Supplement to
WHO Chronicle, 1981,
Vol. 35, No. 3 (May)

International Nonproprietary Names for Pharmaceutical Substances

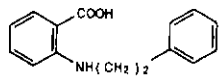
In accordance with article 3 of the Procedure for the Selection of Recommended International Nonproprietary Names for Pharmaceutical Substances,[1] notice is hereby given that the following names are under consideration by the World Health Organization as Proposed International Nonproprietary Names.

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*, e.g for List 45 Prop. INN not later than 30 September 1981.

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 45[2]

Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
acidum enfenamicum enfenamic acid	*N*-phenethylanthranilic acid $C_{15}H_{15}NO_2$ 23049-93-6



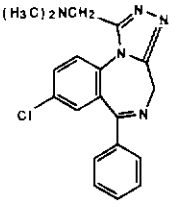
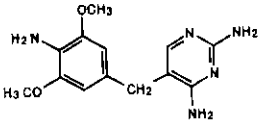
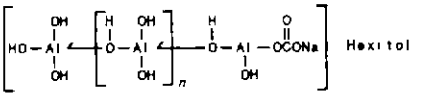
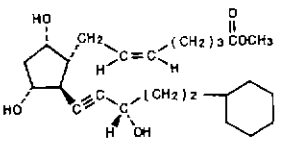
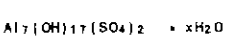
Comprehensive information on the INN programme can be found in WHO Technical Report Series, No. 581, 1975 (*Nonproprietary Names for Pharmaceutical Substances* Twentieth Report of the WHO Expert Committee), ISBN 92 4 120581 4 (price: Sw. fr. 6–); an account of this publication will be found on page 16 of this Supplement (Annex 2). All names from Lists 1-37 of Proposed International Nonproprietary Names, together with a molecular formula index, will be found in: *International Nonproprietary Names for Pharmaceutical Substances. Cumulative list No. 5, 1977*, World Health Organization, Geneva, 1977 (ISBN 92 4 056011 4) (price: Sw. fr. 48–). This publication consists, in the main, of a computer printout which groups together all the proposed and recommended international nonproprietary names (INN)–in Latin, English, French, Russian, and Spanish–published up to March 1977. The printout also indicates in which of the 37 individual lists of proposed names and 16 lists of recommended names, each INN was originally published, and gives references to national nonproprietary names, pharmacopoeia monographs, and other sources. In addition, the list contains molecular formulae and Chemical Abstracts Service registry numbers. For easy reference, national nonproprietary names that differ from INN, molecular formulae, and Chemical Abstracts Service registry numbers are indexed in a series of annexes. A final annex describes the procedure for selecting recommended INN and outlines the general principles to be followed in devising these names. All the textual material published in this volume appears in both English and French.

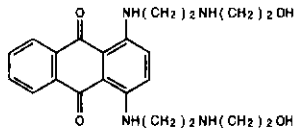
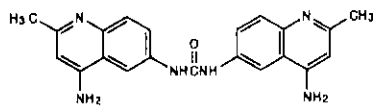
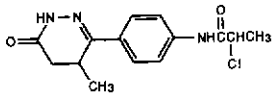
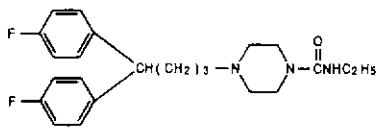
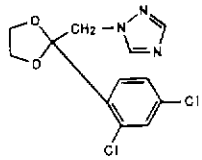
These publications may be obtained, direct or through booksellers, from the sales agents listed on the back cover of the *WHO Chronicle*. Orders from countries where sales agents have not yet been appointed may be addressed to: World Health Organization, Distribution and Sales Service, 1211 Geneva 27, Switzerland.

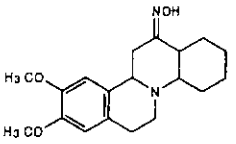
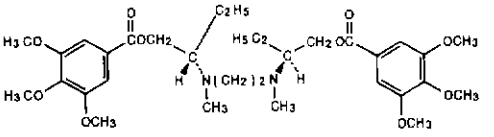
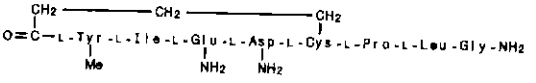
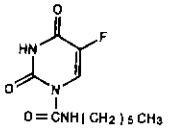
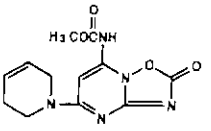
[1] See Annex 1, p. 15.

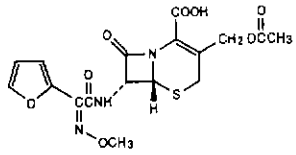
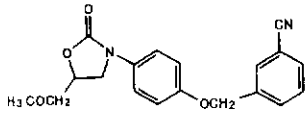
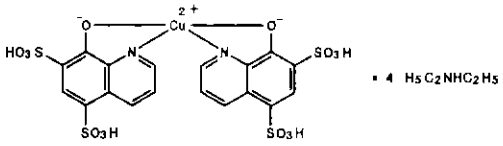
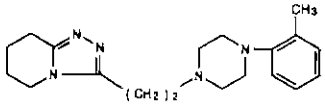
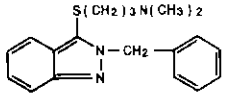
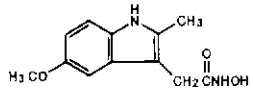
[2] Other lists of proposed international nonproprietary names can be found in *Chron. Wld Hlth Org.*, 1953, 7, 299; 1954, 8, 216, 313; 1956, 10, 28, 1957, 11, 231; 1958, 12, 102; *WHO Chronicle*, 1959, 13, 105, 152; 1960, 14, 168, 244; 1961, 15, 314; 1962, 16, 385; 1963, 17, 389, 1964, 18, 433; 1965, 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, 1976, Vol 30, No. 3, No. 9; 1977, Vol. 31, No. 3, No. 9, 1978, Vol. 32, No. 3, No 9; 1979, Vol 33, No. 3, No. 9; 1980, Vol. 34, No. 3, No. 9.

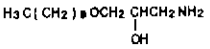
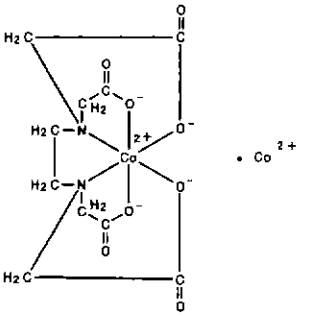
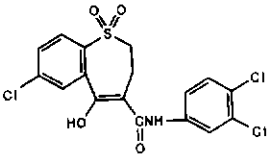
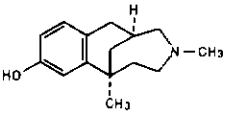
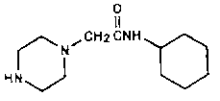
Lists or recommended international nonproprietary names were published in *Chron Wld Hlth Org.*, 1955, 9, 185; *WHO Chronicle*, 1959, 13, 106, 463; 1962, 16, 101; 1965, 19, 165, 206, 249; 1966, 20, 421, 1967, 21, 538; 1968, 22, 463; 1969, 23, 490; 1970, 24, 526; 1971, 25, 476; 1972, 26, 476; 1973, 27, 453; supplements to *WHO Chronicle*, 1974, Vol 28, No. 10; 1975, Vol. 29, No. 10, 1976, Vol. 30, No. 10; 1977, Vol. 31, No. 10; 1978, Vol. 32, No 10; 1979, Vol. 33, No. 10, 1980, Vol. 34, No. 10.

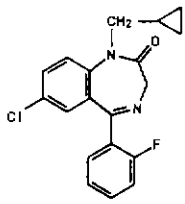
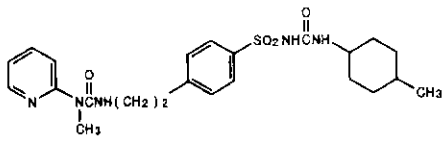
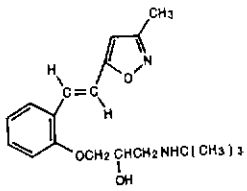
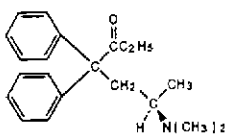
Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
adinazolamum adinazolam	8-chloro-1-[(dimethylamino)methyl]-6-phenyl-4*H*-*s*-triazolo[4,3-*a*][1,4]benzodiazepine $C_{19}H_{18}ClN_5$ 37115-32-5 
aditerenum aditeren	2,4-diamino-5-(4-amino-3,5-dimethoxybenzyl)pyrimidine $C_{13}H_{17}N_5O_2$ 56066-19-4 
alexitolum natricum alexitol sodium	sodium polyhydroxyaluminium monocarbonate hexitol complex where n = 0 or an integer, controlled by the preparative conditions 66813-51-2 
alfaprostolum alfaprostol	methyl (*Z*)-7-[(1*R*, 2*S*, 3*R*, 5*S*)-2-[(3*S*)-5-cyclohexyl-3-hydroxy-1-pentynyl]-3,5-dihydroxycyclopentyl]-5-heptenoate $C_{24}H_{38}O_5$ 74176-31-1 
alusulfum alusulf	heptaaluminum heptadecahydroxide bis(sulfate) hydrate $Al_7H_{17}O_{25}S_2 \cdot xH_2O$ 61115-28-4 

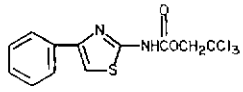
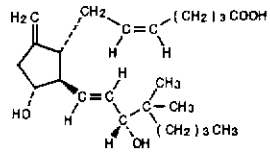
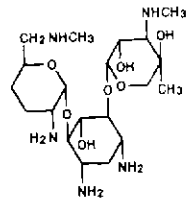
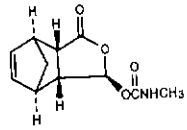
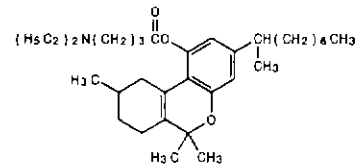
Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
ametantronum ametantrone	1,4-bis[[2-[(2-hydroxyethyl)amino]ethyl]amino]anthraquinone $C_{22}H_{28}N_4O_4$ 64862-96-0 
aminoquinuridum aminoquinuride	1,3-bis(4-amino-2-methyl-6-quinolyl)urea $C_{21}H_{20}N_6O$ 3811-56-1 
amipizonum amipizone	2-chloro-4′-(1,4,5,6-tetrahydro-4-methyl-6-oxo-3-pyridazinyl)propionanilide $C_{14}H_{16}ClN_3O_2$ 69635-63-8 
amperozidum amperozide	4-[4,4-bis(*p*-fluorophenyl)butyl]-*N*-ethyl-1-piperazinecarboxamide $C_{23}H_{29}F_2N_3O$ 75558-90-6 
azaconazolum azaconazole	1-[[2-(2,4-dichlorophenyl)-1,3-dioxolan-2-yl]methyl]-1*H*-1,2,4-triazole $C_{12}H_{11}Cl_2N_3O_2$ 60207-31-0 

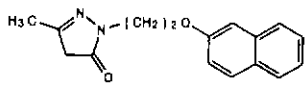
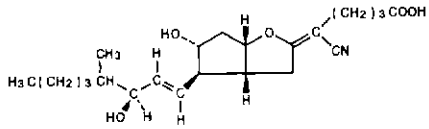
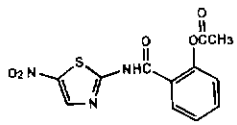
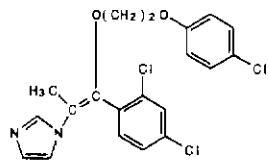
Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
benolizimum benolizime	1,2,3,4,4a,6,7,11b,12,13a-decahydro-9,10-dimethoxy-13*H*-dibenzo[*a*,*f*]quinolizin-13-one oxime $C_{19}H_{26}N_2O_3$ 61864-30-0 
butobendinum butobendine	(+)-(*S*,*S*)-ethylenebis[(methylimino)(2-ethylethylene)] bis(3,4,5-trimethoxybenzoate) $C_{32}H_{48}N_2O_{10}$ 55769-65-8 
carbetocinum carbetocin	1-butyric acid-2-[3-(*p*-methoxyphenyl)-L-alanine]oxytocin $C_{45}H_{69}N_{11}O_{12}S$ 37025-55-1 
carmellosum carmellose	polycarboxymethyl ether of cellulose 9000-11-7
carmofurum carmofur	5-fluoro-*N*-hexyl-3,4-dihydro-2,4-dioxo-1(2*H*)-pyrimidinecarboxamide $C_{11}H_{16}FN_3O_3$ 61422-45-5 
carprazidilum carprazidil	methyl 5-(3,6-dihydro-1(2*H*)- pyridyl)-2-oxo-2*H*-[1,2,4]oxadiazolo[2,3-*a*]pyrimidine-7-carbamate $C_{12}H_{13}N_5O_4$ 68020-77-9 

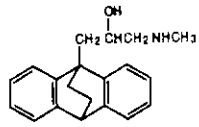
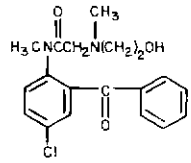
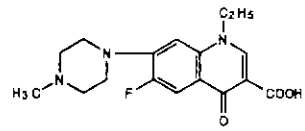
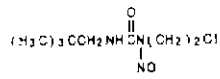
Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
cefuracetimum cefuracetime	(6*R*,7*R*)-7-[2-(2-furyl)glyoxylamido]-3-(hydroxymethyl)-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid 7^2-(*Z*)-(*O*-methyloxime), acetate (ester) $C_{17}H_{17}N_3O_8S$ 39685-31-9 
cimoxatonum cimoxatone	α-[*p*-[5-(methoxymethyl)-2-oxo-3-oxazolidinyl]phenoxy]-*m*-tolunitrile $C_{19}H_{18}N_2O_4$ 73815-11-9 
cuproxolinum cuproxoline	bis(dihydrogen 8-hydroxy-5,7-quinolinedisulfonato)copper, compound with diethylamine (1 : 4) $C_{18}H_{12}CuN_2O_{14}S_4 \cdot 4C_4H_{11}N$ *or* $C_{34}H_{56}CuN_6O_{14}S_4$ 13007-93-7 
dapiprazolum dapiprazole	5,6,7,8-tetrahydro-3-[2-(4-*o*-tolyl-1-piperazinyl)ethyl]-*s*-triazolo[4,3-*a*]pyridine $C_{19}H_{27}N_5$ 72822-12-9 
dazidaminum dazidamine	2-benzyl-3-[[3-(dimethylamino)propyl]thio]-2*H*-indazole $C_{19}H_{23}N_3S$ 75522-73-5 
deboxametum deboxamet	5-methoxy-2-methylindole-3-acetohydroxamic acid $C_{12}H_{14}N_2O_3$ 34024-41-4 

Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
decominolum decominol	1-amino-3-(decyloxy)-2-propanol $C_{13}H_{29}NO_2$ 60812-35-3 
dicobalti edetas dicobalt edetate	cobalt(2+) [(ethylenedinitrilo)tetraacetato]cobaltate(2−) $C_{10}H_{12}Co_2N_2O_8$ 36499-65-7 
enolicamum enolicam	3',4',7-trichloro-2,3-dihydro-5-hydroxy-1-benzothiepin-4-carboxanilide 1,1-dioxide $C_{17}H_{12}Cl_3NO_4S$ 59755-82-7 
eptazocinum eptazocine	(−)-(1*S*, 6*S*)-2,3,4,5,6,7-hexahydro-1,4-dimethyl-1,6-methano-1*H*-4-benzazonin-10-ol $C_{15}H_{21}NO$ 72522-13-5 
esaprazolum esaprazole	*N*-cyclohexyl-1-piperazineacetamide $C_{12}H_{23}N_3O$ 64204-55-3 

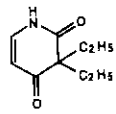
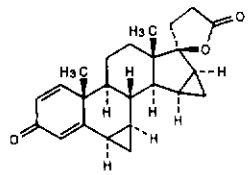
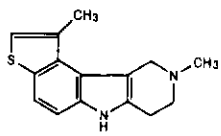
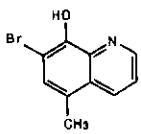
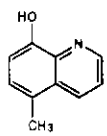
Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
flutoprazepamum flutoprazepam	7-chloro-1-(cyclopropylmethyl)-5-(*o*-fluorophenyl)-1,3-dihydro-2*H*-1,4-benzodiazepin-2-one $C_{19}H_{16}ClFN_2O$ 25967-29-7 
glisamuridum glisamuride	1-methyl-3-[*p*-[[3-(4-methylcyclohexyl)ureido]sulfonyl]phenethyl]-1-(2-pyridyl)-urea $C_{23}H_{31}N_5O_4S$ 52430-65-6 
isoxaprololum isoxaprolol	(±)-(*E*)-1-(*tert*-butylamino)-3-[*o*-[2-(3-methyl-5-isoxazolyl)vinyl]phenoxy]-2-propanol $C_{19}H_{28}N_2O_3$ 75949-60-9 
levomethadonum levomethadone	(−)-(*R*)-6-(dimethylamino)-4,4-diphenyl-3-heptanone $C_{21}H_{27}NO$ 125-58-6 

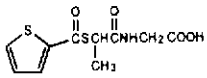
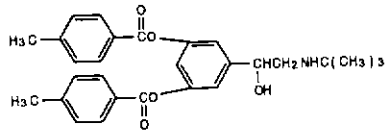
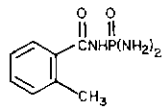
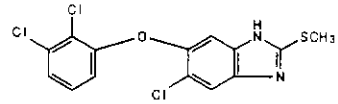
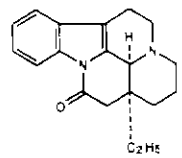
Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
lotifazolum lotifazole	2,2,2-trichloroethyl 4-phenyl-2-thiazolecarbamate $C_{12}H_9Cl_3N_2O_2S$ 71119-10-3 
meteneprostum meteneprost	(*Z*)-7-[(1*R*,2*R*,3*R*)-3-hydroxy-2-[(*E*)-(3*R*)-3-hydroxy-4,4-dimethyl-1-octenyl]-5-methylenecyclopentyl]-5-heptenoic acid $C_{23}H_{38}O_4$ 61263-35-2 
micronomicinum micronomicin	*O*-2-amino-2,3,4,6-tetradeoxy-6-(methylamino)-*a*-D-*erythro*-hexopyranosyl-(1 → 4)-*O*-[3-deoxy-4-*C*-methyl-3-(methylamino)-*β*-L-arabinopyranosyl-(1 → 6)]-2-deoxy-D-streptamine $C_{20}H_{41}N_5O_7$ 52093-21-7 
moxadolenum moxadolen	methylcarbamic acid, ester with (3*R**,3a*R**,4*S**,7*R**,7a*S**)-3a,4,7,7a-tetrahydro-3-hydroxy-4,7-methanoisobenzofuran-1(3*H*)-one $C_{11}H_{13}NO_4$ 75992-53-9 
naboctatum naboctate	7,8,9,10-tetrahydro-6,6,9-trimethyl-3-(1-methyloctyl)-6*H*-dibenzo[*b*,*d*]pyran-1-yl 4-(diethylamino)butyrate $C_{33}H_{53}NO_3$ 74912-19-9 

Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
nafazatromum nafazatrom	3-methyl-1-[2-(2-naphthyloxy)ethyl]-2-pyrazolin-5-one $C_{16}H_{16}N_2O_2$ 59040-30-1 
)prostum nileprost	(*E*)-(3a*R*,4*R*,5*R*,6a*S*)-δ-cyano-3,3a,4,5,6,6a-hexahydro-5-hydroxy-4-[(*E*)-(3*S*,4*RS*)-3-hydroxy-4-methyl-1-octenyl]-2*H*-cyclopenta[*b*]furan-$\Delta^{2,\delta}$-valeric acid $C_{22}H_{33}NO_5$ 71097-83-1 
nitazoxanidum nitazoxanide	*N*-(5-nitro-2-thiazolyl)salicylamide acetate (ester) $C_{12}H_9N_3O_5S$ 55981-09-4 
omoconazolum omoconazole	(*E*)-1-[2,4-dichloro-β-[2-(*p*-chlorophenoxy)ethoxy]-α-methylstyryl]imidazole $C_{20}H_{17}Cl_3N_2O_2$ 74512-12-2 

Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
oxaprotilinum oxaprotiline	α-[(methylamino)methyl]-9,10-ethanoanthracene-9(10*H*)-ethanol $C_{20}H_{23}NO$ 56433-44-4 
oxazafonum oxazafone	2'-benzoyl-4'-chloro-2-[(2-hydroxyethyl)methylamino]-*N*-methylacetanilide $C_{19}H_{21}ClN_2O_3$ 70541-17-2 
pefloxacinum pefloxacin	1-ethyl-6-fluoro-1,4-dihydro-7-(4-methyl-1-piperazinyl)-4-oxo-3-quinolinecarboxylic acid $C_{17}H_{20}FN_3O_3$ 70458-92-3 
pentamustinum pentamustine	1-(2-chloroethyl)-3-neopentyl-1-nitrosourea $C_8H_{16}ClN_3O_2$ 73105-03-0 

Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
perfluaminum perfluamine	heneicosafluorotripropylamine $C_9F_{21}N$ 338-83-0
perflunafenum perflunafene	octadecafluorodecahydronaphthalene $C_{10}F_{18}$ 306-94-5
premazepamum premazepam	3,7-dihydro-6,7-dimethyl-5-phenylpyrrolo[3,4-*e*]-1,4-diazepin-2(1*H*)-one $C_{15}H_{15}N_3O$ 57435-86-6
propenidazolum propenidazole	ethyl *trans*-α-acetyl-1-methyl-5-nitroimidazole-2-acrylate $C_{11}H_{13}N_3O_5$ 76448-31-2
propiverinum propiverine	1-methyl-4-piperidyl diphenylpropoxyacetate $C_{23}H_{29}NO_3$ 60569-19-9
pyricarbatum pyricarbate	2,6-pyridinediyldimethylene bis(methylcarbamate) $C_{11}H_{15}N_3O_4$ 1882-26-4

Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
pyrithyldionum pyrithyldione	3,3-diethyl-2,4(1*H*,3*H*)-pyridinedione $C_9H_{13}NO_2$ 77-04-3 
spirorenonum spirorenone	(6*R*,7*R*,8*R*,9*S*,10*R*,13*S*,14*R*,15*S*,16*S*,17*S*)-3',4',6,7,8,9,11,12,13,14,15,16,20,21-tetradecahydro-10,13-dimethylspiro[17*H*-dicyclopropa[6,7 : 15,16]cyclopenta[*a*]phenanthrene-17,2'(5'*H*)-furan]-3(10*H*),5'-dione *or* 17-hydroxy-6β,7β : 15β,16β-dimethylene-3-oxo-17α-pregna-1,4-diene-21-carboxylic acid, γ-lactone $C_{24}H_{28}O_3$ 74220-07-8 
thymostimulinum thymostimulin	polypeptide immunostimulant factor extracted from thymus of mammalian species. The source of the product should be indicated, e.g. thymostimulin (calf)
tienocarbinum tienocarbine	7,8,9,10-tetrahydro-1,9-dimethyl-6*H*-pyrido[4,3-*b*]thieno[3,2-*e*]indole $C_{15}H_{16}N_2S$ 75458-65-0 
tilbroquinolum tilbroquinol	7-bromo-5-methyl-8-quinolinol $C_{10}H_8BrNO$ 7175-09-9 
tiliquinolum tiliquinol	5-methyl-8-quinolinol $C_{10}H_9NO$ 5541-67-3 

Proposed International Nonproprietary Name (Latin, English)	*Chemical Name or Description, Molecular and Graphic Formulae Chemical Abstracts Service (CAS) registry number*
tiofacicum tiofacic	*N*-(2-mercaptopropionyl)glycine 2-thiophenecarboxylate (ester) $C_{10}H_{11}NO_4S_2$ 72324-18-6 
tobuterolum tobuterol	(±)-5-[2-(*tert*-butylamino)-1-hydroxyethyl]-*m*-phenylene di-*p*-toluate $C_{28}H_{31}NO_6$ 75626-99-2 
tolfamidum tolfamide	*N*-(diaminophosphinyl)-*o*-toluamide $C_8H_{12}N_3O_2P$ 70788-29-3 
triclabendazolum triclabendazole	5-chloro-6-(2,3-dichlorophenoxy)-2-(methylthio)benzimidazole $C_{14}H_9Cl_3N_2OS$ 68786-66-3 
vinburninum vinburnine	3α,16α-eburnamonine $C_{19}H_{22}N_2O$ 4880-88-0 

AMENDMENTS TO PREVIOUS LISTS

Cumulative List No. 5, 1977

International Nonproprietary Names (INN) for Pharmaceutical Substances:

	delete	*insert*
p. 116	levarterenolum levarterenol	norepinephrinum norepinephrine

Supplement to Vol. 29, No. 3

International Nonproprietary Names (Prop. INN): List 33

	delete	*insert*
p. 2	acidum etodolicum etodolic acid	etodolacum etodolac

Supplement to Vol 33, No. 9

International Nonproprietary Names (Prop. INN): List 42

	delete	*insert*
p. 17	sulerginum sulergine	disulerginum disulergine

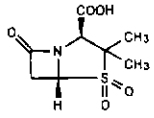
Supplement to Vol. 34, No. 3

International Nonproprietary Names (Prop. INN): List 43

	delete	*insert*
p. 17	triaconazolum triaconazole	terconazolum terconazole

Supplement to Vol. 34, No. 9

International Nonproprietary Names (Prop. INN): List 44

	delete	*insert*
p. 3	alisactidum alisactide	alsactidum alsactide
p. 10	enilconazolum enilconazole	*replace CAS registry number by:* 35554-44-0
p. 21	sulbactamum sulbactam	*insert the following graphic formula:* 
p. 25	vintenatum vintenate	vincantenatum vincantenate
p. 27	aclatonii napadisilas aclatonium napadisilate	*cancel amendment and retain graphic formula in List 43 prop INN*

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 this 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*.[1]

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*.[1]

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 which 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 which 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	-caïne	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 derivates
-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 derivates
-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 8.–