

Gum Defence; Salomethyl; Valda†; **India:** Anaebell†; **Indon.:** Dactylen; Listerine; Listerine Coolmint; Skintex; Vital Ear Oil; **Ir:** Karvol; Valda†; **Israel:** Gargol; Garonsept; Karvol; Pronest; Rectozorin; **Italy:** Eucalipito Composit; Eugenol-Guacolo Composit; Listerine Fresh Citrus; Listerine Tartar Control; Pinsella Knapp; Rinosol; **Malaysia:** Listerine†; Salompas; **Mex:** Dermacid; Listerine; **Neth.:** Vicks Vaporub; **NZ:** Listerine; Listerine Tartar Control; Thymol Mouthwash Red†; Vicks Vaporub; **Philipp.:** Calmoseptine; Listerine; Listerine Coolmint; Listerine Fresh Citrus; Listerine Freshburst; Listerine Original; Listerine Tartar Control; Listerine Teeth & Gum Defense; Listerine; **Pol:** Afronis; Bronchocid; Derhotil; Icy Rub; Pinosol; Pulmonil; Rub-Arom; Septolete; Sonol; Vicky Vaporub; **Port:** Edoltar†; Freimax†; Listerine†; Thrombocid; Valda†; **Rus.:** Bioprost (Биопрост); Doktor Mom (Доктор Мом); Efcamon (Эфкамон); Pinosol (Пиносол); Septogal (Септогал); Septolete (Септолете); Suprima-Plus (Суприма-Плюс); **S.Afr.:** Karvol; Listerine Antiseptic; Prep; Tartar Control Listerine Antiseptic; Vicks Vaporub; **Singapore:** Kamistad; Karvol; Listerine; Listerine Cool Mint; Listerine Fresh Burst; Listerine Tartar Control; **Spain:** Balsamo Krepp†; Co Bucal; Mentobac; Pastillas Antisept Garg M; Pioris; Vicks Vaporub; **Swed.:** Vicks Vaporub†; **Switz.:** Asphalinet†; Butaparin; Cresophene†; Ederphyt; Furodermal; GU Eau†; Huile analgesique "Temple of Heaven" contre les maux de tete†; Penta; Perubare†; Rapura; Sedasept†; Sedotussin†; Thrombocid; Vicks Vaporub N; **Thai.:** Burnol Plus; Flavinol; Kamistad; Stopain; **Turk.:** Katajin; Mentimol; Mentolin; Otaci Meyanbali; Otaci Oka Mentol; Otaci Salvia; Vicks Vaporub; **UK:** Antiseptic Mouthwash; DDD; Dragon Balm; Karvol; Listerine Antiseptic Mouthwash; No-Sor Vaporub; Potters' Catarrh Pastilles; **USA:** BF; Boil Ease; Listerine; Massengill; Vicks Menthol Cough Drops; Zonite; **Venez.:** Amicets; Lafarcaina.

## Tosylchloramide Sodium (BAN, rINN)

Chloramidum; Chloramina; Chloramine; Chloramine T; Chloraminum; Cloramina; Klóramin; Mianin; Natrium Sulfaminochloratum; Tosilchloramidum natrio druska; Tosilchloramida sódica; Tosylchloramid sodná sůl trihydrát; Tosylchloramide sodique; Tosylchloramidum natrium; Tosylchloramidum Natrium Trihydri-dum; Tosylchloramidnatrium; Tosylkloramidnatrium; Sodium N-chlorotoluene-p-sulphonimide trihydrate.

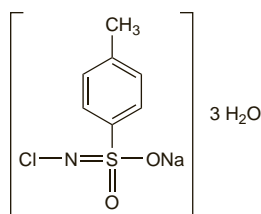
Тозилхлорамида Натрий

$C_7H_7ClNNaO_2S \cdot 3H_2O = 281.7$ .

CAS — 144-86-5 (tosylchloramide); 127-65-1 (tosylchloramide sodium).

ATC — D08AX04.

ATC Vet — QD08AX04.



NOTE. The name Chloramin has also been formerly used for a preparation of chlorphenamine maleate (p.571).

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

**Ph. Eur. 6.2** (Tosylchloramide Sodium). A white or slightly yellow, crystalline powder. Freely soluble in water; soluble in alcohol. A 5% solution in water has a pH of 8.0 to 10.0. Store in airtight containers. Protect from light.

## Adverse Effects and Treatment

Vomiting, cyanosis, circulatory collapse, frothing at the mouth, and respiratory failure can occur within a few minutes of tosylchloramide sodium ingestion. Fatalities have occurred. Tosylchloramide sodium in tap water has caused methaemo-

globinaemia and haemolysis in patients undergoing dialysis. Bronchospasm has occurred after inhalation.

Treatment of adverse effects is similar to that for Sodium Hypochlorite, p.1661.

**Effects on the lungs.** A study in Finland in dental staff who had reported occupational respiratory hypersensitivity between 1990 and 1998 found that 1 of 28 cases of rhinitis and 3 of 28 cases of asthma could be attributed to tosylchloramide sodium.<sup>1</sup> For further reference to respiratory effects associated with tosylchloramide sodium gas, see under Sodium Hypochlorite: Toxicity from mixing cleaning agents, p.1661.

1. Piirilä P, *et al.* Occupational respiratory hypersensitivity in dental personnel. *Int Arch Occup Environ Health* 2002; **75**: 209–16.

## Uses and Administration

Tosylchloramide sodium is an organic chlorine-releasing compound. It has general properties similar to those of chlorine (p.1638) but is more stable. It contains about 25% w/w of 'available chlorine' (see p.1638). It is stable at an alkaline pH although it is much more active in acid media. It is more slowly active than hypochlorite solutions.

Tosylchloramide sodium is used for the treatment of minor wound infections and as a skin and hard surface disinfectant. It is also used for the treatment of drinking water (p.1623). It was formerly used as a spermicide.

Tosylchloramide sodium B (chlorogenium; sodium N-chlorobenzenesulphonimide sesquihydrate) has been used similarly to tosylchloramide sodium.

The symbol † denotes a preparation no longer actively marketed

## Preparations

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

**Belg.:** Chloraseptine; Chlorazol; Chloronguent; Clonazone; **Fr.:** Hydroclonazone; **Ger.:** Chloramin T; Clorina; Trichlorol; **Hung.:** Neomagnol; **Ital.:** Amucolor Med; Citromed Chlor; Dermacid; Eucloina; Minachlor; Ottodor†; Steridrol; **Spain:** Clorina.

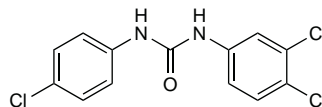
## Triclocarban (USAN, rINN)

NSC-72005; TCC; 3,4,4'-Trichlorocarbanilide; Triclocarban; Triclocarbanum. 1-(4-Chlorophenyl)-3-(3,4-dichlorophenyl)urea.

Триклокарбан

$C_{13}H_9Cl_3N_2O = 315.6$ .

CAS — 101-20-2.



## Adverse Effects and Precautions

When subjected to prolonged high temperatures triclocarban can decompose to form toxic chloroanilines, which can be absorbed through the skin and cause methaemoglobinemia. Mild photosensitivity has been seen in patch testing.

## Uses and Administration

Triclocarban is an anilide antiseptic. It is bacteriostatic against Gram-positive organisms but is not effective against Gram-negative organisms. It inhibits growth of some fungi. It is used in antiperspirants and soaps for disinfection of skin and mucous membranes.

## Preparations

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

**Arg.:** Jabobip†; Sodorant; Ungel; **Braz.:** Derso TCC†; **Fr.:** Cutisan; Nobacter; Solubacter; **Gr.:** Antibacter Forte; **Ital.:** Citrosil Sapone; Sangen Sapone Disinfettante; **Mex.:** Nutegen A†; **UK:** Valderma; **USA:** Cuticura†.

**Multi-ingredient:** **Arg.:** Bacteroskin†; LB Jabon con Purcelin†; Sodorant; **Braz.:** Soapex; **Fr.:** Septosan; Spray du Marcheur; **Ger.:** Anusod†; **Mex.:** Septosan; **Switz.:** Septivon N.

## Triclosan (BAN, USAN, rINN)

CH-3565; Cloxifenol; Triclosán; Triclosanum. 5-Chloro-2-(2,4-dichlorophenoxy)phenol; 2,4,4'-Trichloro-2'-hydroxydiphenyl ether.

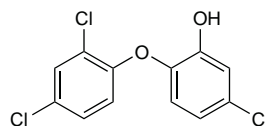
Триклозан

$C_{12}H_7Cl_3O_2 = 289.5$ .

CAS — 3380-34-5.

ATC — D08AE04; D09AA06.

ATC Vet — QD08AE04; QD09AA06.



## Pharmacopoeias. In US.

**USP 31** (Triclosan). A fine whitish crystalline powder. M.p. about 57°. Practically insoluble in water; soluble in alcohol, in acetone, and in methyl alcohol; slightly soluble in petroleum spirit. Store in airtight containers. Protect from light.

## Profile

Triclosan is a chlorinated bisphenol antiseptic, effective against Gram-positive and most Gram-negative bacteria but with variable or poor activity against *Pseudomonas* spp. It is also active against fungi. It is used in soaps, creams, and solutions in concentrations of up to 2% for disinfection of the hands and wounds and for disinfection of the skin prior to surgery, injections, or venepuncture. It is also used in oral hygiene products and in preparations for acne. There have been isolated reports of contact dermatitis.

**MRSA control.** Control of methicillin-resistant *Staphylococcus aureus* (MRSA) infection in surgical units has been achieved by procedures including handwashing and bathing with triclosan.<sup>1-3</sup> In the UK, guidelines on the control of MRSA recommend it as one of several alternatives for such purposes,<sup>4</sup> although alcohol hand rubs (also mentioned in the guidelines) are currently preferred for general hand hygiene (see p.1624). However, triclosan resistance has been reported.<sup>5-7</sup>

1. Bartzokas CA, *et al.* Control and eradication of methicillin-resistant *Staphylococcus aureus* on a surgical unit. *N Engl J Med* 1984; **311**: 1422–5.
2. Bartzokas CA. Eradication of resistant *Staphylococcus aureus* on a surgical unit. *N Engl J Med* 1985; **312**: 858–9.
3. Brady LM, *et al.* Successful control of endemic MRSA in a cardiothoracic surgical unit. *Med J Aust* 1990; **152**: 240–5.
4. Coia JE, *et al.* Guidelines for the control and prevention of methicillin-resistant *Staphylococcus aureus* (MRSA) in hospitals (draft June 05). For the Joint Working Party of the British Soci-

ety of Antimicrobial Chemotherapy, the Hospital Infection Society, and the Infection Control Nurses Association. Available at: [http://www.bsac.org.uk/\\_db/\\_documents/mrsa\\_INFECTION\\_JUNE\\_05.pdf](http://www.bsac.org.uk/_db/_documents/mrsa_INFECTION_JUNE_05.pdf) (accessed 08/03/06)

5. Cookson BD, *et al.* Transferable resistance to triclosan in MRSA. *Lancet* 1991; **337**: 1548–9.
6. Sasatsu M, *et al.* Triclosan-resistant *Staphylococcus aureus*. *Lancet* 1993; **341**: 756. Correction. *ibid.*; **342**: 248.
7. Suller MT, Russell AD. Triclosan and antibiotic resistance in *Staphylococcus aureus*. *J Antimicrob Chemother* 2000; **46**: 11–18.

## Preparations

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

**Arg.:** Daewo; **Austral.:** Dettol Liquid Wash; Gamophen; Johnsons Clean & Clear Facial Cleansing Bar†; Johnsons Clean & Clear Foaming Facial Wash; Liquid Soap Pre-Op†; Microshield T; Neutrogena Acne Skin Cleanser; Oxy Skin Wash; pHisoHex Face Wash; Sapoderm; Solypol†; **Braz.:** Clean & Clear Sabonete Liquido Facial; Fisohe†; Hygiene; Johnson's Sabonete Liquido Anti-Septico; Soapelle; Soapex; Theracne; **Canad.:** Adasept; Clean & Clear Foaming Facial Cleanser; Clearasil Face Wash†; Clearskin Antibacterial†; Clearskin Medicated Cleanser†; Dermance†; Dial Complete; Noxema Triple Clean; Oxy Daily Facial Cleanser Regular†; Oxy Medicated Soap†; Skin So Soft Antibacterial†; Tersaseptic†; Trisan†; **Chile:** Antiseptin; Lavasept; Sanigermin; **Cz.:** Lipo Soft†; **Fr.:** Nobacter†; **Gr.:** Ampitasol; **Hong Kong:** Oxy Daily Wash; pHisoHex Reformulated†; **Indon.:** pHisoHex Reformulated; **Israel:** Dermax; **Ital.:** Cetriderm con Triclosan; Derman Plus; Geroderm; Ippi Verde; Irganam; Lactacyd Antibacterico; Olatum AD†; Tili; **Malaysia:** pHisoHex†; **Mex.:** Septosan†; **NZ:** Dalacin T Prewash; Liquid Soap Pre-Op; Oxy Daily Skin Wash†; **Philipp.:** Lipo Sol; **S.Afr.:** Acnedear; **Singapore:** Clearasil Facial Cleansing; **Switz.:** Clinderm; Lipo Sol; Procutol; Shampooing extra-doux; **Thail.:** Virulex; **UK:** Aquasept; Gamophen; Oxy Facial Wash; Ster-Zac; **USA:** Ambi 10; ASC; Clearasil Daily Face Wash; Oxy Medicated Soap; Septi-Soft†; Septisol†; Stri-Dex Antibacterial Cleansing; Stri-Dex Face Wash.

**Multi-ingredient:** **Arg.:** Bentophyto; Dettonjab; Emoform Total; Esmédent con Fluor; Esmédent Dientes Sensibles; Heduline; Hekabetol; Hydragenc†; Neocuticals Gel de Limpieza Facial; Odol Med Antiplaca†; Odol Tratamiento de Encías†; Prunigel; Sebulex; Tersoderm Cabellos Grasos†; Ublisod†; **Austral.:** Clearasil Acne Treatment Cream; Dettol Cream; Olatum Plus; **Braz.:** Fisohe†; Malvatricin Antiplaca; Malvatricin Branqueador; Malvatricin Dentes Sensíveis; Malvatricin Plus; Salisoap; Soapex; Suavederm; **Canad.:** Adasept; Oral Plan†; PanOxy Clear Acne; Solarcaine; **Chile:** Ac-Sal; Carianyl; Comina†; Ginglacen†; Hansaplast Antimicrotico; Hansaplast Footcare; Kariax†; Ortodent†; Solarcaine Spray Aerosol; **Cz.:** Acne Cream†; Acne Lotio†; Olatum Plus; **Fin.:** Wicne; Wicne-carb; Wicnelact; Wicnecut; **Fr.:** Clinogel; Delabarre Bio-adhésif; Olatum AD†; Poudre du Marcheur; Sanytol†; Septiane; Septosan; Spray du Marcheur; **Ger.:** Rutisept extra; Sicuten Plus; **Hong Kong:** Dettol†; Olatum Plus; Sicuten Plus; **Hung.:** Aurobin; **Indon.:** Betiga; Olatum Plus; Verile; **Ir.:** Dettol; Olatum Junior Flare-Up; Olatum Plus; **Israel:** Pedisol; Sicuten Plus†; **Ital.:** Aknicare Cleanser; Angstrom Vaso; AZ; Protezione Gengive; Colgate Total; Dopo Pik; Geroderm Zolfo†; Plax†; Stenil Zeta; **Malaysia:** Clearasil Pimple Treatment; Dettol; Olatum Plus Antibacterial; QV Flare Up; T3 Acne; **Mex.:** Cetaphil Antibacterial; Crema Axell†; Dermobras; Periodentyl; Presipr; Sebryl Plus; Septosan; **NZ:** Clearasil; Dettol; Olatum Plus; Solarcaine; **Philipp.:** Olatum Plus; Sebo Fluid; **Pol.:** Olatum Plus; **Port.:** Aknicare; Alkagin; Antiacneicos Ac-Sal†; Bexident; Lambda; Sicuten Plus†; **Rus.:** Aurobin (Ауробин); **S.Afr.:** Clearasil T; Olatum Plus; **Singapore:** Burnaid; Clearasil Overnight Defence; Clearasil Pimple Treatment; Dettol; Olatum Plus; pHisoHex Reformulated†; QV Flare Up; T3; Tinasolve†; Tri-Cidal†; **Spain:** Doctodermis; Sicuten Plus; Vaselatum; **Switz.:** Acne Cream; Acne Gel; Acne Lotion; Antebor N; Keroderm†; Pixor Stick Anti-acne N; Saltrates†; Sebo Cream; Sebo Shampooing; Sicuten Plus; Sulgan N; Turexan Emulsion†; **Thail.:** Dettol; Hand Joy; Olatum Plus; **UK:** Clearasil Active Treatment Cream; Dentyl pH†; Dettol; Manusept; Olatum Junior Flare-Up†; Olatum Plus; Oxy Clean Facial Scrub; Oxy Cleanser; Oxy Dots; Oxy Duo Pads; Sensodyne-F; Solarcaine; TCF; **USA:** Clearasil Antibacterial; Solarcaine; **Venez.:** Exfoliderm; Sicuten Plus†.

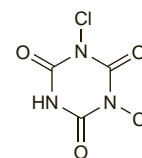
## Troclorose (rINN)

Dichloroisocyanuric Acid; Troclosen; Troclosen; Troclosenium. 1,3-Dichloro-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione.

Троклозен

$C_3HCl_2N_3O_3 = 198.0$ .

CAS — 2782-57-2.



## Troclorose Potassium (USAN, rINN)

Potassium Dichloroisocyanurate; Potassium Troclosen; Troclosen Potassique; Troclosen de potasio; Troclosenium Kalium.

Троклозен Калий

$C_3Cl_2KN_3O_3 = 236.1$ .

CAS — 2244-21-5.

## Troclorose Sodium (rINN)

Sodium Dichloroisocyanurate; Sodium Dichloro-s-triazinetriene; Sodium Troclosen; Troclosen Sodique; Troclosen sódico; Troclosenium Natrium.

Троклозен Натрий

$C_3Cl_2N_3NaO_3 = 219.9$ .

CAS — 2893-78-9.

**Profile**

Troclosene sodium is a disinfectant with the general properties of chlorine (p.1638) and sodium hypochlorite (above) but it remains active as pH increases from 6 to 10 and is reported to be less susceptible to inactivation by organic material. It contains about 56 to 65% of 'available chlorine' (see p.1638).

Troclosene sodium is used for disinfecting hard surfaces (see Disinfection in Hepatitis and HIV Infection, p.1623), babies' feeding bottles, and food and dairy equipment, for treating water (p.1623), for rapid disinfection of swimming pools, for soft contact lens care (p.1622), and in various commercial bleach detergents and scouring powders as a relatively stable source of chlorine.

Troclosene, troclosene potassium, and symclosene (trichloroisocyanuric acid  $C_3Cl_3N_3O_3 = 232.4$ ) are similarly used.

**Preparations**

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

**Austral.:** Aquatabs (Puritabs); Milton; **Fr.:** Aquatabs; **Hong Kong:** Actichlor; **Israel:** Klor-De; Klorsept; Taharmayim; Taharsept; Tahartaf; **Ital.:** Dialster; Didioraster; **NZ:** Puritabs; **S.Afr.:** Softab; **Singapore:** Milton Anti-Bacterial; **UK:** Milton; Presept.

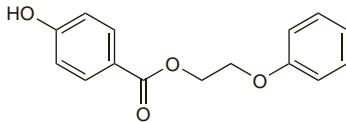
**Multi-ingredient:** **Fr.:** Micropur Forte DCCNa.

**Undebenzophene**

Parahydroxybenzoate Phenoxylethanol; Undebenzofeno. 2-Phenoxyethyl p-hydroxybenzoate.

$C_{15}H_{14}O_4 = 258.3$ .

CAS — 55468-88-7.

**Profile**

Undebenzophene is an antiseptic that has been included in preparations intended for wound and burn disinfection.

**Urea Hydrogen Peroxide**

Carbamide Peroxide; Hydroperite; Peróxido de hidrógeno y urea; Urea Peroxide.

$NH_2.CO.NH_2.H_2O_2 = 94.07$ .

CAS — 124-43-6.

**Pharmacopoeias.** In *US*.

**USP 31** (Carbamide Peroxide). Store in airtight containers at a temperature not exceeding 40°. Protect from light.

**Profile**

Urea hydrogen peroxide consists of hydrogen peroxide and urea in equimolecular proportions. It is used for the extemporaneous preparation of hydrogen peroxide. It is used for tooth whitening, and has been used for infections of the ear, mouth, skin, and mucous membranes and for softening ear wax.

**Preparations**

**USP 31:** Carbamide Peroxide Topical Solution.

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

**Arg.:** Blanc Dient; Yadid; **Austral.:** Ear Clear; **Braz.:** Aceratun; **Canad.:** Murine; **Ger.:** Elawox; **Hung.:** Hyperol; **IrL.:** Exterol; **Israel:** Exterol; **Ital.:** Debrox; Dermoxyl; Ginoxil; **NZ:** Earclear; **UK:** Exterol; Otex; **USA:** Auralphene-B; Auro; Debrox; ERO; Gly-Oxide; Mollifene; Murine; Orajel Peri-oseptic.

**Multi-ingredient:** **Arg.:** Hexiben Plus†.

**Zinc Peroxide**

Peróxido de zinc; Zinc Dioxide; Zinc Superoxide; ZPO.

$ZnO_2 = 97.38$ .

CAS — 1314-22-3.

**Profile**

The action of zinc peroxide is similar to that of hydrogen peroxide (p.1647). Applied locally it has been used for disinfecting and deodorising burns, wounds, and various ulcers and lesions.

**Preparations**

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

**Multi-ingredient:** **Braz.:** Anaseptil; **Fr.:** Bioxyol; **Ital.:** Ektogan.