#### Units

The second International Standard Preparation (1964) of bacitracin zinc contains 74 units/mg.

#### **Adverse Effects and Precautions**

Systemic bacitracin may produce severe nephrotoxicity, resulting in renal failure due to tubular and glomerular necrosis. Renal function should be determined before, and daily during, therapy. Fluid intake and urinary output should be maintained to avoid kidney toxicity. If renal toxicity occurs, bacitracin should be stopped. Use with other nephrotoxic drugs should be avoided (see Interactions, below).

Nausea and vomiting may occur, as well as pain at the site of injection. Hypersensitivity reactions, including rashes and anaphylaxis, have occurred with both systemic, and more rarely with topical, use.

#### Interactions

Additive nephrotoxicity would be anticipated if bacitracin were given systemically with other nephrotoxic drugs, particularly colistin, kanamycin, neomycin, polymyxin B, and streptomycin; such use should be avoided.. Bacitracin is reported to enhance the neuromuscular blocking action of certain drugs, such as neuromuscular blockers and anaesthetics, if given during surgery or postoperatively.

# **Antimicrobial Action**

Bacitracin interferes with bacterial cell wall synthesis by blocking the function of the lipid carrier molecule that transfers cell wall subunits across the cell membrane. It is active against many Gram-positive bacteria including staphylococci, streptococci (particularly group A streptococci), corynebacteria, and clostridia. It is also active against Actinomyces, Treponema pallidum, and some Gram-negative species such as Neisseria and Haemophilus influenzae, although most Gramnegative organisms are resistant.

Acquired bacterial resistance to bacitracin rarely occurs, but resistant strains of staphylococci have been detected.

# **Pharmacokinetics**

Bacitracin is not appreciably absorbed from the gastrointestinal tract or from intact or denuded skin, wounds, or mucous membranes; however, systemic absorption has been reported after peritoneal lavage. It is rapidly absorbed when given by intramuscular injection. Bacitracin readily diffuses into pleural and ascitic fluids but little passes into the CSF. About 10 to 40% of a single injected dose is excreted slowly by glomerular filtration and appears in the urine within 24 hours.

# **Uses and Administration**

Bacitracin and bacitracin zinc are applied topically (as a cream, ointment, dusting powder, or ophthalmic ointment), often with other antibacterials such as neomycin and polymyxin B, and sometimes with corticosteroids, in the treatment of local infections due to susceptible organisms. Typical concentrations of bacitracin or bacitracin zinc in such products are 250 to 500 units/g. Absorption from open wounds and from the bladder or peritoneal cavity may lead to adverse effects, although the dose-limiting toxicity of combined preparations is considered to be due to neomycin.

Parenteral use of bacitracin is usually avoided because of nephrotoxicity but it may be given intramuscularly for the treatment of infants with staphylococcal pneumonia and empyema due to susceptible organisms. For details of doses, see below.

Bacitracin has been given orally in the treatment of antibiotic-associated colitis due to Clostridium difficile.

Administration in children. In the USA, bacitracin may be given intramuscularly for the treatment of infants with staphylococcal pneumonia and empyema due to susceptible organisms. Infants weighing less than 2.5 kg may be given a dose of

900 units/kg daily in 2 or 3 divided doses; those weighing more than 2.5 kg may be given 1000 units/kg daily in 2 or 3 divided

#### **Preparations**

**BP 2008:** Polymyxin and Bacitracin Eye Ointment; **USP 31:** Bacitracin and Polymyxin B Sulfate Topical Aerosol; Bacitracin for

Injection: Bacitracin Ointment: Bacitracin Ophthalmic Ointment: Bacitracin Injection; Bactracin Ointment; Bactracin Ophtnalmic Ointment; Bactracin Calling and Polymyxin B Sulfate Ointment; Bactracin Zinc and Polymyxin B Sulfate Ophthalmic Ointment; Bactracin Zinc Ointment; Neomycin and Polymyxin B Sulfates and Bactracin Ointment; Neomycin and Polymyxin B Sulfates and Bactracin Ophthalmic Ointment; Neomycin and Polymyxin B Sulfates and Bactracin Zinc Ointment; Neomycin and Polymyxin B Sulfates and Bactracin Zinc Ophthalmic Ointment; Neomycin and Polymyxin B Sulfates and Bactracin Zinc Ophthalmic Ointment; Neomycin and Polymyxin B Sulfates Districts Districts Polymyxin B Sulfates fates, Bacitracin Zinc, and Hydrocortisone Acetate Ophthalmic Ointment; Neomycin and Polymyxin B Sulfates, Bacitracin Zinc, and Hydrocortisone Ointment; Neomycin and Polymyxin B Sulfates, Bacitracin Zinc, and Hydrocortisone Ophthalmic Ointment; Neomycin and Polymyxin B Sulfates, Bactracin Zinc, and Lidocaine Ointment; Neomycin and Polymyxin B Sulfates, Bacitracin, and Hydrocortisone Acetate Ointment; Neomycin and Polymyxin B Sulfates, Bacitracin, and Hydrocortisone Acetate Ointment; Neomycin and Polymyxin Bolymyrin and Polymyrin and myxin B Sulfates, Bacitracin, and Hydrocortisone Acetate Ophthalmic Oint-ment; Neomycin and Polymyxin B Sulfates, Bacitracin, and Lidocaine Oint-ment; Neomycin Sulfate and Bacitracin Ointment; Neomycin Sulfate and Bacitracin Zinc Ointment; Polymyxin B Sulfate and Bacitracin Zinc Topical Aerosol; Polymyxin B Sulfate and Bacitracin Zinc Topical Powder.

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

Austria: Rhinocillin B†; Canad.: Baciguent; Baciject; Bacitin; USA: Ak-Tracin†; Baci-IM; **Venez.:** Baciderm

**Multi-ingredient:** Arg.: Biotaer an Caramelos; Biotaer Gamma†; Biotaer Nebulizable; Biotaer Ultrason Nebulizable†; Butimerin; Carnot Colutorio; Cicatrex; Nebapol B†; **Austral.:** Cicatrin; Nemdyn; Neosporin; **Austria:** Cicatrex, Nebapoi Bṛ, Austrai. Cicatrin, Nemdyri, Nesoporin, Austrai.

Braeccin; Cicatrex; Eucliin; Nebacetin; Belgs: Nebacetine; Neobacitracine;
Braz.: Anaseptil; Antiseptin†; Bacidermina; Bacigen; Bacinantrat†; Bacineo†;
Bactoderm; Belcetin†; Cicatrene; Cicatrizan†; Cutiderm; Dermacetin-Ped†;
Dermase; Epicitrin; Ferid; Kindcetin; Nebacetin; Nebaciderme; Nebacimed;
Nebacitrin†; Nebactrina†; Nebalon†; Neobacima†; Neobacipan†; Neocetin; Neotop; Neotricin; Polysporin; Pomacetin†; Rinogerol†; Teutocerin; Neotop; Neotricin; Polysporin; Pomacetin; Ninogerori; Eucomicin; Canada. Antibioticque Onguent; Bacimyxin; Band-Aid Antibiotic; Bioderm; Cicatrin; Cortimyxin; Cortisporin; Johnson & Johnson First Aid Ointmentf; Neosporin; Neotopic; Doptimyxin; Cazonol Antibiotic Plus; Polycidin†; Polyderm; Polysporin; Polysporin Complete Antibiotic; Polysporin Triple Antibiotic; Polysporin Triple Antibiotic; Polysporin; Polysporin Complete Antibiotic; Polysporin; Dermabiotico; Grifoffalf; Monticina; Nasomin; Offabiotico; Pensuar Polysporin; Polyspor topic; Banedii, Banedii Ottalmico; Banedii Ottalmico con Prednisolona; Bidexint; Dermabiotico; Grifofat; Monticina; Nasomin; Offabiotico; Pensulan; Polvos Antibioticost; Rinobanedif, Unguento Dermico Antibiotico; Cz.;
Framykoin; Ophthalmo-Framykoin; Ophthalmo-Framykoin Compositum;
Pamycon; Fin.; Bacibaci; Fr.; Bacicoline; Collunovart; Oropivalone Bacitracinet; Ger.: Anginomycint; Bivacynt; Cicatrext; Nebacetin; Neobac;
Polyspectran; Polyspectran HC; Gr.; Apobacyn; Lysopaine; Nebacetin; Neosporin-Plus; Vioplex-T; Hong Kong; Bacimycin; Bivacyn; Nebacetint; Neosporin-Plus; Vioplex-T; Hong Kong; Bacimycin; Bivacyn; Nebacetin; Neosporin-Plus; Neobasuf; Neosporin; Neosporin-H; Indon.: Nebacetin; Netracin; Scanderma Plus; Tracetin; Inl.: Cicatrin; Polyfax; Israel: Bamyxin;
Ind.: Bimixin; Cicatrene; Enterostop; Orobicin; Malaysia: Bacitracin-N; Baneocin; Mex.: Nebacetina; Neosporin; Polixin; Tribiot; Neth.: Bacicoline-B;
Norw.: Bacimycin; Philipp.: BNP Ointment; Terramycin Plus; Trimycin;
Trimycin-H; Pol.: Baneocin; Bivacyn; Multibiotic; Neotopic; Tribiotic; Port.:
Baciderma; Bacitracina; Dermobioticor; Dimicina; Distop; Orobiotico-Polisulfade; Rus.: Baneocin; Batramycin; Fast Powder; Polybamycin;
Polysporin; Singapore: Baneocin; Batramycin; Fast Powder; Polybamycin;
Spain: Bacisponn; Banedif; Dermisone Tri Antibiotic, Dermo Hubber; Edifaningen; Lizipaina; Neo Bacitrin; Oxidermiol Enzimaţ; Phonaļ; Pomada Antibiotica; Rnobanedif; Tugrasum Antibiotic; Switz: Bacimycin; Baneopol;
Batramycine; Cicatrex; Lysopaine: Nebacetin; Neotracin; Oro-Pivalone; tolotica; Yunobanedi; Iugrasum Antiolotica; Swrtz: Basturnycin; Banepola Batramycine; Cicatrex; Lysopaine; Nebacetin; Neotracin; Oro-Pivalone; Prednitracin; Thai.: Bacal; Banocin; Basina; Biochin†; Genquin; Izac†; Media; Mybacin; Mybacin Dermic; Turk.: Thiocilline; UK: Cicatrin†; Polyfax; USA: Ak-Poly-Bac; Ak-Spore; Betadine First Aid Antibiotics + Moisturizer; Betadine Plus First Aid Antibiotics & Pain Reliever; Cortimycin; Cortisporin†; Lanabioticf; Myditracin†; Neocin; Neosponin + Pain Reliek, Neosponin†; Neotricin HC; Ocu-Spor-B; Ocutricin; Polycin-B; Polymycin; Polysporin†; Polytracin; Spectrocin Plus†; Tri-Biozene; Venez.: Dermabiotic.

# Balofloxacin (HNN)

Balofloxacine; Balofloxacino; Balofloxacinum; Q-35. (±)-I-Cyclopropyl-6-fluoro-1,4-dihydro-8-methoxy-7-[3-(methylamino)piperidino]-4-oxo-3-quinolinecarboxylic acid

Балофлоксацин

 $C_{20}H_{24}FN_3O_4 = 389.4.$ CAS - 127294-70-6.

Balofloxacin is a fluoroquinolone antibacterial used in the treatment of urinary-tract infections.

# **Preparations**

Proprietary Preparations (details are given in Part 3) Kor.: O-Roxin.

#### Bambermycin (BAN, pINN)

Bambermicina; Bambermycine; Bambermycins (USAN); Bambermycinum; Flavophospholipol.

Бамбермицин

 $C_{69}H_{108}N_5O_{34}P = 1582.6 \text{ (moenomycin A)}$ CAS — 11015-37-5 (bambermycin); 76095-39-1 (moen-

#### Profile

Bambermycin is an antibacterial complex containing mainly moenomycin A and moenomycin C and which may be obtained from cultures of Streptomyces bambergiensis or by other means. It is used as a growth promotor in veterinary practice.

(moenomycin A)

#### Baquiloprim (BAN, rINN)

Bakilopriimi; Bakiloprim; Baquiloprima; Baquiloprime; Baquiloprimum; 138OU. 5-(8-Dimethylamino-7-methyl-5-quinolylmethyl)pyrimidin-2,4-diyldiamine.

Бахилоприм

 $C_{17}H_{20}N_6 = 308.4.$ \_ 102280-35-3.

Baquiloprim is a diaminopyrimidine antibacterial used in veterinary medicine with sulfadimethoxine or sulfadimidine.

# Bekanamycin Sulfate (rINNM)

Aminodeoxykanamycin Sulphate; Bekanamycin Sulphate; Békanamycine, Sulfate de; Bekanamycini Sulfas; Kanamycin B Sulphate; KDM: NK-1006: Sulfato de bekanamicina, 6-0-(3-Amino-3-deoxy-α-D-glucopyranosyl)-2-deoxy-4-O-(2,6-diamino-2,6-dide- $\hbox{oxy-}\alpha\hbox{-D-glucopyranosyl})\hbox{-D-streptamine sulphate}.$ 

Беканамицина Сульфат

 $C_{18}H_{37}N_5O_{10}, 2 / H_2SO_4 = 728.7.$ 

CAS — 4696-76-8 (bekanamycin); 70550-99-1 (bekanamycin sulfate).

$$HO$$
 $OH$ 
 $H_2N$ 
 $OH$ 
 $H_2N$ 
 $NH_2$ 
 $NH_2$ 
 $(bekanamycin)$ 

# Pharmacopoeias. In Jpn.

## **Profile**

Bekanamycin is an aminoglycoside and is a congener of kanamycin. It has properties similar to those of gentamicin (p.282). It is given topically as the sulfate for the treatment of eye infections. It has also been given intramuscularly and orally. It is reported to be more toxic than kanamycin.

#### **Preparations**

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

**Multi-ingredient:** *Ital.*: Visucloben Antibiotico; Visumetazone Antibiotico.

## Benethamine Penicillin (BAN, rINN)

Bénéthamine Pénicilline; Benethaminum Penicillinum; Penicillinabenetamina. Benzyl(phenethyl)ammonium (6R)-6-(2-phenylacetamido)penicillanate.

Бенетамин Пенициллин

 $C_{15}H_{17}N$ ,  $C_{16}H_{18}N_2O_4S = 545.7$ . CAS - 751-84-8.

#### **Profile**

Benethamine penicillin is a poorly soluble derivative of benzylpenicillin (p.213) with similar actions and uses, although it is not recommended for chronic, severe, or deep-seated infections. After deep intramuscular injection it forms a depot from which it is slowly absorbed and hydrolysed to benzylpenicillin. Benethamine penicillin is usually given with benzylpenicillin sodium and also sometimes procaine benzylpenicillin to produce both an immediate and a prolonged effect; overall, the effect lasts for 2 to 3 days.

#### **Preparations**

**Proprietary Preparations** (details are given in Part 3) **Multi-ingredient:** *Fr.:* Biclinocilline; *Port.:* Atralmicina.

# Benzathine Benzylpenicillin (BAN, rINN)

Bensylpenicillinbensatin; Bensylpenicillinbenzatin; Bentsyylipenisil-liinibentsatiini; Benzathine-benzylpenicilin; Benzathine benzylpenicillin; Benzathine Penicillin; Benzathine Benzylpenicillin; Benzathine Penicillin; Benzathini Benzylpenicillinas benzatinas; Benzilpenicillinas benzatinas; Benzilpenicillina Benzatinica; Benzylpenicillinabenzantin; Benzylopenicylina benzatynowa; Benzylpenicillinum Benzanthinum; Benzylpenicillinum benzanthinum; Penicillin G Benzatin; Penzaethinum G. NN'-Dibenzylethylenediammonium bis[(6R)-6-(2-phenylacetamido)penicillanate].

Бензатина Бензилпенициллин

 $\mathsf{C}_{16}\mathsf{H}_{20}\mathsf{N}_2(\mathsf{C}_{16}\mathsf{H}_{18}\mathsf{N}_2\mathsf{O}_4\mathsf{S})_2=909.\mathsf{I}.$ 

CAS — 1538-09-6 (anhydrous benzathine benzylpenicillin); 5928-83-6 (benzathine benzylpenicillin monohydrate); 41372-02-5 (benzathine benzylpenicillin tetrahydrate). ATC — JOICE08.

ATC Vet — QJ01CE08.

**Pharmacopoeias.** In *Chin., Eur.* (see p.vii), and *Int. Jpn* and *US* include the tetrahydrate.

Ph. Eur. 6.2 (Benzylpenicillin, Benzathine). It contains a variable quantity of water. A white or almost white powder. Very slightly soluble in water; slightly soluble in alcohol; freely soluble in dimethylformamide and in formamide. Store in airtight containers.

**USP 31** (Penicillin G Benzathine). The tetrahydrate is a white, odourless, crystalline powder. Soluble 1 in 5000 of water and 1 in 65 of alcohol. pH in a solution prepared by dissolving 50 mg in 50 mL of dehydrated alcohol, and adding 50 mL of water is between 4.0 and 6.5. Store in airtight containers.

# **Adverse Effects and Precautions**

As for Benzylpenicillin, p.213.

Non-allergic (embolic-toxic) reactions similar to those associated with procaine benzylpenicillin, p.319, have been reported rarely with benzathine benzylpenicillin.

Benzathine benzylpenicillin should not be injected intravascularly since ischaemic reactions may occur.

# Interactions

As for Benzylpenicillin, p.214.

#### **Pharmacokinetics**

When benzathine benzylpenicillin is given by intramuscular injection, it forms a depot from which it is slowly released and hydrolysed to benzylpenicillin. Peak plasma concentrations are produced in about 24 hours and are lower than those after an equivalent dose of benzylpenicillin potassium or sodium. However, depending on the dose, benzylpenicillin is usually detectable in plasma for up to 4 weeks (but see below).

Distribution into the CSF is reported to be poor.

Due to the slow absorption from the site of injection, benzylpenicillin has been detected in the urine for up to 12 weeks after a single dose.

Benzathine benzylpenicillin is relatively stable in the presence of gastric juice, but absorption from the gastrointestinal tract is variable. Plasma concentrations of benzylpenicillin after an oral dose are lower than those from the same dose of a soluble penicillin; peak concentrations are also produced less rapidly, but may persist for longer.

Plasma concentrations. Benzathine benzylpenicillin has been given every 4 weeks for secondary prophylaxis against rheumatic fever, although some advocate giving it every 3 weeks to ensure adequate plasma concentrations of benzylpenicillin. Typical concentrations achieved after a single intramuscular injection of benzathine benzylpenicillin 900 mg have been cited as about 100, 20, and 2 nanograms/mL on days 1, 14, and 32 respectively. In one study<sup>1</sup> adequate concentrations (defined as 20 nanograms or more per mL) were seen in more than 80% of serum samples at 3 weeks, but in only 36% at 4 weeks. In a further study,2 in which single doses of 900 mg, 1.35 g and 1.8 g were compared, it appeared that doses higher than the 900-mg dose of benzathine benzylpenicillin usually recommended might prolong the duration of protective plasma concentrations of benzylpenicillin (defined as above 25 nanograms/mL) and improve the efficacy of dosing every 4 weeks for prophylaxis against rheumatic fever.

- Kaplan EL, et al. Pharmacokinetics of benzathine penicillin G: serum levels during the 28 days after intramuscular injection of 1 200 000 units. J Pediatr 1989; 115: 146–50.
- Currie BJ, et al. Penicillin concentrations after increased doses of benzathine penicillin G for prevention of secondary rheumatic fever. Antimicrob Agents Chemother 1994; 38: 1203–4.

**Pregnancy.** The pharmacokinetics of benzathine benzylpenicillin appear to be altered in late pregnancy. Of 10 healthy pregnant women given benzathine benzylpenicillin 1.8 g intramuscularly before caesarean section, only 4 achieved adequate serum concentrations of benzylpenicillin (for syphilis, at least 18 nanograms/mL) for 7 days.<sup>1</sup>

 Nathan L, et al. Penicillin levels following the administration of benzathine penicillin G in pregnancy. Obstet Gynecol 1993; 82: 338–42.

# **Uses and Administration**

Benzathine benzylpenicillin has the same antimicrobial action as benzylpenicillin (p.214), to which it is hydrolysed gradually after deep intramuscular injection. This results in a prolonged effect, but because of the relatively low blood concentrations of benzylpenicillin produced, its use should be restricted to micro-organisms that are highly susceptible to benzylpenicillin. In acute infections, and when bacteraemia is present, the initial treatment should be with benzylpenicillin by injection.

Infections treated with benzathine benzylpenicillin include diphtheria (asymptomatic carriers), pharyngitis (Streptococcus pyogenes; Arcanobacterium haemolyticum (Corynebacterium haemolyticum)), and syphilis (including non-venereal treponematoses). It is also used for primary and secondary prophylaxis of rheumatic fever. For details of these infections and their treatment, see under Choice of Antibacterial, p.162.

Administration and dosage. Benzathine benzylpenicillin is given by deep intramuscular injection, sometimes with procaine benzylpenicillin and benzylpenicillin itself. It has been given orally for mild infections,

although phenoxymethylpenicillin is usually preferred. Benzathine benzylpenicillin 900 mg is equivalent to about 720 mg of benzylpenicillin (1.2 million units).

For early syphilis, a single dose of benzathine benzylpenicillin 1.8 g by deep intramuscular injection is given, usually as 2 injections at separate sites. In late syphilis, 1.8 g is given at weekly intervals for 3 consecutive weeks. Benzathine benzylpenicillin is not usually recommended for the treatment of neurosyphilis because of reports of inadequate penetration into the CSF. Infants up to 2 years of age may be given a single intramuscular dose of 37.5 mg/kg for the treatment of congenital syphilis, provided there is no evidence of infection in the CSF.

For the treatment of other treponemal infections, such as yaws, pinta, and endemic syphilis (bejel), a single intramuscular dose of benzathine benzylpenicillin 900 mg is given; a dose of 450 mg may be used in children.

For streptococcal pharyngitis and the primary prevention of rheumatic fever, the adult dose is a single intramuscular injection of 900 mg; children under 30 kg may be given 225 to 675 mg. To prevent recurrences of acute rheumatic fever, 900 mg is given intramuscularly every 3 or 4 weeks to adults; a dose of 450 mg has been used for children under 30 kg.

## **Preparations**

**USP 31:** Penicillin G Benzathine and Penicillin G Procaine Injectable Suspension; Penicillin G Benzathine Injectable Suspension; Penicillin G Benzathine Oral Suspension; Penicillin G Benzathine Tablets.

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

Arg.: Benzetacii; Galtamicina; Pen di Ben; Retarpen; Austral.: Bicillin L.A; Austria: Retarpen; Belg.: Penadur; Braz.: Bactopen; Benzatron; Benzetaci; Bepeben; Longaclin; Neo Benzil; Pencil B; Cz.: Pendepon Compositum; Retarpen; Fr.: Extencilline; Ger.: Pendysin; Gr.: Penadur; Hung.: Retarpen; Holia: Pencom; Penidure; Israel: Durabiotic; Iral: Diaminocillina; Wycillina; Malaysia: Retarpen; Mex.: Benacilina; Bencelin; Benzafur; Benzalin; Simple; Benzetacii; Ipenxin; Lentopeni; Unicil 6.33; Unicil L.A; Neth.: Penidura; NZ: Bicillin L.A; Philipp.: Penadur; Zalpen; Pol.: Debecylina; Port.: Lentocilin S; Penadur; Rus.: Bicillin L. (Бицимин-1); Extencilline (Окстенцимин-1); Estencillina; Thai: Penadur; Turk.: Benzapen; Benzapen; Spain: Benzetacii; Cepacilina; Thai: Penadur; Turk.: Benzapen; Benzapen;

Multi-ingredient: Austria: Retarpen compositum; Chile: Karbasalin†; Ger.: Retacillin compositum; Tardocillin; Ital.: Tri-Vvycillina†; Mex.: Bencetin Combinado; Benzanil Compuesto; Benzetacil Combinado; Pecivax; Pendiben Compuesto; Neth.: Penidural D/F†; Port.: Lentocilin; Penadur 6.3.3†; Rus.: Bicillin-3 (Біхцихин-3); Bicillin-5 (Біхцихин-5); S.Afr.: Penielte Forte†; Ultracillin; Spain: Benzetacil Compuesta; Cepacilina 633; Penielevel Retard; USA: Bicillin C-R; Venez.: Benzetacil 3-3; Benzetacil 6-3-3.

# Benzathine Phenoxymethylpenicillin

Benzatin Fenoksimetil Penisilin; Benzatina fenoximetilpenicilina; Penicillin V Benzathine (USAN); Phenoxymethylpenicillini Dibenzy-laethylendiaminum. N,N'-Dibenzylethylenediammonium bis[(6R)-6-(2-phenoxyacetamido)penicillanate].

 $(C_{16}H_{18}N_2O_5S)_2, C_{16}H_{20}N_2 = 941.1.$ 

CAS — 5928-84-7 (anhydrous benzathine phenoxymethylpenicillin); 63690-57-3 (benzathine phenoxymethylpenicillin tetrahydrate).

ATC — JOICEIO.

ATC Vet — QJ01CE10.

## Pharmacopoeias. In US.

**USP 31** (Penicillin  $\vee$  Benzathine). A practically white powder having a characteristic odour. Soluble 1 in 3200 of water, 1 in 330 of alcohol, 1 in 37 of acetone, 1 in 42 of chloroform, and 1 in 910 of ether. pH of a 3% suspension in water is between 4.0 and 6.5. Store in airtight containers.

## Profile

Benzathine phenoxymethylpenicillin has actions and uses similar to those of phenoxymethylpenicillin (p.314) and is given orally in the treatment of susceptible mild to moderate infections. Doses are expressed in terms of phenoxymethylpenicillin.