

# Semiconductors

## Contents of Subvolumes 17a...i; 22a,b; 41A...E

<b>Physical data of semiconductors:</b>	Chapter	Subvolume	Update in Vol.
group IV elements and IV–IV compounds	1	17a; 22a,b	41A1,A2
III–V compounds	2	17a; 22a,b	41A1,A2
II–VI compounds	3	17b; 22a	41B
I–VII compounds	4	17b; 22a	41B
semimagnetic compounds	5	17b	41B
non-tetrahedrally bonded elements	8	17e	41C
group III elements	8.1	17e	41C
group V elements	8.2	17e	41C
group VI elements	8.3	17e	41C
non-tetrahedrally bonded binary compounds	9	17e	41C
IA–IB compounds	9.1	17e	41C
I <sub>x</sub> V <sub>y</sub> compounds	9.2	17e	
I <sub>x</sub> VI <sub>y</sub> compounds	9.3	17e	41C
II <sub>x</sub> IV <sub>y</sub> compounds	9.4	17e	
II <sub>x</sub> V <sub>y</sub> compounds	9.5	17e	41C
II <sub>x</sub> VII <sub>y</sub> compounds	9.6	17e	
III <sub>x</sub> VI <sub>y</sub> compounds	9.7	17f	41C
III <sub>x</sub> VII <sub>y</sub> compounds	9.8	17f	
IV <sub>x</sub> V <sub>y</sub> compounds	9.9	17f	
IV <sub>x</sub> VI <sub>y</sub> compounds	9.10	17f	
IV <sub>x</sub> VII <sub>y</sub> compounds	9.11	17f	
V <sub>x</sub> VI <sub>y</sub> compounds	9.12	17f	41C
V <sub>x</sub> VII <sub>y</sub> compounds	9.13	17f	41C
boron compounds	9.14	17g	41D
binary transition metal compounds	9.15	17g	
binary rare earth compounds	9.16	17g	41D
ternary compounds	10	17h	41E
tetrahedrally bonded ternary and quasi-binary compounds	10.1	17h	41E
ternary transition metal compounds	10.2	17h	
ternary rare earth compounds	10.3	17h	41E
further ternary compounds	10.4	17h	
<b>Technology of semiconductors:</b>			
tetrahedrally bonded semiconductors	6	17c	
Si and Ge	6.1	17c	
SiC	6.2	17c	
III–V compounds	6.3	17d	
II–VI compounds (wide-gap)	6.4	17d	
II–VI compounds (narrow-gap)	6.5	17d	
non-tetrahedrally bonded semiconductors	7	17d	
IV–VI compounds	7.1	17d	
HgI <sub>2</sub>	7.2	17d	
Se	7.3	17d	
<b>Special systems and topics:</b>			
amorphous semiconductors	11	17i	41E
organic semiconductors	12	17i	41E
space charge layers at surfaces and interfaces	13	17i	
hot electrons	14	17i	
electron-hole liquids	15	17i	

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# Semiconductors

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Editors: O. Madelung, U. Rössler, M. Schulz

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## Preface

The present subvolume III/41D contains supplements to two of the three chapters of volume III/17g.

Since the publication of volume III/17g sixteen years ago the field of *boron compounds* has grown enormously. Thus chapter 9.14 of the present volume comprises 490 pages, nearly seven times more than the respective chapter in volume III/17g. I am grateful to Professor H. Werheit for the enormous effort to compile this complete and up-to-date overview.

Chapter 9.15 of volume III/17g presented the properties of *binary transition metal compounds*. In spite of the general importance of these compounds in solid state physics their semiconducting properties are often only of marginal interest. Furthermore, many of their electrical and magnetical properties are covered in other volumes of the Landolt-Börnstein Series. Thus, we decided not to update this chapter.

On the other hand, many new data on the semiconducting properties of *binary rare earth compounds* have been published in the last decade. Chapter 9.16 contains a 45-page update, compiled carefully by Dr. S. Kück.

The CD-ROM enclosed to this volume represents a complete and ordered electronic version of all material presented in the volume III/17g and the present subvolume.

I would like to express my gratitude to all persons who contributed to this volume, to the authors, to my co-editors Ulrich Rössler and Max Schulz, to Dr. W. Polzin of the editorial office of the Springer-Verlag, and to Dr. R. Poerschke, who coordinated all efforts and contributed substantially to this project on an update to the semiconductor volumes III/17 and III/22 and to the electronic version enclosed to each volume.

Marburg, March 2000

**The Editor**

# Table of contents

## Semiconductors

### Subvolume D: Non-Tetrahedrally Bonded Binary Compounds II

(edited by O. Madelung)

List of frequently used symbols and abbreviations; conversion tables . . . . .	X
1. Symbols . . . . .	X
2. Abbreviations . . . . .	XIV
3. Conversion tables . . . . .	XV
9            Non-tetrahedrally bonded binary compounds . . . . .	1
9.1 - 9.13            . . . . .	see subvolume III/41C
9.14            Boron compounds (H. WERHEIT) . . . . .	1
9.14.0            Introduction, general remarks on structure and chemical bond. . . . .	1
9.14.1            Compounds with group Ia elements . . . . .	26
9.14.1.1            Boron-hydrogen alloys . . . . .	26
9.14.1.2            Boron-lithium compounds . . . . .	26
9.14.1.3            Boron-sodium compounds . . . . .	31
9.14.1.4            Boron-potassium compounds . . . . .	32
9.14.2            Compounds with group Ib elements . . . . .	32
9.14.3            Compounds with group IIa elements . . . . .	32
9.14.3.1            Boron-beryllium compounds . . . . .	32
9.14.3.2            Beryllium-aluminum-boron compounds . . . . .	34
9.14.3.3            Boron-magnesium compounds . . . . .	34
9.14.3.4            Boron-alkaline earth compounds . . . . .	37
9.14.4            Compounds with group IIb elements . . . . .	38
9.14.4.1            Boron-zinc compounds . . . . .	38
9.14.4.2            Boron-cadmium compounds . . . . .	38
9.14.5            Compounds with group IIIa elements . . . . .	38
9.14.6            Compounds with group IIIb elements . . . . .	63
9.14.6.1            Boron-scandium compounds . . . . .	63
9.14.6.2            Boron-yttrium compounds . . . . .	64
9.14.7            Compounds with lanthanides . . . . .	74
9.14.7.1            Lanthanide hexaborides . . . . .	82
9.14.7.2            Lanthanide dodecaborides . . . . .	111
9.14.7.2A            Lanthanide borides of the type MB <sub>25</sub> . . . . .	114
9.14.7.2B            Lanthanide borides of the type MB <sub>50</sub> . . . . .	115
9.14.7.3            Lanthanide borides of the type MB <sub>66</sub> . . . . .	115
9.14.7.4            MgAlB <sub>14</sub> type orthorhombic borides with lanthanides . . . . .	119



9.14.8	Compounds with actinides . . . . .	124
9.14.8.1	Boron-thorium compounds . . . . .	124
9.14.8.2	Boron-uranium compounds . . . . .	125
9.14.8.3	Boron-neptunium compounds . . . . .	127
9.14.8.4	Boron-plutonium compounds . . . . .	127
9.14.9	Compounds with group IVa elements . . . . .	127
9.14.9.1	Boron-carbon compounds . . . . .	127
9.14.9.2	Boron-silicon compounds . . . . .	171
9.14.9.3	Boron-germanium compounds . . . . .	173
9.14.10	Compounds with group IVb elements . . . . .	173
9.14.10.1	Boron-titanium compounds . . . . .	173
9.14.10.2	Boron-zirconium compounds . . . . .	176
9.14.10.3	Boron-hafnium compounds . . . . .	178
9.14.11	Compounds with group Va elements . . . . .	179
9.14.11.1	Boron-nitrogen compounds . . . . .	179
9.14.11.2	Boron-phosphorus compounds . . . . .	180
9.14.11.3	Boron-arsenic compounds . . . . .	185
9.14.12	Compounds with group Vb elements . . . . .	188
9.14.12.1	Boron-vanadium compounds . . . . .	188
9.14.12.2	Boron-niobium compounds . . . . .	192
9.14.12.3	Boron-tantalum compounds . . . . .	195
9.14.13	Compounds with group VIa elements . . . . .	197
9.14.13.1	Boron-oxygen compounds . . . . .	197
9.14.13.2	Boron-sulfur compounds . . . . .	207
9.14.13.3	Boron-selenium compounds . . . . .	207
9.14.14	Compounds with group VIb elements . . . . .	208
9.14.14.1	Boron-chromium compounds . . . . .	208
9.14.14.2	Boron-molybdenum compounds . . . . .	210
9.14.14.3	Boron-tungsten compounds; boron uranium carbon compounds . . . . .	213
9.14.15	Compounds with group VIIa elements . . . . .	215
9.14.16	Compounds with group VIIb elements . . . . .	215
9.14.16.1	Boron-manganese compounds . . . . .	215
9.14.16.3	Boron-rhenium compounds . . . . .	216
9.14.17	Compounds with group VIII elements . . . . .	216
9.14.17.1	Boron-iron compounds . . . . .	216
9.14.17.2	Solid solutions of Fe in $\beta$ -rhombohedral boron . . . . .	216
9.14.17.3	Boron-cobalt compounds . . . . .	217
9.14.17.4	Boron-nickel compounds . . . . .	219
9.14.17.5	Boron-ruthenium compounds . . . . .	219
9.14.17.6	Boron-rhodium compounds . . . . .	220
9.14.17.7	Boron-palladium compounds . . . . .	221
9.14.17.9	Boron-iridium compounds . . . . .	221
9.14.17.10	Ternary borides with group VIII elements . . . . .	221
	Figures for 9.14 . . . . .	227
9.14.18	References for 9.14 . . . . .	451
9.15	Binary transition metal compounds . . . . .	no update
9.16	Binary rare earth compounds (S. KÜCK) . . . . .	492
9.16.1	Hydrides $RH_x$ . . . . .	492
9.16.2	Borides $RB_6$ , $RB_{66}$ . . . . .	496
9.16.3	Monochalcogenides $RX$ . . . . .	496

9.16.4	Chalcogenides $R_xR_y$ with $x < y$ . . . . .	500
9.16.5	Monophosphides $RP$ . . . . .	504
9.16.6	Halides $R_2Cl_3$ . . . . .	504
9.16.7	Rare earth sesquioxides $R_2O_3$ . . . . .	506
	Figures for 9.16 . . . . .	509
	References for 9.16 . . . . .	534

# Volume III/17: Semiconductors

## Subvolume g: Physics of Non-Tetrahedrally Bonded Binary Compounds III

Editor: O. Madelung

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### Contents

(In the last column x/y means that the text pages of the respective section begin at page x and the figure pages at page y)

#### A Introduction (O. MADELUNG)

1 List of symbols	1
2 List of abbreviations	5
3 Conversion tables	6

#### B Physical data of semiconductors V

Sections 9.1 ... 9.6	see subvolume III/17e
Sections 9.7 ... 9.13	see subvolume III/17f

9.14 Boron compounds (H. WERHEIT)	9/-
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9.14.1.4 Boron-potassium compounds	13/346f.
9.14.2 Compounds with group Ib elements	13/347
9.14.3 Compounds with group IIa elements	14/-
9.14.3.1 Boron-beryllium compounds	14/348
9.14.3.2 Beryllium-aluminum-boron compounds	15/348
9.14.3.3 Boron-magnesium compounds	16/349
9.14.3.4 Boron-alkaline earth compounds	17/349ff.
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9.14.4.1 Boron-zinc compounds	19/351
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9.14.10 Compounds with group IVb elements	43/-

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9.14.13.2	Boron-sulfur compounds	47/-
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9.15.1.2.2	References for 9.15.1.2	78/-
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9.15.1.3.1	Physical properties of $T(V)_2$ compounds	85/398ff.
9.15.1.3.2	References for 9.15.1.3	106/-
9.15.1.4	$T(V)_3$ compounds	108/-
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9.15.1.4.1	Physical properties	110/411ff.
9.15.1.4.2	References for 9.15.1.4	112/-
9.15.1.5	$TP_4$ compounds	113/-

9.15.1.5.0 Structure, chemical bond .	113/-
9.15.1.5.1 Physical properties	114/-
9.15.1.5.2 References for 9.15.1.5	117/-
9.15.1.6 T-V-VI compounds	117/-
9.15.1.6.0 Structure, chemical bond	117/-
9.15.1.6.1 Physical properties	121/-
9.15.1.6.2 References for 9.15.1.6	128/-
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9.15.2.1.1 Titanium oxide (TiO <sub>2</sub> )	133/413ff.
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9.15.2.2.0 Introduction	167/446
9.15.2.2.1 The shear phases V <sub>n</sub> O <sub>2n-1</sub>	167/447ff.
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9.15.2.2.4 Vanadium oxide (VO <sub>2</sub> )	185/415, 467ff.
References for 9.15.2.2.4	191/-
9.15.2.2.5 Vanadium oxide (V <sub>2</sub> O <sub>5</sub> )	194/486ff.
References for 9.15.2.2.5	200/-
9.15.2.3 Monoxides	201/-
9.15.2.3.1 Manganese oxide (MnO)	201/492ff., 555
References for 9.15.2.3.1	207/-
9.15.2.3.2 Iron oxide (FeO and Fe <sub>1-x</sub> O)	208/502ff.
References for 9.15.2.3.2	211/-
9.15.2.3.3 Cobalt oxide (CoO)	213/496, 500, 508ff., 555
References for 9.15.2.3.3	217/-
9.15.2.3.4 Nickel oxide (NiO)	219/517ff., 555
References for 9.15.2.3.4	-/225
9.15.2.3.5 Palladium oxide (PdO)	227/529ff.
References for 9.15.2.3.5	228/-
9.15.2.4 Spinel oxides	229/-
9.15.2.4.1 Magnetite (Fe <sub>3</sub> O <sub>4</sub> )	229/530ff., 556
References for 9.15.2.4.1	234/-
9.15.2.4.2 Cobalt oxide (Co <sub>3</sub> O <sub>4</sub> )	236/544ff.
References for 9.15.2.4.2	237/-
9.15.2.4.3 Manganese oxide (Mn <sub>3</sub> O <sub>4</sub> )	238/492, 546ff.
References for 9.15.2.4.3	241/-
9.15.2.5 Sesquioxides and related oxides	242/-
9.15.2.5.1 Oxides of chromium	242/548ff.
References for 9.15.2.5.1	246/-
9.15.2.5.2 Hematite (α-Fe <sub>2</sub> O <sub>3</sub> )	247/552ff.
References for 9.15.2.5.2	253/-
9.15.2.5.3 Oxides of rhodium	254/558
References for 9.15.2.5.3	256/-
9.15.2.5.4 Oxides of manganese	256/559ff.

References for 9.15.2.5.4	259/-
9.15.2.6 Oxides of group V elements (Nb, Ta)	260/-
9.15.2.6.1 Oxides of niobium	260/562ff.
References for 9.15.2.6.1	273/-
9.15.2.6.2 Oxides of tantalum (Ta <sub>2</sub> O <sub>5</sub> )	274/573ff.
References for 9.15.2.6.2	277/-
9.15.2.7 Oxides of group VI elements (Mo, W)	277/-
9.15.2.7.1 Molybdenum oxides	277/577ff.
References for 9.15.2.7.1	281/-
9.15.2.7.2 Tungsten oxides	282/581ff.
References for 9.15.2.7.2	289/-
9.15.3 Binary transition-metal chalcogenides (J.B. GOODENOUGH, S.K. RAMASESHA)	291/-
9.15.3.1 M <sub>IV</sub> (= Ti, Zr, Hf)-chalcogenides	291/595ff.
9.15.3.2 M <sub>V</sub> (= V, Nb, Ta)-chalcogenides	295/599ff.
9.15.3.3 M <sub>VI</sub> (= Cr, Mo, W)-chalcogenides	296/601ff.
9.15.3.4 M <sub>VII</sub> (= Mn, Tc, Re)-chalcogenides	301/610f.
9.15.3.5 M <sub>VIIIA</sub> (= Fe, Ru, Os)-chalcogenides	305/612ff.
9.15.3.6 M <sub>VIIIB</sub> (= Co, Rh, Ir)-chalcogenides	308/-
9.15.3.7 M <sub>VIII</sub> (= Ni, Pd, Pt)-chalcogenides	309/615ff.
9.15.3.8 References for 9.15.3	312/-
9.16 Binary rare earth compounds (G. HUBER, M. LEISS)	317/-
9.16.1 Hydrides RH <sub>x</sub>	317/621ff.
9.16.2 Borides RB <sub>6</sub>	319/628ff.
9.16.3 Monochalcogenides RX	319/629ff.
9.16.4 Chalcogenides R <sub>x</sub> X <sub>y</sub> with x < y	328/650ff.
9.16.5 References for 9.16	338/