

How to use the CD-ROM

Arrangement of Data

Each semiconductor is labelled by a number "x.y", where x gives the number of the *substance group* ("Elements of the IVth group", "III-V compounds" etc.) and y the number of the *substance* ("C", "Si", "Ge" etc.) within the group.

For each substance the individual data are listed in six *property groups*:

- **Crystal structure** (lattice structure / space group / modifications / high temperature and high pressure phases).
- **Electronic properties** (band structure / energies at symmetry points of the band structure / energy gaps (direct energy gap, indirect energy gap) / exciton energies / intra conduction band energies / intra valence band energies / critical point energies / spin-orbit splitting energies / camel's back structure of the conduction band edge / structure of the top of the valence band / effective masses (electrons, holes) / *g*-factor of electrons / valence band parameters).
- **Lattice properties** (lattice parameters / linear thermal expansion coefficient / density / melting point / Debye temperature / heat capacity / phonon dispersion relations / phonon frequencies (wavenumbers) / sound velocities / second and third order elastic moduli / bulk modulus / Poisson ratio / internal strain parameter).
- **Transport properties** (electrical conductivity or resistivity (intrinsic conductivity) / (intrinsic) carrier concentration / carrier mobilities (electron mobility, hole mobility) / drift velocities and diffusion constants / thermal conductivity (resistivity) / Seebeck coefficient (thermoelectric power) / piezo- and elastoresistance coefficients).
- **Optical properties** (optical constants / absorption coefficient / reflectance / extinction coefficient / refractive index / dielectric function / dielectric constants / piezo- and elasto-optic coefficients).
- **Impurities and defects** (binding energies of impurities / energy levels of impurities, defects and complexes or of deep centers).

If only few data are available some of the property groups are omitted or put together.

Location of substances

To locate a substance you can open directly the bookmark "Data" and navigate via the bookmarks for the substance groups to the substances and from these to the property groups, references and figures.

Two bookmarks in the start program can help you to locate a substance you are interested in:

A. Navigation via substance groups

If you open the bookmark "Navigation via substance groups" a list of all semiconductors dealt with in this handbook is shown on the desktop ordered by 38 substance groups:

1 Elements of the IVth group and IV-IV compounds

- | | | |
|-----------------|------------------|----------------------------------|
| 1.1 C (Diamond) | 1.3 Ge | 1.5 SiC |
| 1.2 Si | 1.4 Sn (grey Sn) | 1.6 $\text{Si}_x\text{Ge}_{1-x}$ |

2 III-V compounds

- | | | | |
|---------|----------|-----------|--|
| 2.1 BN | 2.6 AlP | 2.11 GaAs | 2.16 InSb |
| 2.2 BP | 2.7 AlAs | 2.12 GaSb | 2.17 $\text{Al}_{0.48}\text{In}_{0.52}\text{As}$ |
| 2.3 BAs | 2.8 AlSb | 2.13 InN | 2.17 $\text{Al}_{0.49}\text{In}_{0.51}\text{P}$ |
| 2.4 BSb | 2.9 GaN | 2.14 InP | 2.17 $\text{AlAs}_{0.96}\text{P}_{0.04}$ |
| 2.5 AlN | 2.10 GaP | 2.15 InAs | |

3 II-VI compounds

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By clicking on the substance number the first data page of the respective substance is opened. In the bookmark list on the left side of the desktop the respective bookmark is marked, and you can easily open the sub-bookmarks for the property groups, references and figures.

B. Navigation via element systems

If you open the bookmark "Navigation via element systems" a list of all semiconductors dealt with in this handbook is shown on the desktop ordered alphabetically by the elements the substances are consisting of:

Ag–As–S	AgAsS ₂	28.1
	Ag ₃ AsS ₃	28.14
Ag–As–Se	AgAsSe ₂	28.2
Ag–As–Te	AgAsTe ₂	28.3
.....

By clicking on the substance number the first data page of the respective substance is opened. In the bookmark list on the left side of the desktop the respective bookmark is marked, and you can easily open the sub-bookmarks for the property groups, references and figures.

Properties and symbols

Data on the following physical quantities occur in the tables and figures of this CD-ROM:

Electronic properties

Brillouin zones

Brillouin zones for individual semiconductors are shown in the "0"-sections at the beginning of a chapter or section dealing with a group of semiconducting materials. Symmetry lines and points within a Brillouin zone are designed by letters (Γ , X, L, Σ ...). Subscripts to these letters designate the irreducible representation of the respective energy state (1, 1', 2, 12, 25'...).

band structure

The function $E(\mathbf{k})$ gives the energies of a band state at a wave vector \mathbf{k} in the Brillouin zone. Instead of the value of \mathbf{k} often the respective symmetry designation in the Brillouin zone is given ($E(\Gamma_{25'})$...). Figures on band structure show the values of $E(\mathbf{k})$ along axes and at points of high symmetry.

band structure and exciton parameters

band energies (unit eV):

- E_c, E_v energies of the edges of conduction and valence bands, respectively.
- E_g energy gap between conduction and valence band. Further subscripts refer to: dir: direct gap, ind: indirect gap, opt: optical gap (threshold energy for optical transitions), th: thermal gap (energy gap extrapolated to 0 K from transport measurements), \parallel, \perp electric field parallel or perpendicular to a crystal axis.
- Δ mostly spin-orbit splittings of energy levels (subscripts 0, so, 1, 2 and dashes (') refer to the location of the level as explained in the tables),
also other splittings of energy levels (cf: crystal-field splitting, ex: exciton exchange interaction energy), camel's back parameters (see below).
- $E_0 \dots$ the letter E with other subscripts refers to intra- and interband transitions (critical points) as explained in the tables ($E_0, E_1, E_2 \dots$).

exciton energies (unit eV):

- E_b binding energy of an exciton
- E_{gx} energy of the excitonic gap (defined as energy gap minus exciton binding energy)
- $E(1S)$ energy of the exciton 1S state; excited states are designated by $E(2S), E(2P) \dots$
- $E_{L(T)}$ longitudinal (transverse) exciton energies
- E_{L-T} longitudinal-transverse exciton splitting energy

effective masses (in units of the electron mass m_0):

- m_n, m_p effective mass of electrons (holes) defined by
- $$E(k) = E(\Gamma) + \hbar^2 k^2 / 2m_n \text{ at the bottom of the conduction band or}$$
- $$E(k) = E(\Gamma) - \hbar^2 k^2 / 2m_p \text{ at the top of the valence band}$$
- where Γ designates the center of the Brillouin zone. For very small effective electron masses the parabolic approximation $E \propto k^2$ becomes invalid (occurrence of *k-linear terms*).
- $m_c \dots$ other subscripts refer to: c: conductivity effective mass, cr: cyclotron resonance effective mass, ds: density of states mass, p,h: heavy holes, p,l: light holes, so: effective mass in the spin-orbit split band, (X ...): effective mass at symmetry point X ...

g-factor:

g_e g -factor of electrons

special band structure parameters (mostly for tetrahedrally bonded semiconductors, see also the "0"-sections of the respective chapters):

A, B, C anisotropy parameters of warped energy surfaces at the top of the valence band (symmetry Γ_8) of semiconductors with diamond or zincblende structure, defined by the equation

$$E(\mathbf{k}) = E(\Gamma) + (\hbar^2 k^2 / 2m_0)(A \pm (B^2 + sC^2)^{1/2}), s = (k_x^2 k_y^2 + k_y^2 k_z^2 + k_z^2 k_x^2)k^4$$

The \pm -sign refers to the two bands into which $E(\Gamma_8)$ splits for $\mathbf{k} \neq 0$. By spin-orbit splitting a third valence band of Γ_6, Γ_7 -symmetry is situated below the degenerate Γ_8 -valence bands.

m_{\parallel}, m_{\perp} longitudinal and transverse effective masses defined by the equation

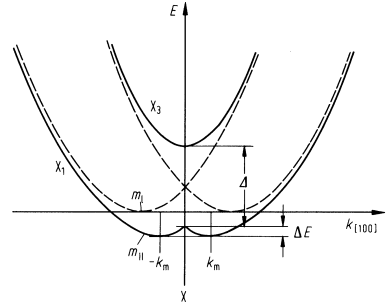
$$E(\mathbf{k}) = E(\mathbf{k}_0) + \hbar^2 \kappa_x^2 / 2m_{\parallel} + \hbar^2 (\kappa_y^2 + \kappa_z^2) / 2m_{\perp} \text{ where } \boldsymbol{\kappa} = \mathbf{k} - \mathbf{k}_0 \text{ and } \kappa_x \parallel k_0, \kappa_y, \kappa_z \perp k_0$$

if the band minima are situated at $\mathbf{k} \neq 0$ along a symmetry axis (Δ or Λ) (*ellipsoidal energy surfaces*).

$k_{\parallel}, k_{\perp} \dots$ parameters of the *camel's back structure* at the bottom of the conduction band in several zincblende-type semiconductors defined by the equation

$$E(\mathbf{k}) = \hbar^2 k_{\parallel}^2 / 2m_l + \hbar^2 k_{\perp}^2 / 2m_t - ((\Delta/2)^2 + \Delta_0 \hbar^2 k^2 / 2m_l)^{1/2}$$

with k_{\parallel} and k_{\perp} : components of the wave vector parallel and perpendicular to the $[100]$ -direction, respectively, m_t : effective mass perpendicular to the $[100]$ -direction; Δ_0 : parameter describing the non-parabolicity; all other parameters are explained in the figure (right).



k_{\parallel}, k_{\perp} also components of the \mathbf{k} -vector near the top of the valence band in semiconductors with wurtzite lattice, defined by

$$E_1(\mathbf{k}) = E(\Gamma_6) + ak_{\parallel}^2 + bk_{\perp}^2,$$

$$E_{2,3}(\mathbf{k}) = E(\Gamma_6) \pm \Delta/2 + ck_{\parallel}^2 + dk_{\perp}^2 \pm ((\Delta/2 + c'k_{\parallel}^2 + d'k_{\perp}^2)^2 + (c''k_{\parallel}^2 + d''k_{\perp}^2)^2)^{1/2}.$$

$E_1(0)$ and $E_{2,3}(0)$ are separated by the *crystal-field splitting energy* Δ (Δ_{cf}).

Lattice properties

static lattice parameters

a, b, c lattice parameters (unit \AA or nm)

α, β, γ angles

α linear thermal expansion coefficient (unit K^{-1})

d density (unit g cm^{-3})

T_m melting temperature (unit K)

T_{dec} decomposition temperature (unit K)

Θ_D Debye temperature (unit K)

C_p, C_v heat capacities (unit $\text{J mol}^{-1} \text{K}^{-1}$)

dynamic lattice parameters

$\nu(\mathbf{k})$	phonon dispersion relation (dependence of phonon frequency on wave vector), instead of k often the reduced wave vector $\zeta = k/k_{\max}$ is used
ν	phonon frequency (unit s^{-1})
$h\nu$	photon energy (unit eV)
$\bar{\nu}$	wavenumber (unit cm^{-1})
Subscripts to the frequencies (wavenumbers) refer to transverse and longitudinal optical and acoustic branches (TO, LO, TA, LA) and to the symmetry points in the Brillouin zone as for the band structure energies. Further subscripts refer to Raman active (R) and infrared active (ir) modes.	
v_i	sound velocities (unit cm s^{-1})
c_{lm}, c_{lmn}	second order and third order elastic moduli (unit dyn cm^{-2})
B	bulk modulus (dyn cm^{-2}) (Subscript S: adiabatic bulk modulus)
G	shear modulus (unit GPa)
E	Young's modulus (unit GPa)
ν	Poissons ratio (dimensionless)
ζ	internal strain parameter (dimensionless)

Transport properties

R	resistance (unit Ω)
R_H	Hall coefficient (unit $\text{cm}^3 \text{C}^{-1}$)
$\sigma, (\sigma_i)$	(intrinsic) electrical conductivity (unit $\Omega^{-1} \text{cm}^{-1}$)
ρ	electrical resistivity (unit Ωcm)
κ	thermal conductivity (subscript L: lattice contribution) (unit $\text{W cm}^{-1} \text{K}^{-1}$)
E_A	activation energy (mostly for temperature dependence of conductivity) (unit eV)
n, p, n_i	electron and hole concentration, intrinsic carrier concentration (unit cm^{-3})
μ_n, μ_p	electron and hole mobilities, respectively (unit $\text{cm}^2 \text{V}^{-1} \text{s}^{-1}$). Further subscripts refer to: dr: drift mobility, c: conductivity mobility, H: Hall mobility, , \perp : parallel (perpendicular) to a principal axis
v_n, v_p	drift velocities of electrons and holes (unit cm s^{-1})
S	Seebeck coefficient (thermoelectric power) (unit V/K)
π_{ik}	piezoresistance coefficients (unit $\text{cm}^2 \text{dyn}^{-1}$)
m_{ik}	elastoresistance coefficients (dimensionless)
$e_{ik}, d_{ik}, g_{ik}, h_{ik}$	piezoelectric coefficients

Optical properties

K	absorption coefficient (unit cm^{-1})
R	reflectance (dimensionless)
n	(real) refractive index (dimensionless)
k	extinction coefficient (dimensionless)
ϵ, ϵ_{ik}	dielectric constant (component of the dielectric tensor); subscripts and brackets refer to: 1: real part of the complex dielectric constant, 2: imaginary part of the complex dielectric constant, 0: low frequency limit, ∞ : high frequency limit, \parallel, \perp : parallel or perpendicular to a crystal axis
π_{ik}	piezooptic coefficients (unit $\text{cm}^2 \text{dyn}^{-1}$)
p_{ik}	elasto-optic coefficients (dimensionless)
r_{ik}	linear electro-optic constant (unit m/V)
R_{ik}	quadratic electro-optic coefficient (unit m^2/V^2)
$d(\text{SHG})$	second order nonlinear dielectric susceptibility (unit m/V) (SHG = second harmonic generation)
$\chi_{ijkl}^{(3)}$	third order susceptibility (unit esu)

Impurities and defects

E_b	binding energy of donors ($E_c - E_d$) or acceptors ($E_a - E_v$)
E	for deep levels the type (d, a) is given; positive values refer to the valence band edge, negative values to the conduction band edge.

Navigation via substance groups

In this Index 38 groups of semiconductors and the substances belonging to these group are listed. By clicking on the substance number you will be lead to the first data page for the substance.

1 Elements of the IVth group and IV-IV compounds

1.1	C (Diamond)	1.3	Ge	1.5	SiC
1.2	Si	1.4	Sn (grey Sn)	1.6	$\text{Si}_x\text{Ge}_{1-x}$

2 III-V compounds

2.1	BN	2.8	AlSb	2.15	InAs	2.17	$\text{GaAs}_{0.5}\text{Sb}_{0.5}$
2.2	BP	2.9	GaN	2.16	InSb	2.18	$\text{Ga}_x\text{In}_{1-x}\text{As}_y\text{P}_{1-y}$
2.3	BA _s	2.10	GaP	2.17	$\text{Al}_{0.48}\text{In}_{0.52}\text{As}$	2.18	$\text{Ga}_x\text{In}_{1-x}\text{As}_y\text{Sb}_{1-y}$
2.4	BSb	2.11	GaAs	2.17	$\text{Al}_{0.49}\text{In}_{0.51}\text{P}$	2.18	$\text{In}_{1-x-y}\text{Al}_x\text{Ga}_y\text{As}$
2.5	AlN	2.12	GaSb	2.17	$\text{AlAs}_{0.96}\text{P}_{0.04}$	2.18	$\text{In}_{1-x-y}\text{Al}_x\text{Ga}_y\text{P}$
2.6	AlP	2.13	InN	2.17	$\text{Ga}_{0.47}\text{In}_{0.53}\text{As}$		
2.7	AlAs	2.14	InP	2.17	$\text{Ga}_{0.51}\text{In}_{0.49}\text{P}$		

3 II-VI compounds

3.1	BeO	3.7	MgSe	3.13	ZnS	3.19	CdTe
3.2	BeS	3.8	MgTe	3.14	ZnSe	3.20	HgO
3.3	BeSe	3.9	CaO	3.15	ZnTe	3.21	HgS
3.4	BeTe	3.10	SrO	3.16	CdO	3.22	HgSe
3.5	MgO	3.11	BaO	3.17	CdS	3.23	HgTe
3.6	MgS	3.12	ZnO	3.18	CdSe		

4 I-VII compounds

4.1	CuF	4.3	γ -CuBr	4.5	AgF	4.7	AgBr
4.2	γ -CuCl	4.4	γ -CuI	4.6	AgCl	4.8	AgI

5 III₂-VI₃ compounds

5.1	Ga ₂ S ₃	5.3	Ga ₂ Te ₃	5.5	In ₂ Se ₃
5.2	Ga ₂ Se ₃	5.4	In ₂ S ₃	5.6	In ₂ Te ₃

6 I-III-VI₂ compounds

6.1	CuAlS ₂	6.8	CuInSe ₂	6.15	AgInTe ₂	6.22	CuFeSe ₂
6.2	CuAlSe ₂	6.9	CuInTe ₂	6.16	CuTlS ₂	6.23	CuFeTe ₂
6.3	CuAlTe ₂	6.10	AgGaS ₂	6.17	CuTlSe ₂	6.24	AgFeSe ₂
6.4	CuGaS ₂	6.11	AgGaSe ₂	6.18	CuTlTe ₂	6.25	AgFeTe ₂
6.5	CuGaSe ₂	6.12	AgGaTe ₂	6.19	AgTlSe ₂		
6.6	CuGaTe ₂	6.13	AgInS ₂	6.20	AgTlTe ₂		
6.7	CuInS ₂	6.14	AgInSe ₂	6.21	CuFeS ₂		

7 II-IV-V₂ compounds

7.1	MgSiP ₂	7.5	ZnGeP ₂	7.9	ZnSnSb ₂	7.13	CdGeAs ₂
7.2	ZnSiP ₂	7.6	ZnGeAs ₂	7.10	CdSiP ₂	7.14	CdSnP ₂
7.3	ZnSiAs ₂	7.7	ZnSnP ₂	7.11	CdSiAs ₂	7.15	CdSnAs ₂
7.4	ZnGeN ₂	7.8	ZnSnAs ₂	7.12	CdGeP ₂		

8 I₂-IV-V₃ compounds

8.1	Cu ₂ GeS ₃	8.4	Cu ₂ SnS ₃	8.7	Ag ₂ GeSe ₃	8.10	Ag ₂ SnSe ₃
8.2	Cu ₂ GeSe ₃	8.5	Cu ₂ SnSe ₃	8.8	Ag ₂ GeTe ₃	8.11	Ag ₂ SnTe ₃
8.3	Cu ₂ GeTe ₃	8.6	Cu ₂ SnTe ₃	8.9	Ag ₂ SnS ₃		

9 I₂-V-VI₄ compounds

9.1	Cu ₃ PS ₄	9.3	Cu ₃ AsSe ₄	9.5	Cu ₃ SbSe ₄	9.7	Cu ₃ SbTe ₄
9.2	Cu ₃ AsS ₄	9.4	Cu ₃ SbS ₄	9.6	Cu ₃ AsTe ₄		

10 II-III₂-VI₄ compounds

10.1	ZnAl ₂ S ₄	10.8	CdGa ₂ S ₄	10.15	HgGa ₂ S ₄	10.19	CaIn ₂ Se ₄
10.2	ZnGa ₂ S ₄	10.9	CdGa ₂ Se ₄	10.16	HgGa ₂ Se ₄	10.19	MgGa ₂ S ₄
10.3	ZnGa ₂ Se ₄	10.10	CdGa ₂ Te ₄	10.17	HgIn ₂ Te ₄	10.19	MgGa ₂ Se ₄
10.4	ZnIn ₂ S ₄	10.11	CdIn ₂ S ₄	10.18	Hg ₃ In ₂ Te ₆		
10.5	ZnIn ₂ Se ₄	10.12	CdIn ₂ Se ₄	10.18	Hg ₅ In ₂ Te ₈		
10.6	ZnIn ₂ Te ₄	10.13	CdIn ₂ Te ₄	10.18	HgIn ₂ Se ₄		
10.7	CdAl ₂ S ₄	10.14	CdTl ₂ Se ₄	10.18	HgIn ₂ Te ₄		

11 Group III elements

11.1 B

12 Group V elements

12.1	P	12.2	As	12.3	Sb	12.4	Bi
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13 Group VI elements

13.1	S	13.2	Se	13.3	Te
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14 IA-IB compounds

14.1	CsAu	14.2	RbAu
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15 I_x-V_y compounds

15.1	CsSb	15.2.2	Li ₃ Sb	15.2.7	Cs ₃ Bi	15.3.3	Na ₂ CsSb
15.1	KSb	15.2.3	Na ₃ Sb	15.2.7	Rb ₃ Bi	15.3.3	Na ₂ RbSb
15.1	NaSb	15.2.4	K ₃ Sb	15.3.1	Na ₂ KSb	15.3.3	Rb ₂ CsSb
15.1	RbSb	15.2.5	Rb ₃ Sb	15.3.2	K ₂ CsSb		
15.2.2	Li ₃ Bi	15.2.6	Cs ₃ Sb	15.3.3	K ₂ RbSb		

16 I-VI compounds

16.1	CuO	16.3	Cu _{2-x} S	16.5	Cu ₂ Te	16.8	Ag ₂ Se
16.2	Cu ₂ O	16.4	Cu ₂ Se	16.5	Cu _{2-x} Te	16.9	Ag ₂ Te
16.3	Cu ₂ S	16.4	Cu _{2-x} Se	16.6	Ag _x O _y		
				16.7	Ag ₂ S		

17 II_x-IV_y compounds

17.1	Mg ₂ Si	17.4	Mg ₂ Pb	17.5	Ca ₂ Sn	17.6	SrGe ₂
17.2	Mg ₂ Ge	17.5	Ca ₂ Pb	17.6	BaGe ₂		
17.3	Mg ₂ Sn	17.5	Ca ₂ Si	17.6	BaSi ₂		

18 II_x-V_y compounds

18.1	Mg ₃ As ₂	18.5	Cd ₃ As ₂	18.9	CdAs ₂	18.13	Zn ₄ Sb ₃
18.2	Zn ₃ P ₂	18.6	ZnP ₂	18.10	CdP ₄	18.14	Cd ₄ Sb ₃
18.3	Zn ₃ As ₂	18.7	ZnAs ₂	18.11	ZnSb	18.15	Cd ₇ P ₁₀
18.4	Cd ₃ P ₂	18.8	CdP ₂	18.12	CdSb	18.16	Cd ₆ P ₇

19 II-VII₂ compounds

19.1	CdCl ₂	19.2	CdBr ₂	19.3	CdI ₂	19.4	HgI ₂
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20 III_x-VI_y compounds

20.1	GaS	20.7	TlS	20.13	In ₆₀ Se ₄₀	20.19	TlGaS ₂
20.2	GaSe	20.8	TlSe	20.14	In ₅₀ Se ₅₀	20.20	TlGaSe ₂
20.3	GaTe	20.9	TlTe	20.15	In ₄₀ Se ₆₀	20.21	TlGaTe ₂
20.4	InS	20.10	In ₆ S ₇	20.16	In ₅ Se ₆	20.22	TlInS ₂
20.5	InSe	20.11	In ₄ Se ₃	20.17	In ₄ Te ₃	20.23	TlInSe ₂
20.6	InTe	20.12	In ₆ Se ₇	20.18	Tl ₅ Te ₃	20.24	TlInTe ₂

21 III-VII compounds

21.1	TlF	21.2	TlCl	21.3	TlBr	21.4	TlI
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22 IV_x-V_y compounds

22.1	GeP	22.2	SiAs	22.4	SiAs ₂	22.5	GeAs ₂
22.1	SiP	22.3	GeAs	22.4	SiP ₂		

23 IV_x-VI_y compounds

23.1	GeS	23.7	PbO	23.13	GeSe ₂	23.18	PbSnS ₃
23.2	GeSe	23.8	PbS	23.14	SnO ₂	23.18	Sn ₂ S ₃
23.3	GeTe	23.9	PbSe	23.15	SnS ₂	23.18	SnGeS ₃
23.4	SnS	23.10	PbTe	23.16	SnSe ₂		
23.5	SnSe	23.11	GeO ₂	23.17	Si ₂ Te ₃		
23.6	SnTe	23.12	GeS ₂	23.18	PbGeS ₃		

24 IV-VII₂ compounds

24.1	PbF ₂	24.2	PbCl ₂	24.3	PbBr ₂	24.4	PbI ₂
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25 V_x-VI_y compounds

25.1	As ₂ O ₃	25.4	As ₂ Te ₃	25.7	Sb ₂ Te ₃	25.10	Bi ₂ Se ₃
25.2	As ₂ S ₃	25.5	Sb ₂ S ₃	25.8	Bi ₂ O ₃	25.11	Bi ₂ Te ₃
25.3	As ₂ Se ₃	25.6	Sb ₂ Se ₃	25.9	Bi ₂ S ₃	25.12	As ₄ S ₄

26 V-VII₃ compounds

26.1	AsI ₃	26.2	SbI ₃	26.3	BiI ₃
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27 I_x-IV_y-VI_z compounds

27.1	Ag ₈ GeS ₆	27.4	Ag ₈ GeSe ₆	27.7	Cu ₈ GeS ₆	27.9	Cu ₄ Ge ₃ Se ₅
27.2	Ag ₈ SnS ₆	27.5	Ag ₈ SnSe ₆	27.8	Cu ₈ GeSe ₆	27.9	Cu ₄ Sn ₃ Se
27.3	Ag ₈ SiSe ₆	27.6	Ag ₈ GeTe ₆	27.9	Cu ₄ Ge ₃ S ₅	27.10	Cu ₄ SnS ₄

28 I_x-V_y-VI_z compounds

28.1	AgAsS ₂	28.5	AgSbSe ₂	28.9	AgBiTe ₂	28.13	CuBiTe ₂
28.2	AgAsSe ₂	28.6	AgSbTe ₂	28.10	CuSbSe ₂	28.14	Ag ₃ AsS ₃
28.3	AgAsTe ₂	28.7	AgBiS ₂	28.11	CuSbTe ₂	28.15	Ag ₃ SbS ₃
28.4	AgSbS ₂	28.8	AgBiSe ₂	28.12	CuBiSe ₂		

29 II_x-III_y-VI_z compounds

29.1	CdInS ₂	29.3	CdInTe ₂	29.5	CdTiSe ₂	29.7	HgTiS ₂
29.2	CdInSe ₂	29.4	CdTiS ₂	29.6	CdTiTe ₂		

30 III_x-V_y-VI_z compounds

30.1	TlAsS ₂	30.3	TlBiS ₂	30.5	TlBiTe ₂	30.7	In ₆ Sb ₅ Te
30.2	TlSbS ₂	30.4	TlBiSe ₂	30.6	Ga ₆ Sb ₅ Te	30.8	In ₇ SbTe ₆

31 IV_x-V_y-VI_z compounds

31.1	Bi ₁₂ SiO ₂₀	31.3	GeSb ₂ Te ₄	31.4	GeBi ₄ Te ₇	31.4	SnBi ₄ Te ₇
31.2	Bi ₁₂ GeO ₂₀	31.3	PbSb ₂ S ₄	31.4	GeSb ₄ Te ₇		
31.3	GeBi ₂ Te ₄	31.3	SnBi ₂ Te ₄	31.4	PbBi ₄ Te ₇		

32 V-VI-VII compounds

32.1	AsSBr	32.5	SbSeI	32.9	BiOI	32.13	BiSeBr
32.2	SbSI	32.6	SbTeI	32.10	BiSCl	32.14	BiSeI
32.3	SbSBr	32.7	BiOCl	32.11	BiSBr	32.15	BiTeBr
32.4	SbSeBr	32.8	BiOBr	32.12	BiSI	32.16	BiTeI

33 Other ternary compounds

33.1	Cu ₃ In ₅ Se ₉	33.7	CuIn ₃ Te ₅	33.12	CdSnO ₃	33.15	Cd ₄ As ₂ I ₃
33.2	Cu ₃ Ga ₅ Se ₉	33.8	AgIn ₃ Te ₅	33.13	Li ₃ CuO ₃	33.15	Cd ₄ P ₂ Br ₃
33.3	Ag ₃ In ₅ Se ₉	33.9	AgIn ₅ S ₈	33.14	Hg ₃ PS ₃	33.15	Cd ₄ P ₂ Cl ₃
33.4	Ag ₃ Ga ₅ Se ₉	33.10	Ag ₂ Ga ₂₀ S ₂₉	33.14	Hg ₃ PS ₄	33.15	Cd ₄ P ₂ I ₃
33.5	Cu ₂ Ga ₄ Te ₇	33.10	AgIn ₉ Te ₁₄	33.15	Cd ₄ As ₂ Br ₃		
33.6	Cu ₂ In ₄ Te ₇	33.11	Cd ₂ SnO ₄	33.15	Cd ₄ As ₂ Cl ₃		

34 Boron compompounds

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| 34.1 Boron-hydrogen alloys | 34.8 34.8 Boron-alkaline earth compounds | 34.13 MgAlB ₁₄ type orthorhombic borides with lanthanides |
| 34.1.1 BH _x | 34.8.1 CaB ₆ | 34.13.1 ErAlB ₁₄ |
| 34.2 Binary boron-lithium compounds | 34.8.2 SrB ₆ | 34.14 Boron compounds with group IV elements: boron carbide |
| 34.2.1 Li ₃ B ₁₄ | 34.8.3 BaB ₆ | 34.14.1 boron carbide |
| 34.2.2 LiB ₆ | 34.9 Aluminum-boron compounds | 34.15 Boron-silicon compounds |
| 34.2.3 Li ₆ B ₁₉ | 34.9.1 AlB ₁₀ | 34.15.1 SiB ₁₄ |
| 34.3 Ternary boron-lithium compounds | 34.9.2 α-AlB ₁₂ | 34.16 Boron-zirconium compounds |
| 34.3.1 LiAlB ₁₄ | 34.9.3 β-AlB ₁₂ | 34.16.1 ZrB ₂ |
| 34.3.2 LiBC | 34.9.4 γ-AlB ₁₂ | 34.17 Boron-nitrogen compounds |
| 34.4 Boron-sodium compounds | 34.10 Boron-yttrium compounds | 34.17.1 B ₃₆ N ₂₄ |
| 34.4.1 NaB ₆ | 34.10.1 YB ₆₆ | 34.18 Boron-phosphorus compounds |
| 34.4.2 NaB ₁₅ | 34.11 Lanthanide hexaborides | 34.18.1 B ₆ P; B ₁₃ P ₂ |
| 34.5 Boron-potassium compounds | 34.11.1 LaB ₆ | 34.19 Boron-arsenic compounds |
| 34.5.1 KB ₆ | 34.11.2 CeB ₆ | 34.19.1 B ₆ As; B ₁₃ As ₂ |
| 34.6 Beryllium-aluminum-boron compounds | 34.11.3 SmB ₆ | |
| 34.6.1 Al _{~(1±x)} Be _{~(1±y)} B ₂₂ | 34.11.4 EuB ₆ | |
| 34.7 Boron-aluminum-magnesium compounds | 34.11.5 YbB ₆ | |
| 34.7.1 MgAlB ₁₄ | 34.12 Lanthanide hexaborides of the type LaB ₆₆ | |
| 34.7.2 Al _{1.44} Mg _{0.65} B ₂₂ | 34.12.1 SmB ₆₆ | |
| | 34.12.2 GdB ₆₆ | |
| | 34.12.3 DyB ₆₆ | |
| | 34.12.4 YbB ₆₆ | |

35 Binary transition metal compounds

35.1 Compounds with elements of the IVth group

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| 35.1.1 Mn ₁₁ Si ₁₉ , | 35.1.3 CrSi ₂ | 35.1.5 Ru ₂ Si ₃ | 35.1.8 OsSi ₂ |
| Mn ₂₆ Si ₄₅ | 35.1.4 ReSi ₂ , | 35.1.6 Ru ₂ Ge ₃ | |
| 35.1.2 Mn ₁₅ Si ₂₆ | Re _{1-x} M _x Si ₂ | 35.1.7 FeSi ₂ | |

35.2 Compounds with elements of the Vth group

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|--------------------------|---------------------------|---------------------------|------------------------------|
| 35.2.1 MnP ₄ | 35.2.10 OsAs ₂ | 35.2.19 IrAs ₂ | 35.2.28 PtSb ₂ |
| 35.2.2 FeP ₂ | 35.2.11 OsSb ₂ | 35.2.20 IrAsSb | 35.2.29 FeP ₄ |
| 35.2.3 FeAs ₂ | 35.2.12 CoP ₂ | 35.2.21 NiP ₂ | 35.2.30 RuP ₄ (r) |
| 35.2.4 FeSb ₂ | 35.2.13 CoAs ₂ | 35.2.22 NiAs ₂ | 35.2.31 RuP ₄ (h) |
| 35.2.5 RuP ₂ | 35.2.14 CoSb ₂ | 35.2.23 PdP ₂ | 35.2.32 OsP ₄ (r) |
| 35.2.6 RuPAs | 35.2.15 RhP ₂ | 35.2.24 PdPAs | 35.2.33 OsP ₄ (h) |
| 35.2.7 RuAs ₂ | 35.2.16 RhAs ₂ | 35.2.25 PtP ₂ | |
| 35.2.8 RuSb ₂ | 35.2.17 RhAsSb | 35.2.26 PtPAs | |
| 35.2.9 OsP ₂ | 35.2.18 IrP ₂ | 35.2.27 PtAs ₂ | |

35.3 Chalcogenides

35.3.1	$\text{Ti}_{1+x}\text{S}_2$	35.3.18	$\text{Cr}_{2+x}\text{Se}_3$	35.3.35	TcS_2	35.3.52	$\text{RhS}_{\approx 3}$
35.3.2	TiS_{3-x}	35.3.19	Cr_3Se_4	35.3.36	TcSe_2	35.3.53	$\text{Rh}_2\text{Se}_2(\text{Se}_2)$
35.3.3	$\text{Ti}_{1+x}\text{Se}_2$	35.3.20	Cr_{1-x}Te	35.3.37	ReS_2	35.3.54	$\text{RhSe}_{\approx 3}$
35.3.4	Zr_2S_3	35.3.21	2H-MoS_2	35.3.38	ReSe_2	35.3.55	$\text{Ir}_2\text{S}_2(\text{S}_2)$
35.3.5	ZrS_2	35.3.22	3R-MoS_2	35.3.39	Fe_{1-x}S	35.3.56	$\text{IrS}_{\approx 3}$
35.3.6	ZrS_{3-x}	35.3.23	MoS_2	35.3.40	FeS_2	35.3.57	$\text{Ir}_2\text{Se}_2(\text{Se}_2)$
35.3.7	Zr_2Se_3	35.3.24	2H-MoSe_2	35.3.41	Fe_{1-x}Se	35.3.58	$\text{Ir}_{2/3}\text{Se}_2$
35.3.8	$\text{Zr}_{1+x}\text{Se}_2$	35.3.25	2H-MoTe_{2-x}	35.3.42	FeSe_{2-x}	35.3.59	Ni_{1-x}S
35.3.9	ZrSe_3	35.3.26	3R-WS_2	35.3.43	FeSe_2	35.3.60	NiS_2
35.3.10	Hf_2S_3	35.3.27	2H-WSe_2	35.3.44	FeTe_2	35.3.61	PdS
35.3.11	HfS_2	35.3.28	WTe_2	35.3.45	RuS_2	35.3.62	PdS_2
35.3.12	HfS_3	35.3.29	$\alpha\text{-MnS}$	35.3.46	RuSe_2	35.3.63	PdSe
35.3.13	HfSe_2	35.3.30	$\beta\text{-MnS}$	35.3.47	RuTe_2	35.3.64	PdSe_2
35.3.14	1T-TaS_2	35.3.31	$\gamma\text{-MnS}$	35.3.48	OsS_2	35.3.65	PtS
35.3.15	TaS_3	35.3.32	$\alpha\text{-MnSe}$	35.3.49	OsTe_2	35.3.66	$\text{Pt}_{0.97}\text{S}_2$
35.3.16	CrS	35.3.33	MnTe	35.3.50	$\text{Rh}_{2/3}\text{S}_2$	35.3.67	PtSe_2
35.3.17	Cr_2S_3	35.3.34	MnTe_2	35.3.51	Rh_2S_3		

36 Binary rare earth compounds

36.1	LaH_x	36.13	EuO	36.25	Sm_2O_3	36.37	$\gamma\text{-Ce}_2\text{S}_3$
36.2	LaD_x	36.14	EuS	36.26	Eu_2O_3	36.38	$\gamma\text{-Nd}_2\text{S}_3$
36.3	CeH_x	36.15	EuSe	36.27	Tb_2O_3	36.39	$\gamma\text{-Sm}_2\text{S}_3$
36.4	EuH_2	36.16	EuTe	36.28	Dy_2O_3	36.40	$\gamma\text{-Gd}_2\text{S}_3$
36.5	YP	36.17	TmTe	36.29	Ho_2O_3	36.41	$\gamma\text{-Dy}_2\text{S}_3$
36.6	LaP	36.18	YbS	36.30	Er_2O_3	36.42	$\delta\text{-Ho}_2\text{S}_3$
36.7	SmP	36.19	YbSe	36.31	Tm_2O_3	36.43	$\gamma\text{-Ho}_2\text{S}_3$
36.8	ErP	36.20	YbTe	36.32	Yb_2O_3	36.44	$\gamma\text{-Yb}_2\text{S}_3$
36.9	LuP	36.21	Sm_3S_4	36.33	$\beta\text{-La}_2\text{S}_3$	36.45	$\varepsilon\text{-Yb}_2\text{S}_3$
36.10	SmS	36.22	Eu_3S_4	36.34	$\gamma\text{-La}_2\text{S}_3$	36.46	Gd_2Cl_3
36.11	SmSe	36.23	La_2O_3	36.35	$\beta\text{-La}_{10}\text{S}_{14}\text{O}$	36.47	Tb_2Cl_3
36.12	SmTe	36.24	Nd_2O_3	36.36	La_2Te_3		

37 Ternary transition metal compounds

37.1 Pnictochalcogenides

37.1.1	FePS	37.1.6	RuSbTe	37.1.11	OsSbSe	37.1.16	PdPS
37.1.2	FeAsS	37.1.7	OsPS	37.1.12	OsSbTe	37.1.17	PdPSe
37.1.3	FeAsSe	37.1.8	OsAsS	37.1.13	CoAsS		
37.1.4	RuPS	37.1.9	OsSbS	37.1.14	CoSbS		
37.1.5	RuAsS	37.1.10	OsPSe	37.1.15	CoAsSe		

37.2 Spinel and related compounds

37.2.1	MnGa_2S_4	37.2.4	CdCr_2S_4	37.2.7	HgCr_2S_4	37.2.10	$\text{CuCr}_2\text{S}_{4-x}\text{Se}_x$
37.2.2	MnSb_2S_4	37.2.5	FeCr_2S_4	37.2.8	BaCr_2S_4	37.2.11	HgCr_2Se_4
37.2.3	$\text{Fe}(\text{FeRh})\text{S}_4$	37.2.6	CoCr_2S_4	37.2.9	CdCr_2Se_4	37.2.12	ZnCr_2Se_4

37.3 Further chalcogenides

37.3.1	Mn_xNbS_2	37.3.2	Co_xNbS_2	37.3.3	Tl_3VS_4
37.3.2	Fe_xNbS_2	37.3.2	Ni_xNbS_2	37.3.4	Cu_3VS_4

38 Ternary rare earth compounds

38.1	NdTiO ₃	38.53	Pr ₂ (WO ₄) ₃	38.105	LuCrS ₃
38.2	SmTiO ₃	38.54	Nd ₂ (WO ₄) ₃	38.106	YCrS ₃
38.3	GdTiO ₃	38.55	Sm ₂ (WO ₄) ₃	38.107	GdCrSe ₃
38.4	TbTiO ₃	38.56	EuWO ₄	38.108	TbCrSe ₃
38.5	HoTiO ₃	38.57	Eu ₂ (WO ₄) ₃	38.109	DyCrSe ₃
38.6	ErTiO ₃	38.58	Cu ₃ ErS ₃	38.110	HoCrSe ₃
38.7	YbTiO ₃	38.59	Cu ₃ TmS ₃	38.111	ErCrSe ₃
38.8	CeVO ₃	38.60	Gd ₂ CuO ₄	38.112	TmCrSe ₃
38.9	PrVO ₃	38.61	Gd ₂ (WO ₄) ₃	38.113	YbCrSe ₃
38.10	NdVO ₃	38.62	Tb ₂ (WO ₄) ₃	38.114	LuCrSe ₃
38.11	SmVO ₃	38.63	Dy ₂ (WO ₄) ₃	38.115	Pr ₂ CrS ₄
38.12	EuVO ₃	38.64	Ho ₂ (WO ₄) ₃	38.116	Nd ₂ CrS ₄
38.13	GdVO ₃	38.65	Er ₂ (WO ₄) ₃	38.117	Sm ₂ CrS ₄
38.14	TbVO ₃	38.66	Tm ₂ (WO ₄) ₃	38.118	Pr ₂ CrSe ₄
38.15	DyVO ₃	38.67	Yb ₂ (WO ₄) ₃	38.119	Nd ₂ CrSe ₄
38.16	HoVO ₃	38.68	Gd ₂ (MoO ₄) ₃	38.120	Sm ₂ CrSe ₄
38.17	ErVO ₃	38.69	Tb ₂ (MoO ₄) ₃	38.121	Gd ₂ CrSe ₄
38.18	TmVO ₃	38.70	Dy ₂ (MoO ₄) ₃	38.122	Tb ₂ CrSe ₄
38.19	YbVO ₃	38.71	Ho ₂ (MoO ₄) ₃	38.123	Dy ₂ CrSe ₄
38.20	LuVO ₃	38.72	Er ₂ (MoO ₄) ₃	38.124	Yb ₂ CrSe ₄
38.21	LaCrO ₃	38.73	Tm ₂ (MoO ₄) ₃	38.125	Y ₂ CrSe ₄
38.22	NdCrO ₃	38.74	Yb ₂ (MoO ₄) ₃	38.126	EuCr ₂ Te ₄
38.23	SmCrO ₃	38.75	La ₂ Te ₃ O ₉	38.127	YbCr ₂ S ₄
38.24	DyCrO ₃	38.76	Sm ₂ Mo ₂ O ₇	38.128	YbCr ₂ Se ₄
38.25	HoCrO ₃	38.77	Eu ₂ Mo ₂ O ₇	38.129	Tb ₂ (W _{2/3} V _{4/3})O ₇
38.26	YbCrO ₃	38.78	Gd ₂ Mo ₂ O ₇	38.130	Dy ₂ (W _{2/3} V _{4/3})O ₇
38.27	LaMn _{0.75} Mo _{0.25} O ₃	38.79	Dy ₂ Mo ₂ O ₇	38.131	Ho ₂ (W _{2/3} V _{4/3})O ₇
38.28	HoMnO ₃	38.80	Er ₂ Mo ₂ O ₇	38.132	Er ₂ (W _{2/3} V _{4/3})O ₇
38.29	YbMnO ₃	38.81	Pr ₂ Te ₃ O ₉	38.133	Tm ₂ V ₂ O ₇
38.30	LaFeO ₃	38.82	Nd ₂ Te ₃ O ₉	38.134	Tm ₂ V _{4/3} W _{2/3} O ₇
38.31	LaFe _{0.75} Mo _{0.25} O ₃	38.83	Sm ₂ Te ₃ O ₉	38.135	Yb ₂ V ₂ O ₇
38.32	PrFe _{0.75} Mo _{0.25} O ₃	38.84	Eu ₂ Te ₃ O ₉	38.136	Yb ₂ V _{4/3} W _{2/3} O ₇
38.33	NdFe _{0.75} Mo _{0.25} O ₃	38.85	Gd ₂ Te ₃ O ₉	38.137	Lu ₂ V ₂ O ₇
38.34	SmFe _{0.75} Mo _{0.25} O ₃	38.86	Tb ₂ Te ₃ O ₉	38.138	La ₂ Pb ₂ O ₇
38.35	EuFe _{0.75} Mo _{0.25} O ₃	38.87	Dy ₂ Te ₃ O ₉	38.139	Gd ₂ Ti ₂ O ₇
38.36	GdFeO ₃	38.88	Ho ₂ Te ₃ O ₉	38.140	Dy ₂ Mn ₂ O ₇
38.37	GdFe _{0.75} Mo _{0.25} O ₃	38.89	Er ₂ Te ₃ O ₉	38.141	Ho ₂ Mn ₂ O ₇
38.38	TbFe _{0.75} Mo _{0.25} O ₃	38.90	Tm ₂ Te ₃ O ₉	38.142	Er ₂ Mn ₂ O ₇
38.39	DyFe _{0.75} Mo _{0.25} O ₃	38.91	Yb ₂ Te ₃ O ₉	38.143	Tm ₂ Mn ₂ O ₇
38.40	HoFeO ₃	38.92	Lu ₂ Te ₃ O ₉	38.144	Lu ₂ Mn ₂ O ₇
38.41	HoFe _{0.75} Mo _{0.25} O ₃	38.93	La ₂ Mo ₃ O ₉	38.145	Y ₂ Mn ₂ O ₇
38.42	ErFe _{0.75} Mo _{0.25} O ₃	38.94	Ce ₂ Mo ₃ O ₉	38.146	Pr ₂ Ru ₂ O ₇
38.43	TmFe _{0.75} Mo _{0.25} O ₃	38.95	Pr ₂ Mo ₃ O ₉	38.147	Nd ₂ Ru ₂ O ₇
38.44	YbFeO ₃	38.96	Nd ₂ Mo ₃ O ₉	38.148	Eu ₂ Ru ₂ O ₇
38.45	YbFe _{0.75} Mo _{0.25} O ₃	38.97	Sm ₂ Mo ₃ O ₉	38.149	Gd ₂ Ru ₂ O ₇
38.46	LuFe _{0.75} Mo _{0.25} O ₃	38.98	Gd ₂ Mo ₃ O ₉	38.150	Yb ₂ Ru ₂ O ₇
38.47	LaCo _{0.75} Mo _{0.25} O ₃	38.99	Dy ₂ Mo ₃ O ₉	38.151	Y ₂ Ru ₂ O ₇
38.48	LaCo _{0.75} W _{0.25} O ₃	38.100	TbCrS ₃	38.152	Nd ₂ Ir ₂ O ₇
38.49	LaNi _{0.75} Mo _{0.25} O ₃	38.101	HoCrS ₃	38.153	Sm ₂ Ir ₂ O ₇
38.50	LaNi _{0.75} W _{0.25} O ₃	38.102	ErCrS ₃	38.154	Eu ₂ Ir ₂ O ₇
38.51	La ₂ (WO ₄) ₃	38.103	TmCrS ₃	38.155	Dy ₂ Ir ₂ O ₇
38.52	Ce ₂ (WO ₄) ₃	38.104	YbCrS ₃	38.156	Y ₂ Ir ₂ O ₇

38.157	Gd ₂ Os ₂ O ₇	38.195	Cu ₃ YTe ₃	38.233	EuIn ₂ Te ₄
38.158	Nd ₂ Pt ₂ O ₇	38.196	Cu ₃ HoTe ₃	38.234	LaIn ₃ S ₆
38.159	Gd ₂ Pt ₂ O ₇	38.197	Cu ₃ ErTe ₃	38.235	CeIn ₃ S ₆
38.160	LaSbSe ₃	38.198	Cu ₃ TmTe ₃	38.236	PrIn ₃ S ₆
38.161	CeSbSe ₃	38.199	Cu ₅ HoS ₄	38.237	NdIn ₃ S ₆
38.162	PrSbSe ₃	38.200	Cu ₅ LuS ₄	38.238	SmIn ₃ S ₆
38.163	NdSbSe ₃	38.201	Cu ₅ GdSe ₄	38.239	GdIn ₃ S ₆
38.164	SmSbSe ₃	38.202	Cu ₅ TbSe ₄	38.240	TbIn ₃ S ₆
38.165	GdSbSe ₃	38.203	Cu ₅ YbSe ₄	38.241	DyIn ₃ S ₆
38.166	SmBiTe ₃	38.204	Cu ₅ LuSe ₄	38.242	YIn ₃ S ₆
38.167	TbBiTe ₃	38.205	GdBrH ₂	38.243	HoIn ₃ S ₆
38.168	HoBiTe ₃	38.206	TbBrD ₂	38.244	ErIn ₃ S ₆
38.169	TmBiTe ₃	38.207	ZnTm ₂ S ₄	38.245	LaTlS ₂
38.170	LuBiTe ₃	38.208	ZnYb ₂ S ₄	38.246	CeTlS ₂
38.171	YBiTe ₃	38.209	ZnLu ₂ S ₄	38.247	PrTlS ₂
38.172	EuSb ₂ S ₄	38.210	ZnSc ₂ S ₄	38.248	NdTlS ₂
38.173	EuSb ₂ Se ₄	38.211	CdLa ₂ S ₄	38.249	LaTlSe ₂
38.174	EuSb ₂ Te ₄	38.212	CdCe ₂ S ₄	38.250	CeTlSe ₂
38.175	EuBi ₂ Te ₄	38.213	CdPr ₂ S ₄	38.251	PrTlSe ₂
38.176	Cu ₃ SmS ₃	38.214	CdNd ₂ S ₄	38.252	NdTlSe ₂
38.177	Cu ₃ GdS ₃	38.215	CdSm ₂ S ₄	38.253	EuTlSe ₂
38.178	Cu ₃ TbS ₃	38.216	CdGd ₂ S ₄	38.254	LaTlTe ₂
38.179	Cu ₃ DyS ₃	38.217	CdTb ₂ S ₄	38.255	CeTlTe ₂
38.180	Cu ₃ YS ₃	38.218	CdDy ₂ S ₄	38.256	PrTlTe ₂
38.181	Cu ₃ HoS ₃	38.219	CdEr ₂ S ₄	38.257	NdTlTe ₂
38.182	Cu ₃ LuS ₃	38.220	CdTm ₂ S ₄	38.258	La ₂ GeSe ₅
38.183	Cu ₃ ScS ₃	38.221	CdYb ₂ S ₄	38.259	La ₂ SnSe ₅
38.184	Cu ₃ SmSe ₃	38.222	CdSc ₂ S ₄	38.260	Ce ₂ GeSe ₅
38.185	Cu ₃ GdSe ₃	38.223	LaGaSe ₃	38.261	Ce ₂ SnSe ₅
38.186	Cu ₃ TbSe ₃	38.224	CeGaSe ₃	38.262	Pr ₂ GeSe ₅
38.187	Cu ₃ DySe ₃	38.225	PrGaSe ₃	38.263	Pr ₂ SnSe ₅
38.188	Cu ₃ YSe ₃	38.226	NdGaSe ₃	38.264	Nd ₂ GeSe ₅
38.189	Cu ₃ HoSe ₃	38.227	SmGaSe ₃	38.265	Nd ₂ SnSe ₅
38.190	Cu ₃ YbSe ₃	38.228	EuGa ₂ S ₄	38.266	Sm ₂ GeSe ₅
38.191	Cu ₃ ScSe ₃	38.229	EuGa ₂ Se ₄	38.267	Sm ₂ SnSe ₅
38.192	Cu ₃ SmTe ₃	38.230	EuGa ₂ Te ₄	38.268	Gd ₂ GeSe ₅
38.193	Cu ₃ TbTe ₃	38.231	EuIn ₂ S ₄	38.269	Gd ₂ SnSe ₅
38.194	Cu ₃ DyTe ₃	38.232	EuIn ₂ Se ₄		

Navigation via element systems

In this Index systems of elements and the semiconductors belonging to each system are listed alphabetically. By clicking on the substance number you will be lead to the first data page for the substance.

Ag-As-S	AgAsS ₂	28.1	Al-As-Ga-In	In _{1-x-y} Al _x Ga _y As	2.18
	Ag ₃ AsS ₃	28.14	Al-As-In	Al _{0.48} In _{0.52} As	2.17
Ag-As-Se	AgAsSe ₂	28.2	Al-As-P	AlAs _{0.96} P _{0.04}	2.17
Ag-As-Te	AgAsTe ₂	28.3	Al-B	AlB ₁₀	34.9.1
Ag-Bi-S	AgBiS ₂	28.7		α-AlB ₁₂	34.9.2
Ag-Bi-Se	AgBiSe ₂	28.8		β-AlB ₁₂	34.9.3
Ag-Bi-Te	AgBiTe ₂	28.9		γ-AlB ₁₂	34.9.4
Ag-Br	AgBr	4.7	Al-B-Be	Al _{~(1±x)} Be _{~(1±y)} B ₂₂	34.6.1
Ag-Cl	AgCl	4.6	Al-B-Er	ErAlB ₁₄	34.13.1
Ag-F	AgF	4.5	Al-B-Li	LiAlB ₁₄	34.3.1
Ag-Fe-Se	AgFeSe ₂	6.24	Al-B-Mg	Mg _{0.65} Al _{1.44} B ₂₂	34.6.2
Ag-Fe-Te	AgFeTe ₂	6.25		MgAlB ₁₄	34.6.1
Ag-Ga-S	AgGaS ₂	6.10	Al-Cd	CdAl ₂ S ₄	10.7
	Ag ₂ Ga ₂₀ S ₂₉	33.10	Al-Cu-S	CuAlS ₂	6.1
Ag-Ga-Se	AgGaSe ₂	6.11	Al-Cu-Se	CuAlSe ₂	6.2
	Ag ₃ Ga ₅ Se ₉	33.4	Al-Cu-Te	CuAlTe ₂	6.3
Ag-Ga-Te	AgGaTe ₂	6.12	Al-Ga-In-P	In _{1-x-y} Al _x Ga _y P	2.18
Ag-Ge-S	Ag ₈ GeS ₆	27.1	Al-In-P	Al _{0.49} In _{0.51} P	2.17
Ag-Ge-Se	Ag ₂ GeSe ₃	8.7	Al-N	AlN	2.5
	Ag ₈ GeSe ₆	27.4	Al-P	AlP	2.6
Ag-Ge-Te	Ag ₂ GeTe ₃	8.8	Al-S-Zn	ZnAl ₂ S ₄	10.1
	Ag ₈ GeTe ₆	27.6	Al-Sb	AlSb	2.8
Ag-I	AgI	4.8	As	As	12.2
Ag-In-S	AgInS ₂	6.13	As-B	BAs	2.3
	AgIn ₅ S ₈	33.9		B ₆ As	34.19.1
Ag-In-Se	AgInSe ₂	6.14		B ₁₃ As ₂	34.19.1
	Ag ₃ In ₅ Se ₉	33.3	As-Br-Cd	Cd ₄ As ₂ Br ₃	33.15
Ag-In-Te	AgInTe ₂	6.15	As-Br-S	AsSBr	32.1
	AgIn ₃ Te ₅	33.8	As-Cd	CdAs ₂	18.9
	AgIn ₉ Te ₁₄	33.10		Cd ₃ As ₂	18.5
Ag-O	Ag _x O _y	16.6	As-Cd-Cl	Cd ₄ As ₂ Cl ₃	33.15
Ag-S	Ag ₂ S	16.7	As-Cd-Ge	CdGeAs ₂	7.13
Ag-S-Sb	AgSbS ₂	28.4	As-Cd-I	Cd ₄ As ₂ I ₃	33.15
	Ag ₃ SbS ₃	28.15	As-Cd-Si	CdSiAs ₂	7.11
Ag-S-Sn	Ag ₂ SnS ₃	8.9	As-Cd-Sn	CdSnAs ₂	7.15
	Ag ₈ SnS ₆	27.2	As-Co	CoAs ₂	35.2.13
Ag-Sb-Se	AgSbSe ₂	28.5	As-Co-S	CoAsS	37.1.13
Ag-Sb-Te	AgSbTe ₂	28.6	As-Co-Se	CoAsSe	37.1.15
Ag-Se	Ag ₂ Se	16.8	As-Cu-S	Cu ₃ AsS ₄	9.2
Ag-Se-Si	Ag ₈ SiSe ₆	27.3	As-Cu-Se	Cu ₃ AsSe ₄	9.3
Ag-Se-Sn	Ag ₂ SnSe ₃	8.10	As-Cu-Te	Cu ₃ AsTe ₄	9.6
	Ag ₈ SnSe ₆	27.5	As-Fe	FeAs ₂	35.2.3
Ag-Se-Tl	AgTlSe ₂	6.19	As-Fe-S	FeAsS	37.1.2
Ag-Sn-Te	Ag ₂ SnTe ₃	8.11	As-Fe-Se	FeAsSe	37.1.3
Ag-Te	Ag ₂ Te	16.9	As-Ga	GaAs	2.11
Ag-Te-Tl	AgTlTe ₂	6.20	As-Ga-In	Ga _{0.47} In _{0.53} As	2.17
Al-As	AlAs	2.7	As-Ga-In-P	Ga _x In _{1-x} As _y P _{1-y}	2.18

As–Ga–In–Sb	Ga _x In _{1–x} As _y Sb _{1–y}	2.18		B ₁₃ P ₂	34.17.1
As–Ga–Sb	GaAs _{0.5} Sb _{0.5}	2.17	B–Sb	BSb	2.4
As–Ge	GeAs	22.3	B–Si	SiB ₁₄	34.15.1
	GeAs ₂	22.5	B–Sm	SmB ₆	34.11.3
As–Ge–Zn	ZnGeAs ₂	7.6		SmB ₆₆	34.12.1
As–I	AsI ₃	26.1	B–Sr	SrB ₆	34.8.2
As–In	InAs	2.15	B–Y	YB ₆₆	34.10.1
As–Ir	IrAs ₂	35.2.19	B–Yb	YbB ₆	34.11.5
As–Ir–Sb	IrAsSb	35.2.20		YbB ₆₆	34.12.4
As–Mg	Mg ₃ As ₂	18.1	B–Zr	ZrB ₂	34.16.1
As–Ni	NiAs ₂	35.2.22	Ba–Cr–S	BaCr ₂ S ₄	37.2.8
As–O	As ₂ O ₃	25.1	Ba–Ge	BaGe ₂	17.6
As–Os	OsAs ₂	35.2.10	Ba–O	BaO	3.11
As–Os–S	OsAsS	37.1.8	Ba–Si	BaSi ₂	17.6
As–P–Pd	PdPAs	35.2.24	Be–O	BeO	3.1
As–P–Pt	PtPAs	35.2.26	Be–S	BeS	3.2
As–P–Ru	RuPAs	35.2.6	Be–Se	BeSe	3.3
As–Pt	PtAs ₂	35.2.27	Be–Te	BeTe	3.4
As–Rh	RhAs ₂	35.2.16	Bi	Bi	12.4
As–Rh–Sb	RhAsSb	35.2.17	Bi–Br–O	BiOBr	32.8
As–Ru	RuAs ₂	35.2.7	Bi–Br–S	BiSBr	32.11
As–S	As ₂ S ₃	25.2	Bi–Br–Se	BiSeBr	32.13
	As ₄ S ₄	25.12	Bi–Br–Te	BiTeBr	32.15
As–S–Tl	TlAsS ₂	30.1	Bi–Cl–O	BiOCl	32.7
As–Se	As ₂ Se ₃	25.3	Bi–Cl–S	BiSCl	32.10
As–Si	SiAs	22.2	Bi–Cs	Cs ₃ Bi	15.2.7
	SiAs ₂	22.4	Bi–Cu–Se	CuBiSe ₂	28.12
As–Si–Zn	ZnSiAs ₂	7.3	Bi–Cu–Te	CuBiTe ₂	28.13
As–Sn–Zn	ZnSnAs ₂	7.8	Bi–Eu–Te	EuBi ₂ Te ₄	38.175
As–Te	As ₂ Te ₃	25.4	Bi–Ge–Te	GeBi ₂ Te ₄	31.3
As–Zn	ZnAs ₂	18.7		GeBi ₄ Te ₇	31.4
	Zn ₃ As ₂	18.3	Bi–Ho–Te	HoBiTe ₃	38.168
Au–Cs	CsAu	14.1	Bi–I	BiI ₃	26.3
Au–Rb	RbAu	14.2	Bi–I–O	BiOI	32.9
B	B	11.1	Bi–I–S	BiSI	32.12
B–Ba	BaB ₆	34.8.3	Bi–I–Te	BiTeI	32.16
B–C	BC	34.14.1	Bi–Li	Li ₃ Bi	15.2.2
B–C–Li	LiBC	34.3.2	Bi–Lu–Te	LuBiTe ₃	38.170
B–Ca	CaB ₆	34.8.1	Bi–O	Bi ₂ O ₃	25.8
B–Dy	DyB ₆₆	34.12.3	Bi–O–Ge	Bi ₁₂ GeO ₂₀	31.2
B–Eu	EuB ₆	34.11.4	Bi–O–Si	Bi ₁₂ SiO ₂₀	31.1
B–Gd	GdB ₆₆	34.12.2	Bi–Pb–Te	PbBi ₄ Te ₇	31.4
B–H	BH _x	34.1.1	Bi–Rb	Rb ₃ Bi	15.2.7
B–K	KB ₆	34.5.1	Bi–S	Bi ₂ S ₃	25.9
B–La	LaB ₆	34.11.1	Bi–S–Tl	TlBiS ₂	30.3
B–Li	LiB ₆	34.2.2	Bi–Se	Bi ₂ Se ₃	25.10
	Li ₃ B ₁₄	34.2.1	Bi–Se–I	BiSeI	32.14
	Li ₆ B ₁₉	34.2.3	Bi–Se–Tl	TlBiSe ₂	30.4
B–N	BN	2.1	Bi–Sm–Te	SmBiTe ₃	38.166
B–N	B ₃₆ N ₂₄	34.16	Bi–Sn–Te	SnBi ₂ Te ₄	31.3
B–Na	NaB ₆	34.4.1		SnBi ₄ Te ₇	31.4
	NaB ₁₅	34.4.2			
B–P	BP	2.2	Bi–Tb–Te	TbBiTe ₃	38.167
			Bi–Te	Bi ₂ Te ₃	25.11

Bi–Te–Tl	TlBiTe ₂	30.5	Cd–S–Sm	CdSm ₂ S ₄	38.215
Bi–Te–Tm	TmBiTe ₃	38.169	Cd–S–Tb	CdTb ₂ S ₄	38.217
Bi–Te–Y	YBiTe ₃	38.171	Cd–S–Tl	CdTIS ₂	29.4
Br–Cd	CdBr ₂	19.2	Cd–S–Tm	CdTm ₂ S ₄	38.220
Br–Cd–P	Cd ₄ P ₂ Br ₃	33.15	Cd–S–Yb	CdYb ₂ S ₄	38.221
Br–Cu	γ-CuBr	4.3	Cd–Sb	CdSb	18.12
Br–D–Tb	TbBrD ₂	38.206		Cd ₄ Sb ₃	18.14
Br–Gd–H	GdBrH ₂	38.205	Cd–Se	CdSe	3.18
Br–Pb	PbBr ₂	24.3	Cd–Se–Tl	CdTlSe ₂	29.5
Br–Sb–S	SbSBr	32.3	Cd–Te	CdTe	3.19
Br–Sb–Se	SbSeBr	32.4	Cd–Te–Tl	CdTlTe ₂	29.6
Br–Tl	TlBr	21.3	Cd–Tl–Se	CdTl ₂ Se ₄	10.14
C	C (Diamond)	1.1	Ce–B	CeB ₆	34.11.2
C–Si	SiC	1.5	Ce–Ga–Se	CeGaSe ₃	38.224
Ca–In–Se	CaIn ₂ Se ₄	10.19	Ce–Ge–Se	Ce ₂ GeSe ₅	38.260
Ca–O	CaO	3.9	Ce–H	CeH _x	36.3
Ca–Pb	Ca ₂ Pb	17.5	Ce–In–S	CeIn ₃ S ₆	38.235
Ca–Si	Ca ₂ Si	17.5	Ce–Mo–O	Ce ₂ Mo ₃ O ₉	38.94
Ca–Sn	Ca ₂ Sn	17.5	Ce–O–V	CeVO ₃	38.8
Cd–Ce–S	CdCe ₂ S ₄	38.212	Ce–O–W	Ce ₂ (WO ₄) ₃	38.52
Cd–Cl–P	Cd ₄ P ₂ Cl ₃	33.15	Ce–S	Ce ₂ S ₃	36.37
Cd–Cr–S	CdCr ₂ S ₄	37.2.4	Ce–S–Tl	CeTlS ₂	38.246
Cd–Cr–Se	CdCr ₂ Se ₄	37.2.9	Ce–Sb–Se	CeSbSe ₃	38.161
Cd–Dy–S	CdDy ₂ S ₄	38.218	Ce–Se–Sn	Ce ₂ SnSe ₅	38.261
Cd–Er–S	CdEr ₂ S ₄	38.219	Ce–Se–Tl	CeTlSe ₂	38.250
Cd–Ga–S	CdGa ₂ S ₄	10.8	Ce–Te–Tl	CeTlTe ₂	38.255
Cd–Ga–Se	CdGa ₂ Se ₄	10.9	Cl–Cd	CdCl ₂	19.1
Cd–Ga–Te	CdGa ₂ Te ₄	10.10	Cl–Cu	γ-CuCl	4.2
Cd–Gd–S	CdGd ₂ S ₄	38.216	Cl–Gd	Gd ₂ Cl ₃	36.46
Cd–Ge–P	CdGeP ₂	7.12	Cl–Pb	PbCl ₂	24.2
Cd–I	CdI ₂	19.3	Cl–Tb	Tb ₂ Cl ₃	36.47
Cd–I–P	Cd ₄ P ₂ I ₃	33.15	Cl–Tl	TlCl	21.2
Cd–In–S	CdInS ₂	29.1	Co–La–Mo–O	LaCo _{0.75} Mo _{0.25} O ₃	38.47
	CdIn ₂ S ₄	10.11	Co–La–O–W	LaCo _{0.75} W _{0.25} O ₃	38.48
Cd–In–Se	CdInSe ₂	29.2	Co–Nb–S	Co _x NbS ₂	37.3.2
	CdIn ₂ Se ₄	10.12	Co–P	CoP ₂	35.2.12
Cd–In–Te	CdInTe ₂	29.3	Co–S–Sb	CoSbS	37.1.14
	CdIn ₂ Te ₄	10.13	Co–Sb	CoSb ₂	35.2.14
Cd–La–S	CdLa ₂ S ₄	38.211	Cr–Co–S	CoCr ₂ S ₄	37.2.6
Cd–Nd–S	CdNd ₂ S ₄	38.214	Cr–Dy–O	DyCrO ₃	38.24
Cd–O	CdO	3.16	Cr–Dy–Se	DyCrSe ₃	38.109
Cd–O–Sn	CdSnO ₃	33.12		Dy ₂ CrSe ₄	38.123
	Cd ₂ SnO ₄	33.11	Cr–Er–S	ErCrS ₃	38.102
Cd–P	CdP ₂	18.8	Cr–Er–Se	ErCrSe ₃	38.111
	CdP ₄	18.10	Cr–Eu–Te	EuCr ₂ Te ₄	38.126
	Cd ₃ P ₂	18.4	Cr–Fe–S	FeCr ₂ S ₄	37.2.5
	Cd ₆ P ₇	18.16	Cr–Gd–Se	GdCrSe ₃	38.107
	Cd ₇ P ₁₀	18.15		Gd ₂ CrSe ₄	38.121
Cd–P–Si	CdSiP ₂	7.10	Cr–Hg–S	HgCr ₂ S ₄	37.2.7
Cd–P–Sn	CdSnP ₂	7.14	Cr–Hg–Se	HgCr ₂ Se ₄	37.2.11
Cd–Pr–S	CdPr ₂ S ₄	38.213	Cr–Ho–O	HoCrO ₃	38.25
Cd–S	CdS	3.17	Cr–Ho–S	HoCrS ₃	38.101
Cd–S–Sc	CdSc ₂ S ₄	38.222	Cr–Ho–Se	HoCrSe ₃	38.110

Cr–La–O	LaCrO ₃	38.21	Cu–Gd–Se	Cu ₃ GdSe ₃	38.185
Cr–Lu–S	LuCrS ₃	38.105		Cu ₅ GdSe ₄	38.199
Cr–Lu–Se	LuCrSe ₃	38.114	Cu–Ge–S	Cu ₂ GeS ₃	8.1
Cr–Nd–O	NdCrO ₃	38.22		Cu ₄ Ge ₃ S ₅	27.9
Cr–Nd–S	Nd ₂ CrS ₄	38.116		Cu ₈ GeS ₆	27.7
Cr–Nd–Se	Nd ₂ CrSe ₄	38.119	Cu–Ge–Se	Cu ₂ GeSe ₃	8.2
Cr–O–Sm	SmCrO ₃	38.117		Cu ₄ Ge ₃ Se ₅	27.9
Cr–O–Yb	YbCrO ₃	38.26		Cu ₈ GeSe ₆	27.8
Cr–Pr–S	Pr ₂ CrS ₄	38.115	Cu–Ge–Te	Cu ₂ GeTe ₃	8.3
Cr–Pr–Se	Pr ₂ CrSe ₄	38.118	Cu–Ho–S	Cu ₃ HoS ₃	38.181
Cr–S	CrS	35.3.16		Cu ₅ HoS ₄	38.199
	Cr ₂ S ₃	35.3.17	Cu–Ho–Se	Cu ₃ HoSe ₃	38.189
Cr–S–Sm	Sm ₂ CrS ₄	38.117	Cu–Ho–Te	Cu ₃ HoTe ₃	38.196
Cr–S–Tb	TbCrS ₃	38.100	Cu–I	γ-CuI	4.4
Cr–S–Tm	TmCrS ₃	38.103	Cu–In–S	CuInS ₂	6.7
Cr–S–Y	YCrS ₃	38.106	Cu–In–Se	CuInSe ₂	6.8
Cr–S–Yb	YbCrS ₃	38.104		Cu ₃ In ₅ Se ₉	33.1
	YbCr ₂ S ₄	38.127	Cu–In–Te	CuInTe ₂	6.9
Cr–Se	Cr _{2+x} Se ₃	35.3.18		CuIn ₃ Te ₅	33.7
	Cr ₃ Se ₄	35.3.19		Cu ₂ In ₄ Te ₇	33.6
Cr–Se–Sm	Sm ₂ CrSe ₄	38.120	Cu–Li–O	Li ₃ CuO ₃	33.13
Cr–Se–Tb	Tb ₂ CrSe ₄	38.122	Cu–Lu–S	Cu ₃ LuS ₃	38.182
	TbCrSe ₃	38.108		Cu ₅ LuS ₄	38.200
Cr–Se–Tm	TmCrSe ₃	38.112	Cu–Lu–Se	Cu ₅ LuSe ₄	38.204
Cr–Se–Y	Y ₂ CrSe ₄	38.125	Cu–O	CuO	16.1
Cr–Se–Yb	Yb ₂ CrSe ₄	38.124		Cu ₂ O	16.2
Cr–Se–Yb	YbCrSe ₃	38.127	Cu–P–S	Cu ₃ PS ₄	9.1
	YbCr ₂ Se ₄	38.128	Cu–S	Cu _{2–x} S	16.3
Cr–Se–Zn	ZnCr ₂ Se ₄	37.2.12		Cu ₂ S	16.3
Cr–Si	CrSi ₂	35.1.3	Cu–S–Sb	Cu ₃ SbS ₄	9.4
Cr–Te	Cr _{1–x} Te	35.3.20	Cu–S–Sc	Cu ₃ ScS ₃	38.183
Cs–K–Sb	K ₂ CsSb	15.3.2	Cu–S–Sm	Cu ₃ SmS ₃	38.176
Cs–Na–Sb	Na ₂ CsSb	15.3.3	Cu–S–Sn	Cu ₂ SnS ₃	8.4
Cs–Rb–Sb	Rb ₂ CsSb	15.3.3		Cu ₄ SnS ₄	27.10
Cs–Sb	CsSb	15.1	Cu–S–Tb	Cu ₃ TbS ₃	38.178
	Cs ₃ Sb	15.2.6	Cu–S–Tl	CuTlS ₂	6.16
Cu–Cr–S–Se	CuCr ₂ S _{4–x} Se _x	37.2.10	Cu–S–Tm	Cu ₃ TmS ₃	38.59
Cu–Dy–S	Cu ₃ DyS ₃	38.179	Cu–S–V	Cu ₃ VS ₄	37.3.4
Cu–Dy–Se	Cu ₃ DySe ₃	38.187	Cu–S–Y	Cu ₃ YS ₃	38.180
Cu–Dy–Te	Cu ₃ DyTe ₃	38.194	Cu–Sb–Se	CuSbSe ₂	28.10
Cu–Er–S	Cu ₃ ErS ₃	38.58		Cu ₃ SbSe ₄	9.5
Cu–Er–Te	Cu ₃ ErTe ₃	38.197	Cu–Sb–Te	CuSbTe ₂	28.11
Cu–F	CuF	4.1		Cu ₃ SbTe ₄	9.7
Cu–Fe–S	CuFeS ₂	6.21	Cu–Se	Cu _{2–x} Se	16.4
Cu–Fe–Se	CuFeSe ₂	6.22		Cu ₂ Se	16.4
Cu–Fe–Te	CuFeTe ₂	6.23	Cu–Se–Sc	Cu ₃ ScSe ₃	38.191
Cu–Ga–S	CuGaS ₂	6.4	Cu–Se–Sm	Cu ₃ SmSe ₃	38.184
Cu–Ga–Se	CuGaSe ₂	6.5	Cu–Se–Sn	Cu ₂ SnSe ₃	8.5
	Cu ₃ Ga ₅ Se ₉	33.2		Cu ₄ Sn ₃ Se	27.9
Cu–Ga–Te	CuGaTe ₂	6.6	Cu–Se–Tb	Cu ₃ TbSe ₃	38.186
	Cu ₂ Ga ₄ Te ₇	33.5		Cu ₅ TbSe ₄	38.202
Cu–Gd–O	Gd ₂ CuO ₄	38.60	Cu–Se–Tl	CuTlSe ₂	6.17
Cu–Gd–S	Cu ₃ GdS ₃	38.177	Cu–Se–Y	Cu ₃ YSe ₃	38.188

Cu–Se–Yb	Cu ₃ YbSe ₃	38.190	Eu–S–Sb	EuSb ₂ S ₄	38.172
	Cu ₅ YbSe ₄	38.203	Eu–Sb–Se	EuSb ₂ Se ₄	38.173
Cu–Sm–Te	Cu ₃ SmTe ₃	38.192	Eu–Sb–Te	EuSb ₂ Te ₄	38.174
Cu–Sn–Te	Cu ₂ SnTe ₃	8.6	Eu–Se	EuSe	36.15
Cu–Tb–Te	Cu ₃ TbTe ₃	38.193	Eu–Se–Tl	EuTlSe ₂	38.253
Cu–Te	Cu _{2–x} Te	16.5	Eu–Te	EuTe	36.16
	Cu ₂ Te	16.5	F–Pb	PbF ₂	24.1
Cu–Te–Tl	CuTlTe ₂	6.18	F–Tl	TlF	21.1
Cu–Te–Tm	Cu ₃ TmTe ₃	38.198	Fe–Ho–Mo–O	HoFe _{0.75} Mo _{0.25} O ₃	38.41
Cu–Te–Y	Cu ₃ YTe ₃	38.195	Fe–Ho–O	HoFeO ₃	38.40
D–La	LaD _x	36.2	Fe–La–Mo–O	LaFe _{0.75} Mo _{0.25} O ₃	38.31
Dy–Fe–Mo–O	DyFe _{0.75} Mo _{0.25} O ₃	38.39	Fe–La–O	LaFeO ₃	38.30
Dy–In–S	DyIn ₃ S ₆	38.241	Fe–Lu–Mo–O	LuFe _{0.75} Mo _{0.25} O ₃	38.46
Dy–Ir–O	Dy ₂ Ir ₂ O ₇	38.155	Fe–Mo–Nd–O	NdFe _{0.75} Mo _{0.25} O ₃	38.33
Dy–Mn–O	Dy ₂ Mn ₂ O ₇	38.140	Fe–Mo–O–Pr	PrFe _{0.75} Mo _{0.25} O ₃	38.32
Dy–Mo–O	Dy ₂ Mo ₃ O ₉	38.79	Fe–Mo–O–Sm	SmFe _{0.75} Mo _{0.25} O ₃	38.34
Dy–O	Dy ₂ O ₃	36.28	Fe–Mo–O–Tb	TbFe _{0.75} Mo _{0.25} O ₃	38.38
Dy–O–Mo	Dy ₂ (MoO ₄) ₃	38.70	Fe–Mo–O–Tm	TmFe _{0.75} Mo _{0.25} O ₃	38.43
Dy–O–Te	Dy ₂ Te ₃ O ₉	38.87	Fe–Mo–O–Yb	YbFe _{0.75} Mo _{0.25} O ₃	38.45
Dy–O–V	DyVO ₃	38.15	Fe–Nb–S	Fe _x NbS ₂	37.3.2
Dy–O–V–W	Dy ₂ (W _{2/3} V _{4/3})O ₇	38.130	Fe–O–Yb	YbFeO ₃	38.44
Dy–O–W	Dy ₂ (WO ₄) ₃	38.63	Fe–P	FeP ₂	35.2.2
Dy–S	Dy ₂ S ₃	36.41		FeP ₄	35.2.29
Er–Fe–Mo–O	ErFe _{0.75} Mo _{0.25} O ₃	38.42	Fe–P–S	FePS	37.1.1
Er–In–S	ErIn ₃ S ₆	38.244	Fe–Rh–S	Fe(FeRh) ₄	37.2.3
Er–Mn–O	Er ₂ Mn ₂ O ₇	38.142	Fe–S	Fe _{1–x} S	35.3.39
	Er ₂ (MoO ₄) ₃	38.72		FeS ₂	35.3.40
Er–O	Er ₂ O ₃	36.30	Fe–Sb	FeSb ₂	35.2.4
Er–O–Te	Er ₂ Te ₃ O ₉	38.89	Fe–Se	Fe _{1–x} Se	35.3.41
Er–O–Ti	ErTiO ₃	38.6		FeSe _{2–x}	35.3.42
Er–O–V	ErVO ₃	38.17		FeSe ₂	35.3.43
Er–O–V–W	Er ₂ (W _{2/3} V _{4/3})O ₇	38.132	Fe–Si	FeSi ₂	35.1.7
Er–O–W	Er ₂ (WO ₄) ₃	38.65	Fe–Te	FeTe ₂	35.3.44
Er–P	ErP	36.8	Ga–Hg–S	HgGa ₂ S ₄	10.15
Eu–Fe–Mo–O	EuFe _{0.75} Mo _{0.25} O ₃	38.35	Ga–Hg–Se	HgGa ₂ Se ₄	10.16
Eu–Ga–S	EuGa ₂ S ₄	38.228	Ga–In–P	Ga _{0.51} In _{0.49} P	2.17
Eu–Ga–Se	EuGa ₂ Se ₄	38.229	Ga–La–Se	LaGaSe ₃	38.223
Eu–Ga–Te	EuGa ₂ Te ₄	38.230	Ga–Mg–S	MgGa ₂ S ₄	10.19
Eu–H	EuH ₂	36.4	Ga–Mg–Se	MgGa ₂ Se ₄	10.19
Eu–In–S	EuIn ₂ S ₄	38.231	Ga–Mn–S	MnGa ₂ S ₄	37.2.1
Eu–In–Se	EuIn ₂ Se ₄	38.232	Ga–N	GaN	2.9
Eu–In–Te	EuIn ₂ Te ₄	38.233	Ga–Nd–Se	NdGaSe ₃	38.226
Eu–Ir–O	Eu ₂ Ir ₂ O ₇	38.154	Ga–P	GaP	2.10
Eu–Mo–O	Eu ₂ Mo ₂ O ₇	38.77	Ga–Pr–Se	PrGaSe ₃	38.225
Eu–O	EuO	36.13	Ga–S	GaS	20.1
	Eu ₂ O ₃	36.26		Ga ₂ S ₃	5.1
Eu–O–Ru	Eu ₂ Ru ₂ O ₇	38.148	Ga–S–Tl	TlGaS ₂	20.19
Eu–O–Te	Eu ₂ Te ₃ O ₉	38.84	Ga–S–Zn	ZnGa ₂ S ₄	10.2
Eu–O–V	EuVO ₃	38.12	Ga–Sb	GaSb	2.12
Eu–O–W	EuWO ₄	38.56	Ga–Sb–Te	Ga ₆ Sb ₅ Te	30.6
	Eu ₂ (WO ₄) ₃	38.57	Ga–Se	GaSe	20.2
Eu–S	EuS	36.14		Ga ₂ Se ₃	5.2
	Eu ₃ S ₄	36.22	Ga–Se–Sm	SmGaSe ₃	38.227

Ga–Se–Tl	TlGaSe ₂	20.20	Hg–O	HgO	3.20
Ga–Se–Zn	ZnGa ₂ Se ₄	10.3	Hg–P–S	Hg ₃ PS ₃	33.14
Ga–Te	GaTe	20.3		Hg ₃ PS ₄	33.14
	Ga ₂ Te ₃	5.3	Hg–S	HgS	3.21
Ga–Te–Tl	TlGaTe ₂	20.21	Hg–S–Tl	HgTlS ₂	29.7
Gd–Fe–Mo–O	GdFe _{0.75} Mo _{0.25} O ₃	38.37	Hg–Se	HgSe	3.22
Gd–Fe–O	GdFeO ₃	38.36	Hg–Te	HgTe	3.23
Gd–In–S	GdIn ₃ S ₆	38.239	Ho–In–S	HoIn ₃ S ₆	38.243
Gd–Mo–O	Gd ₂ (MoO ₄) ₃	38.68	Ho–Mn–O	HoMnO ₃	38.28
	Gd ₂ Mo ₂ O ₇	38.78		Ho ₂ Mn ₂ O ₇	38.141
	Gd ₂ Mo ₃ O ₉	38.98		Ho ₂ (MoO ₄) ₃	38.71
Gd–O–Os	Gd ₂ Os ₂ O ₇	38.157	Ho–O	Ho ₂ O ₃	36.29
Gd–O–Pt	Gd ₂ Pt ₂ O ₇	38.159	Ho–O–Te	Ho ₂ Te ₃ O ₉	38.88
Gd–O–Te	Gd ₂ Te ₃ O ₉	38.85	Ho–O–Ti	HoTiO ₃	38.5
Gd–O–Ti	GdTlO ₃	38.3	Ho–O–V	HoVO ₃	38.16
	Gd ₂ Ti ₂ O ₇	38.139	Ho–O–V–W	Ho ₂ (W _{2/3} V _{4/3})O ₇	38.131
Gd–O–V	GdVO ₃	38.13	Ho–O–W	Ho ₂ (WO ₄) ₃	38.64
Gd–O–W	Gd ₂ (WO ₄) ₃	38.61	Ho–S	Ho ₂ S ₃	36.43
Gd–Ru–O	Gd ₂ Ru ₂ O ₇	38.149	I–Pb	PbI ₂	24.4
Gd–S	Gd ₂ S ₃	36.40	I–Sb	SbI ₃	26.2
Gd–Sb–Se	GdSbSe ₃	38.165			
Gd–Se–Sn	Gd ₂ SnSe ₅	38.269	I–Sb–S	SbSI	32.2
Ge	Ge	1.3	I–Sb–Se	SbSeI	32.5
Ge–Gd–Se	Gd ₂ GeSe ₅	38.268	I–Sb–Te	SbTeI	32.6
Ge–Mg	Mg ₂ Ge	17.2	I–Tl	TlI	21.4
Ge–N–Zn	ZnGeN ₂	7.4	In–La–S	LaIn ₃ S ₆	38.234
Ge–Nd–Se	Nd ₂ GeSe ₅	38.264	In–N	InN	2.13
Ge–O	GeO ₂	23.11	In–P	InP	2.14
Ge–P	GeP	22.1	In–Pr–S	PrIn ₃ S ₆	38.236
Ge–P–Zn	ZnGeP ₂	7.5	In–S	InS	20.4
Ge–Pb–S	PbGeS ₃	23.18		In ₂ S ₃	5.4
Ge–Pr–Se	Pr ₂ GeSe ₅	38.262		In ₆ S ₇	20.10
Ge–Ru	Ru ₂ Ge ₃	35.1.6	In–S–Sm	SmIn ₃ S ₆	38.238
Ge–S	GeS	23.1	In–S–Tb	TbIn ₃ S ₆	38.240
	GeS ₂	23.12	In–S–Tl	TlInS ₂	20.22
Ge–S–Sn	SnGeS ₃	23.18	In–S–Y	YIn ₃ S ₆	38.242
Ge–Sb–Te	GeSb ₂ Te ₄	31.3	In–S–Zn	ZnIn ₂ S ₄	10.4
Ge–Sb–Te	GeSb ₄ Te ₇	31.4	In–Sb	InSb	2.16
Ge–Se	GeSe	23.2	In–Sb–Te	In ₆ Sb ₅ Te	30.7
	GeSe ₂	23.13	In–Sb–Te	In ₇ SbTe ₆	30.8
Ge–Se–Sm	Sm ₂ GeSe ₅	38.266	In–Se	InSe	20.5
Ge–Si	Si _x Ge _{1-x}	1.6		In ₂ Se ₃	5.5
Ge–Sr	SrGe ₂	17.6		In ₄ Se ₃	20.11
Ge–Te	GeTe	23.3		In ₅ Se ₆	20.16
H–La	LaH _x	36.1		In ₆ Se ₇	20.12
Hf–S	HfS ₂	35.3.11		In ₄₀ Se ₆₀	20.15
	HfS ₃	35.3.12		In ₅₀ Se ₅₀	20.14
Hf–Se	HfSe ₂	35.3.13		In ₆₀ Se ₄₀	20.13
Hg–I	HgI ₂	19.4	In–Se–Zn	ZnIn ₂ Se ₄	10.5
Hg–In–Se	HgIn ₂ Se ₄	10.18	In–Se–Tl	TlInSe ₂	20.23
Hg–In–Te	HgIn ₂ Te ₄	10.17	In–Te	InTe	20.6
	Hg ₃ In ₂ Te ₆	10.18		In ₂ Te ₃	5.6
	Hg ₅ In ₂ Te ₈	10.18		In ₄ Te ₃	20.17

In–Te–Tl	TlInTe ₂	20.24	Mn–S	β-MnS	35.3.30
In–Te–Zn	ZnIn ₂ Te ₄	10.6	Mn–S	γ-MnS	35.3.31
Ir–Nd–O	Nd ₂ Ir ₂ O ₇	38.152	Mn–S–Sb	MnSb ₂ S ₄	37.2.2
Ir–O–Sm	Sm ₂ Ir ₂ O ₇	38.153	Mn–Se	α-MnSe	35.3.32
Ir–O–Y	Y ₂ Ir ₂ O ₇	38.156	Mn–Si	Mn ₁₁ Si ₁₉	35.1.1
Ir–P	IrP ₂	35.2.18		Mn ₁₅ Si ₂₆	35.1.2
Ir–S	IrS _{≈3}	35.3.56		Mn ₂₆ Si ₄₅	35.1.1
	Ir ₂ S ₂ (S ₂)	35.3.55	Mn–Te	MnTe	35.3.33
Ir–Se	Ir _{2/3} Se ₂	35.3.58		MnTe ₂	35.3.34
	Ir ₂ Se ₂ (Se ₂)	35.3.57	Mo–Nd–O	Nd ₂ Mo ₃ O ₉	38.96
K–Na–Sb	Na ₂ KSb	15.3.1	Mo–O–Pr	Pr ₂ Mo ₃ O ₉	38.95
K–Rb–Sb	K ₂ RbSb	15.3.3	Mo–O–Sm	Sm ₂ Mo ₂ O ₇	38.76
K–Sb	KSb	15.1		Sm ₂ Mo ₃ O ₉	38.97
	K ₃ Sb	15.2.4	Mo–O–Tb	Tb ₂ (MoO ₄) ₃	38.73
La–Ge–Se	La ₂ GeSe ₅	38.258	Mo–S	MoS ₂	35.3.32
La–Mn–Mo–O	LaMn _{0.75} Mo _{0.25} O ₃	38.27	Mo–Te	MoTe _{2–x}	35.3.21
La–Mo–Ni–O	LaNi _{0.75} Mo _{0.25} O ₃	38.49	Na–Rb–Sb	Na ₂ RbSb	15.3.3
La–Mo–O	La ₂ Mo ₃ O ₉	38.93	Na–Sb	NaSb	15.1
La–Ni–O–W	LaNi _{0.75} W _{0.25} O ₃	38.50		Na ₃ Sb	15.2.3
La–O	La ₂ O ₃	36.23	Ni–Nb–S	Nb _x NiS ₂	37.3.2
La–O–Pb	La ₂ Pb ₂ O ₇	38.138	Nd–In–S	NdIn ₃ S ₆	38.237
La–O–S	La ₁₀ S ₁₄ O	36.35	Nd–O	Nd ₂ O ₃	36.24
La–O–Te	La ₂ Te ₃ O ₉	38.75	Nd–O–Pt	Nd ₂ Pt ₂ O ₇	38.158
La–O–W	La ₂ (WO ₄) ₃	38.51	Nd–O–Ru	Nd ₂ Ru ₂ O ₇	38.147
La–P	LaP	36.6	Nd–O–Te	Nd ₂ Te ₃ O ₉	38.82
La–S	La ₂ S ₃	36.34	Nd–O–Ti	NdTlO ₃	38.1
La–S–Tl	LaTlS ₂	38.245	Nd–O–V	NdVO ₃	38.10
La–Sb–Se	LaSbSe ₃	38.160	Nd–O–W	Nd ₂ (WO ₄) ₃	38.54
La–Se–Sn	La ₂ SnSe ₅	38.259	Nd–S	Nd ₂ S ₃	36.38
La–Se–Tl	LaTlSe ₂	38.249	Nd–S–Tl	NdTlS ₂	38.248
La–Te	La ₂ Te ₃	36.36	Nd–Sb–Se	NdSbSe ₃	38.163
La–Te–Tl	LaTlTe ₂	38.254	Nd–Se–Sn	Nd ₂ SnSe ₅	38.265
Li–Sb	Li ₃ Sb	15.2.2	Nd–Se–Tl	NdTlSe ₂	38.252
Lu–Mn–O	Lu ₂ Mn ₂ O ₇	38.144	Nd–Te–Tl	NdTlTe ₂	38.257
Lu–O–Te	Lu ₂ Te ₃ O ₉	38.92	Ni–P	NiP ₂	35.2.21
Lu–O–V	LuVO ₃	38.20	Ni–S	Ni _{1–x} S	35.3.59
	Lu ₂ V ₂ O ₇	38.137		NiS ₂	35.3.60
Lu–P	LuP	36.9	O–Mo–Tm	Tm ₂ (MoO ₄) ₃	38.73
Lu–S–Zn	ZnLu ₂ S ₄	38.209	O–Mo–Yb	Yb ₂ (MoO ₄) ₃	38.74
Mg–O	MgO	3.5	O–Pb	PbO	23.7
Mg–P–Si	MgSiP ₂	7.1	O–Pr–Ru	Pr ₂ Ru ₂ O ₇	38.146
Mg–Pb	Mg ₂ Pb	17.4	O–Ru–Y	Y ₂ Ru ₂ O ₇	38.151
Mg–S	MgS	3.6	O–Sm	Sm ₂ O ₃	36.25
Mg–Se	MgSe	3.7	O–Sm–Te	Sm ₂ Te ₃ O ₉	38.83
Mg–Si	Mg ₂ Si	17.1	O–Sm–Ti	SmTiO ₃	38.2
Mg–Sn	Mg ₂ Sn	17.3	O–Sm–V	SmVO ₃	38.11
Mg–Te	MgTe	3.8	O–Sn	SnO ₂	23.14
Mn–Nb–S	Mn _x NbS ₂	37.3.1	O–Sr	SrO	3.10
Mn–O–Tm	Tm ₂ Mn ₂ O ₇	38.143	O–Tb	Tb ₂ O ₃	36.27
Mn–O–Y	Y ₂ Mn ₂ O ₇	38.145	O–Tb–Te	Tb ₂ Te ₃ O ₉	38.86
Mn–O–Yb	YbMnO ₃	38.29	O–Tb–Ti	TbTiO ₃	38.4
Mn–P	MnP ₄	35.2.1	O–Tb–V	TbVO ₃	38.14
Mn–S	α-MnS	35.3.29	O–Te–Tm	Tm ₂ Te ₃ O ₉	38.90

O–Te–Yb	Yb ₂ Te ₃ O ₉	38.91	Pr–O–Te	Pr ₂ Te ₃ O ₉	38.81
O–Ti–Yb	YbTiO ₃	38.7	Pr–O–V	PrVO ₃	38.9
O–Tm	Tm ₂ O ₃	36.31	Pr–O–W	Pr ₂ (WO ₄) ₃	38.53
O–Tm–V	TmVO ₃	38.18	Pr–S–Tl	PrTlS ₂	38.247
	Tm ₂ V ₂ O ₇	38.133	Pr–Sb–Se	PrSbSe ₃	38.162
O–Tm–V–W	Tm ₂ V _{4/3} W _{2/3} O ₇	38.134	Pr–Se–Sn	Pr ₂ SnSe ₅	38.263
O–V–W–Tb	Tb ₂ V _{4/3} W _{2/3} O ₇	38.129	Pr–Se–Tl	PrTlSe ₂	38.251
O–V–W–Yb	Yb ₂ V _{4/3} W _{2/3} O ₇	38.136	Pr–Te–Tl	PrTlTe ₂	38.256
O–V–Yb	YbVO ₃	38.19	Pt–S	Pt _{0.97} S ₂	35.3.66
	Yb ₂ V ₂ O ₇	38.135		PtS	35.3.65
O–W–Sm	Sm ₂ (WO ₄) ₃	38.55	Pt–Sb	PtSb ₂	35.2.28
O–W–Tb	Tb ₂ (WO ₄) ₃	38.62	Pt–Se	PtSe ₂	35.3.67
O–W–Tm	Tm ₂ (WO ₄) ₃	38.66	Rb–Sb	RbSb	15.1
O–W–Yb	Yb ₂ (WO ₄) ₃	38.67		Rb ₃ Sb	15.2.5
O–Yb	Yb ₂ O ₃	36.32	Re–S	ReS ₂	35.3.37
O–Yb–Ru	Yb ₂ Ru ₂ O ₇	38.150	Re–Se	ReSe ₂	35.3.38
O–Zn	ZnO	3.12	Re–Si	ReSi ₂	35.1.4
Os–P	OsP ₂	35.2.9	Rh–P	RhP ₂	35.2.15
	OsP ₄	35.2.32	Rh–S	Rh _{2/3} S ₂	35.3.50
Os–P–S	OsPS	37.1.7		RhS _{≈3}	35.3.52
Os–P–Se	OsPSe	37.1.10		Rh ₂ S ₃	35.3.51
Os–S	OsS ₂	35.3.48	Rh–Se	RhSe _{≈3}	35.3.54
Os–Sb	OsSb ₂	35.2.11		Rh ₂ Se ₂ (Se ₂)	35.3.53
Os–Sb–S	OsSbS	37.1.9	Ru–As–S	RuAsS	37.1.5
Os–Sb–Se	OsSbSe	37.1.11	Ru–S	RuS ₂	35.3.45
Os–Sb–Te	OsSbTe	37.1.12	Ru–Sb	RuSb ₂	35.2.8
Os–Si	OsSi ₂	35.1.8	Ru–Sb–Te	RuSbTe	37.1.6
Os–Te	OsTe ₂	35.3.49	Ru–Se	RuSe ₂	35.3.46
P	P	12.1	Ru–Si	Ru ₂ Si ₃	35.1.5
P–Pd	PdP ₂	35.2.23	Ru–Te	RuTe ₂	35.3.47
P–Pd–S	PdPS	37.1.16	S	S	13.1
P–Pd–Se	PdPSe	37.1.17	S–Sb	Sb ₂ S ₃	25.5
P–Pt	PtP ₂	35.2.25	S–Sb–Tl	TlSbS ₂	30.2
P–Ru	RuP ₂	35.2.5	S–Sc–Zn	ZnSc ₂ S ₄	38.210
	RuP ₄	35.2.31	S–Sm	SmS	36.10
P–Ru–S	RuPS	37.1.4		Sm ₂ S ₃	36.39
P–Si	SiP	22.1		Sm ₃ S ₄	36.21
	SiP ₂	22.4	S–Sn	SnS	23.4
P–Si–Zn	ZnSiP ₂	7.2		SnS ₂	23.15
P–Sm	SmP	36.7		Sn ₂ S ₃	23.18
P–Sn–Zn	ZnSnP ₂	7.7	S–Ta	TaS ₂	35.3.14
P–Y	YP	36.5		TaS ₃	35.3.15
P–Zn	ZnP ₂	18.6	S–Tc	TcS ₂	35.3.35
	Zn ₃ P ₂	18.2	S–Ti	TiS _{3–x}	35.3.2
Pb–S	PbS	23.8		Ti _{1+x} S ₂	35.3.1
Pb–S–Sb	PbSb ₂ S ₄	31.3	S–Tl	TlS	20.7
Pb–S–Sn	PbSnS ₃	23.18	S–Tl–V	Tl ₃ VS ₄	37.3.3
Pb–Se	PbSe	23.9	S–Tm–Zn	ZnTm ₂ S ₄	38.207
Pb–Te	PbTe	23.10	S–W	WS ₂	35.3.26
Pd–S	PdS	35.3.61			
	PdS ₂	35.3.62	S–Yb	Yb ₂ S ₃	36.44
Pd–Se	PdSe	35.3.63		YbS	36.18
	PdSe ₂	35.3.64	S–Yb–Zn	ZnYb ₂ S ₄	38.208

S–Zn	ZnS	3.13	Se–Yb	YbSe	36.19
S–Zr	ZrS ₂	35.3.5	Se–Zn	ZnSe	3.14
	ZrS _{3–x}	35.3.6	Se–Zr	ZrSe ₃	35.3.9
	Zr ₂ S ₃	35.3.4		Zr _{1+x} Se ₂	35.3.8
Sb	Sb	12.3		Zr ₂ Se ₃	35.3.7
Sb–Se	Sb ₂ Se ₃	25.6	Si	Si	1.2
Sb–Se–Sm	SmSbSe ₃	38.164	Si–Te	Si ₂ Te ₃	23.17
Sb–Sn–Zn	ZnSnSb ₂	7.9	Sm–Te	SmTe	36.12
Sb–Te	Sb ₂ Te ₃	25.7	Sn	α-Sn	1.4
Sb–Zn	ZnSb	18.11	Sn–Te	SnTe	23.6
	Zn ₄ Sb ₃	18.13	Te	Te	13.3
Se	Se	13.2	Te–Tl	TlTe	20.9
Se–Sm	SmSe	36.11		Tl ₅ Te ₃	20.18
Se–Sn	SnSe	23.5	Te–Tm	TmTe	36.17
	SnSe ₂	23.16	Te–W	WTe ₂	35.3.28
Se–Tc	TcSe ₂	35.3.36	Te–Yb	YbTe	36.20
Se–Ti	Ti _{1+x} Se ₂	35.3.3	Te–Zn	ZnTe	3.15
Se–Tl	TlSe	20.8			
Se–W	WSe ₂	35.3.27			

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