

International Non-Proprietary Names for Pharmaceutical Preparations

In accordance with article 3 of the Procedure for the Selection of Recommended International Non-Proprietary Names for Pharmaceutical Preparations,¹ notice is hereby given that the following names are under consideration by the World Health Organization as Proposed International Non-Proprietary 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 non-proprietary names does not imply any recommendation for the use of the substance in medicine or pharmacy.

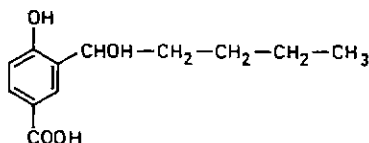
PROPOSED INTERNATIONAL NON-PROPRIETARY NAMES (*Prop. I.N.N.*): LIST 19²

Proposed International
Non-Proprietary Name
(Latin, English)

Chemical Name or Description,
Molecular and Graphic Formulae

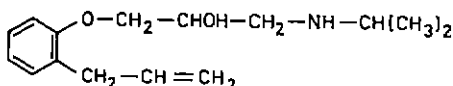
acidum fepentolicum
fepentolic acid

α -butyl- α -hydroxy-4,3-cresotic acid
 $C_{12}H_{16}O_4$



alprenololum
alprenolol

1-(*o*-allylphenoxy)-3-(isopropylamino)-2-propanol
 $C_{15}H_{23}NO_2$



¹ See Annex, p. 125

² Other lists of proposed international non-proprietary 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.

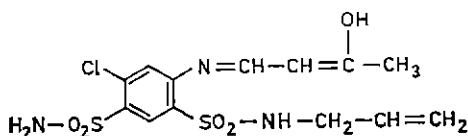
Lists of recommended international non-proprietary names were published in *Chron. Wld Hlth Org.*, 1955, 9, 185; *WHO Chronicle*, 1959, 13, 106, 463; 1962, 16, 101; 1965, 19, 165, 206, 249; 1966, 20, 421; 1967, 21, 538.

Proposed International
Non-Proprietary Name
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Chemical Name or Description,
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ambusidum
ambuside

N'-allyl-4-chloro-6-[(3-hydroxy-2-butenylidene)amino]-*m*-
benzenedisulfonamide
 $C_{15}H_{14}ClN_2O_5S_2$



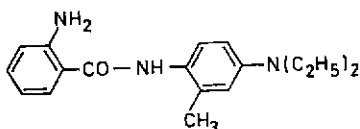
aprotininum
aprotinin

Arg-Pro-Asp(tentative)-Phe-HCys-Leu-Glu(tentative)-Pro-Pro-Tyr-
Thr-Gly-Pro-HCys-Lys-Ala-Arg-Ileu-Ileu-Arg-Tyr-Phe-Tyr-AspN-
Ala-Lys-Ala-Gly-Leu-HCys-GluN-Thr-Phe-Val-Tyr-Gly-Gly-HCys-
Arg-Ala-Lys-Arg-AspN-AspN-Phe-Lys-Ser-Ala-Glu-AspN-HCys-
Met-Arg-Thr-HCys-Gly-Gly-Ala
 $C_{214}H_{440}N_{88}O_{177}S_7$ (tentative)

Arg - Pro - Asp - Phe - HCys - Leu - Glu - Pro - Pro - Tyr -
- Thr - Gly - Pro - HCys - Lys - Ala - Arg - Ileu - Ileu - Arg -
- Tyr - Phe - Tyr - AspN - Ala - Lys - Ala - Gly - Leu - HCys -
- GluN - Thr - Phe - Val - Tyr - Gly - Gly - HCys - Arg - Ala -
- Lys - Arg - AspN - AspN - Phe - Lys - Ser - Ala - Glu -
- AspN - HCys - Met - Arg - Thr - HCys - Gly - Gly - Ala

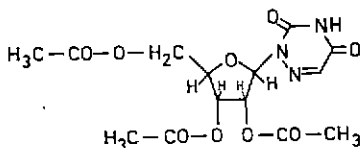
atolidum
atolide

2-amino-4'-(diethylamino)-*o*-benzotoluidide
 $C_{18}H_{23}N_3O$



azaribinum
azaribine

2- β -D-ribofuranosyl-as-triazine-3,5(2*H*,4*H*)-dione 2',3',5'-triacetate
 $C_{14}H_{17}N_5O_9$

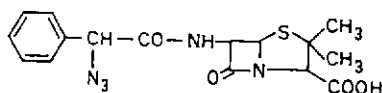


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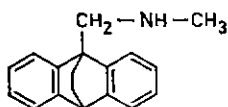
azidocillinum
azidocillin

6-(2-azido-2-phenylacetamido)-3,3-dimethyl-7-oxo-4-thia-
-1-azabicyclo[3.2.0]heptane-2-carboxylic acid
 $C_{15}H_{17}N_5O_4S$



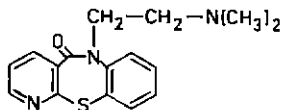
benzocetaminum
benzocetamine

N-methyl-9,10-ethanoanthracene-9(10*H*)-methylamine
 $C_{15}H_{15}N$



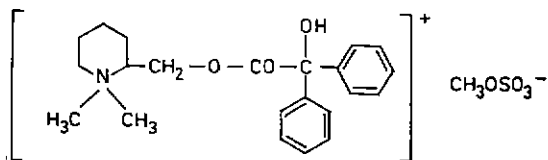
bepiastinum
bepiastine

6-[2-(dimethylamino)ethyl]pyrido[2,3-*b*][1,5]benzothiazepin
-5(6*H*)-one
 $C_{15}H_{17}N_2OS$



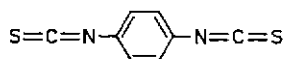
bevonii metilsulfas
bevonium metilsulfate

2-(hydroxymethyl)-1,1-dimethylpiperidinium methyl sulfate benzilate
 $C_{23}H_{31}NO_7S$



bitoscanatum
bitoscanate

p-phenylene bis(isothiocyanate)
 $C_6H_4N_2S_2$

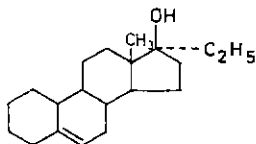


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bolenolum
bolenol

19-nor-17 α -pregn-5-en-17-ol
 $C_{20}H_{32}O$

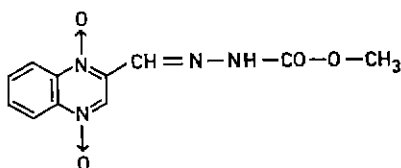


calcitonium
calcitonin

hormone from the thyroid gland, a polypeptide of molecular weight less than 10,000

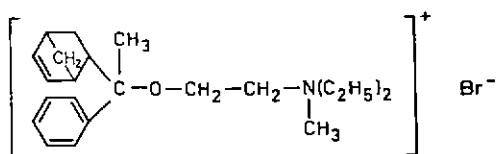
carbadoxum
carbadox

methyl 3-(2-quinoxalinylmethylene)carbazate *N,N*'-dioxide
 $C_{11}H_{10}N_4O_4$



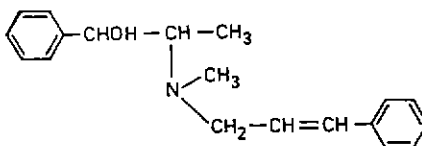
ciclonii bromidum
ciclonium bromide

diethylmethyl{2-[(α -methyl- α -5-norbornen-2-yl)benzyl]oxy}ethyl)
ammonium bromide
 $C_{22}H_{34}BrNO$



cinnamedrinum
cinnamedrine

α -[1-(cinnamylmethylamino)ethyl]benzyl alcohol
 $C_{15}H_{21}NO$

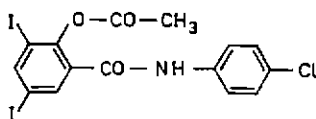


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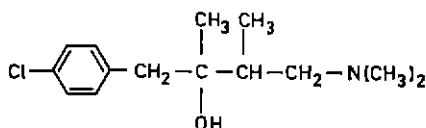
clioxanidum
clioxanide

4'-chloro-2-hydroxy-3,5-diiodobenzanilide acetate
 $C_{15}H_{10}ClI_2NO_3$



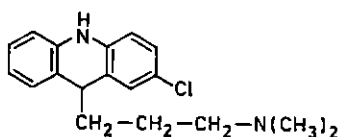
clobutinolum
clobutinol

p-chloro- α -[2-(dimethylamino)-1-methylethyl]- α -methylphenethyl
alcohol
 $C_{14}H_{22}ClNO$



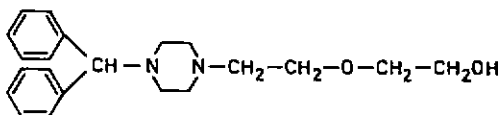
clomacranum
clomacran

2-chloro-9-[3-(dimethylamino)propyl]acridan
 $C_{18}H_{21}ClN_2$



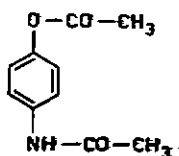
decloxizinum
decloxizine

2-[2-[4-(diphenylmethyl)-1-piperaziny]ethoxy]ethanol
 $C_{21}H_{28}N_2O_2$



diacetamatum
diacetamate

4-acetamidophenyl acetate
 $C_{10}H_{11}NO_3$

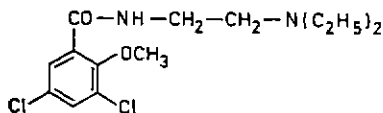


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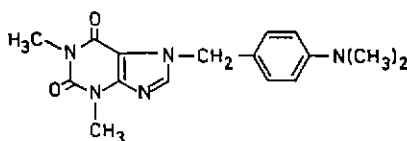
diclometidum
diclometide

3,5-dichloro-*N*-[2-(diethylamino)ethyl]-*o*-anisamide
 $C_{14}H_{20}Cl_2N_2O_2$



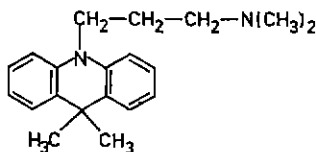
dimabefyllinum
dimabefylline

7-[*p*-(dimethylamino)benzyl]theophylline
 $C_{16}H_{19}N_3O_2$



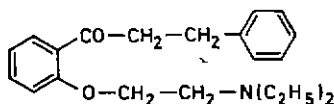
dimetacrinum
dimetacrine

9,9-dimethyl-10-[3-(dimethylamino)propyl]acridan
 $C_{20}H_{28}N_2$



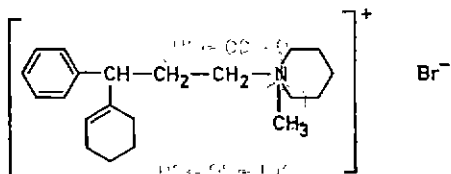
etafenonum
etafenone

2'-[2-(diethylamino)ethoxy]-3-phenylpropiophenone
 $C_{21}H_{27}NO_2$



fenclexonii bromidum
fenclexonium bromide

1-[3-(1-cyclohexenyl)-3-phenylpropyl]-1-methylpiperidinium bromide
 $C_{21}H_{32}BrN$

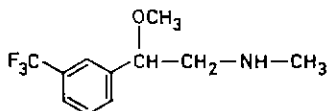


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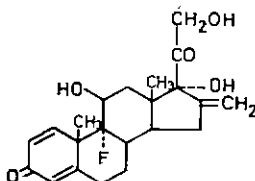
fludorexum
fludorex

β -methoxy-*N*-methyl-*m*-(trifluoromethyl)phenethylamine
 $C_{11}H_{14}F_3NO$



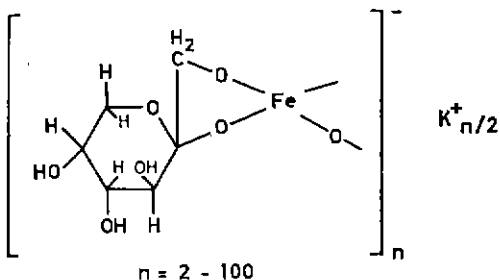
fluprednidenum
fluprednidene

9-fluoro-11 β ,17,21-trihydroxy-16-methylenepregna-1,4-diene-3,20-dione
 $C_{22}H_{27}FO_3$



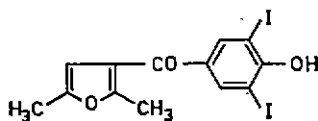
fructosum ferricum
ferric fructose

fructose iron complex, compound with potassium (2:1)
 $(C_6H_{10}FeO_7)_n K_{n/2}$ (tentative)



furidaronom
furidarone

2,5-dimethyl-3-furyl 4-hydroxy-3,5-diiodophenyl ketone
 $C_{13}H_{10}I_2O_3$

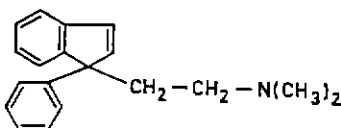


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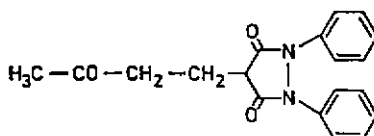
indrillinum
indriline

N,N-dimethyl-1-phenylindene-1-ethylamine
 $C_{19}H_{21}N$



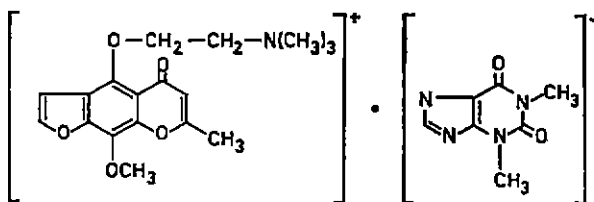
kebuzonium
kebuzone

4-(3-oxobutyl)-1,2-diphenyl-3,5-pyrazolidinedione
 $C_{19}H_{15}N_2O_3$



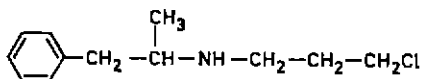
kellofyllinum
kellofylline

(2-[(9-methoxy-7-methyl-5-oxo-5*H*-furo[3,2-*g*][1]benzopyran-4-yl)
oxy]ethyl)trimethylammonium theophylline derivative
 $C_{23}H_{29}N_5O_7$



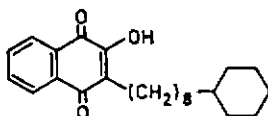
mefenorexum
mefenorex

N-(3-chloropropyl)- α -methylphenethylamine
 $C_{12}H_{15}ClN$



menoctonum
menoctone

2-(8-cyclohexyloctyl)-3-hydroxy-1,4-naphthoquinone
 $C_{24}H_{32}O_3$



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mequidoxum
mequidox

3-methyl-2-quinoxalinemethanol 1,4-dioxide
 $C_{10}H_{10}N_2O_3$

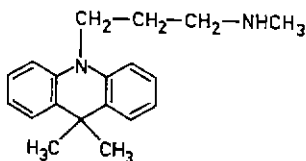


mitomalcinum
mitomalcin

an antibiotic obtained from cultures of *Streptomyces malayensis*, or the same substance obtained by any other means

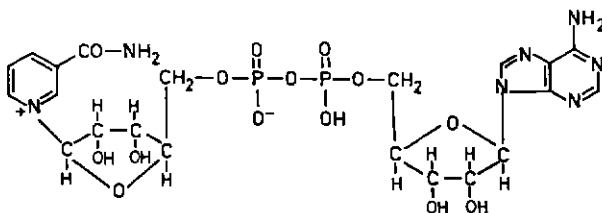
monometacrinum
monometacrine

9,9-dimethyl-10-[3-(methylamino)propyl]acridan
 $C_{19}H_{24}N_2$



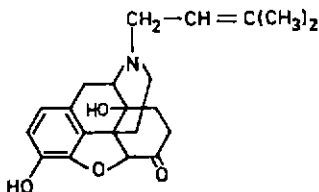
nadidum
nadide

3-carbamoyl-1-β-D-ribofuranosylpyridinium hydroxyde, 5'-ester with adenosine 5'-pyrophosphate, inner salt
 $C_{21}H_{27}N_7O_{14}P_2$



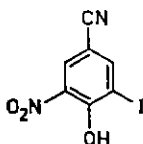
nalmexonum
nalmexone

7,7a,8,9-tetrahydro-3,7a-dihydroxy-12-(3-methyl-2-butenyl)-6H-8,9c-iminoethanophenanthro[4,5-bcd]furan-5(4aH)-one or 7,8-dihydro-14-hydroxy-N-(3-methyl-2-butenyl)-normorphinone
 $C_{21}H_{25}NO_4$

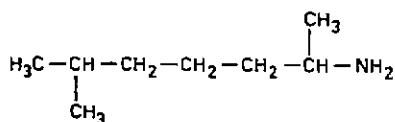


<i>Proposed International Non-Proprietary Name (Latin, English)</i>	<i>Chemical Name or Description, Molecular and Graphic Formulae</i>
nebramycinum nebramycin	an antibiotic obtained from cultures of <i>Streptomyces tenebrarius</i> , or the same substance obtained by any other means

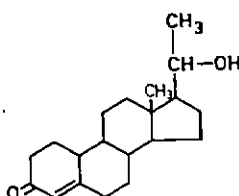
nitroxinilum nitroxinil	4-hydroxy-3-iodo-5-nitrobenzonitrile $C_7H_3IN_2O_3$
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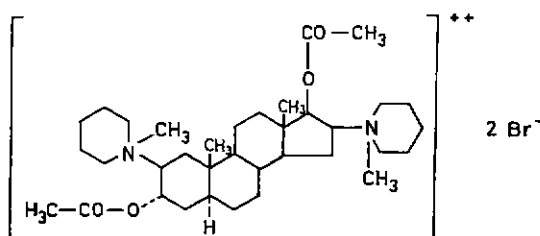
octodrinum octodrine	1,5-dimethylhexylamine $C_8H_{19}N$
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oxogestonum oxogestone	20 β -hydroxy-19-norpregn-4-en-3-one $C_{26}H_{36}O_2$
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pancuronli bromidum pancuronium bromide	(3 α ,17 β -dihydroxy-5 α -androstan-2 β ,16 β -ylene)bis[1-methylpiperi- dinium] dibromide diacetate $C_{35}H_{60}Br_2N_2O_4$
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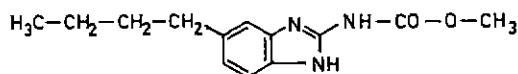


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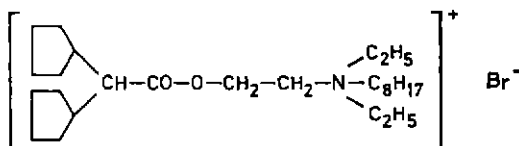
parbendazolum
parbendazole

methyl 5-butyl-2-benzimidazolecarbamate
 $C_{13}H_{17}N_3O_2$



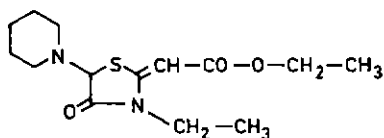
penoctionii bromidum
penoctionium bromide

diethyl(2-hydroxyethyl)octyl ammonium bromide dicyclopentylacetate
 $C_{26}H_{50}BrNO_2$



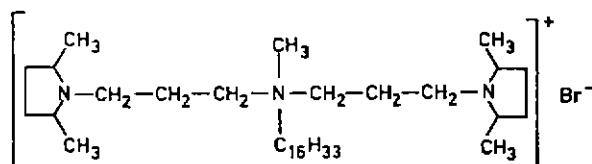
pirozolinum
pirozolin

ethyl 3-ethyl-4-oxo-5-piperidino-4,5-thiazolidineacetate
 $C_{14}H_{22}N_2O_3S$



pirralkonii bromidum
pirralkonium bromide

bis[3-(2,5-dimethyl-1-pyrrolidiny)propyl]hexadecylmethylammonium
bromide
 $C_{35}H_{72}BrN_3$

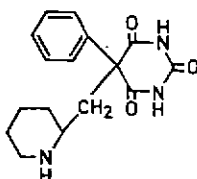


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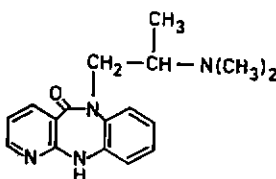
prazitonum
prazitone

5-phenyl-5-(2-piperidylmethyl)barbituric acid
 $C_{16}H_{19}N_3O_3$



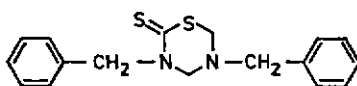
propizepinum
propizepine

6,11-dihydro-6-[2-(dimethylamino)-2-methylethyl]-5H-pyrido[2,3-b]
[1,5]benzodiazepin-5-one
 $C_{17}H_{20}N_4O$



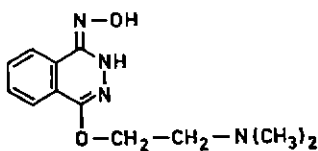
sulbentinum
sulbentine

3,5-dibenzyltetrahydro-2H-1,3,5-thiadiazine-2-thione
 $C_{17}H_{15}N_2S_2$



taloximinum
taloximine

4-[2-(dimethylamino)ethoxy]-1(2H)phthalazinone oxime
 $C_{12}H_{15}N_4O_2$

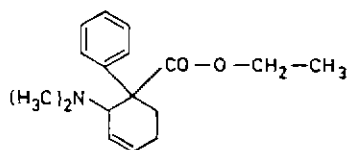


*Proposed International
Non-Proprietary Name
(Latin, English)*

*Chemical Name or Description,
Molecular and Graphic Formulae*

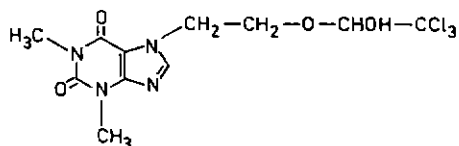
tilidinum
tilidine

ethyl 2-(dimethylamino)-1-phenyl-3-cyclohexene-1-carboxylate
 $C_{17}H_{23}NO_2$



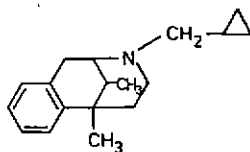
triclofyllinum
triclofylline

7-[2-(2,2,2-trichloro-1-hydroxyethoxy)ethyl]theophylline
 $C_{17}H_{13}Cl_3N_4O_4$



volazocinum
volazocine

cis-3-(cyclopropylmethyl)-1,2,3,4,5,6-hexahydro-6,11-dimethyl-2,6-methano-3-benzazocine
 $C_{18}H_{25}N$



Annex

PROCEDURE FOR THE SELECTION OF RECOMMENDED INTERNATIONAL NON-PROPRIETARY NAMES FOR PHARMACEUTICAL PREPARATIONS *

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

1. Proposals for recommended international non-proprietary 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 Non-proprietary Names", appended to this procedure. The name used by the person discovering or first developing and marketing a pharmaceutical preparation 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 non-proprietary 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 pre-

* Text adopted by the Executive Board of WHO in resolution EB15.R7 (*Off. Rec. Wld Hlth Org.*, 1955, 60, 3).

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

judice 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 non-proprietary 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 non-proprietary name.

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

- A. request that it be recognized as the non-proprietary 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.

GENERAL PRINCIPLES FOR GUIDANCE IN DEVISING INTERNATIONAL NON-PROPRIETARY NAMES FOR PHARMACEUTICAL PREPARATIONS *

1. Names should be distinctive in sound and spelling. They should not be inconveniently long and should not be liable to confusion with names already in common use.

2. The name for a substance belonging to a group of pharmacologically related substances should show this relationship. The name should be free from any anatomical, physiological, pathological or therapeutic suggestion.

The above primary principles are to be implemented by utilization of the following secondary principles.

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

4. Syllables such as " methylhydro "; " methoxy " and " chlor " should preferably be abbreviated (to " medro " " meto ", " clo ", etc.).

5. In the naming of substances which are acids, existing names generally used in chemistry which include the word " acidum " (" acid ") should be used, if the name is adequate for practical use in therapy and pharmacy. In other circumstances, the substance should be named by a single word and not by a name which includes the word " acid ". Where the word " acid " is not used in the name, as is customary in the penicillin series, a salt should preferably be named without modification of the parent acid name, e.g., " oxacillin " and " oxacillin sodium ".

6. Names 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). Exceptions may have to be made for those cases in which pharmacological activity may reside in both parts of the salt or ester.

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.

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

8. To facilitate translation and pronunciation " f " should preferably be used instead of " ph ", " t " instead of " th ", " e " instead of " ae " or " oe ", and " i " instead of " y ".

9. 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.

10. Group relationship in names (see item 2) should preferably be shown by using common syllables in the following list. Where a syllable or a group of syllables is shown without any hyphens it may be used anywhere in the name. The syllable, or group of syllables, should, if possible, be used only for such substances.

* Text adopted by the Executive Board of WHO in resolution EB37 R9 (*Off. Rec. Wld Hlth Org*, 1966, 148, 9)

Subsidiary group relationships should be shown by devising names which show similarities to and are analogous with a previously named substance, the parent substance.

At the end of the list are general chemical syllables. Should they come into conflict with other suggested syllables, the suffix conveying the best information should be used.

<i>Latin</i>	<i>English</i>	<i>French</i>	
-andr-	-andr-	-andr-	} steroids, androgenic
or -stan-	or -stan-	or -stan-	
or -ster-	or -ster-	or -ster-	
-apol-	-apol-	-apol-	polysulfonic anticoagulants
-arolum	-arol	-arol	anticoagulants
-bamatum	-bamate	-bamate	tranquillizers of the propanediol and pentanediol series
barb	barb	barb	barbituric acids
bol	bol	bol	anabolic steroids
-cainum	-caine	-caine	local anaesthetics
cef-	cef-	céf-	antibiotics with cephalosporanic acid nucleus
-cillinum	-cillin	-cilline	penicillins: derivatives of carboxy-6-amino-penicillanic acid
-cort-	-cort-	-cort-	steroids, glucocorticoids and mineralocorticoids, other than prednisolone derivatives
-crinum	-crine	-crine	acridine derivatives
-curonium	-curonium	-curonium	curare-like drugs
-cyclinum	-cycline	-cycline	antibiotics, tetracycline derivatives
-dionum	-dione	-dione	antiepileptics derived from oxazolidinedione
-estr-	-estr-	-estr-	estrogenic drugs
-gest-	-gest-	-gest-	steroids, progestative
gli-	gli-	gli-	sulfonamide oral antidiabetics
io-	io-	io-	iodine-containing contrast media
-mer-	-mer-	-mer-	mercury-containing drugs, antimicrobial or diuretic
mito-	mito-	mito-	nucleotoxic, antineoplastic agents
-moxinum	-moxine	-moxine	monoamine, oxidase inhibitors
-mycinum	-mycin	-mycine	antibiotics, produced by <i>Streptomyces</i> strains
nifur-	nifur-	nifur-	5-nitrofur derivatives
-orexum	-orex	-orex	anorexigenic agents
-praminum	-pramine	-pramine	dibenzazepine, compounds of the imipramine type
-quinum	-quine	-quine	quinoline derivatives
-serpinum	-serpine	-serpine	derivatives of <i>Rauwolfia</i> alkaloids
-stigminum	-stigmine	-stigmine	anticholinesterases
sulfa-	sulfa-	sulfa-	sulfonamides, used as antimicrobials
-tizidum	-tizide	-tizide	diuretics which are thiazide derivatives
-toinum	-toin	-toine	antiepileptics which are hydantoin derivatives
-verinum	-verine	-vérine	spasmolytics with a papaverine-like action
-inum	-ine	-ine	alkaloids and organic bases
-onum	-one	-one	ketones
-onium	-onium	-onium	quaternary amines