GAMMA CHIMICA S.p.a.
SEDE AMMINISTRATIVA E COMMERCIALE
Via Bergamo, 8 - 20020 Lainate (MI)
t +39 02 9317901
f +39 02 9371090
www.gammachimica.it

GABOTEC CHDG

preservative formulated for

personal care applications

General Description

GABOTEC CHDG is a cationic preservative which can be used for all personal care products. It is active against a wide spectrum of microorganisms including bacteria, moulds and yeasts.

Chemical Identification

Active ingredient:	D-Gluconic acid, compound with N,N''-bis(4-chlorophenyl)-3,12-diimino-2,4,11, 13-tetraazatetra decanediamidine (2:1)
INCI name:	Aqua *(and)* Chlorhexidine Digluconate

Typical Chemical and Physical Characteristics

Appearance:	Liquid
Miscibility:	Miscible in water, glycerine, glycols and ethanol at maximum recommended use level (1,5%)

Note: *These figures do not constitute a specification*

Preservative Properties

Although it has broad spectrum anti-microbial activity, **GABOTEC CHDG** is particularly effective as a bactericide in the control of Gram-positive organisms and as a fungicide against yeasts and moulds. It is generally recommended to be used in combination with other preservatives to boost overall anti-microbial activity. **GABOTEC CHDG** may be used in a wide variety of rinse off and leave on applications.

Typical Minimum Inhibitory Concentrations (MIC) for GABOTEC CHDG

ORGANISMS	MIC (ppm)
Bacteria	
Enterobacter cloacae	62,5
Escherichia coli	0,5
Klebsiella pneumoniae	15,5
Proteus mirabilis	64
Proteus vulgaris	2
Pseudomonas aeruginosa	31,2
Pseudomonas cepacia	16
Pseudomonas fluorescens	4
Serratia marcescens	16
Staphylococcus aureus	1
Staphylococcus faecalis	32
Staphylococcus mutans	2,5
Moulds/Yeasts	
Aspergillus niger	16
Candida albicans	8
Penicillium notatum	16
Saccharomyces cerevisiae	1

Source: *Directory of Microbicides for the Protection of Materials: A Handbook by Wilfried Paulus*

Recommended Use Levels

GABOTEC CHDG is recommended for inclusion in both leave on and rinse off applications in the range 0,5 to 1,5%. It is best incorporated into the formulation at the earliest point in the manufacturing process to ensure complete protection of the product and its components. **GABOTEC CHDG** will tolerate hot processes but prolonged heating should be avoided to prevent loss by evaporation. 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. Avoid contact with anionic compounds and surfactants as these can deactivate the effectivity of Chlorhexidine.
Optimal pH range is between 5 and 7. It is recommended that highly alkaline systems or strong oxidising agents be avoided.
It should not be assumed that because of its cationic nature it is always incompatible with products containing anionic surfactants. Compatibility should be individually assessed.

Since there is considerable variation in the composition of cosmetics and toiletries which may alter the efficacy of preservatives, manufacturers should confirm the level required to ensure protection and prevent potential incompatibility.

Application Areas

GABOTEC CHDG may be used in a wide range of products including:

- Oral care – mouthwashes
- Hair conditioners
- Styling gels
- Liquid soaps
- Wet wipes
- Moisturising creams
- Body creams and milks

Regulatory Aspects

GABOTEC CHDG is authorised in Europe up to 1,5% as Chlorhexidine and in USA up to 1%. It is authorised as a preservative in Japan without restriction for rinse off products and up to 0,25% for leave on or mucosa products.
For further information on local approvals, please contact your local representative.

Toxicology

GABOTEC CHDG is safe for use in personal care applications in normal and reasonably foreseeable conditions of use at recommended levels.
A safety assessment is available upon request.

Technical Support

The manufacturer laboratories are fully equipped to provide complete microbiological, analytical and *in vitro* toxicology support for all product applications.

Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Further Information

For further information please contact your local representative.