

MAGNETIC SUSCEPTIBILITY OF THE ELEMENTS AND INORGANIC COMPOUNDS

When a material is placed in a magnetic field H , a magnetization (magnetic moment per unit volume) M is induced in the material which is related to H by $M = \kappa H$, where κ is called the volume susceptibility. Since H and M have the same dimensions, κ is dimensionless. A more useful parameter is the molar susceptibility χ_m , defined by

$$\chi_m = \kappa V_m = \kappa M/\rho$$

where V_m is the molar volume of the substance, M the molar mass, and ρ the mass density. When the cgs system is used, the customary units for χ_m are $\text{cm}^3 \text{mol}^{-1}$; the corresponding SI units are $\text{m}^3 \text{mol}^{-1}$.

Substances that have no unpaired electron orbital or spin angular momentum generally have negative values of χ_m and are called diamagnetic. Their molar susceptibility varies only slightly with temperature. Substances with unpaired electrons, which are termed paramagnetic, have positive χ_m and show a much stronger temperature dependence, varying roughly as $1/T$. The net susceptibility of a paramagnetic substance is the sum of the paramagnetic and diamagnetic contributions, but the former almost always dominates.

This table gives values of χ_m for the elements and selected inorganic compounds. All values refer to nominal room temperature (285 to 300 K) unless otherwise indicated. When the physical state (s = solid, l = liquid, g = gas, aq = aqueous solution) is not given, the most common crystalline form is understood. An entry of "Ferro," indicates a ferromagnetic substance.

Substances are arranged in alphabetical order by the most common name, except that compounds such as hydrides, oxides, and acids are grouped with the parent element (the same ordering used in the table "Physical Constants of Inorganic Compounds").

In keeping with customary practice, the molar susceptibility is given here in units appropriate to the cgs system. These values should be multiplied by 4π to obtain values for use in SI equations (where the magnetic field strength H has units of A m^{-1}).

REFERENCES

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3. *Landolt-Börnstein, Numerical Data and Functional Relationships in Science and Technology, New Series, II/2, II/8, II/10, II/11, and II/12a, Coordination and Organometallic Transition Metal Compounds*, Springer-Verlag, Heidelberg, 1966-1984.
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Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$	Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$
Aluminum	Al	+16.5	Arsenic (yellow)	As	-23.2
Aluminum trifluoride	AlF ₃	-13.9	Arsine (g)	AsH ₃	-35.2
Aluminum oxide	Al ₂ O ₃	-37	Arsenic(III) bromide	AsBr ₃	-106
Aluminum sulfate	Al ₂ (SO ₄) ₃	-93	Arsenic(III) chloride	AsCl ₃	-72.5
Ammonia (g)	NH ₃	-16.3	Arsenic(III) iodide	AsI ₃	-142.2
Ammonia (aq)	NH ₃	-18.3	Arsenic(III) oxide	As ₂ O ₃	-30.34
Ammonium acetate	NH ₄ C ₂ H ₃ O ₂	-41.1	Arsenic(III) sulfide	As ₂ S ₃	-70
Ammonium bromide	NH ₄ Br	-47	Barium	Ba	+20.6
Ammonium carbonate	(NH ₄) ₂ CO ₃	-42.5	Barium bromide	BaBr ₂	-92
Ammonium chlorate	NH ₄ ClO ₃	-42.1	Barium bromide dihydrate	BaBr ₂ ·2H ₂ O	-119.3
Ammonium chloride	NH ₄ Cl	-36.7	Barium carbonate	BaCO ₃	-58.9
Ammonium fluoride	NH ₄ F	-23	Barium chloride	BaCl ₂	-72.6
Ammonium iodate	NH ₄ IO ₃	-62.3	Barium chloride dihydrate	BaCl ₂ ·2H ₂ O	-100
Ammonium iodide	NH ₄ I	-66	Barium fluoride	BaF ₂	-51
Ammonium nitrate	NH ₄ NO ₃	-33	Barium hydroxide	Ba(OH) ₂	-53.2
Ammonium sulfate	(NH ₄) ₂ SO ₄	-67	Barium iodate	Ba(IO ₃) ₂	-122.5
Ammonium thiocyanate	NH ₄ SCN	-48.1	Barium iodide	BaI ₂	-124.4
Antimony	Sb	-99	Barium iodide dihydrate	BaI ₂ ·2H ₂ O	-163
Stibine (g)	SbH ₃	-34.6	Barium nitrate	Ba(NO ₃) ₂	-66.5
Antimony(III) bromide	SbBr ₃	-111.4	Barium oxide	BaO	-29.1
Antimony(III) chloride	SbCl ₃	-86.7	Barium peroxide	BaO ₂	-40.6
Antimony(III) fluoride	SbF ₃	-46	Barium sulfate	BaSO ₄	-65.8
Antimony(III) iodide	SbI ₃	-147.2	Beryllium	Be	-9.0
Antimony(III) oxide	Sb ₂ O ₃	-69.4	Beryllium chloride	BeCl ₂	-26.5
Antimony(III) sulfide	Sb ₂ S ₃	-86	Beryllium hydroxide	Be(OH) ₂	-23.1
Antimony(V) chloride	SbCl ₅	-120.5	Beryllium oxide	BeO	-11.9
Argon (g)	Ar	-19.32	Beryllium sulfate	BeSO ₄	-37
Arsenic (gray)	As	-5.6	Bismuth	Bi	-280.1

MAGNETIC SUSCEPTIBILITY OF THE ELEMENTS AND INORGANIC COMPOUNDS (continued)

Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$	Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$
Bismuth tribromide	BiBr ₃	-147	Cesium	Cs	+29
Bismuth trichloride	BiCl ₃	-26.5	Cesium bromate	CsBrO ₃	-75.1
Bismuth fluoride	BiF ₃	-61.2	Cesium bromide	CsBr	-67.2
Bismuth hydroxide	Bi(OH) ₃	-65.8	Cesium carbonate	Cs ₂ CO ₃	-103.6
Bismuth triiodide	BiI ₃	-200.5	Cesium chlorate	CsClO ₃	-65
Bismuth nitrate pentahydrate	Bi(NO ₃) ₃ ·5H ₂ O	-159	Cesium chloride	CsCl	-56.7
Bismuth oxide	Bi ₂ O ₃	-83	Cesium fluoride	CsF	-44.5
Bismuth phosphate	BiPO ₄	-77	Cesium iodide	CsI	-82.6
Bismuth sulfate	Bi ₂ (SO ₄) ₃	-199	Cesium superoxide	CsO ₂	+1534
Bismuth sulfide	Bi ₂ S ₃	-123	Cesium sulfate	Cs ₂ SO ₄	-116
Boron	B	-6.7	Chlorine (l)	Cl ₂	-40.4
Diborane (g)	B ₂ H ₆	-21.0	Chlorine trifluoride (g)	ClF ₃	-26.5
Boric acid (orthoboric acid)	H ₃ BO ₃	-34.1	Chromium	Cr	+167
Boron trichloride	BCl ₃	-59.9	Chromium(II) chloride	CrCl ₂	+7230
Boron oxide	B ₂ O ₃	-38.7	Chromium(III) chloride	CrCl ₃	+6350
Bromine (l)	Br ₂	-56.4	Chromium(III) fluoride	CrF ₃	+4370
Bromine (g)	Br ₂	-73.5	Chromium(III) oxide	Cr ₂ O ₃	+1960
Bromine trifluoride	BrF ₃	-33.9	Chromium(III) sulfate	Cr ₂ (SO ₄) ₃	+11800
Bromine pentafluoride	BrF ₅	-45.1	Chromium(VI) oxide	CrO ₃	+40
Cadmium	Cd	-19.7	Cobalt	Co	Ferro.
Cadmium bromide	CdBr ₂	-87.3	Cobalt(II) bromide	CoBr ₂	+13000
Cadmium bromide tetrahydrate	CdBr ₂ ·4H ₂ O	-131.5	Cobalt(II) chloride	CoCl ₂	+12660
Cadmium carbonate	CdCO ₃	-46.7	Cobalt(II) chloride hexahydrate	CoCl ₂ ·6H ₂ O	+9710
Cadmium chloride	CdCl ₂	-68.7	Cobalt(II) cyanide	Co(CN) ₂	+3825
Cadmium chromate	CdCrO ₄	-16.8	Cobalt(II) fluoride	CoF ₂	+9490
Cadmium cyanide	Cd(CN) ₂	-54	Cobalt(II) iodide	CoI ₂	+10760
Cadmium fluoride	CdF ₂	-40.6	Cobalt(II) sulfate	CoSO ₄	+10000
Cadmium hydroxide	Cd(OH) ₂	-41	Cobalt(II) sulfide	CoS	+225
Cadmium iodate	Cd(IO ₃) ₂	-108.4	Cobalt(II,III) oxide	Co ₃ O ₄	+7380
Cadmium iodide	CdI ₂	-117.2	Cobalt(III) fluoride	CoF ₃	+1900
Cadmium nitrate	Cd(NO ₃) ₂	-55.1	Cobalt(III) oxide	Co ₂ O ₃	+4560
Cadmium nitrate tetrahydrate	Cd(NO ₃) ₂ ·4H ₂ O	-140	Copper	Cu	-5.46
Cadmium oxide	CdO	-30	Copper(I) bromide	CuBr	-49
Cadmium sulfate	CdSO ₄	-59.2	Copper(I) chloride	CuCl	-40
Cadmium sulfide	CdS	-50	Copper(I) cyanide	CuCN	-24
Calcium	Ca	+40	Copper(I) iodide	CuI	-63
Calcium bromide	CaBr ₂	-73.8	Copper(I) oxide	Cu ₂ O	-20
Calcium carbonate	CaCO ₃	-38.2	Copper(II) bromide	CuBr ₂	+685
Calcium chloride	CaCl ₂	-54.7	Copper(II) chloride	CuCl ₂	+1080
Calcium fluoride	CaF ₂	-28	Copper(II) chloride dihydrate	CuCl ₂ ·2H ₂ O	+1420
Calcium hydroxide	Ca(OH) ₂	-22	Copper(II) fluoride	CuF ₂	+1050
Calcium iodate	Ca(IO ₃) ₂	-101.4	Copper(II) fluoride dihydrate	CuF ₂ ·2H ₂ O	+1600
Calcium iodide	CaI ₂	-109	Copper(II) hydroxide	Cu(OH) ₂	+1170
Calcium oxide	CaO	-15.0	Copper(II) nitrate trihydrate	Cu(NO ₃) ₂ ·3H ₂ O	+1570
Calcium sulfate	CaSO ₄	-49.7	Copper(II) nitrate hexahydrate	Cu(NO ₃) ₂ ·6H ₂ O	+1625
Calcium sulfate dihydrate	CaSO ₄ ·2H ₂ O	-74	Copper(II) oxide	CuO	+238
Carbon (diamond)	C	-5.9	Copper(II) sulfate	CuSO ₄	+1330
Carbon (graphite)	C	-6.0	Copper(II) sulfate pentahydrate	CuSO ₄ ·5H ₂ O	+1460
Carbon monoxide (g)	CO	-9.8	Copper(II) sulfide	CuS	-2.0
Carbon dioxide (g)	CO ₂	-21.0	Dysprosium (α)	Dy	+98000
Cerium (β)	Ce	+2500	Dysprosium(III) oxide	Dy ₂ O ₃	+89600
Cerium(II) sulfide	CeS	+2110	Dysprosium(III) sulfide	Dy ₂ S ₃	+95200
Cerium(III) chloride	CeCl ₃	+2490	Erbium	Er	+48000
Cerium(III) fluoride	CeF ₃	+2190	Erbium oxide	Er ₂ O ₃	+73920
Cerium(III) sulfide	Ce ₂ S ₃	+5080	Erbium sulfate octahydrate	Er ₂ (SO ₄) ₃ ·8H ₂ O	+74600
Cerium(IV) oxide	CeO ₂	+26	Erbium sulfide	Er ₂ S ₃	+77200
Cerium(IV) sulfate tetrahydrate	Ce(SO ₄) ₂ ·4H ₂ O	-97			

MAGNETIC SUSCEPTIBILITY OF THE ELEMENTS AND INORGANIC COMPOUNDS (continued)

Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$	Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$
Europium	Eu	+30900	Iodic acid	HIO ₃	-48
Europium(II) bromide	EuBr ₂	+26800	Iodine pentoxide	I ₂ O ₅	-79.4
Europium(II) chloride	EuCl ₂	+26500	Iodine chloride	ICl	-54.6
Europium(II) fluoride	EuF ₂	+23750	Iodine trichloride	ICl ₃	-90.2
Europium(II) iodide	EuI ₂	+26000	Iodine pentafluoride	IF ₅	-58.1
Europium(II) sulfide	EuS	+23800	Iridium	Ir	+25
Europium(III) oxide	Eu ₂ O ₃	+10100	Iridium(III) chloride	IrCl ₃	-14.4
Europium(III) sulfate	Eu ₂ (SO ₄) ₃	+10400	Iridium(IV) oxide	IrO ₂	+224
Gadolinium (350 K)	Gd	+185000	Iron	Fe	Ferro.
Gadolinium(III) chloride	GdCl ₃	+27930	Iron(II) bromide	FeBr ₂	+13600
Gadolinium(III) oxide	Gd ₂ O ₃	+53200	Iron(II) carbonate	FeCO ₃	+11300
Gadolinium(III) sulfate octahydrate	Gd ₂ (SO ₄) ₃ ·8H ₂ O	+53280	Iron(II) chloride	FeCl ₂	+14750
Gadolinium(III) sulfide	Gd ₂ S ₃	+55500	Iron(II) chloride tetrahydrate	FeCl ₂ ·4H ₂ O	+12900
Gallium	Ga	-21.6	Iron(II) fluoride	FeF ₂	+9500
Gallium suboxide	Ga ₂ O	-34	Iron(II) iodide	FeI ₂	+13600
Gallium(II) sulfide	GaS	-23	Iron(II) oxide	FeO	+7200
Gallium(III) chloride	GaCl ₃	-63	Iron(II) sulfate	FeSO ₄	+12400
Gallium(III) sulfide	Ga ₂ S ₃	-80	Iron(II) sulfate monohydrate	FeSO ₄ ·H ₂ O	+10500
Germanium	Ge	-11.6	Iron(II) sulfate heptahydrate	FeSO ₄ ·7H ₂ O	+11200
Germane (g)	GeH ₄	-29.7	Iron(II) sulfide	FeS	+1074
Germanium(II) oxide	GeO	-28.8	Iron(III) chloride	FeCl ₃	+13450
Germanium(II) sulfide	GeS	-40.9	Iron(III) chloride hexahydrate	FeCl ₃ ·6H ₂ O	+15250
Germanium(IV) chloride	GeCl ₄	-72	Iron(III) fluoride	FeF ₃	+13760
Germanium(IV) fluoride	GeF ₄	-50	Iron(III) fluoride trihydrate	FeF ₃ ·3H ₂ O	+7870
Germanium(IV) iodide	GeI ₄	-171	Iron(III) nitrate nonahydrate	Fe(NO ₃) ₃ ·9H ₂ O	+15200
Germanium(IV) oxide	GeO ₂	-34.3	Krypton (g)	Kr	-29.0
Germanium(IV) sulfide	GeS ₂	-53.9	Lanthanum (α)	La	+95.9
Gold	Au	-28	Lanthanum oxide	La ₂ O ₃	-78
Gold(I) bromide	AuBr	-61	Lanthanum sulfate nonahydrate	La ₂ (SO ₄) ₃ ·9H ₂ O	-262
Gold(I) chloride	AuCl	-67	Lanthanum sulfide	La ₂ S ₃	-37
Gold(I) iodide	AuI	-91	Lead	Pb	-23
Gold(III) chloride	AuCl ₃	-112	Lead(II) acetate	Pb(C ₂ H ₃ O ₂) ₂	-89.1
Hafnium	Hf	+71	Lead(II) bromide	PbBr ₂	-90.6
Hafnium oxide	HfO ₂	-23	Lead(II) carbonate	PbCO ₃	-61.2
Helium (g)	He	-2.02	Lead(II) chloride	PbCl ₂	-73.8
Holmium	Ho	+72900	Lead(II) chromate	PbCrO ₄	-18
Holmium oxide	Ho ₂ O ₃	+88100	Lead(II) fluoride	PbF ₂	-58.1
Hydrazine (l)	N ₂ H ₄	-201	Lead(II) iodate	Pb(IO ₃) ₂	-131
Hydrogen (l, 20.3 K)	H ₂	-5.44	Lead(II) iodide	PbI ₂	-126.5
Hydrogen (g)	H ₂	-3.99	Lead(II) nitrate	Pb(NO ₃) ₂	-74
Hydrogen chloride (l)	HCl	-22.6	Lead(II) oxide	PbO	-42
Hydrogen chloride (aq)	HCl	-22	Lead(II) phosphate	Pb ₃ (PO ₄) ₂	-182
Hydrogen fluoride (l)	HF	-8.6	Lead(II) sulfate	PbSO ₄	-69.7
Hydrogen fluoride (aq)	HF	-9.3	Lead(II) sulfide	PbS	-83.6
Hydrogen iodide (s, 195 K)	HI	-47.3	Lithium	Li	+14.2
Hydrogen iodide (l, 233 K)	HI	-48.3	Lithium bromide	LiBr	-34.3
Hydrogen iodide (aq)	HI	-50.2	Lithium carbonate	Li ₂ CO ₃	-27
Hydrogen peroxide (l)	H ₂ O ₂	-17.3	Lithium chloride	LiCl	-24.3
Hydrogen sulfide (g)	H ₂ S	-25.5	Lithium fluoride	LiF	-10.1
Indium	In	-10.2	Lithium hydride	LiH	-4.6
Indium(I) chloride	InCl	-30	Lithium hydroxide (aq)	LiOH	-12.3
Indium(II) chloride	InCl ₂	-56	Lithium iodide	LiI	-50
Indium(II) sulfide	InS	-28	Lithium sulfate	Li ₂ SO ₄	-41.6
Indium(III) bromide	InBr ₃	-107	Lutetium	Lu	+182.9
Indium(III) chloride	InCl ₃	-86	Magnesium	Mg	+13.1
Indium(III) oxide	In ₂ O ₃	-56	Magnesium bromide	MgBr ₂	-72
Indium(III) sulfide	In ₂ S ₃	-98	Magnesium carbonate	MgCO ₃	-32.4
Iodine	I ₂	-90	Magnesium chloride	MgCl ₂	-47.4

MAGNETIC SUSCEPTIBILITY OF THE ELEMENTS AND INORGANIC COMPOUNDS (continued)

Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$	Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$
Magnesium fluoride	MgF ₂	-22.7	Molybdenum(VI) fluoride	MoF ₆	-26.0
Magnesium hydroxide	Mg(OH) ₂	-22.1	Molybdenum(VI) oxide	MoO ₃	+3
Magnesium iodide	MgI ₂	-111	Neodymium (α)	Nd	+5930
Magnesium oxide	MgO	-10.2	Neodymium fluoride	NdF ₃	+4980
Magnesium sulfate	MgSO ₄	-42	Neodymium oxide	Nd ₂ O ₃	+10200
Magnesium sulfate monohydrate	MgSO ₄ ·H ₂ O	-61	Neodymium sulfate	Nd ₂ (SO ₄) ₃	+9990
Magnesium sulfate heptahydrate	MgSO ₄ ·7H ₂ O	-135.7	Neodymium sulfide	Nd ₂ S ₃	+5550
Manganese	Mn	+511	Neon (g)	Ne	-6.96
Manganese(II) bromide	MnBr ₂	+13900	Neptunium	Np	+575
Manganese(II) carbonate	MnCO ₃	+11400	Nickel	Ni	Ferro.
Manganese(II) chloride	MnCl ₂	+14350	Nickel(II) bromide	NiBr ₂	+5600
Manganese(II) chloride tetrahydrate	MnCl ₂ ·4H ₂ O	+14600	Nickel(II) chloride	NiCl ₂	+6145
Manganese(II) fluoride	MnF ₂	+10700	Nickel(II) chloride hexahydrate	NiCl ₂ ·6H ₂ O	+4240
Manganese(II) hydroxide	Mn(OH) ₂	+13500	Nickel(II) fluoride	NiF ₂	+2410
Manganese(II) iodide	MnI ₂	+14400	Nickel(II) hydroxide	Ni(OH) ₂	+4500
Manganese(II) oxide	MnO	+4850	Nickel(II) iodide	NiI ₂	+3875
Manganese(II) sulfate	MnSO ₄	+13660	Nickel(II) nitrate hexahydrate	Ni(NO ₃) ₂ ·6H ₂ O	+4300
Manganese(II) sulfate monohydrate	MnSO ₄ ·H ₂ O	+14200	Nickel(II) oxide	NiO	+660
Manganese(II) sulfate tetrahydrate	MnSO ₄ ·4H ₂ O	+14600	Nickel(II) sulfate	NiSO ₄	+4005
Manganese(II) sulfide (α form)	MnS	+5630	Nickel(II) sulfide	NiS	+190
Manganese(II) sulfide (β form)	MnS	+3850	Nickel(III) sulfide	Ni ₃ S ₂	+1030
Manganese(II,III) oxide	Mn ₃ O ₄	+12400	Niobium	Nb	+208
Manganese(III) fluoride	MnF ₃	+10500	Niobium(V) oxide	Nb ₂ O ₅	-10
Manganese(III) oxide	Mn ₂ O ₃	+14100	Nitrogen (g)	N ₂	-12.0
Manganese(IV) oxide	MnO ₂	+2280	Nitric acid (l)	HNO ₃	-19.9
Mercury (s, 234 K)	Hg	-24.1	Nitrous oxide (g)	N ₂ O	-18.9
Mercury (l)	Hg	-33.5	Nitric oxide (s, 90 K)	NO	+19.8
Mercury(I) bromide	Hg ₂ Br ₂	-105	Nitric oxide (l, 118 K)	NO	+114.2
Mercury(I) chloride	Hg ₂ Cl ₂	-120	Nitric oxide (g)	NO	+1461
Mercury(I) fluoride	Hg ₂ F ₂	-106	Nitrogen dioxide (g, 408 K)	NO ₂	+150
Mercury(I) iodide	Hg ₂ I ₂	-166	Nitrogen trioxide (g)	N ₂ O ₃	-16
Mercury(I) nitrate	Hg ₂ (NO ₃) ₂	-121	Nitrogen tetroxide (g)	N ₂ O ₄	-23.0
Mercury(I) oxide	Hg ₂ O	-76.3	Osmium	Os	+11
Mercury(I) sulfate	Hg ₂ SO ₄	-123	Oxygen (s, 54 K)	O ₂	+10200
Mercury(II) bromide	HgBr ₂	-94.2	Oxygen (l, 90 K)	O ₂	+7699
Mercury(II) chloride	HgCl ₂	-82	Oxygen (g)	O ₂	+3449
Mercury(II) cyanide	Hg(CN) ₂	-67	Ozone (l)	O ₃	+6.7
Mercury(II) fluoride	HgF ₂	-57.3	Palladium	Pd	+540
Mercury(II) iodide	HgI ₂	-165	Palladium(II) chloride	PdCl ₂	-38
Mercury(II) nitrate	Hg(NO ₃) ₂	-74	Phosphorus (white)	P	-26.66
Mercury(II) oxide	HgO	-46	Phosphorus (red)	P	-20.77
Mercury(II) sulfate	HgSO ₄	-78.1	Phosphine (g)	PH ₃	-26.2
Mercury(II) sulfide	HgS	-55.4	Phosphoric acid (aq)	H ₃ PO ₄	-43.8
Mercury(II) thiocyanate	Hg(SCN) ₂	-96.5	Phosphorous acid (aq)	H ₃ PO ₃	-42.5
Molybdenum	Mo	+72	Phosphorus(III) chloride (l)	PCl ₃	-63.4
Molybdenum(III) bromide	MoBr ₃	+525	Platinum	Pt	+193
Molybdenum(III) chloride	MoCl ₃	+43	Platinum(II) chloride	PtCl ₂	-54
Molybdenum(III) oxide	Mo ₂ O ₃	-42.0	Platinum(III) chloride	PtCl ₃	-66.7
Molybdenum(IV) bromide	MoBr ₄	+520	Platinum(IV) chloride	PtCl ₄	-93
Molybdenum(IV) chloride	MoCl ₄	+1750	Platinum(IV) fluoride	PtF ₄	+445
Molybdenum(IV) oxide	MoO ₂	+41	Plutonium	Pu	+525
Molybdenum(V) chloride	MoCl ₅	+990	Plutonium(IV) fluoride	PuF ₄	+1760
			Plutonium(IV) oxide	PuO ₂	+730
			Plutonium(VI) fluoride	PuF ₆	+173
			Potassium	K	+20.8
			Potassium bromate	KBrO ₃	-52.6
			Potassium bromide	KBr	-49.1
			Potassium carbonate	K ₂ CO ₃	-59

MAGNETIC SUSCEPTIBILITY OF THE ELEMENTS AND INORGANIC COMPOUNDS (continued)

Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$	Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$
Potassium chlorate	KClO ₃	-42.8	Silane (g)	SiH ₄	-20.4
Potassium chloride	KCl	-38.8	Disilane (g)	Si ₂ H ₆	-37.3
Potassium chromate	K ₂ CrO ₄	-3.9	Tetramethylsilane (l)	(CH ₃) ₄ Si	-74.80
Potassium cyanide	KCN	-37	Tetraethylsilane (l)	(C ₂ H ₅) ₄ Si	-120.2
Potassium ferricyanide	K ₃ Fe(CN) ₆	+2290	Tetrabromosilane (l)	SiBr ₄	-126
Potassium ferrocyanide trihydrate	K ₄ Fe(CN) ₆ ·3H ₂ O	-172.3	Tetrachlorosilane (l)	SiCl ₄	-87.5
Potassium fluoride	KF	-23.6	Silicon carbide	SiC	-12.8
Potassium hydrogen sulfate	KHSO ₄	-49.8	Silicon dioxide	SiO ₂	-29.6
Potassium hydroxide (aq)	KOH	-22	Silver	Ag	-19.5
Potassium iodate	KIO ₃	-63.1	Silver(I) bromide	AgBr	-61
Potassium iodide	KI	-63.8	Silver(I) carbonate	Ag ₂ CO ₃	-80.90
Potassium nitrate	KNO ₃	-33.7	Silver(I) chloride	AgCl	-49
Potassium nitrite	KNO ₂	-23.3	Silver(I) chromate	Ag ₂ CrO ₄	-40
Potassium permanganate	KMnO ₄	+20	Silver(I) cyanide	AgCN	-43.2
Potassium sulfate	K ₂ SO ₄	-67	Silver(I) fluoride	AgF	-36.5
Potassium sulfide	K ₂ S	-60	Silver(I) iodide	AgI	-80
Potassium superoxide	KO ₂	+3230	Silver(I) nitrate	AgNO ₃	-45.7
Potassium thiocyanate	KSCN	-48	Silver(I) nitrite	AgNO ₂	-42
Praseodymium (α)	Pr	+5530	Silver(I) oxide	Ag ₂ O	-134
Praseodymium chloride	PrCl ₃	+44.5	Silver(I) phosphate	Ag ₃ PO ₄	-120
Praseodymium oxide	Pr ₂ O ₃	+8994	Silver(I) sulfate	Ag ₂ SO ₄	-92.90
Praseodymium sulfide	Pr ₂ S ₃	+10770	Silver(I) thiocyanate	AgSCN	-61.8
Protactinium	Pa	+277	Silver(II) oxide	AgO	-19.6
Rhenium	Re	+67	Sodium	Na	+16
Rhenium(IV) oxide	ReO ₂	+44	Sodium acetate	NaC ₂ H ₃ O ₂	-37.6
Rhenium(IV) sulfide	ReS ₂	+38	Sodium bromate	NaBrO ₃	-44.2
Rhenium(V) chloride	ReCl ₅	+1225	Sodium bromide	NaBr	-41
Rhenium(VI) oxide	ReO ₃	+16	Sodium carbonate	Na ₂ CO ₃	-41
Rhenium(VII) oxide	Re ₂ O ₇	-16	Sodium chlorate	NaClO ₃	-34.7
Rhodium	Rh	+102	Sodium chloride	NaCl	-30.2
Rhodium(III) chloride	RhCl ₃	-7.5	Sodium dichromate	Na ₂ Cr ₂ O ₇	+55
Rhodium(III) oxide	Rh ₂ O ₃	+104	Sodium fluoride	NaF	-15.6
Rubidium	Rb	+17	Sodium hydrogen phosphate	Na ₂ HPO ₄	-56.6
Rubidium bromide	RbBr	-56.4	Sodium hydroxide (aq)	NaOH	-15.8
Rubidium carbonate	Rb ₂ CO ₃	-75.4	Sodium iodate	NaIO ₃	-53
Rubidium chloride	RbCl	-46	Sodium iodide	NaI	-57
Rubidium fluoride	RbF	-31.9	Sodium nitrate	NaNO ₃	-25.6
Rubidium iodide	RbI	-72.2	Sodium nitrite	NaNO ₂	-14.5
Rubidium nitrate	RbNO ₃	-41	Sodium oxide	Na ₂ O	-19.8
Rubidium sulfate	Rb ₂ SO ₄	-88.4	Sodium peroxide	Na ₂ O ₂	-28.10
Rubidium superoxide	RbO ₂	+1527	Sodium sulfate	Na ₂ SO ₄	-52
Ruthenium	Ru	+39	Sodium sulfate decahydrate	Na ₂ SO ₄ ·10H ₂ O	-184
Ruthenium(III) chloride	RuCl ₃	+1998	Sodium sulfide	Na ₂ S	-39
Ruthenium(IV) oxide	RuO ₂	+162	Sodium tetraborate	Na ₂ B ₄ O ₇	-85
Samarium (α)	Sm	+1278	Strontium	Sr	+92
Samarium(II) bromide	SmBr ₂	+5337	Strontium bromide	SrBr ₂	-86.6
Samarium(III) bromide	SmBr ₃	+972	Strontium bromide hexahydrate	SrBr ₂ ·6H ₂ O	-160
Samarium(III) oxide	Sm ₂ O ₃	+1988	Strontium carbonate	SrCO ₃	-47
Samarium(III) sulfate octahydrate	Sm ₂ (SO ₄) ₃ ·8H ₂ O	+1710	Strontium chlorate	Sr(ClO ₃) ₂	-73
Samarium(III) sulfide	Sm ₂ S ₃	+3300	Strontium chloride	SrCl ₂	-61.5
Scandium (α)	Sc	+295.2	Strontium chloride hexahydrate	SrCl ₂ ·6H ₂ O	-145
Selenium	Se	-25	Strontium chromate	SrCrO ₄	-5.1
Selenium dioxide	SeO ₂	-27.2	Strontium fluoride	SrF ₂	-37.2
Selenium bromide	Se ₂ Br ₂	-113	Strontium hydroxide	Sr(OH) ₂	-40
Selenium chloride (l)	Se ₂ Cl ₂	-94.8	Strontium iodate	Sr(IO ₃) ₂	-108
Selenium hexafluoride (g)	SeF ₆	-51	Strontium iodide	SrI ₂	-112
Silicon	Si	-3.12	Strontium nitrate	Sr(NO ₃) ₂	-57.2

MAGNETIC SUSCEPTIBILITY OF THE ELEMENTS AND INORGANIC COMPOUNDS (continued)

Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$	Name	Formula	$\chi_m/10^{-6} \text{ cm}^3 \text{ mol}^{-1}$
Strontium oxide	SrO	-35	Tungsten	W	+53
Strontium peroxide	SrO ₂	-32.3	Tungsten carbide	WC	+10
Strontium sulfate	SrSO ₄	-57.9	Tungsten(II) chloride	WCl ₂	-25
Sulfur (rhombic)	S	-15.5	Tungsten(IV) oxide	WO ₂	+57
Sulfur (monoclinic)	S	-14.9	Tungsten(IV) sulfide	WS ₂	+5850
Sulfuric acid (l)	H ₂ SO ₄	-39	Tungsten(V) bromide	WBr ₅	+270
Sulfur dioxide (g)	SO ₂	-18.2	Tungsten(V) chloride	WCl ₅	+387
Sulfur trioxide (l)	SO ₃	-28.54	Tungsten(VI) chloride	WCl ₆	-71
Sulfur chloride (l)	SSCl ₂	-62.2	Tungsten(VI) fluoride (g)	WF ₆	-53
Sulfur dichloride (l)	SCl ₂	-49.4	Tungsten(VI) oxide	WO ₃	-15.8
Sulfur hexafluoride (g)	SF ₆	-44	Uranium	U	+409
Thionyl chloride (l)	SOCl ₂	-44.3	Uranium(III) bromide	UBr ₃	+4740
Tantalum	Ta	+154	Uranium(III) chloride	UCl ₃	+3460
Tantalum(V) chloride	TaCl ₅	+140	Uranium(III) hydride	UH ₃	+6244
Tantalum(V) oxide	Ta ₂ O ₅	-32	Uranium(III) iodide	UI ₃	+4460
Technetium	Tc	+115	Uranium(IV) bromide	UBr ₄	+3530
Tellurium	Te	-38	Uranium(IV) chloride	UCl ₄	+3680
Tellurium dibromide	TeBr ₂	-106	Uranium(IV) fluoride	UF ₄	+3530
Tellurium dichloride	TeCl ₂	-94	Uranium(IV) oxide	UO ₂	+2360
Tellurium hexafluoride (g)	TeF ₆	-66	Uranium(VI) fluoride	UF ₆	+43
Terbium (α)	Tb	+170000	Uranium(VI) oxide	UO ₃	+128
Terbium oxide	Tb ₂ O ₃	+78340	Vanadium	V	+285
Thallium	Tl	-50	Vanadium(II) bromide	VBr ₂	+3230
Thallium(I) bromate	TlBrO ₃	-75.9	Vanadium(II) chloride	VCl ₂	+2410
Thallium(I) bromide	TlBr	-63.9	Vanadium(III) bromide	VBr ₃	+2910
Thallium(I) carbonate	Tl ₂ CO ₃	-101.6	Vanadium(III) chloride	VCl ₃	+3030
Thallium(I) chlorate	TlClO ₃	-65.5	Vanadium(III) fluoride	VF ₃	+2757
Thallium(I) chloride	TlCl	-57.8	Vanadium(III) oxide	V ₂ O ₃	+1976
Thallium(I) chromate	Tl ₂ CrO ₄	-39.3	Vanadium(III) sulfide	V ₂ S ₃	+1560
Thallium(I) cyanide	TlCN	-49	Vanadium(IV) chloride	VCl ₄	+1215
Thallium(I) fluoride	TlF	-44.4	Vanadium(IV) oxide	VO ₂	+99
Thallium(I) iodate	TlHO ₃	-86.8	Vanadium(V) oxide	V ₂ O ₅	+128
Thallium(I) iodide	TlI	-82.2	Water (s, 273 K)	H ₂ O	-12.63
Thallium(I) nitrate	TlNO ₃	-56.5	Water (l, 293 K)	H ₂ O	-12.96
Thallium(I) nitrite	TlNO ₂	-50.8	Water (l, 373 K)	H ₂ O	-13.09
Thallium(I) sulfate	Tl ₂ SO ₄	-112.6	Water (g, 373 K))	H ₂ O	-13.1
Thallium(I) sulfide	Tl ₂ S	-88.8	Xenon (g)	Xe	-45.5
Thorium	Th	+97	Ytterbium (β)	Yb	+67
Thorium(IV) oxide	ThO ₂	-16	Yttrium (α)	Y	+187.7
Thulium	Tm	+24700	Yttrium oxide	Y ₂ O ₃	+44.4
Thulium oxide	Tm ₂ O ₃	+51444	Yttrium sulfide	Y ₂ S ₃	+100
Tin (gray)	Sn	-37.4	Zinc	Zn	-9.15
Tin(II) chloride	SnCl ₂	-69	Zinc carbonate	ZnCO ₃	-34
Tin(II) chloride dihydrate	SnCl ₂ ·2H ₂ O	-91.4	Zinc chloride	ZnCl ₂	-55.33
Tin(II) oxide	SnO	-19	Zinc cyanide	Zn(CN) ₂	-46
Tin(IV) bromide	SnBr ₄	-149	Zinc fluoride	ZnF ₂	-34.3
Tin(IV) chloride (l)	SnCl ₄	-115	Zinc hydroxide	Zn(OH) ₂	-67
Tin(IV) oxide	SnO ₂	-41	Zinc iodide	ZnI ₂	-108
Titanium	Ti	+151	Zinc oxide	ZnO	-27.2
Titanium(II) bromide	TiBr ₂	+720	Zinc phosphate	Zn ₃ (PO ₄) ₂	-141
Titanium(II) chloride	TiCl ₂	+484	Zinc sulfate	ZnSO ₄	-47.8
Titanium(II) iodide	TiI ₂	+1790	Zinc sulfate monohydrate	ZnSO ₄ ·H ₂ O	-63
Titanium(II) sulfide	TiS	+432	Zinc sulfate heptahydrate	ZnSO ₄ ·7H ₂ O	-138
Titanium(III) bromide	TiBr ₃	+660	Zinc sulfide	ZnS	-25
Titanium(III) chloride	TiCl ₃	+1110	Zirconium	Zr	+120
Titanium(III) fluoride	TiF ₃	+1300	Zirconium carbide	ZrC	-26
Titanium(III) oxide	Ti ₂ O ₃	+132	Zirconium nitrate	Zr(NO ₃) ₄ ·5H ₂ O	-77
Titanium(IV) chloride	TiCl ₄	-54	pentahydrate		
Titanium(IV) oxide	TiO ₂	+5.9	Zirconium(IV) oxide	ZrO ₂	-13.8