chlorhexidine solutions the resultant pH may be above that which is considered optimal for stability (pH 5-7) because of leaching of alkaline materials from the bottle.

Aqueous solutions of chlorhexidine are most stable within the pH range of 5-8. Above pH 8.0 chlorhexidine base is precipitated and in more acid conditions there is gradual deterioration of activity because the compound is less stable. Hydrolysis yields p-chloroaniline; the amount is insignificant at room temperature, but is increased by heating above 100°C, especially at alkaline pH."

Description: An antiseptic and disinfectant agent. It is effective against a wide range of bacteria, some fungi and some viruses, and an agent for the prevention of gingivitis. Commercial ophthalmic products have used this agent to replace thimerosal as a preservative; however, it can cause skin irritation.

Typical Use: A solution of 0.5% in water has been used for general disinfection. Used in conjunction with cetyltrimethylammonium bromide (CTAB) can increase its effectiveness.

References:
– Merck Index, 12th Ed., No. 2140.