Proposal of Super Long Format for the Periodic Table^{*)}

Keinosuke HAMADA

Department of Chemistry, Faculty of Education, Nagasaki University, Nagasaki 852, Japan

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The report, "Confusion in the Periodic Table of the Elements" was published in the Journal of Chemical Education¹⁾ and asked for comments and suggestions to solve the present confusion caused by the use of the type (a) and the type (b) of Table 1 in the subgroups of long form of the periodic table.

(a)	IA	IIA	IIIA	IVA	VA	VIA	VIIA		VIIIA		IB	IIB	IIIB	IVB	VB	VIB	VIIB	VIIIB
(b)	IA	IIA	IIIB	IVB	VB	VIB	VIIB		VIIIB		IB	IIB	IIIA	IVA	VA	VIA	VIIA	VIIIA
(c)	1	2	3d	4d	5d	6d	7d	8d	9d	10d	11d	12d	13	14	15	16	17	18
	Н						-											He
	Li	Be											В	С	Ν	0	F	Ne
	Na	Mg											Al	Sı	Ρ	S	Cl	Ar
	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Со	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Те	Ι	Xe
	Cs	Ba	La	Hf	Та	W	Re	Os	Ir	Pt	Au	Hg	Τl	Pb	Bı	Po	At	Rn
	Fr	Ra	Ac															
	3f –	[-•Ce	Pt	Nd	Pm	Sm	Eu	Gd	Тb	Dy	Ho	Er	Tm	Yb	Lu		
		L	- "Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr		

 Table 1
 Various Classifications of Subgroups in Long Format for Periodic Table

The Journal²⁾ also has reported that the comments and suggestions arising from the above and the other efforts to publicize the problem as widely as possible, produced a large number and variety of possible schemes for designating subgroups of elements in the periodic table, and finally the type (c) of Table 1 was selected for recommendation to the ACS Committee on Nomenclature as the official periodic table format of the American Chemical Society, at a meeting of the Nomenclature Committee of the ACS Division of Inorganic Chemistry in Washington, D. C., on August 29, 1983. However the present author should like to recommend the super long

ΙA	IΑ	IÇ~	XIVC	ΙB	II B	ШВ	IVB	VВ	VIB	ŴВ	WIB	IХВ	ΧВ	∐A	IVA	VA	ΨĪΑ	VDA	MIA
1 Н	1-10 2																		2 He
$^{3}_{L_{1}}$	Be Inner transition elements															7 N	80	9 F	10 Ne
11 Na	12 Mg	$(n-2)f^{1-14}(n-1)s^2(n-1)p^6ns^2$															16 S	17 C1	18 Ar
19 K	20 Ca			21 Se	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
37 Rb	38 Sr	1		39 . Y	40 Zr	41 Nb	42 Мо		44 Ru	45 Rh	46 Pb	47 .:\g	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
55 Cs	56 Ba	57 La •	70 - Yh	71 Lu	72 11f	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 ./\u	80 Hg	81 Tl	82 Pb	83 B1	84 Po	85 At	86 Rn
87 Fr	88 Ra	89 Ac -		103 Lr	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118
			IØ	ПÇ	UC	NC	vc	VIC	vac	VIIC	IXC	XC	хc	XIC	XIIC	XIVC]		·
Lanthanoids			57 La	58 Ce	59 Pr		61 Pm		63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Xb			
Actinoids		89 Ac	90 Th	91 Pa	92 U	93 Nu	94 Pu		96 Cm	97 Bk	98 Cf	99 Ka	100 Fm	101 Md	102 No				

Table 2 Super Long Format for Periodic Table of the Elements

format for the periodic table of the elements shown in Table 2.

This super long format distinguishes between the "sp-block" elements as A group, "d-block" elements as B group and "f-block" elements as C group. And the numbers I \sim VIII of A group elements (representative elements) mean the numbers of s and p electrons, the numbers I \sim X of B group elements (transition elements), those of d electrons and the number I \sim XIV of C group elements (inner transition elements), those of f electrons. This is very accurately reflecting electronic structure and resolves the above mentioned confusion, because of unequivocal designation for each subgroup.

2) K. L. Loening, J. Chem. Educ., 61, 136 (1984)

^{*)} This super long format for the periodic table of elements is strongly supported by the chief and other editors of "Journal of Chemical Education" in Chemical Society of Japan and they recommend me to contribute to the "Journal of Chemical Education" in USA to publicize this type format as widely as possible, and the author has done it.

¹⁾ W. C. Fernelius and W. H. Powell, J. Chem. Educ., 59, 504 (1982)