Pure & Appl. Chem., Vol. 51, pp.381-384. 0033-4545/79/0201-0381 $02.00/0
Pergamon Press Ltd. 1979. Printed in Great Britain.

DEFINITIVE

INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

INORGANIC CHEMISTRY DIVISION

COMMISSION ON NOMENCLATURE OF INORGANIC CHEMISTRY

RECOMMENDATIONS FOR THE NAMING OF ELEMENTS OF ATOMIC NUMBERS GREATER THAN 100

Prepared for publication by

J. CHATT

University of Sussex, U.K.

PERGAMON PRESS
OXFORD · NEW YORK · PARIS · FRANKFURT

Inorganic Chemistry Division
Commission on the Nomenclature of Inorganic Chemistry*

RECOMMENDATIONS FOR THE NAMING OF ELEMENTS OF ATOMIC NUMBERS GREATER THAN 100

(Rules Approved 1978)

Elements of atomic numbers of 101 to 103 have trivial names and corresponding two letter symbols approved by IUPAC. The status of these names and symbols is in no way affected by the recommendation of systematic names for elements of atomic numbers greater than 100.

Elements of atomic numbers greater than 103 are often referred to in the scientific literature but receive names only after they have been 'discovered'. Names are needed for indexing and other purposes and the Commission on Nomenclature of Inorganic Chemistry was asked to make recommendations concerning names and symbols of the heavy 'unknown' elements. The Commission decided that these elements would be best named systematically and that names should accord with the following principles:

(i) The names should be short and obviously related to the atomic numbers of the elements.

(ii) The names should end in 'ium' whether the element was expected to be a metal or otherwise.

(iii) The symbols for the systematically named elements should consist of three letters.

(iv) The symbols should be derived directly from the atomic numbers and be visually related to the names as far as possible.

The reasons for principles (i), (ii), and (iv) are obvious but those for (iii) are not so immediately apparent. The Commission recommends the use of three-letter symbols because any systematically derived set of two-letter symbols will tend to duplicate some of the two-letter symbols of elements of atomic numbers less than 104. Any *ad hoc* method of removing such duplication will destroy the systematic derivation of the symbol.

The existence of a systematic nomenclature for the unknown elements does not deny the right of 'discoverers' of new elements to suggest other names to the Commission after their discovery has been established beyond all doubt in the general scientific community. For elements 101-103 the systematic names are minor alternatives to the trivial names already approved by IUPAC. The systematic names and symbols for elements of atomic numbers greater than 103 are the only approved names and symbols for those elements until the approval of trivial names by IUPAC.

Nomenclature of Elements of Atomic Numbers greater than 100

1. The name is derived directly from the atomic number of the element using the following numerical roots:

0 = nil	3 = tri	6 = hex	9 = enn
1 = un	4 = quad	7 = sept	
2 = bi	5 = pent	8 = oct	

2. The roots are put together in the order of the digits which make up the atomic number and terminated by 'ium' to spell out the name. The final 'n' of 'enn' is elided when it occurs before 'nil', and the final 'i' of 'bi' and of 'tri' when it occurs before 'ium'.

3. The symbol of the element is composed of the initial letters of the numerical roots which make up the name.

4. The root 'un' is pronounced with a long 'u', to rhyme with 'moon'. In the element names each root is to be pronounced separately.

Atomic number	Name	Symbol
101	Mendelevium (Unnilunium)	Md*
102	Nobelium (Unnilbium)	No*
103	Lawrencium (Unniltrium)	Lr*
104	Unnilquadium	Unq
105	Unnilpentium	Unp
106	Unnilhexium	Unh
107	Unnilseptium	Uns
108	Unniloctium	Uno
109	Unnilennium	Une
110	Ununnilium	Uun
111	Unununium	Uuu
112	Ununbium	Uub
113	Ununtrium	Uut
114	Ununquadium	Uuq
115	Ununpentium	Uup
116	Ununhexium	Uuh
117	Ununseptium	Uus
118	Ununoctium	Uuo
119	Ununennium	Uue
120	Unbinilium	Ubn
121	Unbiunium	Ubu
130	Untrinilium	Utn
140	Unquadnilium	Uqn
150	Unpentnilium	Upn
160	Unhexnilium	Uhn
170	Unseptnilium	Usn
180	Unoctnilium	Uon
190	Unennilium	Uen
200	Binilnilium	Bnn
201	Binilunium	Bnu
202	Binilbium	Bnb
300	Trinilnilium	Tnn
400	Quadnilnilium	Qnn
500	Pentnilnilium	Pnn
900	Ennilnilium	Enn

* To correspond to the systematic names, the systematic symbols would be Unu, Unb and Unt respectively.