SC-Database
Software version = 5.81 Data version = 4.62
Experiment list contains 153 experiments for
 (no ligands specified)
 Metal : Ge(IV)
 (no references specified)
 (no experimental details specified)

****
e- HL Electron (442)
Electron;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) kin oth/un 25?°C 1.00M U 1965REa (513) 1
K(Ge(IV) + 2e = Ge++)=0
K(Ge(IV)+4e=Ge(s))=8.38, 124mV
Medium: H2SO4

Ge(IV) EMF none 25°C 0.0 U 1959LBa (514) 2
K=-4.0(brown GeO,-118 mV)
K=-9.2(yellow GeO,-273 mV)
K(Ge(II)+2e=Ge(s))=7.81(231mV)
K: GeO2(s,hex)+2H+2e=GeO(s)+H2O. K(H2GeO3+4H+4e=Ge(s)+3H2O)=0.7(11 mV)
****
Br- HL Bromide CAS 10035-10-6 (19)
Bromide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) dis oth/un 25°C ? C 1991SOa (1943) 3
K(GeMe(OH)+H+L=GeMeL)=-2.57
K(GeMe(OH)2+2H+2L=GeMeL2)=-4.3
K(GeMe(OH)3+3H+3L=GeMeL3)=-4.7
K(GeMe2(OH)+H+L=GeMe2L)=-1.59
K(GeMe2(OH)2+2H+2L=GeMe2L2)=-3.49
****
Cl- HL Chloride CAS 7647-01-0 (50)
Chloride;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) dis oth/un 25°C ? C 1991SOa (4931) 4
K(Ge(OH)+H+L=GeL(H2O))=-3.02
K(Ge(OH)2+2H+2L=GeL2)=-3.84
K(Ge(OH)3+3H+3L=GeL3)=-4.82
K(Ge(OH)4+4H+4L=GeL4)=-5.09
K(MeGe(OH)+H+L=MeGeL)=-2.31; K(MeGe(OH)2+2H+2L=MeGe(OH)2)=-2.95; K(MeGe(OH)3
+3H+3L=MeGeL3)=-3.81; K(Me2Ge(OH)+H+L=Me2GeL)=-0.71;K(Me2Ge(OH)2+2H+2L)=-2.2

```
Ge(IV)     sp  oth/un   ?   var  U                        1961ADb  (4932)   5
                                        K5K6=-5.06
********************************************************************************
F-                      HL    Fluoride         CAS 7644-39-3  (201)
Fluoride;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Ge(IV)     ISE NaClO4 25°C 3.00M U  I                       1990CIc  (6930)   6
                                        *B(2,-1)=2.9
                                        *B(4,0)=7.18
                                        *B(4,1)=6.65
                                        *B(6,1)=9.94
*B(6,2)=9.59. *B(p,q): Ge(OH)4 + pHF = Ge(OH)xFp + qH + 4-x H2O. Data also
in 3.0 M LiClO4
--------------------------------------------------------------------------------
Ge(IV)     dis oth/un 20°C    ?  U        K1=1.68   B2=3.03   1979NVa  (6931)   7
                                        B3=4.18
                                        B4=5.17
                                        B5=6.07
                                        B6=7.24
--------------------------------------------------------------------------------
Ge(IV)     ix  oth/un   ?     ?  U                        1972PAb  (6932)   8
                                        K6=3.21
--------------------------------------------------------------------------------
Ge(IV)     ix  KCl      ?  0.50M U                       1968PMf  (6933)   9
                                        K6=3.86
--------------------------------------------------------------------------------
Ge(IV)     ISE oth/un 25°C  var  U T                      1965RKa  (6934)  10
                                        K=-30.9
                                        K(GeF6+2H2O=4H+6F+GeO2)=-25.8
K: K2GeF6(s)+2H2O=2K+4H+6F+GeO2(s,hex)
--------------------------------------------------------------------------------
Ge(IV)     oth NaCl   50°C 0.40M U T H                    1964RKb  (6935)  11
                                        K(GeF5H2O+HF=GeF6+H3O)=0.34
Method:chemical analysis. K=0.66(0 C),0.62(10 C),0.58(20 C),0.50(30 C),
0.42(40 C). At 25 C: DH(K)=10.8 kJ mol-1, DS=-26.3 J K-1 mol-1
--------------------------------------------------------------------------------
Ge(IV)     oth oth/un 25°C  dil  U T                     1964RKc  (6936)  12
                                        K(GeF4H2OOH+HF+F=GeF6)=5.3
Method: chemical analysis, quinhydrone electrode. At 0 C:K=5.9
--------------------------------------------------------------------------------
Ge(IV)     EMF NaClO4 25°C 0.50M U                      1963BPb  (6937)  13
                                        K(Ge(OH)4+4HF)=7.30
                                        K(Ge(OH)4+5HF)=8.94
********************************************************************************
MoO4--                  H2L    Molybdate          (443)
Molybdate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
```

```
-------------------------------------------------------------------------------
Ge(IV)     sp  oth/un   ?     ?  U                        1960KRb  (8735)  14
K(H4GeO4+4H2Mo3O10=H4GeMo12O40+4H2O)? =12.86 (pH 2.40)
*******************************************************************************
OH-                    HL    Hydroxide          (57)
Hydroxide;
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Ge(IV)     gl  NaClO4 25°C 0.10M C                        2000KAa (11543)  15
                                        K(Ge(OH)4=GeO(OH)3+H)=-9.16
-------------------------------------------------------------------------------
Ge(IV)     gl  oth/un 25°C  0.0  C T                      1998PSb (11544)  16
                                        K(GeO2(s)+2H2O=Ge(OH)4)=-5.02
                                        K(GeO(OH)3+H=Ge(OH)4)=9.32
Method: solubility of GeO2(tetr) in dil KOH, 21-90 C. Also solubility data
for GeO2 at pH 1.5-10 at 25-350 C.
-------------------------------------------------------------------------------
Ge(IV)     sol NaCl   25°C 0.10M C                       1998PSc (11545)  17
                                        Ks(GeO2+2H2O=Ge(OH)4)=-1.38
Method: solubility of GeO2(hex) in NaCl.
-------------------------------------------------------------------------------
Ge(IV)     sol none    RT   0.0  C                       1990DEa (11546)  18
                                        Ks(Ge(OH)4+2H)=-19.26
                                        K(4Ge(OH)4(s)+GeO2(OH)2)=13.15
K: 4Ge(OH)4(s)+GeO2(OH)2=Ge5O11+9H2O
-------------------------------------------------------------------------------
Ge(IV)     sp  KNO3   25°C 0.10M U  I     K1=14.18  B2=27.98  1968NFa (11547)  19
                                        B3=41.52
                                        B4=54.81
K1=13.73, B2=29.28, B3=43.47, B4=56.98(I=1). Also when I=0.3, 0.5
-------------------------------------------------------------------------------
Ge(IV)     dis oth/un 25°C       U       K1=14.78  B2=29.18  1966ANa (11548)  20
                                        B3=43.32
                                        B4=56.85
Medium: LiCl
-------------------------------------------------------------------------------
Ge(IV)     sol oth/un 25°C  var  U                       1964GZa (11549)  21
                                        *Ks(Ge(OH)2(s)+H=GeOH)=-1.26
                                        K(GeOH+H=Ge(II))=-1.7 ?
Ge as Ge++ ?
*******************************************************************************
O2--                   H2L    Peroxide         CAS 7772-84-1  (2813)
Peroxide; -O.O-
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Ge(IV)     gl  KCl    25°C 0.10M U                        1960ARb (12665)  22
                                        K(GeO(OH)3+2H2L)=1.68
*******************************************************************************
```

SO4-- H2L Sulfate CAS 7664-93-9 (15)
Sulfate;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	oth/un	70°C	?	U			1974NOa (16226)	23
							K(GeO2+HL)=-0.15		

Medium: H2SO4

****

CH4O L Methyl alcohol CAS 67-56-1 (597)
Methanol; CH3.OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	EMF	alc/w	20°C	100%	U			1964GUa (17882)	24
							K(Ge(H-1L)3+H-1L)=13.65		
							K(Ge(H-1L)4+H=Ge(H-1L)3)=2.95		

Method: H electrode. Medium: MeOH, 1.0 M Me4NCl

****

C2H2O4 H2L Oxalic acid CAS 144-62-7 (24)
Ethanedioic acid; (COOH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	ix	oth/un	25°C	?	U			1964KSd (18914)	25
							K3=3.5		

****

C2H4O3 HL Glycolic acid CAS 79-14-1 (33)
2-Hydroxyethanoic acid; HO.CH2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KNO3	25°C	0.10M	U			1975BPf (20552)	26
							K(Ge(OH)2+2L)=0.25		

****

C2H6OS HL CAS 60-24-2 (841)
2-Mercaptoethanol; HS.CH2.CH2.OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KCl	25°C	0.10M	U			1963ATa (22065)	27
K(H2GeO3+2HL=GeOH(H1L)2+H)=-4.22									

****

C2H6O2 L Ethyleneglycol CAS 107-21-1 (924)
1,2-Dihydroxyethane (Ethane-1,2-diol); HO.CH2.CH2.OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	EMF	KCl	25°C	0.10M	U			1959ANa (22147)	28
							K(HGeO3+L)=0.17		

K(HGeO3+2L)=-0.37
Method: quinhydrone electrode
****
C2H8O7P2 H4L HEDPA CAS 2809-21-4 (436)
1-Hydroxyethane-1,1-diphosphonic acid; CH3.C(OH)(PO3H2)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaNO3	20°C	0.10M	U			1983SBb (23376)	29
							K(Ge(OH)2+H3L)=2.52		

****
C3H6OS2 HL Xanthic acid CAS 151-01-9 (590)
(Ethoxy)dithiomethanoic acid; CH3.CH2O.CSSH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	KNO3	20°C	0.10M	U	I		1982SGc (24873)	30
							K(Ge(OH)2+2L)=8.81		

****
C3H6O3 HL L-Lactic acid CAS 79-33-4 (82)
L-2-Hydroxypropanoic acid; CH3.CH(OH).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KNO3	25°C	0.10M	U			1975BPf (25454)	31
							K(Ge(OH)2+2L)=0.46		
Ge(IV)	con	NaCl	18°C	1.0M	U			1957VAa (25455)	32
							K(H2GeO3+2HL)=0.6(?)		
Ge(IV)	gl	oth/un	18°C	0.0	U			1957VAa (25456)	33
							K(H2GeO3+2HL)=1.9(?)		

****
C3H8O2 L Propyleneglycol CAS 57-55-6 (2025)
Propan-1,2-diol; CH3.CH(OH).CH2(OH)

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	EMF	KCl	25°C	0.10M	U			1959ANa (27677)	34
							K(HGeO3+L)=0.28		
							K(HGeO3+2L)=0.06		

Method: quinhydrone electrode.
****
C3H8O3 L Glycerol CAS 56-81-5 (2707)
Propane-1,2,3-triol; HO.CH2.CH(OH).CH2.OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KCl	25°C	0.10M	U	I		1957ANa (27735)	35
							K(HGeO3+L)=1.21		

K(HGeO3+2L)=1.94
K(HGeO3+2L)=1.105-1.700sqrtI
****
C3H12NO9P3 H6L NTPA CAS 6419-19-8 (2920)
Nitrilotris(methylenephosphonic acid); N(CH2PO3H2)3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	KNO3	20°C	0.10M	U			1984SBa (28570)	36
							K(Ge+H2L)=13.64		

****
C4H6O5 H2L Malic acid CAS 617-48-1 (393)
2-Hydroxybutane-1,4-dioic acid, Hydroxy-succinic acid; HOOC.CH2.CH(OH).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	con	NaCl	18°C	1.0M	U			1957VAa (30639)	37
							K(H2GeO3+2H2L)=0.68		
Ge(IV)	gl	oth/un	18°C	0.0	U			1957VAa (30640)	38
							K(H2GeO3+2H2L)=2.92		

****
C4H6O6 H2L L-Tartaric acid CAS 87-69-4 (92)
L-Tartaric acid, L-2,3-Dihydroxybutanedioic acid; HOOC.CH(OH).CH(OH).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaNO3	25°C	0.10M	U			1973BPa (31266)	39
							K(Ge(OH)2+H2L)=4.13		
Ge(IV)	gl	NaCl	18°C	1.0M	U			1957VAa (31267)	40
							K(H2GeO3+HL)=5.2		

****
C4H10O2 L Butanediol CAS 26171-83-5 (3574)
Butanediol (1,2-/1,3-/1,4- etc not stated)

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	EMF	KCl	25°C	0.10M	U			1959ANa (34667)	41
							K(HGeO3+L)=0.64		
							K(HGeO3+2L)=0.04		

Method: quinhydrone electrode.
****
C4H10O3 L CAS 623-39-2 (3577)
3-Methoxypropan-1,2-diol; CH2(OH).CH(OH).CH2.OCH3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	oth	KCl	25°C	0.10M	U			1959ANa (34707)	42
							K(HGeO3+L=GeO2H-2L)=0.84		

K(HGeO3+2L=HGeO(H-2L)2)=0.58
Method: quinhydrone electrode
****
C4H11NO8P2 H5L CAS 2439-99-8 (2129)
N-Carboxymethyl-N,N-bis(methylenephosphonic acid); HOOC.CH2.N(CH2.PO3H2)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	KNO3	20°C	0.10M	U			1988SBb (35109)	43
							K(Ge+HL)=17.1		

Phosphate buffer pH=6

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	KNO3	20°C	0.10M	U			1986SBb (35110)	44
							K(Ge(OH)2+H2L)=4.18		

****
C5H4O3 HL Pyromeconic aci CAS 496-63-9 (3600)
3-Hydroxy-4H-pyran-4-one;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaCl	25°C	0.50M	U			1967CBb (36272)	45
							K(Ge(OH)4+2HL=Ge(OH)2L2)=2.86		

****
C5H5N L Pyridine CAS 110-86-1 (31)
Pyridine, Azine;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	cal	non-aq	25°C	100%	U	H		1967MOb (36638)	46

Medium: n-hexane. DH(GeF4(l)+2L(l)=GeF4L2(c))=-202.3 kJ mol-1, DH(GeF4(g)+ 2L(l)=GeF4L2(c))=-224; DH(GeCl4(g)+2L(l)=GeCl4L2(c))=-207. Plus others
****
C5H10NO7P H4L PMIDA CAS 5994-61-6 (2433)
N-(Phosphonomethyl)iminodiethanoic acid; H2O3P.CH2.N(CH2.COOH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	KNO3	20°C	0.10M	U			1988SBb (39676)	47
							K(Ge(OH)+HL)=10.4		

Phosphate buffer pH 6

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	KNO3	20°C	0.10M	U			1986SBb (39677)	48
							K(Ge(OH)2+HL)=6.48		

****
C5H10OS2 HL CAS 110-50-9 (591)
(Butoxy)dithiomethanoic acid; CH3.CH2.CH2.CH2O.CSSH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	KNO3	20°C	0.10M	U	I		1982SGc (40158)	49

K(Ge(OH)2+2L)=8.82

****

C5H10O4 L Deoxy-Ribose CAS 533-67-5 (7470)
2-Deoxy-D-ribose, 2-Deoxy-D-erythro-pentose;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KCl	25°C	0.10M	U		1979HUa (40327)		50
							K(H2GeO3+L)=3.44		

****

C5H10O5 L D-Arabinose CAS 10323-20-3 (3606)
D-Arabinose;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KCl	25°C	0.10M	U		1959ATa (40335)		51
							K(HGeO3+2L=HGeO(H-2L)2)=3.52		

****

C5H10O5 L D-Xylose CAS 58-86-6 (3607)
D-Xylose;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KCl	25°C	0.10M	U		1959ATa (40362)		52
							K(HGeO3+2L=HGeO(H-2L)2)=3.38		

****

C5H10O5 L L-Arabinose CAS 5328-37-0 (1616)
L-Arabinose

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KCl	25°C	0.10M	U		1959ATa (40370)		53
							K(HGeO3+2L=HGeO(H-2L)2)=3.63		

****

C6HO3Cl3 HL CAS 69173-78-0 (3668)
Trichlorohydroxy-1,4-benzoquinone;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaCl	25°C	0.50M	U		1966BBb (42031)		54
							K(Ge(OH)4+2HL) < 1.4		

****

C6H2N2O8 H2L Nitroanilic aci CAS 479-22-1 (3669)
3,6-Dinitro-2,5-dihydroxy-1,4-benzoquinone;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaClO4	25°C	3.0M	U		1967BBa (42034)		55
							K(Ge(OH)4+2HL=Ge(OH)2L2)=4.9		

Medium: LiClO4

****

C6H2O4Cl2 H2L Chloranilic acd CAS 87-88-7 (1281)
3,6-Dichloro-2,5-dihydroxy-1,4-benzoquinone;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	NaCl	25°C	0.50M	U			1964BBb (42051)	56
							K(Ge(OH)4+2HL)=6.57		
Ge(IV)	sp	KCl	25°C	0.50M	U			1964BBb (42052)	57
							K(Ge(OH)2L2+H)=0.8		
Medium: HCl									
Ge(IV)	sp	oth/un	25°C	2.50M	U			1962NFa (42053)	58
							K(Ge(OH)4+HL)=7.64		
							K(Ge(OH)3L+HL)=6.30		
							K(Ge(OH)2L2+HL)=5.65		

****

C6H4N2O6 H2L CAS 7659-29-2 (2694)
1,2-Dihydroxy-3,5-dinitrobenzene; (HO)2.C6H2(NO2)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaClO4	25°C	0.10M	U			1970NLd (42266)	59
							B3=47.85		

****

C6H4O4 H2L CAS 615-94-1 (1280)
2,5-Dihydroxy-1,4-benzoquinone;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	KCl	25°C	0.50M	U			1967BBa (42305)	60
							K(Ge(OH)4+2HL=Ge(OH)2L2)=8.09		
							K(Ge(OH)2L2+H=Ge(OH)2HL2)=1.8		
Ge(IV)	sp	NaCl	25°C	0.50M	U			1966BBb (42306)	61
							K(Ge(OH)4+2HL=Ge(OH)2L2)=9.1		

****

C6H4O5 H2L Comenic acid CAS 499-78-5 (2544)
3-Hydroxypyran-4-one-6-carboxylic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaCl	25°C	0.50M	U			1967CBb (42319)	62
							K(Ge(OH)4+2HL=Ge(OH)2L2)=2.25		

****

C6H4O10S2 H4L Euthiochronic a (3670)
3,6-Disulfo-2,5-dihydroxy-1,4-benzoquinone;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo

```
-------------------------------------------------------------------------------
Ge(IV)     sp  NaCl   25°C 0.50M U                        1967BBa (42333)  63
                                          K(Ge(OH)4+2HL=Ge(OH)2L2)=6.35
*******************************************************************************
C6H5NO4              H2L    3-Nitrocatechol  CAS 6665-98-1  (2685)
1,2-Dihydroxy-3-nitrobenzene; O2N.C6H3(OH)2
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Ge(IV)     sp  NaClO4 25°C 0.10M U                        1970NLc (42861)  64
                                          B3=59.59
*******************************************************************************
C6H5NO4              H2L    4-Nitrocatechol  CAS 3316-09-4  (890)
1,2-Dihydroxy-4-nitrobenzene; O2N.C6H3(OH)2
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Ge(IV)     sp  KCl    25°C 0.10M U                        1967PBd (42928)  65
                                          K(Ge(OH)4+3H2L=GeL3+2H)=3.90
*******************************************************************************
C6H5O2Cl             H2L    4-Cl-Catechol    CAS 2138-22-9  (1656)
1,2-Dihydroxy-4-chlorobenzene; Cl.C6H3(OH)2
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Ge(IV)     sp  NaCl   25°C 0.10M U                        1967PBd (43082)  66
                                          K(Ge(OH)4+3H2L=GeL3+2H)=0.65
*******************************************************************************
C6H5O4Cl              HL    Chlorokojic aci    (3086)
3-Chloro-5-hydroxy-2-hydroxymethyl-4-pyrone;
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Ge(IV)     sp  NaCl   25°C 0.50M U                        1967CBb (43133)  67
                                          K(Ge(OH)4+2HL=Ge(OH)2L2)=2.33
*******************************************************************************
C6H5O4I               HL    Iodokojic acid   CAS 40838-33-3  (3681)
3-Iodo-5-hydroxy-2-hydroxymethyl-4-pyrone;
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Ge(IV)     sp  NaCl   25°C 0.50M U                        1967CBb (43143)  68
                                          K(Ge(OH)4+2HL=Ge(OH)2L2)=2.49
*******************************************************************************
C6H6O2               H2L    Catechol         CAS 120-80-9  (534)
1,2-Dihydroxybenzene, pyrocatechol; HO.C6H4.OH
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Ge(IV)     gl  NaCl   25°C 0.10M M                        1998PSc (43768)  69
```

K(Ge(OH)4+3H2L=GeL3+2H+4H2O)=-1.39
Method: solubility of GeO2(hex) in 0.1 m NaCl/0.01-0.05 m H2L.

Ge(IV) gl oth/un 25°C 0.0 U 1963ANc (43769) 70
K(HGeO3+3H2L=HGeL3)=8.67

Ge(IV) gl KCl 25°C 0.10M U 1959AMa (43770) 71
K(H2GeO3+3H2L=GeL3+2H)=-0.77

****

C6H6O3 H3L Pyrogallol CAS 87-66-1 (696)
1,2,3-Trihydroxybenzene; C6H3(OH)3

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---

Ge(IV) gl oth/un 25°C 0.0 U 1963ANc (43961) 72
K(HGeO3+3H3L=HGe(HL)2)=9.05

Ge(IV) gl KCl 25°C 0.10M U 1959AMa (43962) 73
K(H2GeO3+3H3L=Ge(HL)3+2H)=-0.22

****

C6H6O3 HL Maltol CAS 118-71-8 (2442)
3-Hydroxy-2-methyl-4H-pyran-4-one;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---

Ge(IV) gl KNO3 20°C 0.10M C 1979MBf (44088) 74
K(GeO2+2HL=Ge(OH)2L2)=4.2
K(GeO2+3HL+H=GeL3+2H2O)=8.3

Ge(IV) sp NaCl 25°C 0.50M U 1966BBb (44089) 75
K(Ge(OH)4+2HL=Ge(OH)2L2)=3.90
K(Ge(OH)4+3HL+H=GeL3)=8.05

****

C6H6O3 HL Allomaltol CAS 644-46-2 (2688)
5-Hydroxy-2-methyl-4H-pyran-4-one;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---

Ge(IV) sp NaCl 25°C 0.50M U 1967CBb (44127) 76
K(Ge(OH)4+2HL=Ge(OH)2L2)=3.43

****

C6H6O4 HL Kojic acid CAS 501-30-4 (1800)
5-Hydroxy-2-(hydroxymethyl)-4H-pyran-4-one;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---

Ge(IV) gl KNO3 20°C 0.10M C 1979MBf (44219) 77
K(GeO2+2HL=Ge(OH)2L2)=3.2
K(GeO2+3HL+H=GeL3+2H2O)=6.0

Ge(IV) sp NaCl 25°C 0.50M U 1967CBb (44220) 78
K(Ge(OH)4+2HL=Ge(OH)2L2)=2.81
****
C6H6O8S2 H4L Tiron CAS 149-45-1 (104)
4,5-Dihydroxybenzene-1,3-disulfonic acid; (HO)2.C6H2(SO3H)2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) sp NaCl 25°C 1.00M U I 1967PBd (44453) 79
K(Ge(OH)4+2H2L=GeL2)=3.89
K'(Ge(OH)4+3H2L=GeL3+2H)=3.70
K=2.30(I=0.11), 3.10(I=0.26), 3.50(I=0.50)

Ge(IV) gl KCl 25°C var U 1966ATc (44454) 80
K(Ge(OH)4+3H2L=GeL3+2H)=-2.307+27.49SQRTI/(1+2.851SQRTI)-0.370I

Ge(IV) gl KCl 25°C 0.10M U 1959AMa (44455) 81
K(Ge(OH)4+3H2L=GeL3+2H)=-2.74
****
C6H8O7 H3L Citric acid CAS 77-92-9 (95)
2-Hydroxypropane-1,2,3-tricarboxylic acid; HOOCCH2.CH(OH)(COOH).CH2COOH

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl NaCl 25°C 0.10M M 1998PSc (46126) 82
K(Ge(OH)4+2H3L=Ge(OH)2(H2L)2+2H2O)=6.2, K(Ge(OH)4+H2L=Ge(OH)3HL+H2O)=
2.4. Method: solubility of GeO2(hex) in 0.1 m NaCl/0.02 m H3L.

Ge(IV) sp NaNO3 25°C 0.10M U 1973BPa (46127) 83
K(Ge(OH)2+H3L)=2.01 pH 1-2
****
C6H9NO6 H3L NTA CAS 139-13-9 (191)
Nitrilotriethanoic acid; N(CH2.COOH)3

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) sp KNO3 20°C 0.10M U 1988SBb (46843) 84
K(Ge(OH)2+HL)=4.06
Phosphate buffer pH=6

Ge(IV) sp KNO3 20°C 0.10M U 1986SBb (46844) 85
K(Ge(OH)2+HL)=3.82

Ge(IV) gl KNO3 20°C 0.10M U 1981MMe (46845) 86
K(GeO2+H2L=Ge(OH)2L)=4.42
****
C6H10O7 HL Glucuronic acid CAS 6556-12-3 (599)
D-Glucuronic acid;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---
Ge(IV) gl KCl 25°C 0.10M M K1=1.70 1986HPb (48420) 87
****
C6H11NO5 H2L HIMDA CAS 93-62-9 (192)
N-(2-Hydroxyethyl)iminodiethanoic acid; HO.CH2.CH2.N(CH2.COOH)2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) sp KNO3 20°C 0.10M U 1988SBb (48739) 88
K(Ge(OH)2+L)=8.42
Phosphate buffer pH=6
****
C6H12OS2 HL CAS 123-97-7 (6144)
Pentoxydithiomethanoic acid; C5H11.O.C(S)SH

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) sp KNO3 20°C 0.10M U I 1982SGc (49411) 89
K(Ge(OH)2+2L)=8.72
****
C6H12O5 L L-Rhamnose CAS 634-74-2 (3659)
6-Deoxy-L-mannose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M U 1959ATa (49507) 90
K(HGeO3+2L=HGeO(H-2L)2)=3.24
****
C6H12O6 L D-Fructose CAS 57-48-7 (1561)
D-Fructose

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl NaCl 25°C 0.10M M 1998PSc (49548) 91
K(GeO(OH)3+2L=Ge(OH)(H-2L)2+3H2O)=5.48.
2.4. Method: solubility of GeO2(hex) in 0.1 m NaCl/0.02 m L.

Ge(IV) gl KCl 25°C var U I 1963NFa (49549) 92
K(HGeO3+2L)=4.273+1.155SQRTI

Ge(IV) gl KCl 25°C 0.10M U 1958ANa (49550) 93
K(HGeO3+2L=HGeO(H-2L)2)=5.48
****
C6H12O6 L D-Galactose CAS 59-23-4 (1559)
D-Galactose

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C var U I 1963NFa (49565) 94
K(HGeO3+2L)=2.117+1.297SQRTI

Ge(IV) gl KCl 25°C 0.10M U 1958ANa (49566) 95
K(HGeO3+2L=HGeO(H-2L)2)=3.29
****
C6H12O6 L D-Glucose CAS 492-62-6 (1560)
D-Glucose

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KNO3 20°C 0.10M M 1980MBc (49589) 96
K(GeO2+2H2L=Ge(OH)L2+H)=-6.33
K'(Ge(OH)L2+H2L=GeL3+H)=-10.6
For L=D-dulcitol, K=-3.88, K'=-10.0; L=D-adonitol, K=-5.43, K'=-10.6.

Ge(IV) gl KCl 25°C var U I 1963NFa (49590) 97
K(HGeO3+2L)=1.451+1.178SQRTI

Ge(IV) gl KCl 25°C 0.10M U 1958ANa (49591) 98
K(HGeO3+2L=HGeO(H-2L)2)=3.46
****
C6H12O6 L D-Mannose CAS 3458-28-4 (1562)
D-Mannose

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M U 1958ANa (49606) 99
K(HGeO3+2L=HGeO(H-2L)2)=4.13
****
C6H12O6 L Sorbose CAS 87-79-6 (930)
L(-)-Sorbose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M U 1959ATa (49614) 100
K(HGeO3+2L=HGeO(H-2L)2)=5.35
****
C6H12O6 L Inositol CAS 87-89-8 (2285)
myo-Inositol, meso-Inositol;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M U 1967FAa (49638) 101
K(HGeO3+2L=HGeO(H-2L)2)=2.140
****
C6H12O7 HL Gluconic acid CAS 526-95-4 (904)
D-Gluconic acid, 2,3,4,5,6-Pentahydroxyhexanoic acid; HO.CH2(CHOH)4.COOH

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M M K1=2.06 1986HPb (49721) 102

****

C6H13NO6 HL CAS 84518-56-9 (4387)
2-Amino-2-deoxy-D-gluconic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	NaClO4	25°C	0.10M	U	M		2000KAa	(50532) 103
							B(GeO(OH)H-1L)=3.01		
							B(Ge(OH)2(H-1L)2)=6.63		
							B(GeO(OH)H-2L)=-6.23		
							B(Ge(OH)(H-1L)2)=14.35		

Metal is Ge(OH)4. Also data for ternary species Ge(OH)4ML, M = Zn, Cd, Pb.

****

C6H14O6 L D-Dulcitol CAS 608-66-2 (3663)
D-Galactitol;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KCl	25°C	0.10M	U			1959ARa	(51061) 104
							K(HGeO3+2L=HGeO(H-2L)2)=4.71		

****

C6H14O6 L D-Mannitol CAS 69-65-8 (3664)
D-Mannitol;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KNO3	20°C	0.10M	C			1979MBf	(51081) 105
K(GeO2+3H2L=GeL3+2H+2H2O)=-13.7; K(GeO2+2H2L=Ge(OH)L2+H+H2O)=-4.0; K(Ge(OH)L2+H2O=GeL3+H+H2O)=-9.7									
Ge(IV)	gl	NaCl	25°C	0.50M	U			1973PAb	(51082) 106
K(Ge(OH)4+L+H2O=GeH-1(OH)4L+H)=-6.43, K(Ge(OH)4+2L+H2O=GeH-1(OH)4L2+H)=-3.95 K(2Ge(OH)4+2L+2H2O=(Ge(OH)4)2H-2L2+2H)=-10.68									
Ge(IV)	gl	KCl	25°C	var	U			1963NFa	(51083) 107
							K(HGeO3+2L)=3.394+1.055SQRTI		
Ge(IV)	gl	KCl	25°C	0.10M	U			1959ARa	(51084) 108
							K(HGeO3+2L=HGeO(H-2L)2)=4.53		

****

C6H14O6 L Glucitol CAS 50-70-4 (2878)
D-Sorbitol;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KNO3	20°C	0.10M	C			1979MBf	(51103) 109
K(GeO2+3H2L=GeL3+2H+2H2O)=-12.3; K(GeO2+2H2L=Ge(OH)L2+H+H2O)=-3.7; K(Ge(OH)L2+H2O=GeL3+H+H2O)=-8.6									
Ge(IV)	gl	KCl	25°C	0.10M	U			1959ARa	(51104) 110

K(HGeO3+2L=HGeO(H-2L)2)=5.09

****

C6H15NO3 Triethanolamine CAS 102-71-6 (447)
Tris-(2-hydroxyethyl)amine; L

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KNO3	20°C	0.10M	U			1981MMe (51292)	111
							K(GeO2+H3L=Ge(OH)L+H2O)=5.26		

****

C7H4O7 H3L Meconic acid CAS 497-59-6 (3723)
3-Hydroxy-4-pyrone-2,6-dicarboxylic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaCl	25°C	0.50M	U			1967CBb (52565)	112
							K(Ge(OH)4+2HL) < 1		

****

C7H6O2 HL Tropolone CAS 533-75-5 (3129)
2-Hydroxycyclohepta-2,4,6-trien-1-one;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaCl	25°C	0.50M	U			1966BBb (53675)	113
							K(Ge(OH)4+2HL)=8.03		
							K(Ge(OH)4+3HL+H)=13.3		

****

C7H6O3 H2L CAS 139-85-5 (881)
3,4-Dihydroxybenzaldehyde, protocatechuic aldehyde; C6H3(OH)2.CHO

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KCl	25°C	0.10M	U			1968AOa (54355)	114
							K(HGeO3+3H2L)=2.78		

****

C8H6O4 H2L CAS 6272-27-1 (4474)
2,3-Dihydro-6,7-dihydroxy-3-oxobenzofuran;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	oth/un	25°C	?	U	M		1967NPa (58815)	115
K(Ge(OH)2+2H2L=Ge(OH)2L2+4H)=11.4									

****

C8H8O3 HL Mandelic Acid CAS 611-72-3 (80)
2-Phenyl-2-hydroxyethanoic acid; C6H5.CH(OH).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	EMF	KCl	25°C	0.10M	U			1962CLb (59836)	116
							K(GeL3+H)=3.83		

K(GeHL3+H)=2.53

Ge(IV) con NaCl 18°C 1.0M U 1957VAa (59837) 117

K(H2GeO3+2HL)=2.0

Ge(IV) gl oth/un 18°C 0.0 U 1957VAa (59838) 118

K(H2GeO3+2HL)=2.92

****

C9H5NOCl2 HL CAS 773-76-2 (3278)

5,7-Dichloro-8-hydroxyquinoline;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---

Ge(IV) sp NaCl 25°C 0.50M U 1967TMd (63543) 119

K(Ge(OH)4+2HL=Ge(OH)2L2)=6.7

****

C9H6NO4IS H2L Ferron CAS 547-91-1 (275)

7-Iodo-8-hydroxyquinoline-5-sulfonic acid; (HO)(HO3S)C9H4NI

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---

Ge(IV) sp NaCl 25°C 0.50M U 1967TMd (63805) 120

K(Ge(OH)4+2HL=Ge(OH)2L2)=6.78

****

C9H7N L CAS 119-65-3 (487)

Isoquinoline;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---

Ge(IV) cal non-aq 25°C 100% U H 1967MOb (64026) 121

Medium: n-hexane. Many data; DH(GeF4(l)+2L(l)=GeF4L2(c))=-149.2 kJ mol-1
DH(GeF4(g)+2L(l)=GeF4L2(c))=-170.9, DH(GeCl4(l)+2L(l)=GeCl4L2(c))=-93.2

****

C9H7NO HL Oxine CAS 148-24-3 (504)

8-Hydroxyquinoline (8-quinolinol);

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---

Ge(IV) sp NaCl 25°C 0.50M U 1967TMd (64279) 122

K(Ge(OH)4+2HL=Ge(OH)2L)=6.61

****

C9H7NO4S H2L Sulfoxine CAS 84-88-8 (448)

8-Hydroxyquinoline-5-sulfonic acid;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---

Ge(IV) sp NaCl 25°C 0.50M U 1967TMd (64549) 123

K(Ge(OH)4+2HL=Ge(OH)2L2)=6.55

****

C9H28N3O15P5 10L DTPPH CAS 15827-60-8 (2921)

Diethylenetriamine-N,N,N',N",N"-penta(methylphosphonic acid);
H2O3PCH2.N(CH2CH2.N(CH2PO3H2)2)2 H

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	KNO3	20°C	0.10M	U			1984SBa (68410)	124
							K(Ge+H6L)=9.45		

****

C10H6O3 HL CAS 83-72-7 (3294)
2-Hydroxy-1,4-naphthoquinone;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaCl	25°C	0.50M	U			1966BBb (68460)	125
							K(Ge(OH)4+2HL=Ge(OH)2L2) < 3.0		

****

C10H8O5S H3L DHNSA (877)
2,3-Dihydroxynaphthalene-6-sulfonic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	KCl	25°C	0.10M	U			1967PBd (69849)	126
							K(H2GeO3+3H2L=GeL3+2H)=2.0		

****

C10H8O8S2 H4L Chromotropic ac CAS 148-25-4 (1875)
1,8-Dihydroxynaphthalene-3,6-disulfonic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KNO3	20°C	0.10M	C			1979MBf (69953)	127
							K(GeO2+3H2L=GeL3+2H+2H2O)=-4.8		

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	KCl	25°C	0.10M	U			1967PBd (69954)	128
							K(H3GeO4+3H2L=HGeL3+2H)=2.30		

****

C10H9NO HL 8-OH-Quinaldine CAS 826-81-3 (998)
2-Methyl-8-hydroxyquinoline;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaCl	25°C	0.50M	U			1967TMd (70047)	129
							K(Ge(OH)4+2HL=Ge(OH)2L2)=3.4		

****

C10H9NO4S H2L CAS 29021-67-8 (3926)
2-Methyl-8-hydroxyquinoline-5-sulfonic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	NaCl	25°C	0.50M	U			1967TMd (70198)	130
							K(Ge(OH)4+2HL=Ge(OH)2L2)=2.2		

****

C10H16N2O8 H4L EDTA CAS 60-00-4 (120)
1,2-Diaminoethane-N,N,N',N'-tetraethanoic acid, Sequestric acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KNO3	20°C	0.10M	U			1981MMe (73826)	131
							K(GeO2+H3L=Ge(OH)L+H2O)=4.57		
Ge(IV)	EMF	NaCl	25°C	0.50M	U			1969NVa (73827)	132
							K(Ge(OH)4+H4L)=5.3		
Ge(IV)	gl	oth/un	25°C	0.10M	U			1968KMb (73828)	133
							K(Ge(OH)L+H)=2.40		
							K(Ge(OH)4+H4L)=4.80		
							K(Ge(OH)4+H3L)=4.52		
Ge(IV)	vlt	NaClO4	25°C	0.10M	U			1967KOc (73829)	134
							K(Ge(OH)4+H4L=Ge(OH)2H2L)=4.80		
							K(Ge(OH)4+H3L=Ge(OH)2HL)=4.58?		

****

C10H18N2O7 H3L HEDTA CAS 150-39-0 (392)
N-(Hydroxyethyl)diaminoethane-N,N',N'-triethanoic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	NaClO4	25°C	0.10M	U			1969KMe (75409)	135
							K(Ge(OH)4+H3L)=4.44		

****

C11H18N2O8 H4L PDTA CAS 4408-81-5 (1655)
1,2-Diaminopropane-N,N,N',N'-tetraethanoic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	gl	KCl	25°C	0.10M	U			1969KMe (79289)	136
							K(GeOHL+H)=2.50		
							K(Ge(OH)4+H4L)=4.78		
							K(Ge(OH)4+H3L)=4.88		

****

C12H9N2O2Cl H2L CAS 29600-20-2 (2638)
4-Chlorobenzene-(1-azo-1')-3',4'-dihydroxybenzene; ClC6H5.N:N.C6H3(OH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	oth/un	?	0.01M	U		K1=1.3	1958ISb (80594)	137

****

C12H22O11 L Turanose CAS 547-25-1 (2701)
3-O-D-Glucopyranosyl-D-fructose;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo

---
Ge(IV) gl KCl 25°C 0.10M M K1=2.32 B2=3.25 1986HPb (82866) 138
****
C12H22O11 L alpha-Lactose CAS 5989-81-1 (2486)
4-D-Beta-D-Galactopyranosyl-alpha-D-glucose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M M K1=1.97 1986HPb (82875) 139
****
C12H22O11 L Maltose CAS 6363-53-7 (2705)
4-O-alpha-D-Glucopyranosyl-D-glucose, Maltobiose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M M K1=1.48 1986HPb (82880) 140
****
C12H22O11 L Cellobiose CAS 528-50-7 (2697)
4-O-beta-D-Glucopyranosyl-D-glucose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M M K1=1.58 1986HPb (82886) 141
****
C12H22O11 L Melibiose CAS 66009-10-7 (2699)
6-O-D-Galactopyranose-D-glucose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M M K1=2.32 B2=3.24 1986HPb (82890) 142
****
C12H22O11 L Gentiobiose CAS 554-91-6 (2698)
6-O-D-Glucopyranosyl-D-glucose, Amygdalose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M M K1=1.27 1986HPb (82893) 143
****
C12H22O11 L Trehalose CAS 6138-23-4 (2700)
D-Glucopyranosyl-D-glucopyranoside;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M M K1=1.12 1986HPb (82900) 144
****
C12H22O11 L Sucrose CAS 57-50-1 (2523)
beta-D-Fructofuranosyl-alpha-D-glucopyranoside; Saccharose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---

Ge(IV) gl KCl 25°C 0.10M M K1=1.00 1986HPb (82910) 145
****
C12H24O11 L Maltitol CAS 585-88-6 (2709)
4-O-alpha-D-Glucopyranosyl-D-glucitol;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M M K1=3.22 1988HLa (83683) 146
****
C12H24O11 L Lactitol CAS 535-94-4 (2710)
4-O-beta-D-Galactopyranosyl-D-glucitol;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) gl KCl 25°C 0.10M M K1=3.08 1988HLa (83686) 147
****
C14H8O7S H3L DASA CAS 83-61-4 (950)
1,2-Dihydroxyanthraquinone-3-sulfonic acid, Alizarin Red S;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) sp oth/un 25°C 0.10M U 1972NFb (86732) 148
B3=52.80
Medium: acetate
****
C15H11N3O HL PAN CAS 85-85-8 (572)
1-(2-Pyridylazo)-2-naphthol; C5H4N.N:N.C10H6.OH

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) sp oth/un 27°C ? U M 1974ZSa (91219) 149
Keff(GeCl4+L)=3.3
****
C18H12O6 H2L (4124)
2,5-Dihydroxy-3,6-diphenoxy-1,4-benzoquinone;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) sp NaCl 25°C 0.50M U 1967BBa (96886) 150
K(Ge(OH)4+2HL=Ge(OH)2L2)=8.8
****
C19H12O9Br2S H6L Bromo Pyrog.Red CAS 16574-43-9 (706)
5',5"-Dibromopyrogallolsulfonephthalein;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ge(IV) sp NaNO3 ? 0.10M U 1969NMa (99011) 151
K(Ge(OH)3+3H2L)=12.9
****
C22H20O13 H5L Carminic acid CAS 1260-17-9 (714)

Carminic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	oth/un	25°C	?	U			1970BRa (101702)	152
							K(Ge(OH)4+H5L)=4.58		

Medium: conc H2SO4

****

C28H15NO4 L CAS 82-22-4 (3522)
1,1'-Iminodianthraquinone; (1,1'-dianthrimide)

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ge(IV)	sp	mixed	?	93%	U			1968LNa (104653)	153
							K(HGeO2+HL)=2.35(?)		

Medium: 93.2% H2SO4

REFERENCES

2000KAa Y Kanekiyo,S Aizawa,S Funahashi; Inorg.Chim.Acta,298,154 (2000)
1998PSb G Pokrovski,J Schott; Geochim.Cosmo.Acta,62,1631 (1998)
1998PSc G Povrovski,J Schott; Geochim.Cosmo.Acta,63,3413 (1998)
1991SOa Y Sohrin; Bull.Chem.Soc.Jpn.,64,3363 (1991)
1990CIc L Ciavatta,M Iuliano,R Porto,E Vasca; Polyhedron,9,1263 (1990)
1990DEa A De La Cuadra; An.Quim.,86,221 (1990)
1988HLa P Hakkinen et al; Finn.Chem.Lett.,15,7 (1988)
1988SBb I Seifullina,T Batalova et al; Koord.Khim.,14(6)767 (1988)
1986HPb P Hakkinen et al; Finn.Chem.Lett.,13,93 (1986)
1986SBb I Seifullina,T Batalova et al; Koord.Khim.,12(6)747 (1986)
1984SBa I Seifullina,T Batalova,A Kireeva; Koord.Khim.,10(3)336 (1984)
1983SBb I Seyfullina,T Batalova,A Kyreeva; Koord.Khim.,9,67 (1983)
1982SGc I Seifullina,E Guzhavina,I Nazarova; Koord.Khim.,8,1095 (1982)
1981MMe E Mikhailova,M Mikesova,M Bartusek; Coll.Czech.Chem.Comm.,46,701 (1981)
1980MBc A Mikan,M Bartusek; Coll.Czech.Chem.Comm.,45,2645 (1980)
1979HUa E Huttunen; Finn.Chem.Lett.,236 (1979)
1979MBf M Mikesova,M Bartusek; Coll.Czech.Chem.Comm.,44,3256 (1979)
1979NVa V Nazarenko,N Varlamova; Ukr.Khim.Zh.,45,596 (1979)
1975BPf E Belousova,N Pozaritski et al; Zh.Neorg.Khim.,20,2787(1542) (1975)
1974NOa G Nordheim; Acta Chem.Scand.,A28,115 (1974)
1974ZSa S Zaidi,K Siddiqi; Indian J.Chem.,12,540 (1974)
1973BPa E Belousov,A Pozharitskii et al; Zh.Neorg.Khim.,18,10,2766 (1973)
1973PAb L Pettersson,I Andersson; Acta Chem.Scand.,27,977;1019 (1973)
1972NFb V Nazarenko,G Flyantikova,T Selyatina; Zh.Anal.Khim.,27,12,2369 (1972)
1972PAb N Parpiev; Uzbeksk.Khim.Zh.,6,17 (1972)
1970BRa R Brown; Anal.Chim.Acta,50,157 (1970)
1970NLc V Nazarenko,N Lebedeva,L Vinogradova; Zh.Neorg.Khim.,15,11,2990 (1970)
1970NLd V Nazarenko,N Lebedeva,L Vinogradova; Zh.Neorg.Khim.,15,3,643 (1970)
1969KMe N Konopik,P Meszaros; Monatsh.Chem.,100,649 (1969)
1969NMa V Nazarenko,N Makrinich; Zh.Anal.Khim.,24,11,1694 (1969)
1969NVa V Nazarenko,L Vinarova,N Lebedeva; Zh.Neorg.Khim.,14,3,700 (1969)

1968AOa P Antikainen,H Oksanen; Acta Chem.Scand.,22,2867 (1968)
1968KMb N Konopik,P Meszaros; Monatsh.Chem.,99,902 (1968)
1968LNa F Langmyhr,G Norheim; Anal.Chim.Acta,41,341 (1968)
1968NFa V Nazarenko,G Flyantikova; Zh.Neorg.Khim.,13,1855(E:966) (1968)
1968PMf N Parpiev,I Maslennikov; Uzbeksk.Khim.Zh.,2,6 (1968)
1967BBa A Beauchamp,R Benoit; Bull.Soc.Chim.Fr.,672 (1967)
1967CBb G Choux,R Benoit; Bull.Soc.Chim.Fr.,2920 (1967)
1967FAa R Frostell,P Antikainen; Suomen Kem.,B40,86 (1967)
1967KOc N Konopik; Z.Anal.Chem.,224,107 (1967)
1967MOb J Miller,M Onyszchuk; J.Chem.Soc.(A),1132 (1967)
1967NPa V Nazarenko,E Poluektova; Zh.Anal.Khim.,22,6,895 (1967)
1967PBd P Pichet,R Benoit; Inorg.Chem.,6,1505 (1967)
1967TMd J Tsau,S Matsouo,P Clerc,R Benoit; Bull.Soc.Chim.Fr.,1039 (1967)
1966ANa A Andrianov,V Nazarenko; Zh.Neorg.Khim.,11,1527(E:816) (1966)
1966ATc P Antikainen,K Tevanen; Suomen Kem.,B39,2 (1966)
1966BBb A Beauchamp,R Benoit; Can.J.Chem.,44,1607;1615 (1966)
1965REa W Reid; J.Phys.Chem.,69,2269 (1965)
1965RKa I Ryss,N Kulish; Zh.Neorg.Khim.,10,1827 (1965)
1964BBb A Beauchamp,R Benoit; Can.J.Chem.,42,2161 (1964)
1964GUa R Gut; Helv.Chim.Acta,47,2262 (1964)
1964GZa K Gayer,O Zajicek; J.Inorg.Nucl.Chem.,26,2123 (1964)
1964KSd G Kurnevich,G Shagisultanova; Zh.Neorg.Khim.,9,1383 (2559) (1964)
1964RKb I Ryss,N Kulish; Zh.Neorg.Khim.,9,1103 (1964)
1964RKc I Ryss,N Kulish; Zh.Neorg.Khim.,9,1382 (1964)
1963ANc A Andrianov,V Nazarenko; Zh.Neorg.Khim.,8,1194 (2281) (1963)
1963ATa P Antikainen,K Tevanen; Suomen Kem.,B36,199;B35,224 (1963)
1963BPb R Benoit,J Place; Can.J.Chem.,41,1170 (1963)
1963NFa V Nazarenko,G Flyantikova; Zh.Neorg.Khim.,8,1189 (2271);712 (137) (1963)
1962CLb E Clark; J.Inorg.Nucl.Chem.,24,81 (1962)
1962NFa V Nazarenko,G Flyantikova; Zh.Neorg.Khim.,1,1210 (1962)
1961ADb A Angerstein,W Davidson; Z.Anorg.Chem.,310,26 (1961)
1960ARb P Antikainen,V Rossi; Suomen Kem.,B33,38;210 (1960)
1960KRb W Kemula,S Rosolowski; Rocz.Chem.,34,835 (1960)
1959AMa P Antikainen,P Malkonen; Suomen Kem.,B32,179 (1959)
1959ANa P Antikainen; Acta Chem.Scand.,13,312 (1959)
1959ARa P Antikainen,V Rossi; Suomen Kem.,B32,182;185 (1959)
1959ATa P Antikainen,K Tevanen; Suomen Kem.,B32,214 (1959)
1959LBa B Lovrecek,J Bockris; J.Phys.Chem.,63,1368 (1959)
1958ANa P Antikainen; Suomen Kem.,B31,255 (1958)
1958ISb F Iimura,M Shima,H Sano; Nippon Kagaku Kaishi,79,1032/7;1041/5/8 (1958)
1957ANa P Antikainen; Suomen Kem.,B30,45;147 (1957)
1957VAa O Vartapetian; Ann.Chim.(France),2,916 (1957)

EXPLANATORY NOTES

DATA Flags are :-

T Data at other TEMPERATURES
I Data with various BACKGROUNDS
H Data for THERMOCHEMICAL quantities

M Data for TERNARY Complexes

END