

**Cetrimonium Bromide** (BAN, rINN)

Bromuro de cetrimonio; Cetrimonii Bromidum; Cétrimonium, Bromure de; Cetyltrimethylammonium bromide; Cetyltrimethylammonium Bromide; CTAB. Hexadecyltrimethylammonium bromide.

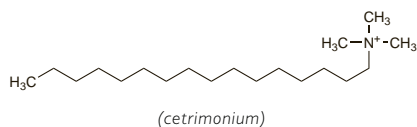
Цетримиония Бромид

$C_{19}H_{42}BrN = 364.4$ .

CAS — 6899-10-1 (cetrimonium); 57-09-0 (cetrimonium bromide).

ATC — D08AJ02; R02AA17.

ATC Vet — QD08AJ02; QR02AA17.



NOTE. The name cetrimonium bromide was formerly applied to cetrimide (see above).

**Pharmacopoeias.** In *USNF*.

**USNF 26** (Cetrimonium Bromide). A white to creamy white, voluminous, free-flowing powder, with a characteristic faint odour. Freely soluble in water and in alcohol; practically insoluble in ether.

**Cetrimonium Chloride** (BAN)

Cetrimonio, cloruro de. Hexadecyltrimethylammonium chloride.

$C_{19}H_{42}ClN = 320.0$ .

CAS — 1112-02-7.

**Profile**

Cetrimonium bromide is a quaternary ammonium antiseptic with actions and uses similar to those of other cationic surfactants (see Cetrimide, p.1634). Cetrimonium chloride and cetrimonium tosylate are also used.

**Preparations**

**Proprietary Preparations** (details are given in Part 3)

**Braz.**: Tirascapa†; **Ital.**: Golaval†; Senol; Sterilene; **Switz.**: Aknex Cleaning; Tunisian.

**Multi-ingredient Arg.**: Bagociletas sin Anestesia†; Bagoderm; Eryteal; Klorane Bebe Eryteal; Salvicutan†; **Austria**: Xylestesin; **Belg.**: Cetavlex; HAC; Hacidil-S; **Braz.**: Amigdalo; Drapolene; Leucocida†; **Fr.**: Eryteal†; **Norway**: Lemocin; Xylestesin Pumpspray†; **Indon.**: Lemocin; **Israel**: Lemocin; **Ital.**: Golamixin; Xylonor; **Mex.**: Dermatolona; **Pol.**: Cetriscabin; **Spain**: Diformiltricina; Hongosan; Xylonor; **Switz.**: Desiturt†; Lemocin; Septivon N; Turexan Capilla; Xylestesin†; Xylonor; **Venez.**: Kertyol.

**Cetylpyridinium Chloride** (BAN, rINN)

Cetilpiridinio chloridas; Cetilpiridinium-klorid; Cetylpyridinii chloridum; Cetylpyridinii Chloridum Monohydricum; Cetylpyridinium, chlorure de; Cetylpyridinium-chlorid monohydrát; Cetylpyridiniumchlorid; Cloruro de cetilpiridinio; Setilpiridinium Chlorür; Setylpyridiniumkloridi. 1-Hexadecylpyridinium chloride monohydrate.

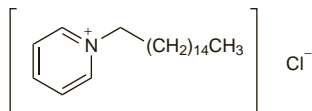
Цетилпиридиния Хлорид

$C_{21}H_{38}ClN \cdot H_2O = 358.0$ .

CAS — 7773-52-6 (cetylpyridinium); 123-03-5 (anhydrous cetylpyridinium chloride); 6004-24-6 (cetylpyridinium chloride, monohydrate).

ATC — B05CA01; D08AJ03; D09AA07; R02AA06.

ATC Vet — QB05CA01; QD08AJ03; QD09AA07; QR02AA06.



**Pharmacopoeias.** In *Eur.* (see p.vii) and *US*.

**Ph. Eur. 6.2** (Cetylpyridinium Chloride). A white or almost white powder, slightly soapy to the touch. Soluble in water, frothing copiously when shaken; soluble in alcohol.

**USP 31** (Cetylpyridinium Chloride). A white powder with a slight characteristic odour. Soluble 1 in 4.5 of water and of chloroform, and 1 in 2.5 of alcohol; slightly soluble in ether and in benzene.

**Incompatibility.** Cetylpyridinium chloride is incompatible with soaps and other anionic surfactants.

**Profile**

Cetylpyridinium chloride is a quaternary pyridinium antiseptic with actions and uses similar to those of other cationic surfactants (see Cetrimide, p.1634). It is used chiefly as lozenges or solutions for the treatment of minor infections of the mouth and throat. It is also used topically for the treatment of skin and eye infections.

The symbol † denotes a preparation no longer actively marketed

Cetylpyridinium bromide is used similarly for minor mouth and throat disorders.

**Preparations**

**USP 31**: Cetylpyridinium Chloride Lozenges; Cetylpyridinium Chloride Topical Solution.

**Proprietary Preparations** (details are given in Part 3)

**Austral.**: Cepacol Antibacterial; Cepacol Antiseptic; Throat Lozenges; Cepacol Mint; Cepacol Regular; Lemsp Lozenges; **Austria**: Dobendan; Halset; **Braz.**: Gargocetil; Laningex; **Canada**: Cepacol; Mouthwash†; Rinse Bouche Antiseptique; Throat Lozenges; **Chile**: Freesept; **Cz.**: Halse†; **Fr.**: Cetylpyr†; Novopline†; **Ger.**: Dobendan; Halstabelleten akute; **Hong Kong**: Cepacol; Cetocomp; **Hung.**: Halset; **Irl.**: Merocets; **Ital.**: Bat; Borocaina Gola; Bronchenolo†; Cetilsan; Citromed Soap; Exit; Farin Gola; Golacelin; Gola-fair; Honeygola; Neo Cepacol Pastiglie; Neo Coricidin Gola†; Neo Formitrol; Periogard Plus; Ragaden; Stomygen; **Mex.**: Trociletas; **Norw.**: Pyrisep; **NZ**: Cepacol; Lemsp Throat Lozenges; **Pol.**: Halset; Menthosept; **Port.**: Septus; **S.Afr.**: Cepacol; Universal Throat Lollies; **Singapore**: Cepacol; **Spain**: Angifonil†; **Thai**: Cepacol; Orasept; **Turk.**: Aseptol; Penipastil; **UK**: Listermint; Merocets; **USA**: Cepacol Mouthwash; Cepacol Throat; Choice DM Gentle Care; Scope; **Venez.**: Cepacol; Tablilut†.

**Multi-ingredient Arg.**: Desenfriol Caramelos†; Emex Duo; Oral-B Enjuague Bucal†; Penodil; Solumen†; **Austral.**: Cepacaine; Cepacol Anaesthetic; Cepacol Antibacterial; Cepacol Cough & Sore Throat; Difflam Anti-inflammatory Lozenges with Cough Suppressant; Difflam Lozenges; Difflam Mouth Gel; Duro-Tuss Cough Lozenges; Genteles; Seda-Gel†; **Austria**: Coldistan; Dentinox; Gurli; Paldidont; Tetesept; **Braz.**: Cepacaina; Cepacol Menta; Cetildrops†; Dentalvior†; Fenotrin†; Lima C; Limao Bravo com Vitamina C†; Limao Bravo†; Malvona†; Neopiridin; Pondicilina; Proplax†; Psiu; Sanilin; **Canada**: Cepacol Extra Strength; Cepacol with Fluoride; Green Antiseptic; Mouthwash & Gargle; Kank-A; Oral Plant†; Oral-B Anti-Bacterial with Fluoride; Throat Lozenges; **Chile**: Halita; Kank-Eze; Oralfresh Menta; Pancrit; Penio-Aid c Cloruro de Cetilpiridinio; Vitis Encias Culatorio; Vitis Encias Pasta; **Cz.**: Brand- und Wundgel†; Calgel; Neoseptolete; Panlid; Stasi†; Tetesept; Angidint†; **Fin.**: Bafucin; **Fr.**: Alodont; Bronconol maux de gorge†; Lysopaine†; Parogencyl prevention gencives; **Ger.**: Biogel†; Brand- und Wund-Gel Eu Rho†; Broncho-Tyrosolketten†; Dolo-Dobendan; Em-medical†; Frubienzym; Frubizin Forte†; Nordathinon H†; Trachiform†; Tyrosolvetten-C†; Tyrosolvetten†; Tyrosur; Wick Sulagil; **Hong Kong**: Dentinox Teething Gel; Difflam Anti-inflammatory Lozenges; Difflam Mouth Gel; Pharynx; Setronges†; **Hung.**: Mebucajin; Tyrosur; **Indon.**: Sentril; **Irl.**: Anbesol; Merocaine; **Israel**: Cepadont; Kank-A; **Ital.**: Delta 80; Delta 80 Plus; Farmagola†; Ginvapast; Gola Action; Neo-Stomygen; Oral-B Culatorio per la Protezione di Denti e Gengive; Orosanyl†; Rigidodont; Rikospray; Stomygen; **Malaysia**: Cetylpyridinium B; Dentinox Teething Gel; Difflam Anti-inflammatory Lozenges (with Antibacterial); Difflam Anti-inflammatory Lozenges (with cough suppressant); Difflam Mouth Gel; Orregel; Pharynx; Setronges†; **Mex.**: Cepacaine; Mentalgina; Trociletas B; **Neth.**: Agre-Gola; **Norw.**: Aseil; **NZ**: Cepacaine; Cepacol Anaesthetic; Cepacol Cough Discs; Difflam Cough; Difflam Mouth Gel; Duro-Tuss Lozenges; **Philipp.**: Xylorise; **Pol.**: Calgel; Lidodent; Septolete Plus; Tetesept; Undofen; **Port.**: Anbegele†; Bioflour Orotodocin†; Bioflour Sensitive†; Droptic; Mebucajin; **Rus.**: Calgel (Калгель); Septolete Plus (Септолете Плюс); **S.Afr.**: Anbesol; Andolox-C; Cepacaine; Cepacol; Cepacol Cough Discs; Cetoxol; Colphen; Endol Lozenges; Medi-Kain†; Medi-Keel A; Prodox; Vagarsol; Vicks Acta Plus; Vicks Cough Syrup; **Singapore**: Dentinox Teething Gel; Difflam Anti-inflammatory Anti-Bacterial Lozenges; Difflam Mouth Gel; Duro-Tuss Cough Lozenges; Pharynx; Soragel; **Spain**: Alcoholol; Alcohol Cetil†; Alcohol Cetilpi Cuvel†; Babisyon; Farnalcohol; Pastillas Antisept Garg L; Pastillas Antisept Garg M; Slidermil†; Vicks Formula 44†; **Swed.**: Bafucin; **Switz.**: Alodont†; Angina Lidazon; Mebucajin; Nasex†; Neo-Angin Lido; Othorichinol; Pharmacard Family Maux de gorge†; Wulvasin; **Thai**: Sentril; Sore Mouth Gel; **Turk.**: Calgel; Nesargin; **UAE**: B-Cool; New B-Cool; **UK**: Adult Meltus for Chesty Coughs & Catarrh; Allens Dry Tickly Cough; Anbesol; Calgel; Dentinox Teething Gel; Kilkof; Listermint with Fluoride; Macleans Mouthguard; Meltus Expectarant; Meltus Junior Expectarant; Merocaine; Merocets Plus; Rinstead; Rinstead Teething Gel†; Woodwards Teething Gel; **USA**: Cepacol Anaesthetic; Cepacol Maximum Strength Sore Throat; Cepacol Regular Strength; Cylex; MouthKote O/R; MouthKote P/R†; Orajel Mouth Aid; **Venez.**: Borogin; Calgel†; Cepacol-BE; Isospray; Lafarcaina; Solunovar Compuesto.

**Chlorhexidine** (BAN, rINN)

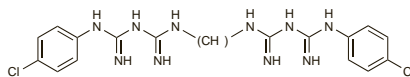
Chlorhexidinum; Clorhexidina; Klooriheksiidiini; Klorheksidin; Klorhexidin.

Хлоргексидин

CAS — 55-56-1.

ATC — A01AB03; B05CA02; D08AC02; D09AA12; R02AA05; S01AX09; S02AA09; S03AA04.

ATC Vet — QA01AB03; QB05CA02; QD08AC02; QD09AA12; QR02AA05; QS01AX09; QS02AA09; QS03AA04.

**Chlorhexidine Acetate** (BANM, rNNM)

Acetat de clorhexidina; Chlorheksidino diacetatas; Chlorhexidin-diacetat†; Chlorhexidine, Acétate de; Chlorhexidine Diacetate; Chlorhexidine, diacétate de; Chlorhexidini Acetas; Chlorhexidini diacetatas; Chlorheksydyiny octan; Klooriheksiidiindiacetaatti; Klorhexidindiacetat; Klórhexidin-diacetat. 1,1'-Hexamethylenebis[5-(4-chlorophenyl)biguanide] diacetate.

Хлоргексидина Ацетат

$C_{22}H_{30}Cl_2N_{10} \cdot 2C_2H_4O_2 = 625.6$ .

CAS — 56-95-1.

ATC — A01AB03; B05CA02; D08AC02; D09AA12;

R02AA05; S01AX09; S02AA09; S03AA04.

ATC Vet — QA01AB03; QB05CA02; QD08AC02;

QD09AA12; QR02AA05; QS01AX09; QS02AA09;

QS03AA04.

**Pharmacopoeias.** In *Chin.*, *Eur.* (see p.vii), and *Int.*

**Ph. Eur. 6.2** (Chlorhexidine Diacetate). A white or almost white, microcrystalline powder. Sparingly soluble in water; soluble in alcohol; slightly soluble in glycerol and in propylene glycol.

**Incompatibility.** The incompatibilities of chlorhexidine salts are discussed under Chlorhexidine Hydrochloride, below.

**Stability.** The stability of chlorhexidine salts is discussed under Chlorhexidine Hydrochloride, below.

**Chlorhexidine Gluconate** (BANM, USAN, rINN)

Chlorheksidino digluconato tirpalas; Chlorhexidin-digluconát; Chlorhexidine Digluconate; Chlorhexidine, digluconate de; Chlorhexidine, Gluconate de; Chlorhexidini digluconas; Chlorhexidini Digluconatis Solutio; Chlorhexidini Gluconas; Chlorheksydyiny digluconato roztwór; Gluconato de clorhexidina; Klooriheksiidiindigluconaatiliuos; Klorheksidini Glukonat; Klorhexidindigluconatöslöning; Klórhexidin-digluconát-oldat. 1,1'-Hexamethylenebis[5-(4-chlorophenyl)biguanide] digluconate.

Хлоргексидина Глюконат

$C_{22}H_{30}Cl_2N_{10} \cdot 2C_6H_{12}O_7 = 897.8$ .

CAS — 18472-51-0.

ATC — A01AB03; B05CA02; D08AC02; D09AA12; R02AA05; S01AX09; S02AA09; S03AA04.

ATC Vet — QA01AB03; QB05CA02; QD08AC02; QD09AA12; QR02AA05; QS01AX09; QS02AA09; QS03AA04.

**Pharmacopoeias.** *Chin.*, *Eur.* (see p.vii), and *US* include a solution which contains 19 to 21% of chlorhexidine gluconate.

**Ph. Eur. 6.2** (Chlorhexidine Digluconate Solution; Chlorhexidini Digluconatis Solutio; Chlorhexidine Gluconate Solution BP 2008).

An aqueous solution which contains not less than 190 g/litre and not more than 210 g/litre of chlorhexidine gluconate. An almost colourless or pale-yellowish liquid. Miscible with water, with not more than 5 parts of alcohol, and with not more than 3 parts of acetone. A 5% v/v dilution in water has a pH of 5.5 to 7.0. Protect from light.

**USP 31** (Chlorhexidine Gluconate Solution). An aqueous solution which contains not less than 19% and not more than 21% of chlorhexidine gluconate. An almost colourless or pale yellow, clear liquid. Miscible with water and with glacial acetic acid; miscible with five times its volume of dehydrated alcohol and with three times its volume of acetone; further addition of dehydrated alcohol or of acetone yields a white turbidity. A 5% v/v dilution in water has a pH of 5.5 to 7.0. Store in airtight containers. Protect from light.

**Incompatibility.** The incompatibilities of chlorhexidine salts are discussed under Chlorhexidine Hydrochloride, below.

**Stability.** The stability of chlorhexidine salts is discussed under Chlorhexidine Hydrochloride, below.

**Sterilisation.** Dilutions of commercial concentrated solutions may be sterilised by autoclaving.

**Chlorhexidine Hydrochloride** (BANM, USAN, rINN)

AY-5312; Chlorheksidino dihidrochloridas; Chlorhexidin-dihydrochlorid; Chlorhexidine, Chlorhydrate de; Chlorhexidine, dichlorhydrate de; Chlorhexidine Dihydrochloride; Chlorhexidini dihydrochloridum; Chlorhexidini Hydrochloridum; Hidrocloruro de clorhexidina; Klooriheksiidiindihydrokloridi; Klorhexidini Hidroklorür; Klórhexidin-dihidroklorid; Klorhexidindihydroklorid. 1,1'-Hexamethylenebis[5-(4-chlorophenyl)biguanide] dihydrochloride.

Хлоргексидина Гидрохлорид

$C_{22}H_{30}Cl_2N_{10} \cdot 2HCl = 578.4$ .

CAS — 3697-42-5.

ATC — A01AB03; B05CA02; D08AC02; D09AA12; R02AA05; S01AX09; S02AA09; S03AA04.

ATC Vet — QA01AB03; QB05CA02; QD08AC02; QD09AA12; QR02AA05; QS01AX09; QS02AA09; QS03AA04.

**Pharmacopoeias.** In *Eur.* (see p.vii), *Int.*, and *Jpn.*

**Ph. Eur. 6.2** (Chlorhexidine Dihydrochloride; Chlorhexidine Hydrochloride BP 2008). A white or almost white, crystalline powder. Sparingly soluble in water and in propylene glycol; very slightly soluble in alcohol.

**Incompatibility.** Chlorhexidine salts are incompatible with soaps and other anionic materials. Activity may be reduced in the presence of suspending agents such as alginates and tragacanth, insoluble powders such as kaolin, and insoluble compounds of calcium, magnesium, and zinc. Chlorhexidine acetate is incompatible with potassium iodide. At a concentration of 0.05%, chlorhexidine salts are incompatible with borates, bicarbonates, carbonates, chlorides, citrates, nitrates, phosphates, and sulfates, forming salts of low solubility which may precipitate out of solution. At dilutions of 0.01% or more, these salts are generally soluble. Insoluble salts may form in hard water. Chlorhexidine salts are inactivated by cork.