Supplement to *WHO Chronicle*, 1976, Vol. 30, No. 3

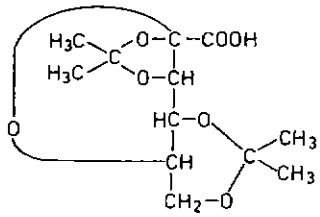
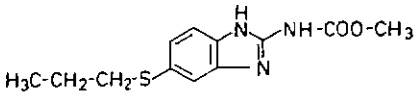
# International Nonproprietary Names for Pharmaceutical Substances

In accordance with article 3 of the Procedure for the Selection of Recommended International Nonproprietary Names for Pharmaceutical Substances,[1] notice is hereby given that the following names are under consideration by the World Health Organization as Proposed International Nonproprietary Names.

Comments on, or formal objections to, the proposed names may be forwarded by any person to the Pharmaceuticals unit of the World Health Organization within four months of the date of their publication in the *WHO Chronicle*.

The inclusion of a name in the lists of proposed international nonproprietary names does not imply any recommendation for the use of the substance in medicine or pharmacy.

## Proposed International Nonproprietary Names (Prop. INN): List 35[2]

| *Proposed International Nonproprietary Name* (Latin, English) | *Chemical Name or Description, Molecular and Graphic Formulae* *Chemical Abstracts Service (CAS) registry number* |
|---|---|
| acidum diprogulicum<br>diprogulic acid | 2,3 : 4,6-di-*O*-isopropylidene-α-L-*xylo*-hexulofuranosonic acid<br>$C_{12}H_{18}O_7$ 51876-97-2<br>  |
| albendazolum<br>albendazole | methyl 5-(propylthio)-2-benzimidazolecarbamate<br>$C_{12}H_{15}N_3O_2S$ 54965-21-8<br>  |

[1] See Annex 1, p. 17.

[2] Other lists of proposed international nonproprietary names can be found in *Chron. Wld Hlth Org.*, 1953, **7**, 299; 1954, **8**, 216, 313; 1956, **10**, 28; 1957, **11**, 231; 1958, **12**, 102; *WHO Chronicle*, 1959, **13**, 105, 152; 1960, **14**, 168, 244; 1961, **15**, 314; 1962, **16**, 385; 1963, **17**, 389; 1964, **18**, 433; 1965, **19**, 446; 1966, **20**, 216; 1967, **21**, 70, 478, 1968, **22**, 112, 407; 1969, **23**, 183, 418; 1970, **24**, 119, 413; 1971, **25**, 123, 415; 1972, **26**, 121, 414; 1973, **27**, 120, 330; 1974, **28**, 133; supplements to *WHO Chronicle*, 1974, Vol. 28, No. 9; 1975, Vol. 29, No. 3, No. 9.

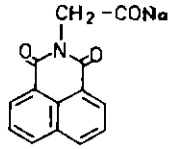
Lists of recommended international nonproprietary names were published in *Chron Wld Hlth Org.*, 1955, **9**, 185; *WHO Chronicle*, 1959, **13**, 106, 463; 1962, **16**, 101; 1965, **19**, 165, 206, 249; 1966, **20**, 421; 1967, **21**, 538; 1968, **22**, 463; 1969, **23**, 490; 1970, **24**, 526; 1971, **25**, 476; 1972, **26**, 476; 1973, **27**, 453; supplements to *WHO Chronicle*, 1974, Vol. 28, No. 10, 1975, Vol. 29, No. 10.

Comprehensive information on the INN programme can be found in: WHO Technical Report Series, No. 581, 1975 (*Nonproprietary Names for Pharmaceutical Substances*. Twentieth Report of the WHO Expert Committee), ISBN 92 4 120581 4 (price: Sw. fr. 6.—); an account of this publication will be found on page 18 of this Supplement (Annex 2). All names from Lists 1-25 of Proposed International Nonproprietary Names, together with a molecular formula index, will be found in: World Health Organization. *International Nonproprietary Names for Pharmaceutical Substances. Cumulative list No. 3, 1971*. Geneva, 1971 (price: Sw. fr. 24.—).

These publications may be obtained from the sales agents listed on the back cover of the *WHO Chronicle* or from. World Health Organization, Distribution and Sales Service, 1211 Geneva 27, Switzerland.

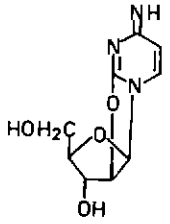
alrestatinum
alrestatin

sodium 1,3-dioxo-1*H*-benz[*de*]isoquinoline-2(3*H*)-acetate
$C_{14}H_8NNaO_4$ 51876-97-2



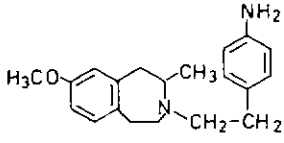
ancitabinum
ancitabine

(2*R*,3*R*,3a*S*,9a*R*)-2,3,3a,9a-tetrahydro-3-hydroxy-6-imino-6*H*-furo-[2′,3′; 4,5]oxazolo[3,2-*a*]pyrimidine-2-methanol
$C_9H_{11}N_3O_4$ 31698-14-3



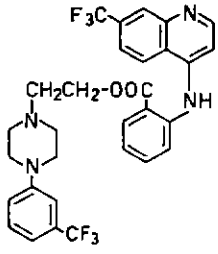
anilopamum
anilopam

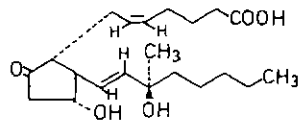
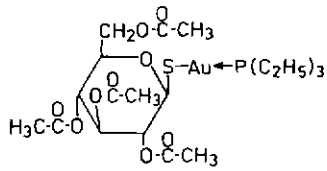
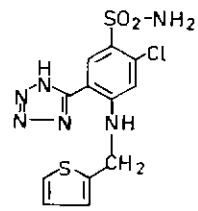
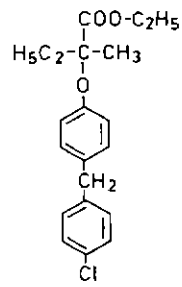
(—)-3-(*p*-aminophenethyl)-2,3,4,5-tetrahydro-8-methoxy-2-methyl-1*H*-3-benzazepine
$C_{20}H_{26}N_2O$ 53716-46-4



antrafeninum
antrafenine

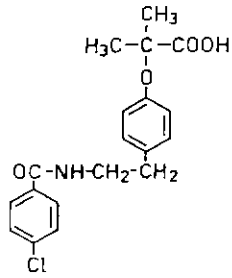
2-[4-(α,α,α-trifluoro-*m*-tolyl)-1-piperazinyl]ethyl *N*-[7-(trifluoromethyl)-4-quinolyl]anthranilate
$C_{30}H_{26}F_6N_4O_2$ 55300-29-3



| *Proposed International Nonproprietary Name* (Latin, English) | *Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number* |
|---|---|
| arbaprostilum<br>arbaprostil | (*E,Z*)-(1*R*,2*R*,3*R*)-7-[3-hydroxy-2-[(3*R*)-(3-hydroxy-3-methyl-1-octenyl)]-5-oxocyclopentyl]-5-heptenoic acid<br>$C_{21}H_{34}O_5$ 55028-70-1 |
| |  |
| auranofinum<br>auranofin | (1-thio-β-D-glucopyranosato)(triethylphosphine)gold 2,3,4,6-tetraacetate<br>$C_{20}H_{34}AuO_9PS$ 34031-32-8 |
| |  |
| azosemidum<br>azosemide | 2-chloro-5-(1*H*-tetrazol-5-yl)-$N^4$-2-thenylsulfanilamide<br>$C_{12}H_{11}ClN_6O_2S_2$ 27589-33-9 |
| |  |
| beclobratum<br>beclobrate | ethyl (±)-2-[[α-(*p*-chlorophenyl)-*p*-tolyl]oxy]-2-methylbutyrate<br>$C_{20}H_{23}ClO_3$ 55937-99-0 |
| |  |

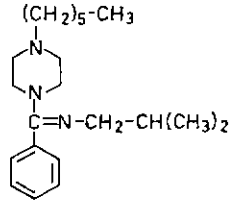
bezafibratum
bezafibrate

2-[*p*-[2-(*p*-chlorobenzamido)ethyl]phenoxy]-2-methylpropionic acid
$C_{19}H_{20}ClNO_4$ 41859-67-0



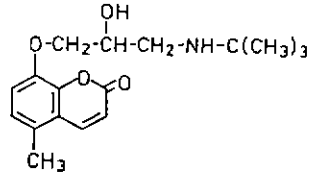
bucainidum
bucainide

1-hexyl-4-(*N*-isobutylbenzimidoyl)piperazine
$C_{21}H_{35}N_3$ 51481-62-0



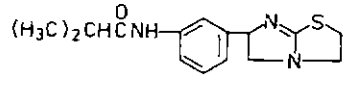
bucumololum
bucumolol

8-[3-(*tert*-butylamino)-2-hydroxypropoxy]-5-methylcoumarin
$C_{17}H_{23}NO_4$ 58409-59-9



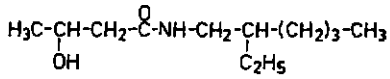
butamisolum
butamisole

(—)-2-methyl-3′-(2,3,5,6-tetrahydroimidazo[2,1-*b*]thiazol-6-yl)-propionanilide
$C_{15}H_{19}N_3OS$ 54400-59-8



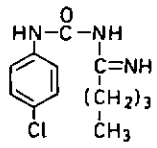
butoctamidum
butoctamide

*N*-(2-ethylhexyl)-3-hydroxybutyramide
$C_{12}H_{25}NO_2$ 32828-26-9



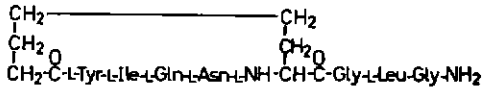
carbantelum
carbantel

1-(*p*-chlorophenyl)-3-valerimidoylurea
$C_{12}H_{16}ClN_3O$ 22790-84-7



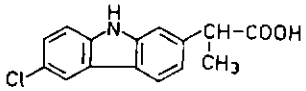
cargutocinum
cargutocin

1-butyric acid-6-(L-2-aminobutyric acid)-7-glycineoxytocin
$C_{42}H_{65}N_{11}O_{12}$ 33605-67-3



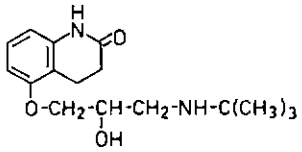
carprofenum
carprofen

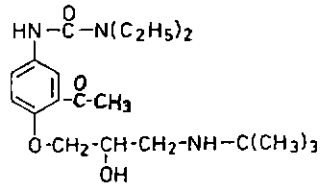
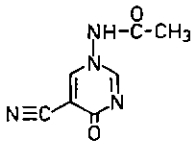
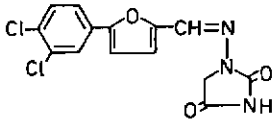
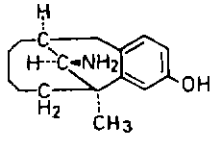
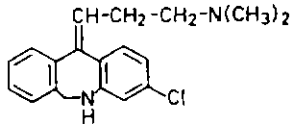
(±)-6-chloro-α-methylcarbazole-2-acetic acid
$C_{15}H_{12}ClNO_2$ 53716-49-7



carteololum
carteolol

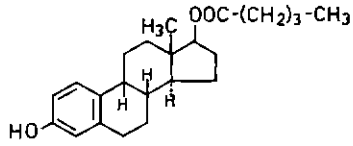
5-[3-(*tert*-butylamino)-2-hydroxypropoxy]-3,4-dihydrocarbostyril
$C_{16}H_{24}N_2O_3$ 51781-06-7



| *Proposed International Nonproprietary Name* (Latin, English) | *Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number* |
|---|---|
| celiprololum<br>celiprolol | 3-[3-acetyl-4-[3-(*tert*-butylamino)-2-hydroxypropoxy]phenyl]-1,1-diethylurea<br>$C_{20}H_{33}N_3O_4$ 56980-93-9<br>  |
| ciapilomum<br>ciapilome | *N*-(5-cyano-4-oxo-1(4*H*)-pyrimidinyl)acetamide<br>$C_7H_6N_4O_2$ 53131-74-1<br>  |
| clodanolenum<br>clodanolene | 1-[[5-(3,4-dichlorophenyl)furfurylidene]amino]hydantoin<br>$C_{14}H_9Cl_2N_3O_3$ 14796-28-2<br>  |
| dezocinum<br>dezocine | (—)-13$\beta$-amino-5,6,7,8,9,10,11$\alpha$,12-octahydro-5$\alpha$-methyl-5,11-methanobenzocyclodecen-3-ol<br>$C_{16}H_{23}NO$ 53648-55-8<br>  |
| elanzepinum<br>elanzepine | 3-chloro-11-[3-(dimethylamino)propylidene]-5,6-dihydromorphanthridine<br>$C_{19}H_{21}ClN_2$ 6196-08-3<br>  |

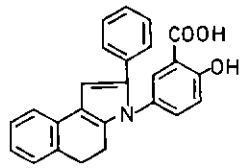
estradioli valeras
estradiol valerate

estra-1,3,5(10)-triene-3,17β-diol 17-valerate
$C_{23}H_{32}O_3$ 979-32-8



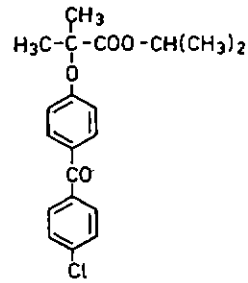
fendosalum
fendosal

5-(4,5-dihydro-2-phenyl-3*H*-benz[*e*]indol-3-yl)salicylic acid
$C_{25}H_{19}NO_3$ 53597-27-6



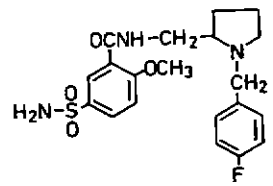
fenofibratum
fenofibrate

isopropyl 2-[*p*-(*p*-chlorobenzoyl)phenoxy]-2-methylpropionate
$C_{20}H_{21}ClO_4$ 49562-28-9



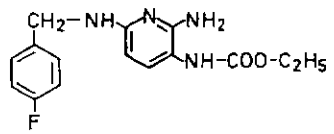
flepridum
epride

*N*-[[1-(*p*-fluorobenzyl)-2-pyrrolidinyl]methyl]-5-sulfamoyl-*o*-anisamide
$C_{20}H_{24}FN_3O_4S$ 56488-61-0



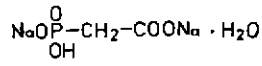
flupirtinum
flupirtine

ethyl 2-amino-6-[(*p*-fluorobenzyl)amino]-3-pyridinecarbamate
$C_{15}H_{17}FN_4O_2$ 56995-20-1



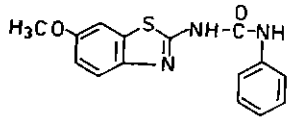
fosfonetum natricum
fosfonet sodium

phosphonoacetic acid disodium salt monohydrate
$C_2H_3Na_2O_5P \cdot H_2O$ 54870-27-8



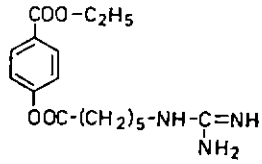
frentizolum
frentizole

1-(6-methoxy-2-benzothiazolyl)-3-phenylurea
$C_{15}H_{13}N_3O_2S$ 26130-02-9



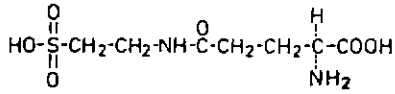
gabexatum
gabexate

ethyl *p*-hydroxybenzoate 6-guanidinohexanoate
$C_{16}H_{23}N_3O_4$ 39492-01-8



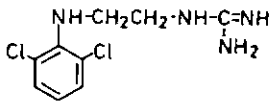
glutaurinum
glutaurine

*N*-(2-sulfoethyl)-L-glutamine
$C_7H_{14}N_2O_6S$ 56488-60-9



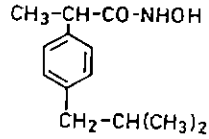
guanclofinum
guanclofine

[2-(2,6-dichloroanilino)ethyl]guanidine
$C_9H_{12}Cl_2N_4$ 55926-23-3



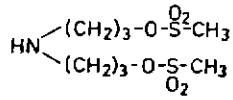
ibuproxamum
ibuproxam

*p*-isobutylhydratropohydroxamic acid
$C_{13}H_{19}NO_2$ 53648-05-8



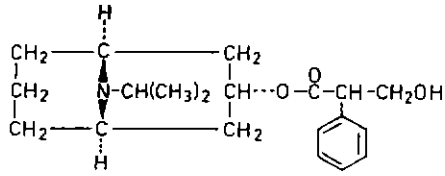
improsulfanum
improsulfan

3,3′-iminodi-1-propanol dimethanesulfonate (ester)
$C_8H_{19}NO_6S_2$ 13425-98-4



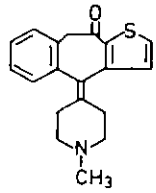
ipragratinum
ipragratine

9-isopropylgranatoline (±)-tropate (ester)
$C_{20}H_{29}NO_3$ 22150-28-3



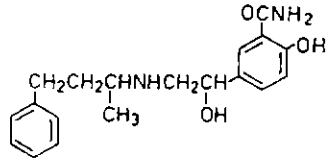
ketotifenum
ketotifen

4,9-dihydro-4-(1-methyl-4-piperidylidene)-10*H*-benzo[4,5]-cyclohepta[1,2-*b*]thiophen-10-one
$C_{19}H_{19}NOS$ 34580-13-7



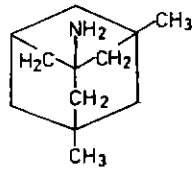
labetalolum
labetalol

5-[1-hydroxy-2-[(1-methyl-3-phenylpropyl)amino]ethyl]salicylamide
$C_{19}H_{24}N_2O_3$ 36894-69-6



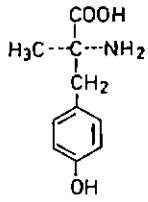
memantinum
memantine

3,5-dimethyl-1-adamantanamine
$C_{12}H_{21}N$ 19982-08-2



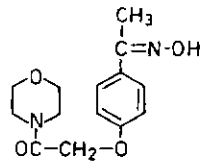
metirosinum
metirosine

(−)-α-methyl-L-tyrosine
$C_{10}H_{13}NO_3$ 672-87-7



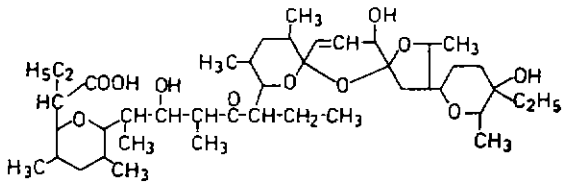
mofoximum
mofoxime

4-[(*p*-acetylphenoxy)acetyl]morpholine *p*-oxime
$C_{14}H_{18}N_2O_4$ 29936-79-6



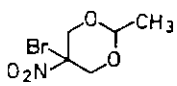
narasinum
narasin

α-ethyl-6-[5-[3-(5-ethyltetrahydro-5-hydroxy-6-methyl-2*H*-pyran-2-yl)-15-hydroxy-2,10,12-trimethyl-1,6,8-trioxadispiro[4.1.5.3]pentadec-13-en-9-yl]-2-hydroxy-1,3-dimethyl-4-oxoheptyl]tetrahydro-3,5-dimethyl-2*H*-pyran-2-acetic acid
$C_{43}H_{72}O_{11}$ 55134-13-9



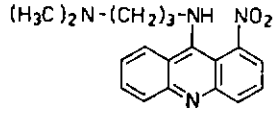
nibroxanum
nibroxane

5-bromo-2-methyl-5-nitro-*m*-dioxane
$C_5H_8BrNO_4$ 53983-00-9



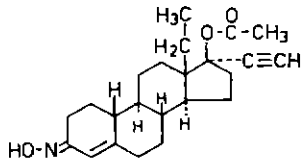
nitracrinum
nitracrine

9-[[3-(dimethylamino)propyl]amino]-1-nitroacridine
$C_{18}H_{20}N_4O_2$ 4533-39-5



norgestimatum
norgestimate

(+)-13-ethyl-17-hydroxy-18,19-dinor-17α-pregn-4-en-20-yn-3-one oxime acetate (ester)
$C_{23}H_{31}NO_3$ 35189-28-7

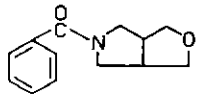


nosiheptidum
nosiheptide

an antibiotic obtained from cultures of *Streptomyces actuosus* 40037, or the same substance produced by any other means. The antibiotic contains a peptide part.
$C_{54}H_{43}N_{13}O_{13}S_6$ 56377-79-8

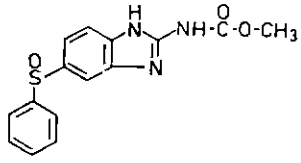
octazamidum
octazamide

5-benzoylhexahydro-1*H*-furo[3,4-*c*]pyrrole
$C_{13}H_{15}NO_2$ 56391-55-0



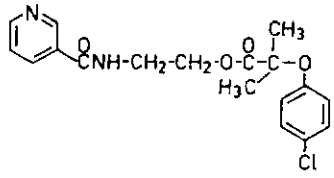
oxfendazolum
oxfendazole

methyl 5-(phenylsulfinyl)-2-benzimidazolecarbamate
$C_{15}H_{13}N_3O_3S$ 53716-50-0



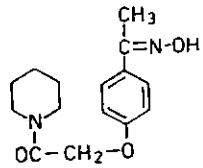
picafibratum
picafibrate

2-(*p*-chlorophenoxy)-2-methylpropionic acid ester with *N*-(2-hydroxyethyl)nicotinamide
$C_{18}H_{19}ClN_2O_4$ 56775-92-9



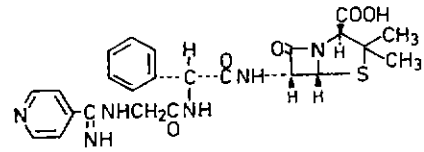
pifoximum
pifoxime

1-[(*p*-acetylphenoxy)acetyl]piperidine *p*-oxime
$C_{15}H_{20}N_2O_3$ 31224-92-7



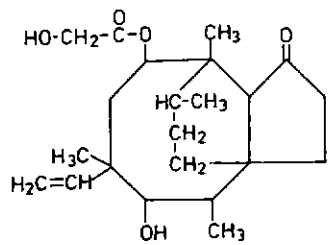
pirbenicillinum
pirbenicillin

(2*S*,5*R*,6*R*)-6-[(*R*)-2-[2-(isonicotinimidoylamino)acetamido]-2-phenylacetamido]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]-heptane-2-carboxylic acid
$C_{24}H_{26}N_6O_5S$ 55975-92-3



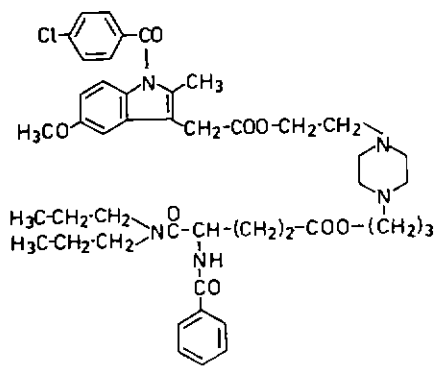
pleuromulinum
pleuromulin

glycolic acid 8-ester with octahydro-5,8-dihydroxy-4,6,9,10-tetramethyl-6-vinyl-3a,9-propano-3a*H*-cyclopentacycloocten-1(4*H*)-one
$C_{22}H_{34}O_5$ 125-65-5



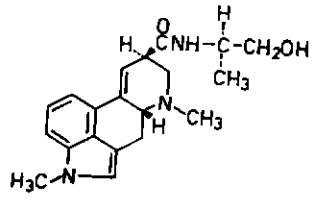
proglumetacinum
proglumetacin

3-[4-(2-hydroxyethyl)-1-piperazinyl]propyl DL-4-benzamido-*N*,*N*-dipropylglutaramate 1-(*p*-chlorobenzoyl)-5-methoxy-2-methylindole-3-acetate (ester)
$C_{46}H_{58}ClN_5O_8$ 57132-53-3



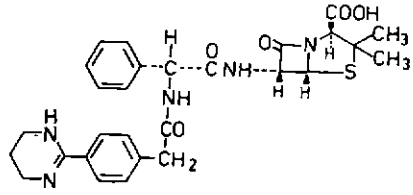
propisergidum
propisergide

9,10-didehydro-*N*-[(*S*)-2-hydroxy-1-methylethyl]-1,6-dimethylergoline-8β-carboxamide
$C_{20}H_{25}N_3O_2$ 5793-04-4



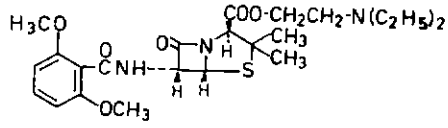
rotamicillinum
rotamicillin

(2*S*,5*R*,6*R*)-3,3-dimethyl-7-oxo-6-[(*R*)-2-phenyl-2-[2-[*p*-(1,4,5,6-tetrahydro-2-pyrimidinyl)phenyl]acetamido]acetamido]-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid
$C_{28}H_{31}N_5O_5S$ 55530-41-1



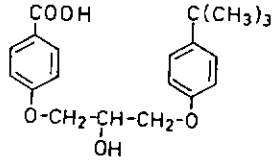
tameticillinum
tameticillin

2-(diethylamino)ethyl (2*S*,5*R*,6*R*)-6-(2,6-dimethoxybenzamido)-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylate
$C_{23}H_{33}N_3O_6S$ 56211-43-9



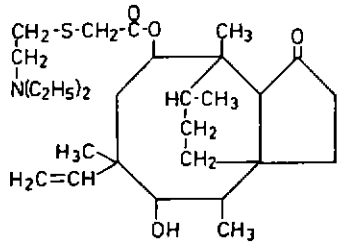
terbufibrolum
terbufibrol

*p*-[3-(*p*-*tert*-butylphenoxy)-2-hydroxypropoxy]benzoic acid
$C_{20}H_{24}O_5$ 56488-59-6



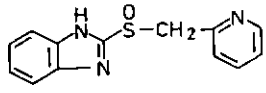
tiamulinum
tiamulin

[[2-(diethylamino)ethyl]thio]acetic acid 8-ester with octahydro-5,8-dihydroxy-4,6,9,10-tetramethyl-6-vinyl-3a,9-propano-3a*H*-cyclopentacycloocten-1(4*H*)-one
$C_{28}H_{47}NO_4S$ 56142-71-3



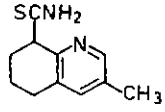
timoprazolum
timoprazole

2-[(2-pyridylmethyl)sulfinyl]benzimidazole
$C_{13}H_{11}N_3OS$ 57237-97-5



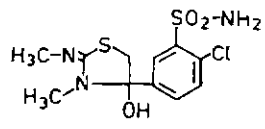
tiquinamidum
tiquinamide

5,6,7,8-tetrahydro-3-methylthio-8-quinolinecarboxamide
$C_{11}H_{14}N_2S$ 53400-67-2



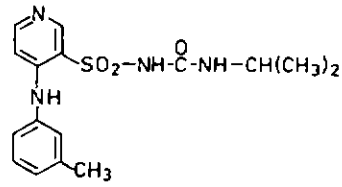
tizolemidum
tizolemide

2-chloro-5-[4-hydroxy-3-methyl-2-(methylimino)-4-thiazolidinyl]-benzenesulfonamide
$C_{11}H_{14}ClN_3O_3S_2$ 56488-58-7



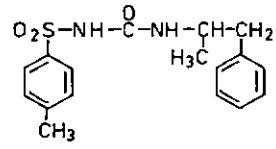
torasemidum
torasemide

1-isopropyl-3-[(4-*m*-toluidino-3-pyridyl)sulfonyl]urea
$C_{16}H_{20}N_4O_3S$ 56211-40-6



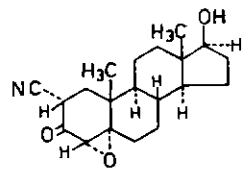
[illegible]sifenum
[illegible]lfen

(—)-1-(α-methylphenethyl)-3-(*p*-tolylsulfonyl)urea
$C_{17}H_{20}N_2O_3S$ 32295-18-4



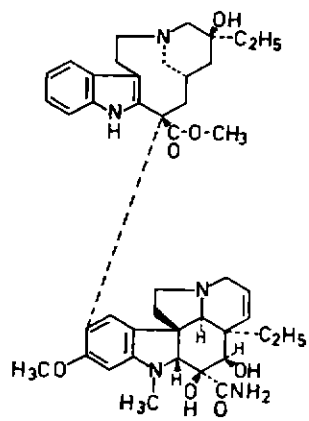
trilostanum
trilostane

4α,5-epoxy-17β-hydroxy-3-oxo-5α-androstane-2α-carbonitrile
$C_{20}H_{27}NO_3$ 13647-35-3



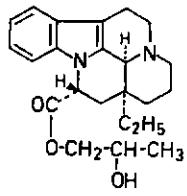
[illegible]ndesinum
vindesine

3-carbamoyl-4-deacetyl-3-de(methoxycarbonyl)vincaleukoblastine
$C_{43}H_{55}N_5O_7$ 53643-48-4



vinpolinum
vinpoline

2-hydroxypropyl 14-deoxyvincaminate
$C_{23}H_{30}N_2O_3$ 57694-27-6



## AMENDMENTS TO PREVIOUS LISTS

Supplement to Vol. 29, No. 3

**Proposed International Nonproprietary Names (Prop. INN): List 33**

**Names for Radicals and Groups**

p. 25 *replace chemical name for* carbesilate *by the following:*
*p*-carboxybenzenesulfonate

## Annex 1

## PROCEDURE FOR THE SELECTION OF RECOMMENDED INTERNATIONAL NONPROPRIETARY NAMES FOR PHARMACEUTICAL SUBSTANCES *

The following procedure shall be followed by the World Health Organization in the selection of recommended international nonproprietary names for pharmaceutical substances, in accordance with the World Health Assembly resolution WHA3.11:

1. Proposals for recommended international nonproprietary names shall be submitted to the World Health Organization on the form provided therefor.

2. Such proposals shall be submitted by the Director-General of the World Health Organization to the members of the Expert Advisory Panel on the International Pharmacopoeia and Pharmaceutical Preparations designated for the purpose, for consideration in accordance with the "General principles for guidance in devising International Nonproprietary Names", appended to this procedure. The name used by the person discovering or first developing and marketing a pharmaceutical substance shall be accepted, unless there are compelling reasons to the contrary.

3. Subsequent to the examination provided for in article 2, the Director-General of the World Health Organization shall give notice that a proposed international nonproprietary name is being considered.

A. Such notice shall be given by publication in the *Chronicle of the World Health Organization* [1] and by letter to Member States and to national pharmacopoeia commissions or other bodies designated by Member States.

(i) Notice may also be sent to specific persons known to be concerned with a name under consideration

B. Such notice shall:

(i) set forth the name under consideration;

(ii) identify the person who submitted a proposal for naming the substance, if so requested by such person;

(iii) identify the substance for which a name is being considered;

(iv) set forth the time within which comments and objections will be received and the person and place to whom they should be directed;

(v) state the authority under which the World Health Organization is acting and refer to these rules of procedure.

C. In forwarding the notice, the Director-General of the World Health Organization shall request that Member States take such steps as are necessary to prevent the acquisition of proprietary rights in the proposed name during the period it is under consideration by the World Health Organization.

4. Comments on the proposed name may be forwarded by any person to the World Health Organization within four months of the date of publication, under article 3, of the name in the *Chronicle of the World Health Organization*.

5. A formal objection to a proposed name may be filed by any interested person within four months of the date of publication, under article 3, of the name in the *Chronicle of the World Health Organization*.

A. Such objection shall:

(i) identify the person objecting;

(ii) state his interest in the name;

(iii) set forth the reasons for his objection to the name proposed.

6. Where there is a formal objection under article 5, the World Health Organization may either reconsider the proposed name or use its good offices to attempt to obtain withdrawal of the objection. Without prejudice to the consideration by the World Health Organization of a substitute name or names, a name shall not be selected by the World Health Organization as a recommended international nonproprietary name while there exists a formal objection thereto filed under article 5 which has not been withdrawn.

7. Where no objection has been filed under article 5, or all objections previously filed have been withdrawn, the Director-General of the World Health Organization shall give notice in accordance with subsection A of article 3 that the name has been selected by the World Health Organization as a recommended international nonproprietary name.

8. In forwarding a recommended international nonproprietary name to Member States under article 7, the Director-General of the World Health Organization shall:

A. request that it be recognized as the nonproprietary name for the substance; and

B. request that Member States take such steps as are necessary to prevent the acquisition of proprietary rights in the name, including prohibiting registration of the name as a trade-mark or trade-name.

* Text adopted by the Executive Board of WHO in resolution EB15.R7 (*Off. Rec. Wld Hlth Org.*, 1955, **60**, 3) and amended by the Board in resolution EB43.R9 (*Off. Rec. Wld Hlth Org.*, 1969, **173**, 10).

[1] The title of this publication was changed to *WHO Chronicle* in January 1959.

## GENERAL PRINCIPLES FOR GUIDANCE IN DEVISING INTERNATIONAL NONPROPRIETARY NAMES FOR PHARMACEUTICAL SUBSTANCES

1. International Nonproprietary Names (INN) should be distinctive in sound and spelling. They should not be inconveniently long and should not be liable to confusion with names in common use.

2. The INN for a substance belonging to a group of pharmacologically related substances should, where appropriate, show this relationship. Names that are likely to convey to a patient an anatomical, physiological, pathological or therapeutic suggestion should be avoided.

*These primary principles are to be implemented by using the following secondary principles*

3. In devising the INN of the first substance in a new pharmacological group, consideration should be given to the possibility of devising suitable INN for related substances, belonging to the new group.

4. In devising INN for acids, one-word names are preferred; their salts should be named without modifying the acid name, e.g., "oxacillin" and "oxacillin sodium", "ibufenac" and "ibufenac sodium".

5. INN for substances that are used as salts should in general apply to the active base or the active acid. Names for different salts or esters of the same active substance should differ only in respect of the name of the inactive acid or the inactive base.

For quaternary ammonium substances, the cation and anion should be named appropriately as separate

components of a quaternary substance and not in the amine-salt style.

6. The use of an isolated letter or number should be avoided; hyphenated construction is also undesirable.

7. To facilitate the translation and pronunciation of INN, "f" should be used instead of "ph", "t" instead of "th", "e" instead of "ae" or "oe", and "i" instead of "y"; the use of the letters "h" and "k" should be avoided.

8. Provided that the names suggested are in accordance with these principles, names proposed by the person discovering or first developing and marketing a pharmaceutical preparation, or names already officially in use in any country, should receive preferential consideration.

9. Group relationship in INN (see Guiding Principle 2) should if possible be shown by using a stem from the following list. The stem should only be used for substances of the appropriate group. Where a stem is shown without any hyphens it may be used anywhere in the name.

Subsidiary group relationships should be shown by devising INN that show similarities to and are analogous with a previously named substance.

| *Latin* | *English* | *French* | |
|---|---|---|---|
| -actidum | -actide | -actide | synthetic polypeptides with a corticotrophin-like action |
| andr | andr | andr | steroids, androgens |
| -arolum | -arol | -arol | anticoagulants of the dicoumarol group |
| -azepamum | -azepam | -azépam | substances of the diazepam group |
| bol | bol | bol | steroids, anabolic |
| -buzonum | -buzone | -buzone | anti-inflammatory analgesics of the phenylbutazone group |
| -cainum | -caine | -caine | local anaesthetics |
| cef- | cef- | céf- | antibiotics, derivatives of cefalosporanic acid |
| -cillinum | -cillin | -cilline | antibiotics, derivatives of 6-aminopenicillanic acid |
| cort | cort | cort | corticosteroids, except those of the prednisolone group |
| -cyclinum | -cycline | -cycline | antibiotics of the tetracycline group |
| estr | estr | estr | estrogenic substances |
| -fibratum | -fibrate | -fibrate | substances of the clofibrate group |
| -forminum | -formin | -formine | hypoglycemics of the phenformin group |
| gest | gest | gest | steroids, progestogens |
| gli- | gli- | gli- | sulfonamide hypoglycemics |
| io- | io- | io- | iodine-containing contrast media |
| -ium | -ium | -ium | quaternary ammonium compounds |
| -metacinum | -metacin | -métacine | anti-inflammatory substances of the indometacin group |
| -mycinum | -mycin | -mycine | antibiotics, produced by *Streptomyces* strains |
| -nidazolum | -nidazole | -nidazole | antiprotozoal substances of the metronidazole group |
| -ololum | -olol | -olol | β-adrenergic blocking agents of the propranolol group |
| -onidum | -onide | -onide | steroids for topical use, containing an acetal group |
| -orexum | -orex | -orex | anorexigenic agents, phenethylamine derivatives |
| -praminum | -pramine | -pramine | substances of the imipramine group |
| -profenum | -profen | -profène | anti-inflammatory substances of the ibuprofen group |
| prost | prost | prost | prostaglandins |
| -relinum | -relin | -réline | hypophyseal hormone release-stimulating peptides |
| sulfa- | sulfa- | sulfa- | sulfonamides, anti-infective |
| -terolum | -terol | -térol | bronchodilators, phenethylamine derivatives |
| -tizidum | -tizide | -tizide | diuretics of the chlorothiazide group |
| -verinum | -verine | -vérine | spasmolytics with a papaverine-like action |

## Annex 2

## NONPROPRIETARY NAMES FOR PHARMACEUTICAL SUBSTANCES: TWENTIETH REPORT OF THE WHO EXPERT COMMITTEE

In its twentieth report [1] the WHO Expert Committee on Nonproprietary Names for Pharmaceutical Substances reviewed the general principles for devising, and the procedures for selecting, international nonproprietary names (INN) in the light of developments in pharmaceutical compounds in recent years. The most significant recent change has been the extension to the naming of synthetic chemical substances of the practice previously used for substances originating in or derived from natural products. This practice involves employing a characteristic "stem" indicative of a common property of the members of a group. The reasons for, and the implications of, the change are fully discussed. Also reported is the intention to change the practice with regard to the nomenclature of individual members of polymeric series.

Other sections of the report concern instructions to be followed by bodies making application for international nonproprietary names, the availability of computer-printed cumulative lists of international nonproprietary names, information supplied by WHO Member States concerning their official use of national or international names for pharmaceutical products, and proposals relative to the withdrawal of international nonproprietary names allocated to substances that are no longer in use.

The official texts relating to the procedures for selecting, and general guidance for devising, international nonproprietary names are reproduced in two annexes to the report. Other annexes give examples of international nonproprietary names that incorporate selected stems, the most frequently used initial groups of letters in international nonproprietary names, a historical review of the programme of selecting international nonproprietary names, some useful literature references, and a model of the form to be used in all applications for international nonproprietary names.

[1] WHO Technical Report Series, No. 581, 1975 (*Nonproprietary Names for Pharmaceutical Substances*. Twentieth Report of the WHO Expert Committee), ISBN 92 4 120581 4. Price Sw. fr. 6.—