

- Hepburn SE. Phenylmercuric nitrate. In: Rowe RC, et al. eds. *Handbook of pharmaceutical excipients*. 5th ed. London and Chicago: The Pharmaceutical Press and the American Pharmaceutical Association, 2006: 526–9.
- Aspinall JA, et al. The effect of low density polyethylene containers on some hospital-manufactured eyedrop formulations. *J Clin Hosp Pharm* 1980; **5**: 21–9.
- Aspinall JE, et al. The effect of low density polyethylene containers on some hospital-manufactured eyedrop formulations II. Inhibition of the sorption of phenylmercuric acetate. *J Clin Hosp Pharm* 1983; **8**: 233–40.
- Naido NT, et al. Preservative loss from ophthalmic solutions during filtration sterilisation. *Aust J Pharm Sci* 1972; **NS1**: 16–18.
- Wessels JMC, Adema DMM. Some data on the relationship between fungicidal protection and pH. In: Walters AH, Elphick JJ, eds. *Biodeterioration of materials*. Amsterdam: Elsevier, 1968: 517–23.

### Adverse Effects and Precautions

While the adverse effects of inorganic mercury (p.2341) should be taken into account when considering the adverse effects of phenylmercuric compounds, there is little evidence of systemic toxicity arising from their use. They are irritant to the skin and may give rise to erythema and blistering. Hypersensitivity reactions have been reported. Topical application to eyes has been associated with mercurialentis and atypical band keratopathy; prolonged use of eye drops containing phenylmercuric preservatives is not recommended.

**Effects on the eyes.** References to primary atypical band keratopathy and pigmentation of the anterior capsule of the lens (mercurialentis) associated with the prolonged use of eye drops containing phenylmercuric preservative.

- Kennedy RE, et al. Further observations on atypical band keratopathy in glaucoma patients. *Trans Am Ophthalmol Soc* 1974; **72**: 107–22.
- Garron LK, et al. A clinical pathologic study of mercurialentis medicamentosa. *Trans Am Ophthalmol Soc* 1976; **74**: 295–320.
- Brazier DJ, Hitchings RA. Atypical band keratopathy following long-term pilocarpine treatment. *Br J Ophthalmol* 1989; **73**: 294–6.

### Uses

Phenylmercuric salts have antibacterial and antifungal properties. They are primarily bacteriostatic compounds although they also have a slow bactericidal action. Their activity has been reported to be pH dependent.

Phenylmercuric compounds are used as preservatives in cosmetic, ophthalmic, or pharmaceutical preparations and as antiseptics. They have also been used as spermicides.

As a preservative in eye drops, a concentration of 0.002% is usually used; in injection solutions, the concentration is usually 0.001%.

### Preparations

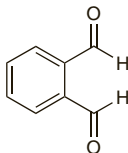
**Proprietary Preparations** (details are given in Part 3)

**Multi-ingredient:** **Austria:** Panto Liquid; **USA:** Hem-Prep.

### o-Phthaldialdehyde

o-Ftalidialdehido; o-Phthalaldehyde. 1,2-Benzenedicarboxaldehyde.

$C_8H_6O_2 = 134.1$ .  
CAS — 643-79-8.



### Adverse Effects and Precautions

As for Formaldehyde Solution, p.1644.

The manufacturer warns that o-phthaldialdehyde should not be used to process equipment used to treat patients with a history of bladder cancer as there have been associated rare reports of anaphylactoid reactions in such patients.

**Occupational exposure.** For mention of the potential of o-phthaldialdehyde to cause sensitisation in those occupationally exposed, see under Peracetic Acid, p.1655.

### Uses and Administration

o-Phthaldialdehyde is a bactericidal disinfectant with similar actions to those of glutaral (p.1645) but it is reported to be more

active against mycobacteria and to be stable at a wider pH range of 3 to 9. Unlike glutaral it requires no activation before use.

A 0.55% aqueous solution of o-phthaldialdehyde is used for high-level disinfection of medical equipment that cannot be sterilised by heat. It is non-corrosive towards most materials. Complete immersion in the solution for a minimum of 12 minutes at 20° or 5 minutes at 25° or higher is recommended. For further details, see Disinfection of Endoscopes, p.1623.

### References

- Cooke RPD, et al. An evaluation of Cidex OPA (0.55% ortho-phthaldialdehyde) as an alternative to 2% glutaraldehyde for high-level disinfection of endoscopes. *J Hosp Infect* 2003; **54**: 226–31.

### Preparations

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

**Fr.:** Cidex OPA†; **Ger.:** Cidex OPA; **USA:** Cidex OPA.

### Picloxidine Dihydrochloride (BAN, rINN)

Dihidroclocloro de picloxidina; Picloxidine, Dichlorhydrate de; Picloxidini Dihydrochloridum. 1,1'-[Piperazine-1,4-diylbis(formimidoyl)]bis[3-(4-chlorophenyl)guanidine] dihydrochloride.

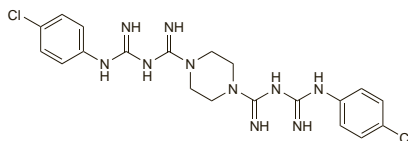
Пиклоксидина Дигидрохлорид

$C_{20}H_{24}Cl_2N_{10} \cdot 2HCl = 548.3$ .

CAS — 5636-92-0 (picloxidine); 19803-62-4 (picloxidine dihydrochloride).

ATC — S01AX16.

ATC Vet — QS01AX16.



(picloxidine)

### Profile

Picloxidine is a biguanide disinfectant with properties similar to those of chlorhexidine (p.1635). It is used in eye drops containing 0.05% of the dihydrochloride for the treatment of superficial infections of the eye. It has also been used as a surface disinfectant with quaternary ammonium compounds.

### Preparations

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

**Fr.:** Vitabact; **Hung.:** Vitabact†; **Rus.:** Vitabact (Витабакт); **Switz.:** Vitabact†.

### Polihexanide (BAN, rINN)

ICI-9073; Polihexanida; Polihexanidum; Polyhexamethylene Biguanide Hydrochloride; Polyhexanide. Poly(1-hexamethylenebiguanide hydrochloride).

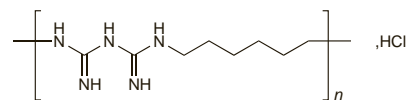
Полигексанид

$(C_6H_{17}N_5 \cdot HCl)_n$ .

CAS — 32289-58-0.

ATC — D08AC05.

ATC Vet — QD08AC05.



### Profile

Polihexanide has antibacterial and antiamoebic activity. It is used as a surface disinfectant and for disinfecting soft contact lenses (p.1622). It is also used in the treatment of *Acanthamoeba* keratitis (p.822) and has also been tried as a mouthwash in dental care.

**Bacterial vaginosis.** A study<sup>1</sup> of the efficacy of a 2% polihexanide vaginal gel in the treatment of bacterial vaginosis found that a single application was comparable to that of a 2% clindamycin gel applied once daily for 7 consecutive days.

- Gerli S, et al. A new approach for the treatment of bacterial vaginosis: use of polyhexamethylene biguanide: a prospective, randomized study. *Eur Rev Med Pharmacol Sci* 2003; **7**: 127–30.

### Preparations

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

**Rus.:** Lavasept (Лавасепт); **Switz.:** Lavasept.

**Multi-ingredient:** **Fr.:** Aniospray 29; Hexanios G+R; **Ger.:** Teta Extra; Teta-S.

### Polynoxylin (BAN, rINN)

Polinoxilina; Polynoksylini; Polynoxyline; Polynoxylinum. Poly[[bis(hydroxymethyl)ureylene]methylene].

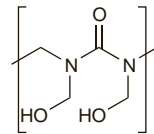
ПОЛИНОКСИЛИН

$(C_4H_8N_2O_3)_n$ .

CAS — 9011-05-6.

ATC — A01AB05; D01AE05.

ATC Vet — QA01AB05; QD01AE05.



### Profile

Polynoxylin is a condensation product of formaldehyde and urea. It is an antiseptic with antibacterial and antifungal actions and, like noxytiolin (p.1654), may act by the release of formaldehyde. It is used topically for the local treatment of minor infections, usually at a concentration of 10%.

### Preparations

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

**Hung.:** Anaflex†; **NZ:** Ponoxylin†; **Singapore:** Anaflex; **UK:** Anaflex.

### Potassium Nitrate ⓧ

Dusičnan draselny; E252; Kalii nitras; Kalio nitratas; Kalium Nitricum; Kaliumnitratiti; Kaliumnitrat; Kálium-nitrát; Nitrato potásico; Nitre; Potassium, nitrate de; Potasu azotan; Saltpetre.

$KNO_3 = 101.1$ .

CAS — 7757-79-1.

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

**Ph. Eur. 6.2** (Potassium Nitrate). Colourless crystals or a white or almost white, crystalline powder. Freely soluble in water; very soluble in boiling water; practically insoluble in alcohol.

**USP 31** (Potassium Nitrate). Colourless crystals or a white crystalline powder. Freely soluble in water; very soluble in boiling water; practically insoluble in alcohol; soluble in glycerol. Store in airtight containers.

**Nomenclature.** The name saltpetre has been used as a generic term for a number of potassium- and sodium-based preservatives used in food manufacture. For a report of poisoning when a mixture of sodium nitrate and sodium nitrite was supplied for saltpetre, see p.1662.

### Adverse Effects and Precautions

After ingestion potassium nitrate may be reduced to nitrite in the gastrointestinal tract by the action of bacteria and ingestion of large amounts can therefore cause methaemoglobinemia. Gastrointestinal disturbances, vertigo, headache, flushing of the skin, hypotension, irregular pulse, cyanosis, convulsions, and collapse may occur. The toxic dose varies greatly; 15 g may prove fatal but much larger doses have been taken without serious effects. Poisoning has frequently been reported in infants given water from wells contaminated with nitrates.

Nitrites are precursors of nitrosamines, which are *animal* carcinogens, but a relationship with human cancer has not been established.

Concern has been expressed regarding the concentrations of nitrates and nitrites in the public drinking water supply. National limits are often set for permissible concentrations in drinking water.

**Handling.** Potassium nitrate has been used for the illicit preparation of explosives or fireworks; care is required with its supply.

### Uses and Administration

Potassium nitrate is used as a preservative in foods. It is also included in dentifrices to reduce the pain of hypersensitive teeth. When taken by mouth in dilute solution, it acts as a diuretic and was formerly used for this purpose.

### Preparations

**USP 31:** Potassium Nitrate Solution.

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

**Chile:** Crown; **USA:** Denquet; Original Sensodyne.

**Multi-ingredient:** **Arg.:** Esmedent Dientes Sens Blanq + Círol Sarro; Esmedent Dientes Sensibles; Fluorogel 2001 para Dientes Sensibles; Hyper Sensitive; Oral-B Dientes Sensibles con Fluor; Sebulux; Sens-Out; Sensigel; Sensodyne Antisarro; Sensodyne Bicarbonato de Sodio; Sensodyne Protección Total; Sensodyne-F; **Austral.:** Oral-B Sensitive†; **Braz.:** Malvatricin Dientes Sensíveis; Pílulas De Witt's; Sensodyne Antitartaro; Sensodyne C/Bicarbonato de Sodio; Sensodyne Cool; Sensodyne Fresh Mint; Sensodyne Protecáo Total; Sensodyne-F; **Canada:** Oral-B Sensitive†; Sensodyne-F; **Chile:** Sensid; Sensilacer†; **Fr.:** Esmoform Dents Sensibles; Esmoform Gencives; Fluocaril dents sensibles; Sensigel; **Ital.:** Actisens†; Benodent Gel Gengivale†; Dentosan Sensibile; Esmoform Actisens†; Fluocaril; Oral-B Sensitive; **Mex.:** Dentsblen; **Port.:** Biofluor Sensitive†; **Rus.:** Sensigel (Сенсигел); **Singapore:** 25Sensitive†; Sensigel; **Turk.:** Sensodyne-F Gel; **UK:** Avoca; **USA:** Fluoridex Daily Defense Sensitivity Relief; Sensitivity Protection Crest; Sensodyne-F; **Venez.:** Sensident†; Sensodyne.