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POTENTIOMETRIC SELECTIVITY COEFFICIENTS OF ION-SELECTIVE ELECTRODES

PART III. ORGANIC IONS

(IUPAC Technical Report)

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Potentiometric selectivity coefficients of ion-selective electrodes

Part III. Organic Ions

(IUPAC Technical Report)

Abstract: Potentiometric selectivity coefficients, $K_{A,B}^{pot}$, have been collected for ionophore-based ion-selective electrodes (ISEs) for organic ions reported during 1988–1998. In addition to the actual numerical values of $K_{A,B}^{pot}$ together with the methods and conditions for their determination, response slopes, linear ranges, chemical compositions, and ionophore structures for the ISE membranes are tabulated.

INTRODUCTION

An earlier IUPAC data compilation of potentiometric selectivity coefficients, $K_{A,B}^{pot}$, for ion-selective electrodes (ISEs) was published in 1979 in *Pure and Applied Chemistry* (*PAC*) [1]. It covered $K_{A,B}^{pot}$ data reported during 1966–1977 and was later followed by another extensive compilation of such data in a handbook from CRC Press [2]. The latter covered most of the $K_{A,B}^{pot}$ data reported during the years 1966–1988. An updated compilation reported in 1998 was limited to a number of particularly selective ionophores [3]. Very recently, data compilations of selectivity coefficients, $K_{A,B}^{pot}$, for ionophore-based ISEs for inorganic cations (Part I of this series) and inorganic anions (Part II of this series) were published as IUPAC Technical Reports in *PAC* [4,5].

This paper presents the latest compilation of $K_{A,B}^{pot}$ data for liquid-membrane ISEs for organic ions based on neutral and charged ionophores, reported between 1989 and 1998. The presented $K_{A,B}^{pot}$ data are listed together with the methods and conditions for their determinations; also tabulated are response slopes, linear ranges, chemical compositions, and ionophore structures for the corresponding ISE membranes. The present document constitutes the third part in a series covering ionophore-based ISEs.

Selectivity coefficients can be measured with different methods that fall into two main groups, namely (1) mixed solution methods, and (2) separate solution methods. The details of the definition of each method have been briefly discussed in the first part of this series [4].

ABBREVIATIONS

A complete list of abbreviations that are used in the following tables is given below.

BBPA	bis(1-butylpentyl) adipate
BEHS	bis(2-ethylhexyl) sebacate
c_{dl}	detection limit
CHEMFET	chemically modified ion-sensitive field effect transistor
CWE	coated wire electrode
DBE	dibenzyl ether
DBS	dibutyl sebacate
DBP	dibutyl phthalate
DDP	didecyl phthalate

DDS	didecyl sebacate (occasionally reported as dodecyl sebacate, which appears to be erroneous)
DOA	bis(2-ethylhexyl) adipate
DOP	bis(2-ethylhexyl) phthalate {'dioctyl phthalate'}
DOS	bis(*n*-octyl) sebacate
emf	electromotive force
ETH 500	tetradodecylammonium tetrakis(4-chlorophenyl)borate
FIA	flow injection analysis
FIM	fixed interference method
FNDPE	2-fluorophenyl 2-nitrophenyl ether
FPM	fixed primary ion method
ISE	ion-selective electrode
ISFET	ion-sensitive field effect transistor
KTFPB	potassium tetrakis[3,5-bis(trifluoromethyl)phenyl]borate
KTPB	potassium tetraphenylborate
KTpClPB	potassium tetrakis(4-chlorophenyl)borate
M	mol dm^{-3}
MPM	matched potential method
MSM	mixed solution method
N	Nernstian
NaTFPB	sodium tetrakis[3,5-bis(trifluoromethyl)phenyl]borate
NaTPB	sodium tetraphenylborate
NaTpClPB	sodium tetrakis(4-chlorophenyl)borate
nN	near-Nernstian
NPDE	nitrophenyl dodecyl ether
oNPHE	2-nitrophenyl hexyl ether
oNPOE	2-nitrophenyl octyl ether
oNPPE	2-nitrophenyl phenyl ether
PVC	poly(vinyl chloride)
r.o.o.g.	read out of graph (where data in original paper were in graphical rather than numerical form)
SSM	separate solution method (to be used for $a_A = a_B$ method)
SSM ($E_A = E_B$)	separate solution method (to be used for $E_A = E_B$ method)
τ	life time
t_{resp}	response time
t_{90}, t_{95}, t_{99}	time that elapses between the instant at which an ISE and a reference electrode are brought into contact with a new sample solution and the instant at which the potential has changed to a value corresponding to 90 %, 95 %, or 99 %, respectively, of the activity change
TDDMACl	tridodecylmethylammonium chloride
TOP	tris(2-ethylhexyl) phosphate
TSM	two solution method

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Table 1 Primary ammonium ion-selective electrodes.

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
PA-1	**PA-1** (w = 0.2 %), DOP (w = 32.8 %), PVC (w = 67.0 %)	$C_6H_{13}NH_3^+$, 0; Li^+, –1.15; Na^+, –1.13; K^+, –1.12; NH_4^+, –1.02; $C_4H_9NH_3^+$, –0.96; $C_5H_{11}NH_3^+$, –1.07; $(C_2H_5)_2NH_2^+$, –1.01; $(C_2H_5)_3NH^+$, –1.44	FIM	–	10^{-2} (Li^+, Na^+, K^+, NH_4^+, $(C_2H_5)_3NH^+$) 5×10^{-3} ($C_4H_9NH_3^+$, $(C_2H_5)_2NH_2^+$, $C_5H_{11}NH_3^+$)	57.5	3×10^{-4} –10^{-1}	pH = 3.2; 20–25 °C; τ > 30 d; $c_{dl} = 2.5 \times 10^{-4}$ M; t_{95} < 1 min	[1]
	PA-1 (w = 1.2 %), BEHS (w = 63.5 %), PVC (w = 35.3 %)	$CH_3NH_3^+$, 0; Li^+, –3.9; Na^+, –3.2; K^+, –1.1; NH_4^+, –1.3; Mg^{2+}, –5.1; Ca^{2+}, –5.1; $C_2H_5NH_3^+$, –0.7; $(CH_3)_4N^+$, –3.2; $(C_2H_5)_4N^+$, –2.6 choline, –3.8	SSM	10^{-2}	10^{-2}	58	2×10^{-5} –1×10^{-2}	7.5 < pH < 8.5; ca. 20 °C; $c_{dl} = 5 \times 10^{-6}$ M; t_{90} < 10 s	[2]
	PA-1 (w = 1.1 %), DOP (w = 65.6 %), PVC (w = 33.3 %)	$C_6H_{13}NH_3^+$, 0; Na^+, –3.3; K^+, –2.0; NH_4^+, –2.0; Mg^{2+}, –4.2; Ca^{2+}, –2.6; $CH_3NH_3^+$, –0.6; $C_4H_9NH_3^+$, –1.4	FIM	–	0.5 (Na^+, K^+, NH_4^+, Mg^{2+}, Ca^{2+}) 5×10^{-3} ($CH_3NH_3^+$) 5×10^{-2} ($C_4H_9NH_3^+$)	58	10^{-4} –10^{-1}	ca. 20 °C; $c_{dl} = 2 \times 10^{-5}$ M; t_{90} < 10 s; r.o.o.g.	[3]
PA-2	**PA-2** (w = 4.3 %), DOP (w = 63.4 %), PVC (w = 32.3 %)	$C_6H_{13}NH_3^+$, 0; Na^+, –3.2; K^+, –3.0; NH_4^+, –3.1; Mg^{2+}, –4.1; Ca^{2+}, –4.1; $CH_3NH_3^+$, –2.0; $C_4H_9NH_3^+$, –1.3	FIM	–	0.5 (Na^+, K^+, NH_4^+, Mg^{2+}, Ca^{2+}) 5×10^{-2} ($CH_3NH_3^+$, $C_4H_9NH_3^+$)	57	2×10^{-4} –10^{-1}	ca. 20 °C; $c_{dl} = 2 \times 10^{-5}$ M; t_{90} < 10 s; r.o.o.g.	[3]
PA-3	**PA-3** (w = 4.3 %), DOP (w = 63.4 %), PVC (w = 32.3 %)	$C_6H_{13}NH_3^+$, 0; Na^+, –2.6; K^+, –2.6; NH_4^+, –2.6; Mg^{2+}, –4.0; Ca^{2+}, –4.0; $CH_3NH_3^+$, –1.7; $C_4H_9NH_3^+$, –1.3	FIM	–	0.5 (Na^+, K^+, NH_4^+, Mg^{2+}, Ca^{2+}) 5×10^{-2}, ($CH_3NH_3^+$ $C_4H_9NH_3^+$)	52	10^{-3} –10^{-1}	ca. 20 °C; $c_{dl} = 4 \times 10^{-5}$ M; t_{90} < 10 s; r.o.o.g.	[3]

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Table 1 (*Continued*).

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
PA-4	**PA-4** (w = 1.1 %), DOP (w = 65.6 %), PVC (w = 33.3 %)	$C_6H_{13}NH_3^+$, 0; Na^+, –2.2; K^+, –1.3; NH_4^+, –2.4; Mg^{2+}, –5.1; Ca^{2+}, –5.1; $CH_3NH_3^+$, –2.6; $C_4H_9NH_3^+$, –1.4;	FIM	–	0.5 (Na^+, NH_4^+, Mg^{2+}, Ca^{2+}) 5×10^{-2} (K^+, $CH_3NH_3^+$ $C_4H_9NH_3^+$)	55	10^{-5} –10^{-1}	ca. 20 °C; $c_{dl} = 4 \times 10^{-6}$ M; $t_{90} < 10$ s; r.o.o.g.	[3]
	PA-4 (w = 5.0 %), oNPOE (w = 47.0 %), PVC (w = 48.0 %)	$C_8H_{17}NH_3^+$, 0; Li^+, –1.75; Na^+, –2.27; K^+, –1.60; NH_4^+, –1.40; $CH_3NH_3^+$, –1.10; $C_6H_5CH_2NH_3^+$, –0.50; $(CH_3)_2NH_2^+$, –2.03; $(C_4H_9)_2NH_2^+$, –1.40; $(CH_3)_3NH^+$, –2.15	MSM	–	10^{-1}	67.7	5×10^{-4} –10^{-1}	$c_{dl} = 2.8 \times 10^{-4}$ M	[10]
	PA-4 (w = 2.0 %), BEHS (w = 66.0 %), PVC (w = 32.0 %)	2-PEA, 0; $C_8H_{17}NH_3^+$, +1.30; $C_6H_5CH_2NH_3^+$, +0.68; adamantanamine, +1.30; *t*-$BuNH_3^+$, –0.46	MPM	10^{-4}	–	59 ± 1	10^{-4}–10^{-2}	pH = 7.0; ca. 20 °C; $c_{dl} < 10^{-6}$ M; 2-PEA, 2-phenylethyl-amine	[11]
		2-PEA, 0; $C_8H_{17}NH_3^+$, +1.30; $C_6H_5CH_2NH_3^+$, –0.33; adamantanamine, +0.46; *t*-$BuNH_3^+$, –1.57	SSM	10^{-2}	10^{-2}				
		TrpOMe, 0; AlaOMe, –0.91; LeuOMe, –0.056; PheOMe, –0.040; ValOMe, –0.25	MPM	10^{-4}	–	59 ± 1	10^{-4}–10^{-2}	pH = 5.0; ca. 20 °C; $c_{dl} = 10^{-6}$ M; TrpOMe, tryptophan methyl ester; AlaOMe, alanine	[11]
		TrpOMe, 0; AlaOMe, –1.94; LeuOMe, –0.20; PheOMe, –0.20; ValOMe, –1.00	SSM	10^{-2}	10^{-2}			methyl ester; LeuOMe, leucine methyl ester; PheOMe, phenylalanine methyl ester; ValOMe, valine methyl ester	
		dopamine, 0; noradrenaline, –0.029; adrenaline, –0.055	MPM	10^{-4}	–	59 ± 1	10^{-3}–10^{-2}	pH = 7.0; ca. 20 °C; $c_{dl} = 10^{-4}$ M	[11]
		dopamine, 0; noradrenaline, –0.66; adrenaline, –1.09	SSM	10^{-2}	10^{-2}				

Table 1 (*Continued*).

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	PA-4 (membrane composition not reported)	amphetamine, 0; epinephrine, –3.20; norepinephrine, –3.24; ephedrine, –3.21; Phe, –3.19; Tyr, –3.09; benzamide, –3.29; 2-aminobenzoic acid, –3.21; lidocaine, –3.04; caffeine, –3.59; brucine, –2.62; cinchonine, –2.92; quinine, –2.68	SSM	10^{-3}	10^{-3}	58 ± 0.8	10^{-5}–10^{-2}	3 < pH < 7; 25 ± 1 °C; $c_{dl} = 8 \times 10^{-6}$ M; $\tau = 35$ d; $t_{95} = 10$ s; Phe, phenylalanine; Tyr, tyrosine	[13]
PA-5	**PA-5** (w = 2.1 %), BEHS (w = 66.5 %), PVC (w = 31.0 %), KTPB (x_i = 15.7 %)	$C_6H_5CH_2NH_3^+$, 0; Na^+, –3.18; K^+, –2.15; NH_4^+, –2.66; Mg^{2+}, –4.49; Ca^{2+}, –4.40; $C_6H_5NH_3^+$, –3.49; $(C_2H_5)_2NH_2^+$, –2.08; $(C_2H_5)_3NH^+$, –2.00; $(CH_3)_4N^+$, –1.99	FIM	–	10^{-2}	56.5 ± 0.5	8.0×10^{-6}–10^{-1}	pH = 8.5; 25 °C; $c_{dl} = 8.9 \times 10^{-7}$ M; $\tau \leq 180$ d; $t_{resp} < 10$ s	[4]
		mexiletine, 0; Na^+, –3.98; K^+, –3.00; NH_4^+, –3.27; Mg^{2+}, –5.22; Ca^{2+}, –5.25; $C_6H_5NH_3^+$, –4.28; tranexamic acid, –4.43; aminomethylbenzoic acid, –4.45; ephedrine, –1.91; diphenhydramine, –0.69	FIM	–	10^{-2}	59.0 ± 0.7	4.7×10^{-6}–10^{-1}	pH = 8.5; 25 °C; $c_{dl} = 5.0 \times 10^{-7}$ M; $\tau \leq 180$ d	[4]
PA-6	**PA-6** (w = 1.2 %), NPDE (w = 58.1%), PVC (w = 40.7 %)	$C_6H_5CH_2NH_3^+$, 0; Na^+, –3.60; K^+, –2.00; NH_4^+, –2.82; Mg^{2+}, –3.80; Ca^{2+}, –3.85; $C_6H_5NH_3^+$, –3.55; $(C_2H_5)_2NH_2^+$, –2.96; $(C_2H_5)_3NH^+$, –2.50; $(CH_3)_4N^+$, –3.25	FIM	–	10^{-2}	51.3 ± 0.7	4.2×10^{-5}–10^{-1}	7.0 < pH < 8.5; 25 °C; $c_{dl} = 4.6 \times 10^{-6}$ M; $t_{resp} < 10$ s	[5]

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Table 1 (*Continued*).

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
PA-7	**PA-7** (w = 1.2 %), NPDE (w = 49.4 %), PVC (w = 49.4 %)	mexiletine, 0; Na^+, –2.78; K^+, –2.27; NH_4^+, –2.25; Mg^{2+}, –3.00; Ca^{2+}, –2.98; $C_6H_5NH_3^+$, –2.49; tranexamic acid, –2.12; aminomethylbenzoic acid, –2.06; ephedrine, –1.70; diphenhydramine, +0.31; caffeine, –2.49; atropine, –1.67; chlorpheniramine, –0.33; cinchonine, –0.82	SSM	10^{-3}	10^{-2}	52.1 ± 0.7	2×10^{-5}–10^{-1}	$6.8 < pH < 8.2$; 25 °C; $c_{dl} = 5.0 \times 10^{-6}$ M; t_{resp} <10 s	[5]
PA-8	**PA-8** (w = 2.1 %), BEHS (w = 66.5 %), PVC (w = 31.0 %), KTPB (x_i = 14.6 %)	$C_6H_5CH_2NH_3^+$, 0; $C_2H_5NH_3^+$, –0.15; $(C_2H_5)_2NH_2^+$, –2.96; $(C_2H_5)_3NH^+$, –2.64; $(C_2H_5)_4N^+$, –1.70	FIM	–	10^{-2}	55.6 ± 0.5	10^{-5}–10^{-1}	pH = 8.0; 25 °C; $c_{dl} = 2.0 \times 10^{-6}$ M; t_{resp} < 10 s	[6]
		mexiletine, 0; Na^+, –3.77; K^+, –2.59; NH_4^+, –2.97; Mg^{2+}, –5.06; Ca^{2+}, –5.13; $C_6H_5NH_3^+$, –4.23; aminomethylcyclohexanecarboxylic acid, –4.37; aminomethylbenzoic acid, –4.40; ephedrine, –1.77; diphenhydramine, –0.46	FIM	–	10^{-2}	58.0 ± 0.7	6.0×10^{-6}–10^{-1}	pH = 8.5; 25 °C; $c_{dl} = 8.0 \times 10^{-7}$ M; $\tau \leq$ 180 d	[6]
PA-9	**PA-9** (w = 2.0 %), BBPA (w = 65.6 %), PVC (w = 32.4 %)	dopamine, 0; Na^+, –1.8; K^+, –1.5; Mg^{2+}, –3.2; Ca^{2+}, –3.3	FIM	–	10^{-1}	61.0	–	37 °C; $c_{dl} = 10^{-5.4}$ M	[7] [14]
	PA-9 (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 30.4 %)	NH_4^+, 0; Na^+, –1.9; K^+, –0.1	FIM	–	10^{-1}	57.0	–	37 °C; $c_{dl} = 10^{-4.9}$ M	[7] [14]

Table 1 (*Continued*).

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
PA-10	**PA-10** (membrane composition not reported)	amphetamine, 0; epinephrine, –2.72; norepinephrine, –3.14; ephedrine, –2.60; Phe, –2.96; Tyr, –3.02; benzamide, –2.82; 2-aminobenzoic acid, –2.92; lidocaine, –2.62; caffeine, –2.43; brucine, –2.39; cinchonine, –2.02; quinine, –2.10	SSM	10^{-3}	10^{-3}	55 ± 0.9	6.0×10^{-5} –10^{-2}	3 < pH < 7; 25 ± 1 °C; $c_{dl} = 3 \times 10^{-5}$ M; $\tau = 35$ d; $t_{95} = 10$ s; Phe, phenylalanine; Tyr, tyrosine	[13]
PA-11	**PA-11** (w = 5.0 %), oNPOE (w = 64.0 %), PVC (w = 31.0 %)	$C_8H_{17}NH_3^+$, 0 ; Li^+, –2.30; Na^+, –2.12; K^+, –2.07; NH_4^+, –1.72; Cs^+, –2.00; $CH_3NH_3^+$, –2.40; $(CH_3)_2NH_2^+$, –2.55; $(C_2H_5)_2NH_2^+$, –2.46; $(CH_3)_3NH^+$, –2.70; Trp, –3.22; Phe, –0.46	SSM	–	–	53 ± 1	10^{-4}–10^{-1}	4 < pH < 10; 25 °C; $c_{dl} = 2 \times 10^{-5}$ M; $\tau \geq$ 120–150 d; $t_{resp} = 10$ s; Trp, tryptophan; Phe, phenylalanine	[8]
	PA-11 (w = 5.0 %), DOP (w = 64.0 %), PVC (w = 31.0 %)	$C_8H_{17}NH_3^+$, 0; Na^+, –1.32; K^+, –1.32; NH_4^+, –1.62; Cs^+, –1.21; $(CH_3)_3NH^+$, –1.59; Trp, –2.12; Phe, +0.55	SSM	–	–	33 ± 1	10^{-3}–10^{-1}	4 < pH < 10; 25 °C; $c_{dl} = 2 \times 10^{-4}$ M; $\tau \geq$ 120–180 d; $t_{resp} = 5$ s; Trp, tryptophan; Phe, phenylalanine	[8]
	PA-11 (w = 5.0 %), oNPHE (w = 62.0 %), PVC (w = 31.0 %), NaTPB (x_i = 68.8 %)	PheOMe, 0; Li^+, –2.12; Na^+, –1.68; K^+, –1.15; NH_4^+, –1.47; Ca^{2+}, –2.04; $CH_3NH_3^+$, –1.39; $C_8H_{17}NH_3^+$, –1.06; $(CH_3)_2NH_2^+$, –1.44; $(C_2H_5)_2NH_2^+$, –1.80; $(C_4H_9)_2NH_2^+$, –1.06; $(CH_3)_3NH^+$, –1.60	SSM	–	–	62 ± 3	10^{-4}–10^{-1}	4 < pH < 10; 25 °C; $c_{dl} = 6 \times 10^{-5}$ M; $\tau \geq$ 120–150 d; $t_{resp} = 5$ s; PheOMe, phenylalanine methyl ester	[8]

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Table 1 (*Continued*).

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	PA-11 (w = 5.0 %), oNPPE (w = 62.0 %), PVC (w = 31.0 %), NaTPB(x_i = 68.8 %)	PheOMe, 0; Li^+, –2.44; Na^+, –1.49; K^+, –1.18; NH_4^+, –1.32; Ca^{2+}, –2.00; $CH_3NH_3^+$, –1.31; $C_8H_{17}NH_3^+$, +0.079; $(CH_3)_2NH_2^+$, –1.41; $(C_2H_5)_2NH_2^+$, –1.70; $(C_4H_9)_2NH_2^+$, –1.00; $(CH_3)_3NH^+$, –1.57	SSM	–	–	60 ± 3	3×10^{-4} -10^{-1}	4 < pH < 10; 25 °C; $c_{dl} = 1 \times 10^{-4}$ M; $\tau \geq$ 120–150 d; t_{resp} = 5 s; PheOMe, phenyl-alanine methyl ester	[8]
	PA-11 (w = 5.0 %), oNPOE (w = 64.0 %), PVC (w = 31.0 %)	1-PEA, 0; Li^+, –1.92; Na^+, –1.43; K^+, –1.34; NH_4^+, –1.70; Ca^{2+}, –2.24; $CH_3NH_3^+$, –1.68; $C_8H_{17}NH_3^+$, +0.33; $(C_4H_9)_2NH_2^+$, –0.43; $(CH_3)_3NH^+$, –1.70	SSM	–	–	51 ± 3	5×10^{-4} -5×10^{-2}	4 < pH < 10; 25 °C; $c_{dl} = 1 \times 10^{-4}$ M; $\tau \geq$ 120–150 d; t_{resp} = 20 s; 1-PEA, 1-phenylethyl amine	[8]
	PA-11 (w = 5.0 %), oNPOE (w = 62.0 %), PVC (w = 31.0 %), NaTPB (x_i = 68.8 %)	1-PEA, 0; Li^+, –2.40; Na^+, –1.62; K^+, –1.72; NH_4^+, –1.74; Ca^{2+}, –2.80; $CH_3NH_3^+$, –1.72; $C_8H_{17}NH_3^+$, +0.34; $(C_4H_9)_2NH_2^+$, –0.28; $(CH_3)_3NH^+$, –1.74	SSM	–	–	59.2 ± 0.4	5×10^{-4} -5×10^{-2}	4 < pH < 10; 25 °C; $c_{dl} = 2 \times 10^{-5}$ M; $\tau \geq$ 120–150 d; t_{resp} = 5 s; 1-PEA, 1-phenyl-ethylamine	[8]
	PA-11 (w = 5.0 %), oNPHE (w = 62.0 %), PVC (w = 31.0 %), NaTPB (x_i = 68.8 %)	PhGlyME, 0; Li^+, –2.52; Na^+, –1.19; K^+, –0.73; NH_4^+, –1.34; Ca^{2+}, –2.68; $CH_3NH_3^+$, –1.05; $C_8H_{17}NH_3^+$, +0.54; $(C_4H_9)_2NH_2^+$, +0.41; $(CH_3)_3NH^+$, –1.14	SSM	–	–	59 ± 1	5×10^{-4} -10^{-1}	4 < pH < 10; 25 °C; $c_{dl} = 5 \times 10^{-5}$ M; $\tau \geq$ 120–150 d; t_{resp} = 5 s; PhGlyME, phenylglycine methyl ester	[8]
	PA-11 (w = 5.0 %), oNPPE (w = 61.6 %), PVC (w = 30.8 %), NaTPB (x_i = 68.8 %)	PheOMe, 0; Li^+, –2.44; Na^+, –1.49; K^+, –1.18; NH_4^+, –1.32; Ca^{2+}, –2.00; $CH_3NH_3^+$, –1.31; $C_6H_5CH_2CHNH_3^+COOH$, –1.96; $(CH_3)_2NH_2^+$, –1.41; $(C_4H_9)_2NH_2^+$, –1.00; $(C_8H_{17})_2NH_3^+$, +0.079; $(CH_3)_3NH^+$, –1.57	SSM MSM	–	–	60 ± 3	3×10^{-4} -10^{-1}	2 < pH < 7; $c_{dl} = 10^{-4}$ M; $\tau \leq$ 90 d; t_{resp} = 5 s; PheOMe, phenylalanine methyl ester	[9]

Table 1 (*Continued*).

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	PA-11 (w = 5.0 %), oNPHE (w = 61.6 %), PVC (w = 30.8 %), NaTPB (x_i = 68.8 %)	PheOMe, 0; Li^+, –2.12; Na^+, –1.68; K^+, –1.15; NH_4^+, –1.47; Ca^{2+}, –2.04; $CH_3NH_3^+$, –1.39; $C_6H_5CH_2CHNH_3^+COOH$, –1.85; $(CH_3)_2NH_2^+$, –1.44; $(C_4H_9)_2NH_2^+$, –1.06; $(C_8H_{17})_2NH_3^+$, –0.013; $(CH_3)_3NH^+$, –1.60	SSM MSM	–	–	62 ± 1	10^{-4}–10^{-1}	2 < pH < 7; $c_{dl} = 6 \times 10^{-5}$ M; τ 90 d; t_{resp} = 5 s; PheOMe, phenyl-alanine methyl ester	[9]
	PA-11 (w = 10.0 %), oNPHE (w = 59.1 %), PVC (w = 28.3 %), NaTPB (x_i = 34.4 %)	PheOMe, 0; Li^+, –2.24; Na^+, –1.54; K^+, –1.51; NH_4^+, –1.51; $CH_3NH_3^+$, –1.34; $C_6H_5CH_2CHNH_3^+COOH$, –1.60; $(C_8H_{17})_2NH_3^+$, +0.12	SSM MSM	–	–	57	5×10^{-4} –4×10^{-1}	2 < pH < 7; $c_{dl} = 10^{-4}$ M; $\tau \leq$ 90 d; PheOMe, phenylalanine methyl ester	[9]
PA-12	**PA-12** (w = 5 %), oNPOE (w = 61.6 %), PVC (w = 30.8 %), NaTPB (x_i = 48.6 %)	PheOMe, 0; K^+, –1.14; NH_4^+, –1.11; $CH_3NH_3^+$, –1.25; $C_6H_5CH_2CHNH_3^+COOH$, –1.68; $(CH_3)_2NH_2^+$, –1.32; $(CH_3)_3NH^+$, –1.48	SSM MSM	–	–	61 ± 2	10^{-4}–10^{-1}	2 < pH < 7; $c_{dl} = 6.3 \times 10^{-6}$ M; t_{resp} < 5 s; $\tau \leq$ 90 d; PheOMe, phenylalanine methyl ester	[9]
PA-13	**PA-13** (w = 5.0 %), oNPPE (w = 47.0 %), PVC (w = 48.0 %)	$C_8H_{17}NH_3^+$, 0; Li^+, –3.20; Na^+, –3.05; K^+, –1.74; NH_4^+, –2.89; Ca^{2+}, –2.89; Mg^{2+}, –3.89; $CH_3NH_3^+$, –1.30; $C_6H_5CH_2NH_3^+$, –2.10; $(CH_3)_2NH_2^+$, –2.96; $(C_4H_9)_2NH_2^+$, 0.00; $(CH_3)_3NH^+$, –3.00	MSM	–	10^{-1}	58.2	5×10^{-4} –10^{-1}	2.3 < pH < 8.5; $c_{dl} = 1.6 \times 10^{-4}$ M	[10]
PA-14	**PA-14** (w = 5.0 %), oNPPE (w = 47.0 %), PVC (w = 48.0 %)	$C_8H_{17}NH_3^+$, 0; NH_4^+, –2.89; $CH_3NH_3^+$, –1.30; $C_6H_5CH_2NH_3^+$, –2.10; $(CH_3)_2NH_2^+$, –2.92; $(C_4H_9)_2NH_2^+$, 0.00; $(CH_3)_3NH^+$, –3.00	MSM	–	10^{-1}	57.8	4×10^{-4} –10^{-1}	2.3 < pH < 8.5; $c_{dl} = 0.9 \times 10^{-4}$ M	[10]

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Table 1 (*Continued*).

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
PA-15	**PA-15** (w = 5.0 %), oNPPE (w = 47.0 %), PVC (w = 48.0 %)	$C_8H_{17}NH_3^+$, 0; Li^+, –3.70; Na^+, –3.89; K^+, –2.96; NH_4^+, –2.89; Ca^{2+}, –3.44; Mg^{2+}, –3.05; $CH_3NH_3^+$, –1.85; $C_6H_5CH_2NH_3^+$, –2.2; $(CH_3)_2NH_2^+$, –2.6; $(C_4H_9)_2NH_2^+$, 0; $(CH_3)_3NH^+$, –3.2	MSM	–	10^{-1}	57.8	2×10^{-4}–10^{-1}	$2.3 < pH < 8.5$; $c_{dl} = 0.8 \times 10^{-4}$ M; $\tau \leq 14$ d	[10]
	PA-15 (w = 5.0 %), oNPOE (w = 47.0 %), PVC (w = 48.0 %)	$C_8H_{17}NH_3^+$, 0; Li^+, –3.10; Na^+, –3.62; K^+, –2.35; NH_4^+, –2.46; Ca^{2+}, –3.10; Mg^{2+}, –2.89; $CH_3NH_3^+$, –2.80; $C_6H_5CH_2NH_3^+$, –2.15; $(CH_3)_2NH_2^+$, –2.96; $(C_4H_9)_2NH_2^+$, 0.00; $(CH_3)_3NH^+$, –3.35	MSM	–	10^{-1}	60.0	10^{-4}–10^{-1}	$2.3 < pH < 8.5$; $c_{dl} = 0.7 \times 10^{-4}$ M	[10]
PA-16	**PA-16** (w = 5.0 %), oNPPE (w = 47.0 %), PVC (w = 48.0 %)	$C_8H_{17}NH_3^+$, 0; NH_4^+, –2.89; $CH_3NH_3^+$, –1.25; $C_6H_5CH_2NH_3^+$, –2.00; $(CH_3)_2NH_2^+$, –2.66; $(C_4H_9)_2NH_2^+$, 0.00; $(CH_3)_3NH^+$, –2.89	MSM	–	10^{-1}	56.3	4×10^{-4}–10^{-1}	$2.3 < pH < 8.5$; $c_{dl} = 1.0 \times 10^{-4}$ M	[10]
PA-17	**PA-17** (w = 5.0 %), oNPOE (w = 47.0 %), PVC (w = 48.0 %)	$C_8H_{17}NH_3^+$, 0; K^+, –2.20; NH_4^+, –2.00; $CH_3NH_3^+$, –2.15; $C_6H_5CH_2NH_3^+$, –1.72; $(C_4H_9)_2NH_2^+$, –0.72	MSM	–	10^{-1}	62.0	4×10^{-4}–10^{-1}	$2.3 < pH < 8.5$; $c_{dl} = 1.0 \times 10^{-4}$ M	[10]
	PA-17 (w = 5.0 %), DBP (w = 47.0 %), PVC (w = 48.0 %)	$C_8H_{17}NH_3^+$, 0; K^+, –3.00; NH_4^+, –2.82; $CH_3NH_3^+$, –2.44; $C_6H_5CH_2NH_3^+$, –1.22; $(C_4H_9)_2NH_2^+$, –0.80	MSM	–	10^{-1}	70.0	4×10^{-4}–10^{-1}	$2.3 < pH < 8.5$; $c_{dl} = 1.0 \times 10^{-4}$ M	[10]

Table 1 (*Continued*).

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
PA-18	**PA-18** (w = 5.0 %), oNPOE (w = 47.0 %), PVC (w = 48.0 %)	$C_8H_{17}NH_3^+$, 0; Li^+, –3.01; Na^+, –2.74; K^+, –2.74; NH_4^+, –2.25; Ca^{2+}, –3.10; Mg^{2+}, –2.64; $CH_3NH_3^+$, –1.80; $C_6H_5CH_2NH_3^+$, –0.97; $(CH_3)_2NH_2^+$, –2.35; $(C_4H_9)_2NH_2^+$, 0.00; $(CH_3)_3NH^+$, –2.85	MSM	–	10^{-1}	54.0	2×10^{-4} –10^{-1}	2.3 < pH < 8.5; $c_{dl} = 0.9 \times 10^{-4}$ M	[10]
PA-19	**PA-19** (w = 5.0 %), BEHS (w = 68.0 %), PVC (w = 27.0 %)	2-PEA, 0; $C_8H_{17}NH_3^+$, +0.41; $C_6H_5CH_2NH_3^+$, –0.54; adamantanamine < –2; t-$BuNH_3^+$ < –2	MPM	10^{-4}	–	59 ± 1	10^{-6}–10^{-2}	pH = 7.0; $c_{dl} < 10^{-6}$ M; ca. 20 °C; 2-PEA, 2-phenyl-ethylamine	[11]
		2-PEA, 0; $C_8H_{17}NH_3^+$, +0.15; $C_6H_5CH_2NH_3^+$, –1.11; adamantanamine, –2.81; t-$BuNH_3^+$, –4.13	SSM	10^{-2}	10^{-2}				
		2-PEA, 0; Na^+ < –2; K^+ < –2; Cs^+, +0.91; $C_8H_{17}NH_3^+$, +0.73; dopamine < –2; TrpOMe < –2	MPM	10^{-4}	–	59 ± 1	10^{-6}–10^{-2}	pH = 5.0 TrpOMe, tryptophan methyl ester	
		2-PEA, 0; Na^+, –2.72; K^+, –0.52; Cs^+, +1.17; $C_8H_{17}NH_3^+$, +1.03; dopamine, –1.01; TrpOMe, –1.74	SSM	10^{-2}	10^{-2}				
		TrpOMe, 0; AlaOMe, –0.72; LeuOMe –0.29; PheOMe, –0.21; ValOMe, –0.54	MPM	10^{-4}	–	59 ± 1	10^{-3}–10^{-2}	pH = 5.0; ca. 20 °C; $c_{dl} = 10^{-5}$ M TrpOMe, tryptophan methyl ester; AlaOMe,	[11]

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Table 1 (*Continued*).

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
		TrpOMe, 0; AlaOMe, –1.48; LeuOMe, –1.02; PheOCMe, –0.74; ValOMe, –1.38	SSM	10^{-2}	10^{-2}			alanine methyl ester; LeuOMe, leucine methyl ester; PheOMe, phenyl-alanine methyl ester; ValOMe, valine methyl ester	
		dopamine, 0; noradrenaline, –0.70; adrenaline, –0.57	MPM	10^{-4}	–	59 ± 1	10^{-3}–10^{-2}	pH = 7.0; ca. 20 °C; c_{dl} =10^{-5} M	[11]
		dopamine, 0; noradrenaline, –1.42; adrenaline, –1.55	SSM	10^{-2}	10^{-2}				
PA-20	**PA-20** (w = 0.8 %), BEHS (w = 66.0 %), PVC (w = 33.0 %), NaTPB (x_i = 43.0 %)	n-$BuNH_3^+$, 0; Na^+, –2.3; K^+, –1.6; NH_4^+, –1.6; i-$BuNH_3^+$, – 0.6; t-$BuNH_3^+$, – 0.4; s-$BuNH_3^+$, – 0.1	FIM	–	10^{-2}	–	–	25 °C; r.o.o.g.	[12]
PA-21	**PA-21** (w = 0.8 %), BEHS (w = 66.0 %), PVC (w = 33.0 %), NaTPB (x_i = 46.1 %)	n-$BuNH_3^+$, 0; Na^+, –2.26 ± 0.05; K^+, –2.26 ± 0.04; NH_4^+, –1.24 ± 0.04; i-$BuNH_3^+$, –1.20 ± 0.05; t-$BuNH_3^+$, –1.65 ± 0.05; s-$BuNH_3^+$, –1.31± 0.03	FIM	–	10^{-2}	–	–	25 °C; c_{dl} = 3 × 10^{-6} M	[12]
PA-22	**PA-22** (w = 0.8 %), BEHS (w = 66.0 %), PVC (w = 33.0 %), NaTPB (x_i = 46.3 %)	n-$BuNH_3^+$, 0; Na^+, –2.3; K^+, –1.7; NH_4^+, –1.8; i-$BuNH_3^+$, –0.5; t-$BuNH_3^+$, –0.7; s-$BuNH_3^+$, –0.1	FIM	–	10^{-2}	–	–	25 °C; r.o.o.g.	[12]
PA-23	**PA-23** (w = 0.8 %), BEHS (w = 66.0 %), PVC (w = 33.0 %), NaTPB (x_i = 47.8 %)	n-$BuNH_3^+$, 0; Na^+, –1.2; K^+, –1.1; NH_4^+, –1.3; i-$BuNH_3^+$, –0.1; t-$BuNH_3^+$, 0.0; s-$BuNH_3^+$, –0.1	FIM	–	10^{-2}	–	–	25 °C; r.o.o.g.	[12]

Table 1 (*Continued*).

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
PA-24	**PA-24** (w = 0.8 %), BEHS (w = 66.0 %), PVC (w = 33.0 %), NaTPB (x_i = 49.1 %)	n-$BuNH_3^+$, 0; Na^+, –1.6; K^+, –1.4; NH_4^+, –1.5; i-$BuNH_3^+$, 0; t-$BuNH_3^+$, –0.6; s-$BuNH_3^+$, – 0.3	FIM	–	10^{-2}	–	–	25 °C; r.o.o.g.	[12]
PA-25	**PA-25** (w = 1 %), oNPOE (w = 66 %), PVC (w = 33 %)	1-PEA, 0; H^+, +3.4; Li^+, –2.2; Na^+, –0.9; K^+, –0.9; NH_4^+, –0.8; EPH, –0.3; ψEP, –0.3	MSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine; EPH, ephedrinium; ψEP, ψ-ephedrinium	[15]
PA-26	**PA-26** (w = 1 %), oNPOE (w = 66 %), PVC (w = 33 %)	1-PEA, 0; H^+, +0.3; Li^+, –3.3; Na^+, –3.2; K^+, –2.6; NH_4^+, –2.8; Mg^{2+}, –3.4; Ca^{2+}, –3.4; Sr^{2+}, –3.4; Ba^{2+}, –4.9; EPH, –0.4; ψEP, –0.7	MSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine; EPH, ephedrinium; ψEP, ψ-ephedrinium	[15]
PA-27	**PA-27** (w = 1 %), oNPOE (w = 66 %), PVC (w = 33 %)	1-PEA, 0; H^+, 0.0; Li^+, –2.3; Na^+, –2.3; K^+, –2.5; NH_4^+, –2.6; Mg^{2+}, –2.8; Ca^{2+}, –0.7; Sr^{2+}, –1.7; Ba^{2+}, –2.0; EPH, –0.1; ψEP, –0.6	MSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine; EPH, ephedrinium; ψEP, ψ-ephedrinium	[15]
PA-28	**PA-28** (w = 1 %), oNPOE (w = 66 %), PVC (w = 33 %)	1-PEA, 0; H^+, +0.5; Li^+, –2.2; Na^+, –2.3; K^+, –2.3; NH_4^+, –2.6; Rb^+, –2.4; Cs^+, –2.6; Mg^{2+}, –2.9; Ca^{2+}, –0.8; Sr^{2+}, –2.0; Ba^{2+}, –2.3; EPH, –0.6; ψEP, –0.8	MSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA· 1-phenyl-ethylamine; EPH, ephedrinium; ψEP, ψ-ephedrinium	[15]
PA-29	**PA-29** (w = 1 %), oNPOE (w = 66 %), PVC (w = 33 %)	1-PEA, 0; H^+, +1.2; Li^+, –2.9; Na^+, –2.7; K^+, –3.1; NH_4^+, –2.8; Rb^+, –3.0; Cs^+, –3.0; Mg^{2+}, –2.6; Ca^{2+}, –2.1; Sr^{2+}, –2.3; Ba^{2+}, –2.2; EPH· –0.5; ψEP, –0.7	MSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine; EPH, ephedrinium; ψEP, ψ-ephedrinium	[15]

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Table 1 (*Continued*).

ionophore	membrane composition	$\lg K_{PA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
PA-30	**PA-30** (w = 1 %), oNPOE (w = 66 %), PVC (w = 33 %)	1-PEA, 0; H^+, +1.0; Li^+, –1.7; Na^+, –1.5; K^+, –1.3; NH_4^+, –1.1; Mg^{2+}, –1.9; Ca^{2+}, –1.8; Sr^{2+}, –1.8; Ba^{2+}, –1.9; EPH, –0.3; ψEP, –0.6	MSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine; EPH, ephedrinium; ψEP, ψ-ephedrinium	[15]
PA-31	**PA-31** (w = 1 %), oNPOE (w = 66 %), PVC (w = 33 %)	1-PEA, 0; H^+, +1.3; Li^+, –1.4; Na^+, –1.5; K^+, –1.5; NH_4^+, –1.4; Mg^{2+}, –1.6; Ca^{2+}, –2.4; Sr^{2+}, –2.4; Ba^{2+}, –3.5; EPH, +0.1; ψEP, –0.1	MSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine; EPH, ephedrinium; ψEP, ψ-ephedrinium	[15]
PA-32	**PA-32** (w = 1 %), oNPOE (w = 66 %), PVC (w = 33 %)	1-PEA, 0; H^+, +3.3; Li^+, –0.7; Na^+, –0.8; K^+, –0.8; NH_4^+, –0.7; Mg^{2+}, –0.8; Ca^{2+}, –1.1; Sr^{2+}, –1.0; Ba^{2+}, –2.4; EPH, +0.1; ψEP, –0.1	MSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine; EPH, ephedrinium; ψEP, ψ-ephedrinium	[15]
PA-33	**PA-33** (w = 1 %), oNPOE (w = 66 %), PVC (w = 33 %)	1-PEA, 0; H^+, +2.5; Li^+, –0.3; Na^+, –0.3; K^+, +3.4; NH_4^+, +1.9; Mg^{2+}, –0.8; Ca^{2+}, –0.7; Sr^{2+}, –0.9; Ba^{2+}, –2.4; EPH, –0.2; ψEP, –0.1	MSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine; EPH, ephedrinium; ψEP, ψ-ephedrinium	[15]

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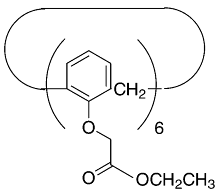
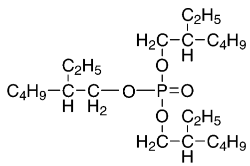
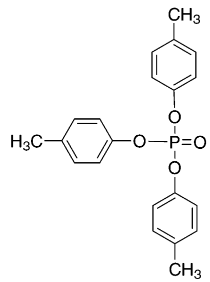


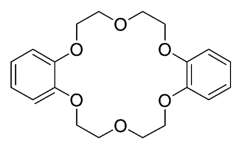
PA-1 (M_r = 718.80)



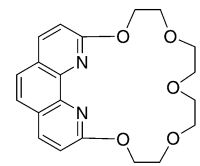
PA-2 (M_r = 434.65)



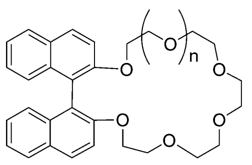
PA-3 (M_r = 368.37)



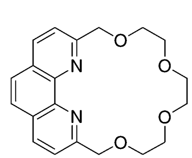
PA-4 (M_r = 388.55)



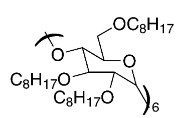
PA-5 (M_r = 386.41)



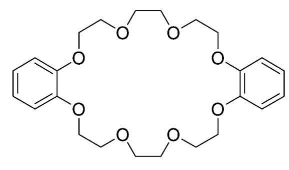
PA-6 (M_r = 488.58): n=1
PA-7 (M_r = 532.64): n=2



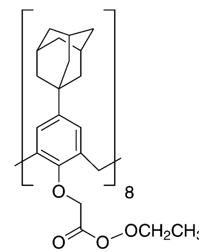
PA-8 (M_r = 354.40)



PA-9 (M_r = 2992.74)



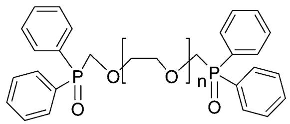
PA-10 (M_r = 448.51)



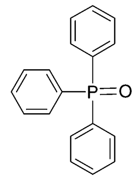
PA-11 (M_r = 1889.82)

(*continues on next page*)

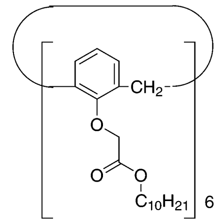
Table 1 (*Continued*).



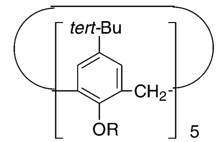
PA-12 (M_r = 622.64): n=4
PA-13 (M_r = 446.43): n=0
PA-14 (M_r = 490.48): n=1
PA-15 (M_r = 534.53): n=2
PA-16 (M_r = 578.57): n=3
PA-17 (M_r = 666.68): n=5



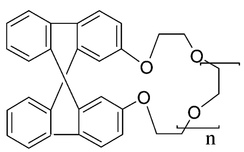
PA-18 (M_r = 278.29)



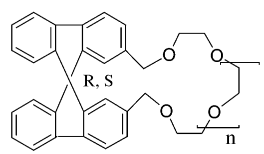
PA-19 (M_r =1826.60)



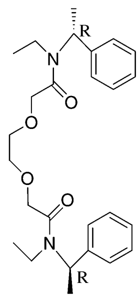
PA-20 (M_r = 1031.65): R=C_4H_9
PA-21 (M_r = 1171.93): R=$(CH_2)_3CH\ (CH_3)_2$
PA-22 (M_r = 1181.79): R=$(CH_2)_2OCH\ (CH_3)_2$
PA-23 (M_r = 1251.71): R=$CH_2CO_2CH\ (CH_3)_2$
PA-24 (M_r = 321.84): R=$CH_2CO_2C\ (CH_3)_3$



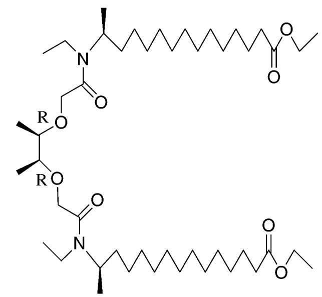
PA-25 (M_r = 524.66): n=2
PA-32 (M_r = 568.72): n=3



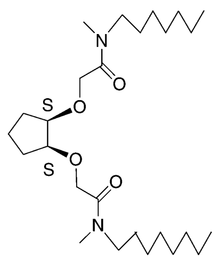
PA-26 (M_r = 552.72): n=2
PA-31 (M_r = 596.77): n=3



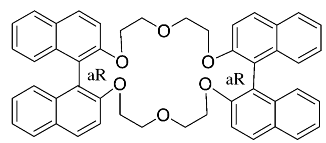
PA-27 (M_r = 440.58)



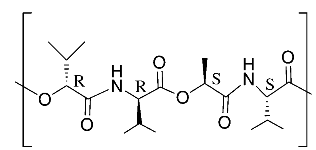
PA-28 (M_r = 829.30)



PA-29 (M_r = 470.73)



PA-30 (M_r = 712.85)



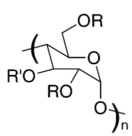
PA-33 (M_r = 1303.86)

Table 2 Secondary ammonium ion-selective electrodes.

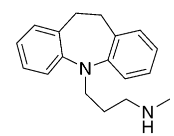
ionophore	membrane composition	$\lg K_{SA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
SA-1	**SA-1** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 54 %)	desipramine, 0; $Na^+/K^+/Ca^{2+}$, –4.3†	FIM	–	†	61.7†	–	pH = 7.0; 25 °C; $c_{dl} = 10^{-5.2}$ M; †, clinical background Na^+, 145 mM, K^+, 4.3 m Ca^{2+}, 1.26 mM	[1]
SA-2	**SA-2** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 58 %)	desipramine, 0; $Na^+/K^+/Ca^{2+}$, –3.6†	FIM	–	†	60.9†	–	pH = 7.0; 25 °C; $c_{dl} = 10^{-4.4}$ M; †, clinical background	[1]
SA-3	**SA-3** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 61 %)	desipramine, 0; $Na^+/K^+/Ca^{2+}$, –4.3†	FIM	–	†	58.4†	–	pH = 7.0; 25 °C; $c_{dl} = 10^{-4.9}$ M; †, clinical background	[1]
SA-4	**SA-4** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 58 %)	prilocaine, 0; $Na^+/K^+/Ca^{2+}$, –4.2†	FIM	–	†	61.0†	–	pH = 6.84; 25 °C; $c_{dl} = 10^{-5.0}$ M; †, clinical background	[2]

(1) R. Kataky, S. Palmer, D. Parker, D. Spurling, *Electroanalysis*, **9**, 1267-1272 (1997).

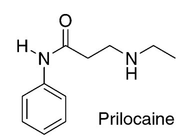
(2) R. Kataky, S. Palmer, *Electroanalysis*, **8**, 585-590 (1996).



SA-1 (M_r = 3173.18): n=6, R=$C_{12}H_{25}$, R'= H
SA-2 (M_r = 3702.05): n=7, R=$C_{12}H_{25}$, R'= H
SA-3 (M_r = 4230.91): n=8, R=C_8H_{17}, R'=C_8H_{17}
SA-4 (M_r = 3702.05): n=7, R=C_8H_{17}, R'=C_8H_{17}



Desipramine



Prilocaine

Table 3 Tertiary ammonium ion-selective electrodes.

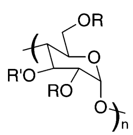
ionophore	membrane composition	$\lg K_{TA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
TA-1	**TA-1** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 54 %)	imipramine, 0; $Na^+/K^+/Ca^{2+}$, –3.0†	FIM	–	†	62.1†	–	pH = 7.0; 25 °C; $c_{dl} = 10^{-3.8}$ M; †, clinical background Na^+, 145 mM, K^+, 4.3 m Ca^{2+}, 1.26 mM	[1]
		trimipramine, 0; $Na^+/K^+/Ca^{2+}$, –3.75†	FIM	–	†	64.2†	–	pH = 7.0; 25 °C; $c_{dl} = 10^{-4.6}$ M; †, clinical background	[1]
TA-2	**TA-2** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 58 %)	imipramine, 0; $Na^+/K^+/Ca^{2+}$, –2.9†	FIM	–	†	61.8†	–	pH = 7.0; 25 °C; $c_{dl} = 10^{-3.7}$ M; †, clinical background	[1]
		trimipramine, 0; $Na^+/K^+/Ca^{2+}$, –4.3†	FIM	–	†	53.8†	–	pH = 7.0; 25 °C; $c_{dl} = 10^{-5.2}$ M; †, clinical background	[1]
TA-3	**TA-3** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 61 %)	imipramine, 0; $Na^+/K^+/Ca^{2+}$, –2.5†	FIM	–	†	55.6†	–	pH = 7.0; 25 °C; $c_{dl} = 10^{-3.3}$ M; †, clinical background	[1]
		trimipramine, 0; $Na^+/K^+/Ca^{2+}$, –4.8†	FIM	–	†	51.5†	–	pH = 7.0; 25 °C; $c_{dl} = 10^{-5.6}$ M; †, clinical background	[1]
TA-4	**TA-4** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 58 %)	procaine 0; $Na^+/K^+/Ca^{2+}$, –4.2†	FIM	–	†	61.0†	–	pH = 6.84; 25 °C; $c_{dl} = 10^{-4.7}$ M; †, clinical background	[2]
		lidocaine, 0; $Na^+/K^+/Ca^{2+}$, –3.8†; histidine , –2.0; vitamine B_1, –2.4	FIM	–	1×10^{-3} †	61.0†	10^{-3} –10^{-1}	pH = 6.84; 25 °C; $c_{dl} = 10^{-3.8}$ M; †, clinical background	[2]
		bupivacaine, 0; $Na^+/K^+/Ca^{2+}$, –4.0†; histidine, –2.8	FIM	–	1×10^{-3} †	53.9†	10^{-4} –10^{-2}	pH = 6.84; 25 °C; $c_{dl} = 10^{-4.9}$ M; †, clinical background	[2]

Table 3 (*Continued*).

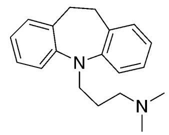
ionophore	membrane composition	$\lg K_{TA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	TA-4 (w = 1.2 %), oNPOE (w = 65.6 %), polyurethane (w = 32.8 %), NaTFPB (x_i = 58 %)	lidocaine, 0; histidine, –1.4; vitamine B_1, –2.1	FIM	–	1×10^{-3}	67.4†	3×10^{-3} -10^{-1}	pH = 6.84; 25 °C; $c_{dl} = 3.6 \times 10^{-2}$ M; †, clinical background	[2]
		bupivacaine, 0; histidine, –2.7	FIM	–	1×10^{-3}	61.1†	2×10^{-4} -10^{-2}	pH = 6.84; 25 °C; $c_{dl} = 10^{-4.9}$ M; †, clinical background	[2]

(1) R. Kataky, S. Palmer, D. Parker, D. Spurling, *Electroanalysis*, **9,** 1267-1272 (1997).

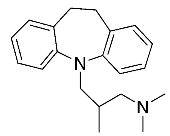
(2) R. Kataky, S. Palmer, *Electroanalysis*, **8,** 585-590 (1996).



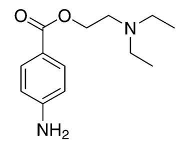
TA-1 (M_r = 3173.18): n=6, R=$C_{12}H_{25}$, R'= H
TA-2 (M_r = 3702.05): n=7, R=$C_{12}H_{25}$, R'= H
TA-3 (M_r = 4230.91): n=8, R=C_8H_{17}, R'=C_8H_{17}
TA-4 (M_r = 3702.05): n=7, R=C_8H_{17}, R'=C_8H_{17}



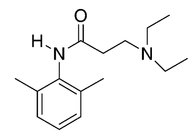
Imipramine



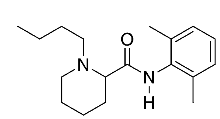
Trimipramine



Procaine



Lidocaine



Bupivacaine

Table 4 Quaternary ammonium ion-selective electrodes.

ionophore	membrane composition	$\lg K_{QA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
QA-1	**QA-1** (w = 4.9 %), oNPOE (w = 55.5 %), PVC (w = 39.6 %)	$C_{12}H_{25}(CH_3)_3N^+$, 0; Li^+, –2.1; Na^+, –2.1; K^+, –2.0; $C_8H_{17}NH_3^+$, –1.4; $(C_4H_9)_2NH_2^+$, –1.9; $(CH_3)_3NH^+$, –2.0	SSM	10^{-3}	10^{-3}	54.3 ± 0.7	2.5×10^{-5} –1.4×10^{-2}	2 < pH < 11; $c_{dl} = 6.3 \times 10^{-6}$ M; τ = 180 d; t_{resp} < 20 s; 22 ± 1°C; r.o.o.g	[1]
QA-2	**QA-2** (w = 4.9 %), oNPOE (w = 55.5 %), PVC (w = 39.6 %)	$C_{12}H_{25}(CH_3)_3N^+$, 0; Li^+, –1.7; Na^+, –1.7; K^+, –1.6; $C_8H_{17}NH_3^+$, –1.7; $(C_4H_9)_2NH_2^+$, –1.9	SSM	10^{-3}	10^{-3}	53.0 ± 1.0	1.0×10^{-5} –1.4×10^{-2}	2 < pH < 11; $c_{dl} = 5.0 \times 10^{-6}$ M; τ = 180 d; t_{resp} < 15 s; 22 ± 1 °C; r.o.o.g.	[1]
	QA-2 (w = 4.8 %), oNPOE (w = 54.4 %), PVC (w = 38.9 %), NaTPB (x_i = 45 %)	$C_{12}H_{25}(CH_3)_3N^+$, 0; Li^+, –2.3; Na^+, –2.2; K^+, –2.2; $C_8H_{17}NH_3^+$, –1.6; $(CH_3)_3NH^+$, –2.0	SSM	10^{-3}	10^{-3}	58.5 ± 0.3	5.0×10^{-6} –1.4×10^{-2}	2 < pH < 11; $c_{dl} = 3.2 \times 10^{-6}$ M; τ = 180 d; t_{resp} < 5 s; 22 ± 1°C; r.o.o.g.	[1]
	QA-2 (w = 4.9 %), DOP (w = 55.5 %), PVC (w = 39.6 %)	$C_{12}H_{25}(CH_3)_3N^+$, 0; Li^+, –0.8; Na^+, –1.1; K^+, –1.4; $C_8H_{17}NH_3^+$, –1.0; $(CH_3)_3NH^+$, –1.1	SSM	10^{-3}	10^{-3}	55.2 ± 6.9	5.0×10^{-5} –1.4×10^{-2}	2 < pH < 11; $c_{dl} = 2.5 \times 10^{-5}$ M; τ = 180 d; t_{resp} < 20 s; 22 ± 1 °C; r.o.o.g.	[1]
QA-3	**QA-3** (w = 4.9 %), oNPOE (w = 55.5 %), PVC (w = 39.6 %)	$C_{12}H_{25}(CH_3)_3N^+$, 0; Li^+, –1.3; Na^+, –1.5; K^+, –1.6; $C_8H_{17}NH_3^+$, –0.8; $(C_4H_9)_2NH_2^+$, –1.5; $(CH_3)_3NH^+$, –1.6	SSM	10^{-3}	10^{-3}	55.7 ± 6.6	5.0×10^{-5} –1.4×10^{-2}	2 < pH < 11; $c_{dl} = 1.3 \times 10^{-5}$ M; τ = 180 d; t_{resp} < 20 s; 22 ± 1 °C; r.o.o.g	[1]
QA-4	**QA-4** (w = 5.0 %), oNPOE (w = 63.3 %), PVC (w = 31.7 %)	$C_{12}H_{25}(CH_3)_3N^+$, 0; Li^+, –1.5; Na^+, –1.2; K^+, –0.1; NH_4^+, –1.5; Ca^{2+}, –2.2; $C_8H_{17}NH_3^+$, –1.0; $(C_4H_9)_2NH_2^+$, –0.9	SSM	10^{-3}	10^{-3}	47.0 ± 0.5	–	22 ± 0.1 °C; $c_{dl} = 8.0 \times 10^{-6}$ M; $\tau \leq$ 180 d; t_{resp} = 15 s; r.o.o.g.	[2]
QA-5	**QA-5** (w = 5.0 %), oNPOE (w = 63.3 %), PVC (w = 31.7 %)	$C_{12}H_{25}(CH_3)_3N^+$, 0; Li^+, –1.9; Na^+, –1.8; K^+, –1.9; NH_4^+, –1.8; Ca^{2+}, –3.1;	SSM	10^{-3}	10^{-3}	53.5 ± 1.1	–	22 ± 0.1 °C; $c_{dl} = 8.0 \times 10^{-6}$ M; $\tau \leq$ 180 d; t_{resp} = 10 s;	[2]

Table 4 (*Continued*).

ionophore	membrane composition	$\lg K_{QA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
		$C_8H_{17}NH_3^+$, 0; $(C_4H_9)_2NH_2^+$, –1.7						r.o.o.g.	
QA-6	**QA-6** (w = 5.0 %), oNPOE (w = 63.3 %), PVC (w = 31.7 %)	$C_{12}H_{25}(CH_3)_3N^+$, 0; Li^+, –1.4; Na^+, –1.5; K^+, –1.7; NH_4^+, –1.7; Ca^{2+}, –2.6; $C_8H_{17}NH_3^+$, –1.5; $(C_4H_9)_2NH_2^+$, –1.8	SSM	10^{-3}	10^{-3}	61.3 ± 1.4	–	5 < pH < 9; $c_{dl} = 1.0 \times 10^{-5}$ M; $\tau \le$ 180 d; t_{resp} = 7 s; 22 ± 0.1 °C; r.o.o.g.	[2]
QA-7	**QA-7** (w = 5.0 %), oNPOE (w = 63.3 %), PVC (w = 31.7 %)	$C_{12}H_{25}(CH_3)_3N^+$, 0; Li^+, –1.9; Na^+, –1.7; K^+, –1.7; NH_4^+, –1.8; Ca^{2+}, –2.9; $C_8H_{17}NH_3^+$, –1.3; $(C_4H_9)_2NH_2^+$, –1.8	SSM	10^{-3}	10^{-3}	61.0 ± 0.7	–	5 < pH < 9; $c_{dl} = 1.2 \times 10^{-5}$ M; $\tau \le$ 180 d; t_{resp} = 5 s; 22 ± 0.1 °C; r.o.o.g	[2]
QA-8	**QA-8** (w = 5.0 %), oNPOE (w = 63.3 %), PVC (w = 31.7 %)	$C_{12}H_{25}(CH_3)_3N^+$, 0; Li^+, –1.9; Na^+, –1.8; K^+, –1.9; NH_4^+, –2.1; Ca^{2+}, –3.3; $C_8H_{17}NH_3^+$, –2.0; $(C_4H_9)_2NH_2^+$, –2.2	SSM	10^{-3}	10^{-3}	59.1 ± 0.4	–	9 < pH < 11; $c_{dl} = 1.4 \times 10^{-5}$ M; $\tau \le$ 180 d; t_{resp} = 5 s; 22 ± 0.1 °C; r.o.o.g.	[2]
QA-9	**QA-9** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), KTFPB (x_i = 5 %)	$(CH_3)_4N^+$, 0; Na^+, –3.5; K^+, –2.9; NH_4^+, –3.5	FIM	–	10^{-1}	58.0	–	37 °C; $c_{dl} = 10^{-5.7}$ M	[3]
		$(CH_3)_4N^+$, 0; Na^+, –3.8; K^+, –3.2; NH_4^+, –3.5; Mg^{2+}, –4.7; Ca^{2+}, –4.7	FIM	–	10^{-1}	61.0	–	37 °C; $c_{dl} = 10^{-4.7}$ M	[4]
		$(CH_3)_4N^+$, 0 ; $Na^+/K^+/Ca^{2+}$, –4.0†	FIM	–	†	56.5†	–	37 °C; †, clinical background Na^+, 145 mM, K^+ 4.3. m Ca^{2+}, 1.26 mM	[5]
		$(C_2H_5)_4N^+$, 0 ; $Na^+/K^+/Ca^{2+}$, –4.9†	FIM	–	†	–	–	37 °C; †, clinical background	[5]

(*continues on next page*)

Table 4 (*Continued*).

ionophore	membrane composition	$\lg K_{QA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
		$(C_3H_7)_4N^+$, 0 ; $Na^+/K^+/Ca^{2+}$, –4.9†	FIM	–	†	–	–	37 °C; †, clinical background	[5]
		$(C_4H_9)_4N^+$, 0 ; $Na^+/K^+/Ca^{2+}$, –4.4†	FIM	–	†	–	–	37 °C; †, clinical background	[5]
		$(C_5H_{11})_4N^+$, 0 ; $Na^+/K^+/Ca^{2+}$, –4.7†	FIM	–	†	–	–	37 °C; †, clinical background	[5]
		$(C_6H_{13})_4N^+$, 0 ; $Na^+/K^+/Ca^{2+}$, –3.3†	FIM	–	†	–	–	37 °C; †, clinical background	[5]
	QA-9 (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 30 %)	acetylcholine, 0; Na^+, –4.2; K^+, –3.5; NH_4^+, –3.2; Ca^{2+}, –4.5; choline, –1.8	FIM	–	10^{-1}	60.0	–	37 °C; $c_{dl} = 10^{-5.1}$ M	[3] [4]
QA-10	**QA-10** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 52 %)	$(CH_3)_4N^+$, 0; $Na^+/K^+/Ca^{2+}$, –4.3†	FIM	–	†	54.6†	–	37 °C; †, clinical background	[5]
QA-11	**QA-11** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 42 %)	$(CH_3)_4N^+$, 0; $Na^+/K^+/Ca^{2+}$, –3.4†	FIM	–	†	59.3†	–	37 °C; †, clinical background	[5]
QA-12	**QA-12** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 58 %)	$(CH_3)_4N^+$, 0 ; $Na^+/K^+/Ca^{2+}$, –4.1†	FIM	–	†	56.1†	–	37 °C; †, clinical background	[5]
		acetylcholine, 0; Na^+, –3.5; K^+, –3.5; NH_4^+, –3.2; Ca^{2+}, –4.5; $Na^+/K^+/Ca^{2+}$, –4.2; choline, –1.8	FIM	–	0.1 †	61.4†	–	pH = 7.0; 37 °C; $c_{dl} = 10^{-5.5}$ M; †, clinical background	[7]
		choline, 0, $Na^+/K^+/Ca^{2+}$, –3.4†	FIM	–	†	61.1	–	37 °C; $c_{dl} = 10^{-5.9}$M; †, clinical background	[5]

Table 4 (*Continued*).

ionophore	membrane composition	$\lg K_{QA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
		methacholine, 0; $Na^+/K^+/Ca^{2+}$, –4.3†	FIM	–	†	61.4		37 °C; $c_{dl} = 10^{-6.2}$ M; †, clinical background	[5]
QA-13	**QA-13** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %),	$(CH_3)_4N^+$, 0 ; $Na^+/K^+/Ca^{2+}$, –4.9†	FIM	–	†	57.1†	–	37 °C; †, clinical background	[5]
QA-14	**QA-14** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %),	$(CH_3)_4N^+$, 0 ; $Na^+/K^+/Ca^{2+}$, –4.3†	FIM	–	†	58.8†	–	37 °C; †, clinical background	[5]
QA-15	**QA-15** (w = 1.2 %), BEHS (w = 65.6 %), PVC (w = 32.8 %),	$C_6H_{13}(CH_3)_3N^+$, 0; Na^+, –4.0; K^+, –3.9; Mg^{2+}, –5.9; Ca^{2+}, –5.7;	FIM	–	$10^{-2.5}$	59.6	–	25 °C; $c_{dl} = 10^{-6.7}$ M	[5]
		$C_8H_{17}(CH_3)_3N^+$, 0; Na^+, –4.7; K^+, –4.6; Mg^{2+}, –6.0; Ca^{2+}, –6.3	FIM	–	10^{-1}	59.6	–	25 °C; $c_{dl} = 10^{-6.1}$ M	[5]
		$C_{10}H_{21}(CH_3)_3N^+$, 0; Na^+, –4.8; K^+, –5.4; Mg^{2+}, –6.1; Ca^{2+}, –5.7	FIM	–	10^{-1}	58.6	–	25 °C; $c_{dl} = 10^{-6.1}$ M	[5]
		$C_{12}H_{25}(CH_3)_3N^+$, 0; Na^+, –5.2; K^+, –5.3; Mg^{2+}, –5.6; Ca^{2+}, –5.8	FIM	–	10^{-1}	58.4	–	25 °C; $c_{dl} = 10^{-6.6}$ M	[5]
		$C_{14}H_{29}(CH_3)_3N^+$, 0; Na^+, –4.8; K^+, –4.9; Mg^{2+}, –5.3; Ca^{2+}, –5.5	FIM	–	10^{-1}	58.8	–	25 °C; $c_{dl} = 10^{-6.2}$ M	[5]
		$C_{16}H_{33}(CH_3)_3N^+$, 0; Na^+, –4.5; K^+, –5.0; Mg^{2+}, –4.8; Ca^{2+}, –5.5	FIM	–	10^{-1}	58.6	–	25 °C; $c_{dl} = 10^{-6.6}$ M	[5]
		$(C_{10}H_{21})_2(CH_3)_2N^+$, 0; Na^+, –4.0; K^+, –3.9; Mg^{2+}, –3.8; Ca^{2+}, –4.0	FIM	–	10^{-1}	59.1	–	25 °C; $c_{dl} = 10^{-5.6}$ M	[5]
	QA-15 (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %),	$C_{14}H_{29}(CH_3)_3N^+$, 0; Na^+, –4.0; K^+, –4.0; Mg^{2+}, –3.2; Ca^{2+}, –4.4	FIM	–	10^{-1}	58.4	–	25 °C; $c_{dl} = 10^{-6.3}$ M	[5]

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Table 4 (*Continued*).

ionophore	membrane composition	$\lg K_{QA^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	NaTFPB (x_i = 55 %)	$C_{16}H_{33}(CH_3)_3N^+$, 0; Na^+, –3.6	FIM	–	10^{-1}	52.8	–	25 °C; $c_{dl} = 10^{-6.3}$ M	[5]
		acetylcholine, 0; choline, –1.8	FIM	–	10^{-2}	60.0	–	37 °C; $c_{dl} = 10^{-5.1}$ M	[4]
QA-16	**QA-16** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 52 %)	acetylcholine, 0; choline, –1.2; $Na^+/K^+/Ca^{2+}$, –4.2†	FIM	–	†	61.6†	–	37 °C; $c_{dl} = 10^{-6.5}$ M †, clinical background	[5]
		choline, 0; $Na^+/K^+/Ca^{2+}$, –3.4†	FIM	–	†	61.4†	–	$c_{dl} = 10^{-6.4}$ M †, clinical background	[5]
		methacholine, 0; $Na^+/K^+/Ca^{2+}$, –4.4†	FIM	–	†	60.3†	–	$c_{dl} = 10^{-6.7}$ M †, clinical background	[5]
QA-17	**QA-17** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 55 %)	acetylcholine, 0; choline, –1.8; $Na^+/K^+/Ca^{2+}$, –4.1†	FIM	–	10^{-1}	60.1†	–	37 °C; $c_{dl} = 10^{-5.1}$ M †, clinical background	[6]
QA-18	**QA-18** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 52 %)	acetylcholine, 0; $Na^+/K^+/Ca^{2+}$, –4.2† ; choline, –1.2	FIM	–	10^{-1}	61.5†	–	37 °C; $c_{dl} = 10^{-6.5}$ M †, clinical background	[6]
		choline, 0; $Na^+/K^+/Ca^{2+}$, –3.4†	FIM	–	†	61.4†	–	$c_{dl} = 10^{-6.4}$ M 37 °C; †, clinical background	[6]
		methacholine, 0; $Na^+/K^+/Ca^{2+}$, –4.4†	FIM	–	†	60.3†	–	$c_{dl} = 10^{-6.7}$ M 37 °C; †, clinical background	[6]

(1) N.V. Shvedene, T.V. Shishkanova, I.I. Torocheshnikova, I.A. Nazarova, V.E. Baulin, Y.A. Zolotov, I.V. Pletnev, *J. Inclusion Phenom. Mol. Recognit. Chem*., **32**, 9-21 (1998).

(2) N.V. Shvedene, T.V. Shishkanova, I.V. Pletnev, N.V. Belchenko, V.V. Kovalev, A.K. Rozov, E.A. Shokova, *Anal. Lett*., **29**, 843-858 (1996).

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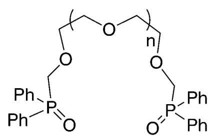
(4) P.S. Bates, R. Kataky, D. Parker, *J. Chem., Soc., Chem. Commun*., 691-693 (1993).

Table 4 (*Continued*).

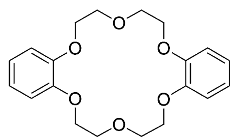
(5) P.M. Kelly, R. Kataky, D. Parker, A.F. Patti, *J. Chem. Soc., Perkin Trans. 2*, 1955-1963 (1995).

(6) D. Parker, R. Kataky, P.M. Kelly, S. Palmer, *Pure Appl. Chem.*, **68**, 1219-1223 (1996).

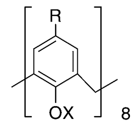
(7) R. Kataky, D. Parker, *Analyst,* **121**, 1829-1834 (1996).



QA-1 (M_r = 622.64): n=3
QA-2 (M_r = 710.75): n=5

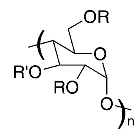


QA-3 (M_r = 388.55)



QA-4 (M_r = 977.36): R=H, X=CH_3
QA-5 (M_r = 2051.12): R=1-Ad, X=CH_3
QA-6 (M_r = 2627.60): R=1-Ad, X=$CH_2COOCH_2CH_3$
QA-7 (M_r = 2867.84): R=1-Ad, X= $CH_2COOCH_2CH_2OCH_3$
QA-8 (M_r = 2403.20): R=1-Ad, X=CH_2COOH

1-Ad



QA-9 (M_r = 3702.05): n=7, R=C_8H_{17}, R'=C_8H_{17}
QA-10 (M_r = 2916.53): n=7, R=C_8H_{17}, R'= H
QA-11 (M_r = 1934.63): n=7, R=C_2H_5, R'=C_2H_5
QA-12 (M_r = 3702.05): n= 7, R=$C_{12}H_{25}$, R'=H
QA-13 (M_r = 3800.24): n=7, R=$C_{12}H_{25}$, R'=CH_3
QA-14 (M_r = 3173.18): n=6, R=$C_{12}H_{25}$, R'=H
QA-15: n=7, R=C_8H_{17}, R'=H (50%) + C_8H_{17} (50%)
QA-16: n=6, R=C_8H_{17}, R'= H (57%) + C_8H_{17} (43%)
QA-17: n=7, R=C_8H_{17}, R'= H (48%) + C_8H_{17} (52%)
QA-18: n=6, R=C_8H_{17}, R'= H (50%) + C_8H_{17} (50%)

Table 5 Guanidinium derivative ion-selective electrodes.

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
GD-1	**GD-1** (w = 1.1 %), DBP (w = 65.6 %), PVC (w = 32.8 %), GDTPB* (x_i = 37 %)	guanidinium, 0; Li^+, –1.0; Na^+, –0.3; K^+, +1.2; NH_4^+, +0.2; Mg^{2+}, –1.0; Ca^{2+}, –1.3; $(C_2H_5)_4N^+$, +1.7; pyridinium, +0.3; paraquat, –0.2; urea, –2.2	SSM	10^{-2}	10^{-2}	52	6×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 1.6 \times 10^{-4}$ M; $\tau \leq 70$ d; *, guanidinium tetraphenylborate; r.o.o.g.	[1]
	GD-1 (w = 1.1 %), DOA (w = 65.6 %), PVC (w = 32.8 %), GDTPB* (x_i = 37 %)	guanidinium, 0; Li^+, –0.6; Na^+, –0.6; K^+, +0.4; NH_4^+, –0.3; Mg^{2+}, –2.1; Ca^{2+}, –1.6; $(C_2H_5)_4N^+$, +0.6; pyridinium, +0.3; paraquat, –1.4; urea, –1.2	SSM	10^{-2}	10^{-2}	49	1.3×10^{-3} –10^{-1}	2 < pH < 12; 25 °C; $\tau \leq 126$ d; *, guanidinium tetraphenylborate; $c_{dl} = 4.8 \times 10^{-4}$ M; r.o.o.g.	[1]
	GD-1 (w = 1.1 %), DBP (w = 65.6 %), PVC (w = 32.8 %), GDTpClPB† (x_i = 30 %)	guanidinium, 0; Li^+, –2.3; Na^+, –1.3; K^+, –0.4; NH_4^+, –1.0; Mg^{2+}, –2.1; Ca^{2+}, –2.4; $(C_2H_5)_4N^+$, +1.1; pyridinium, –0.3; paraquat, –0.2; urea, –3.0	SSM	10^{-2}	10^{-2}	51	2×10^{-4} –10^{-1}	25 °C; $c_{dl} = 10^{-4}$ M; $\tau \leq 112$ d; t_{resp} = 60 s; †, guanidinium tetrakis(*p*-chlorophenyl)borate; r.o.o.g.	[1]
	GD-1 (w = 1.1 %), DOA (w = 65.6 %), PVC (w = 32.8 %), GDTpClPB† (x_i = 30 %)	guanidinium, 0; Li^+, –1.3; Na^+, –1.2; K^+, –0.3; NH_4^+, –0.8; Mg^{2+}, –2.1; Ca^{2+}, –2.0; $(C_2H_5)_4N^+$, –0.7; pyridinium, –1.6; paraquat, –0.7; urea, –1.5	SSM	10^{-2}	10^{-2}	54	2×10^{-3} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 3.2 \times 10^{-4}$ M; $\tau \leq 63$ d; †, guanidinium tetrakis(*p*-chlorophenyl)borate; r.o.o.g.	[1]
GD-2	**GD-2** (w = 1.1 %), DBP (w = 65.9 %), PVC (w = 33.0 %)	guanidinium, 0; Li^+, –1.2; Na^+, –0.7; K^+, +0.9; NH_4^+, 0.0; Mg^{2+}, –1.6; Ca^{2+}, –1.8; $(C_2H_5)_4N^+$, +0.5; pyridinium, –0.4; paraquat, –1.5; urea, –1.7	SSM	10^{-2}	10^{-2}	57	1×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 5 \times 10^{-5}$ M; $\tau \leq 14$ d; r.o.o.g.	[1]

Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	GD-2 (w = 1.1 %), DOP (w = 65.9 %), PVC (w = 33.0 %)	guanidinium, 0; Li^+, –1.8; Na^+, –1.1; K^+, +0.7; NH_4^+, –0.2; Mg^{2+}, –1.5; Ca^{2+}, –1.2; $(C_2H_5)_4N^+$, +0.5; pyridinium, –0.5; paraquat, –1.2; urea, –2.5	SSM	10^{-2}	10^{-2}	49	2×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 10^{-4}$ M; r.o.o.g.	[1]
	GD-2 (w = 1.1 %), DOA (w = 65.9 %), PVC (w = 33.0 %)	guanidinium, 0; Li^+, –2.3; Na^+, –1.3; K^+, +0.2; NH_4^+, –0.1; Mg^{2+}, –2.0; Ca^{2+}, –1.9; $(C_2H_5)_4N^+$, +0.5; pyridinium, –0.1; paraquat, –1.7; urea, –2.1	SSM	10^{-2}	10^{-2}	58	5×10^{-5} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 2 \times 10^{-5}$ M; $\tau \leq 14$ d	[1]
	GD-2 (w = 1.1 %), DOS (w = 65.9 %), PVC (w = 33.0 %)	guanidinium, 0; Li^+, –1.7; Na^+, –1.3; K^+, +0.6; NH_4^+, –0.2; Mg^{2+}, –2.0; Ca^{2+}, –1.5; $(C_2H_5)_4N^+$, +0.5; pyridinium, –0.4; paraquat, –1.7; urea, –2.2	SSM	10^{-2}	10^{-2}	53	1×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 5 \times 10^{-5}$ M; r.o.o.g.	[1]
	GD-2 (w = 1.1 %), oNPOE (w = 65.9 %), PVC (w = 33.0 %)	guanidinium, 0; Li^+, –1.3; Na^+, –1.1; K^+, +1.1; NH_4^+, +0.5; Mg^{2+}, –1.0; Ca^{2+}, –1.1; $(C_2H_5)_4N^+$, +0.9; pyridinium, –0.4; paraquat, –0.9; urea, –1.6	SSM	10^{-2}	10^{-2}	55	4×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 2 \times 10^{-5}$ M; r.o.o.g.	[1]
	GD-2 (w = 1.1 %), DBP (w = 65.6 %), PVC (w = 32.8 %), GDTPB* (x_i = 39 %)	guanidinium, 0; Li^+, –1.6; Na^+, –1.5; K^+, +0.7 ; NH_4^+, –0.4; Mg^{2+}, –1.5; Ca^{2+}, –1.8; $(C_2H_5)_4N^+$, +0.8; pyridinium, –0.5; paraquat, –1.2; urea, –2.0	SSM	10^{-2}	10^{-2}	54	6×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 2 \times 10^{-4}$ M; $\tau \leq 28$ d; *, guanidinium tetraphenylborate; r.o.o.g.	[1]

(*continues on next page*)

Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	GD-2 (w = 1.1 %), DOA (w = 65.6 %), PVC (w = 32.8 %), GDTPB* (x_i = 39 %)	guanidinium, 0; Li^+, –1.8; Na^+, –1.7; K^+, +0.5 ; NH_4^+, –0.5; Mg^{2+}, –2.0; Ca^{2+}, –2.3; $(C_2H_5)_4N^+$, +0.6; pyridinium, –0.5; paraquat, –1.4; urea, –2.6	SSM	10^{-2}	10^{-2}	56	2×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 8 \times 10^{-4}$ M; $\tau \le 7$ d; *, guanidinium tetraphenylborate; r.o.o.g.	[1]
	GD-2 (w = 1.1 %), DBP (w = 65.6 %), PVC (w = 32.8 %), GDTpClPB† (x_i = 32 %)	guanidinium, 0; Li^+, –2.3; Na^+, –1.7; K^+, –0.5 ; NH_4^+, –0.9; Mg^{2+}, –2.5; Ca^{2+}, –2.0; $(C_2H_5)_4N^+$, +0.7; pyridinium, –0.2; paraquat, –0.8; urea, –2.9	SSM	10^{-2}	10^{-2}	55	2×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 10^{-4}$ M; t_{resp} = 60 s; r.o.o.g.; *, guanidinium tetrakis-(*p*-chlorophenyl) borate	[1]
	GD-2 (w = 1.1 %), DOA (w = 65.6 %), PVC (w = 32.8 %), GDTpClPB† (x_i = 32 %)	guanidinium, 0; Li^+, –2.0; Na^+, –1.6; K^+, –0.8; NH_4^+, –1.1; Mg^{2+}, –2.5; Ca^{2+}, –2.5; $(C_2H_5)_4N^+$, +0.8; pyridinium, –0.4; paraquat, –1.2; urea, –2.8	SSM	10^{-2}	10^{-2}	56	2×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 10^{-4}$ M; $\tau \le 28$ d; †, guanidinium tetrakis(*p*-chlorophenyl)-borate; r.o.o.g	[1]
GD-3	**GD-3** (w = 1.1 %), DBP (w = 65.9 %), PVC (w = 33.0 %)	guanidinium, 0; Li^+, –2.5; Na^+, –1.9; K^+, –0.7; NH_4^+, –1.4; Mg^{2+}, –2.7; Ca^{2+}, –2.8; $(C_2H_5)_4N^+$, +1.5; paraquat, –1.8; urea, –2.7	SSM	10^{-2}	10^{-2}	55	3×10^{-5} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 2 \times 10^{-5}$ M; $\tau \le 126$ d; r.o.o.g.	[1]
	GD-3 (w = 1.1 %), DOA (w = 65.9 %), PVC (w = 33.0 %)	guanidinium, 0; Li^+, –2.5; Na^+, –1.3; K^+, –0.1; NH_4^+, –1.0; Mg^{2+}, –1.6; Ca^{2+}, –1.6; $(C_2H_5)_4N^+$, +0.9; paraquat, –1.8; urea, –2.5	SSM	10^{-2}	10^{-2}	59	3×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 1.5 \times 10^{-4}$ M; $\tau \le 126$ d; r.o.o.g.	[1]
	GD-3 (w = 1.1 %), DBP (w = 65.6 %), PVC (w = 32.8 %), GDTPB* (x_i = 35 %)	guanidinium, 0; Li^+, –2.6; Na^+, –1.9; K^+, –1.2; NH_4^+, –1.8; Mg^{2+}, –3.1; Ca^{2+}, –2.9; $(C_2H_5)_4N^+$, +0.9; paraquat, –1.0; urea, –3.0	SSM	10^{-2}	10^{-2}	54	5×10^{-5} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 5 \times 10^{-6}$ M; *, guanidinium tetraphenylborate; r.o.o.g.	[1]

Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	GD-3 (w = 1.1 %), DOA (w = 65.6 %), PVC (w = 32.8 %), GDTPB* (x_i = 35 %)	guanidinium, 0; Li^+, –2.0; Na^+, –1.7; K^+, –1.1; NH_4^+, –1.5; Mg^{2+}, –2.9; Ca^{2+}, –2.8; $(C_2H_5)_4N^+$, +1.4; paraquat, –1.8; urea, –3.0	SSM	10^{-2}	10^{-2}	56	2×10^{-5} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 10^{-5}$ M; $\tau \leq$ 126 d; †, guanidinium tetraphenylborate; r.o.o.g.	[1]
	GD-3 (w = 1.1 %), DBP (w = 65.6 %), PVC (w = 32.8 %), GDTpClPB† (x_i = 28 %)	guanidinium, 0; Li^+, –2.0; Na^+, –1.7; K^+, –1.2; NH_4^+, –1.6; Mg^{2+}, –2.8; Ca^{2+}, –2.3; $(C_2H_5)_4N^+$, +1.7; pyridinium, +0.5; paraquat, 0.0; urea, –2.5	SSM	10^{-2}	10^{-2}	59	4×10^{-5} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 10^{-5}$ M; t_{resp} = 10 s; †, guanidinium tetrakis(p-chlorophenyl)-borate; r.o.o.g.	[1]
	GD-3 (w = 1.1 %), DOA (w = 65.6 %), PVC (w = 32.8 %), GDTpClPB† (x_i = 28 %)	guanidinium, 0; Li^+, –2.6; Na^+, –1.9; K^+, –1.2; NH_4^+, –1.8; Mg^{2+}, –2.5; Ca^{2+}, –2.4; $(C_2H_5)_4N^+$, +2.6; paraquat, –0.8; urea, –2.5	SSM	10^{-2}	10^{-2}	59	3×10^{-5} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 10^{-5}$ M; $\tau \leq$ 126 d; †, guanidinium tetrakis(p-chlorophenyl)-borate; r.o.o.g.	[1]
GD-4	**GD-4** (w = 1.1 %), DBP (w = 65.9 %), PVC (w = 33.0 %)	guanidinium, 0; Li^+, –2.2; Na^+, –1.5; K^+, –0.3; NH_4^+, –1.0; Mg^{2+}, –2.3; Ca^{2+}, –2.5; $(C_2H_5)_4N^+$, +1.3; pyridinium, 0.0; paraquat, –1.5; urea, –1.8	SSM	10^{-2}	10^{-2}	54	3×10^{-5} –10^{-1}	2 < pH < 12; $c_{dl} = 2 \times 10^{-5}$ M; $\tau \leq$ 7 d; 25 °C; r.o.o.g.	[1]
	GD-4 (w = 1.1 %), DOA (w = 65.9 %), PVC (w = 33.0 %)	guanidinium, 0; Li^+, –2.1; Na^+, –1.5; K^+, –0.7 ; NH_4^+, –0.9; Mg^{2+}, –2.7; Ca^{2+}, –2.7; $(C_2H_5)_4N^+$, +1.1; pyridinium, 0.0; paraquat, –2.4; urea, –2.6	SSM	10^{-2}	10^{-2}	51	1×10^{-4} –10^{-1}	2 < pH < 12; $c_{dl} = 5 \times 10^{-5}$ M; $\tau \leq$ 7 d; 25 °C; r.o.o.g.	[1]

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Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	GD-4 (w = 1.1 %), DBP (w = 65.6 %), PVC (w = 32.8 %), GDTPB* (x_i = 42 %)	guanidinium, 0; Li^+, –2.5; Na^+, –1.5; K^+, –0.7; NH_4^+, –1.2; Mg^{2+}, –3.0; Ca^{2+}, –3.1; $(C_2H_5)_4N^+$, +0.6; pyridinium, +0.2; paraquat, –0.2; urea, –3.1	SSM	10^{-2}	10^{-2}	55	5×10^{-5} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 2 \times 10^{-5}$ M; $\tau \le 126$ d; *, guanidinium tetraphenylborate; r.o.o.g.	[1]
	GD-4 (w = 1.1 %), DOA (w = 65.6 %), PVC (w = 32.8 %), GDTPB* (x_i = 42 %)	guanidinium, 0; Li^+, –2.0; Na^+, –1.3 K^+, –0.5; NH_4^+, –1.4; Mg^{2+}, –2.7; Ca^{2+}, –2.7; $(C_2H_5)_4N^+$, +1.0; pyridinium, 0.0; paraquat, –2.0; urea, –3.0	SSM	10^{-2}	10^{-2}	56	5×10^{-5} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 10^{-5}$ M; $\tau \le 126$ d; *, guanidinium tetraphenylborate; r.o.o.g.	[1]
	GD-4 (w = 1.1 %), DBP (w = 65.6 %), PVC (w = 32.8 %), GDTpClPB† (x_i = 35 %)	guanidinium, 0; Li^+, –2.6; Na^+, –1.7; K^+, –0.7; NH_4^+, –1.0; Mg^{2+}, –2.5; Ca^{2+}, –2.4; $(C_2H_5)_4N^+$, +1.0; pyridinium, +0.3; paraquat, –0.1; urea, –2.6	SSM	10^{-2}	10^{-2}	56	1×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 5 \times 10^{-5}$ M; $\tau \le 7$ d; $t_{resp} = 10$ s; †, guanidinium tetrakis(*p*-chlorophenyl)borate; r.o.o.g.	[1]
	GD-4 (w = 1.1 %), DOA (w = 65.6 %), PVC (w = 32.8 %), GDTpClPB† (x_i = 35 %)	guanidinium, 0; Mg^{2+}, –2.5; Ca^{2+}, –2.7; $(C_2H_5)_4N^+$, +1.5; pyridinium, +0.3; paraquat, –0.7; urea, –2.5	SSM	10^{-2}	10^{-2}	56	1×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 3 \times 10^{-5}$ M; $\tau \le 35$ d; †, guanidinium tetrakis(*p*-chlorophenyl)borate; r.o.o.g.	[1]
GD-5	**GD-5** (w = 1.1 %), DBP (w = 65.9 %), PVC (w = 33.0 %)	guanidinium, 0; Li^+, –3.0; Na^+, –2.0; K^+, –1.4 ; NH_4^+, –1.7; Mg^{2+}, –2.8; Ca^{2+}, –3.1; $(C_2H_5)_4N^+$, +1.3; pyridinium, 0.0; paraquat, –2.1; urea, –3.3	SSM	10^{-2}	10^{-2}	55	5×10^{-5} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 5 \times 10^{-5}$ M; $\tau \le 7$ d ; r.o.o.g.	[1]

Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	GD-5 (1.1 %), DOA (65.9 %), PVC (33.0 %)	guanidinium, 0; Li^+, –1.5; Na^+, –1.7; K^+, –1.3 ; NH_4^+, –1.6; Mg^{2+}, –2.4; Ca^{2+}, –2.0; $(C_2H_5)_4N^+$, +2.0; pyridinium, +0.8; paraquat, –1.6; urea, –2.3	SSM	10^{-2}	10^{-2}	50	3×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 3 \times 10^{-4}$ M; $\tau \le 7$ d; r.o.o.g.	[1]
	GD-5 (w = 1.1 %), DBP (w = 65.6 %), PVC (w = 32.8 %), GDTPB* (x_i = 33 %)	guanidinium, 0; Li^+, –3.2; Na^+, –2.5; K^+, –1.7; NH_4^+, –2.1; Mg^{2+}, –3.0; Ca^{2+}, –2.9; $(C_2H_5)_4N^+$, +1.6; pyridinium, 0.0; paraquat, –2.2; urea, –3.5	SSM	10^{-2}	10^{-2}	50	1×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 3.1 \times 10^{-5}$ M; $\tau \le 7$ d; *, guanidinium tetra-phenylborate; r.o.o.g.	[1]
	GD-5 (w = 1.1 %), DOA (w = 65.6 %), PVC (w = 32.8 %), GDTPB* (x_i = 33 %)	guanidinium, 0; Li^+, –1.8; Na^+, –2.0; K^+, –1.3; NH_4^+, –1.7; Mg^{2+}, –2.5; Ca^{2+}, –2.2; $(C_2H_5)_4N^+$, +2.0; pyridinium, +0.3; urea, –2.4	SSM	10^{-2}	10^{-2}	60	1×10^{-4} –10^{-1}	2 < pH < 12; 25 °C; $c_{dl} = 10^{-4}$ M; t_{resp} = 10 s; $\tau \le 14$ d; *, guanidinium tetra-phenylborate; r.o.o.g.	[1]
GD-6	**GD-6**, DOS, PVC (weight ratio not reported)	guanidinium, 0; Li^+, –2.3; Na^+, –2.1; K^+, –1.7; Rb^+, –1.7; Cs^+, –1.6; Mg^{2+}, –4.1; Ca^{2+}, –4.7; Sr^{2+}, –3.9; Ba^{2+}, –4.8	SSM	–	–	59	$10^{-5.5}$ –10^{-1}	8.5 < pH < 10.4; 20 °C; r.o.o.g.	[2]
		guanidinium, 0; K^+, –1.6	FIM	–	10^{-2}				
GD-7	**GD-7**, DOS, PVC (weight ratio not reported)	guanidinium, 0; Li^+, –2.2; Na^+, –2.0; K^+, –1.6; Rb^+, –1.6; Cs^+, –1.5; Mg^{2+}, –4.1; Ca^{2+}, –4.8; Sr^{2+}, –3.9; Ba^{2+}, –5.1	SSM	–	–	56	$10^{-5.3}$ –10^{-1}	8.5 < pH < 10.4; 20 °C; r.o.o.g.	[2]
		guanidinium, 0; K^+, –1.65	FIM	–	10^{-2}				

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Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
GD-8	**GD-8**, DOS, PVC (weight ratio not reported)	guanidinium, 0; Li^+, –2.4; Na^+, –2.1; K^+, –1.6; Rb^+, –1.6; Cs^+, –1.6; Mg^{2+}, –4.2; Ca^{2+}, –5.1; Sr^{2+}, –3.7; Ba^{2+}, –5.2	SSM	–	–	60	$10^{-5.5}$–10^{-1}	8.5 < pH < 10.4; 20 °C; r.o.o.g.	[2]
		guanidinium, 0; K^+, –1.55	FIM	–	10^{-2}				
GD-9	**GD-9**, DOS, PVC (weight ratio not reported)	guanidinium, 0; Li^+, –2.2; Na^+, –1.7; K^+, –1.1; Rb^+, –1.1; Cs^+, –1.0; Mg^{2+}, –3.8; Ca^{2+}, –3.8; Sr^{2+}, –3.4; Ba^{2+}, –4.3	SSM	–	–	57	$10^{-5.8}$–10^{-1}	8.5 < pH < 10.4; 20 °C; r.o.o.g.	[2]
		guanidinium, 0; K^+, –1.5	FIM	–	10^{-2}				
GD-10	**GD-10**, DOS, PVC (weight ratio not reported)	guanidinium, 0; Li^+, –2.4; Na^+, –1.8; K^+, –1.0; Rb^+, –1.2; Cs^+, –1.3; Mg^{2+}, –3.8; Ca^{2+}, –4.6; Sr^{2+}, –3.6; Ba^{2+}, –4.4	SSM	–	–	59	$10^{-6.0}$–10	8.5 < pH < 10.4; 20 °C; r.o.o.g.	[2]
		guanidinium, 0; K^+, –1.2	FIM	–	10^{-2}				
GD-11	**GD-11**, DOS, PVC (weight ratio not reported)	guanidinium, 0; Li^+, –2.9; Na^+, –2.2; K^+, –1.4; Rb^+, –1.3; Cs^+, –1.4; Mg^{2+}, –4.2; Ca^{2+}, –3.9; Sr^{2+}, –4.0; Ba^{2+}, –4.1	SSM	–	–	58	$10^{-5.5}$–10^{-1}	8.5 < pH < 10.4; 20 °C; r.o.o.g.	[2]
		guanidinium, 0; K^+, –1.4	FIM	–	10^{-2}				

Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
GD-12	**GD-12**, DOS, PVC (weight ratio not reported)	guanidinium, 0; Li^+, –2.2; Na^+, –2.1; K^+, –1.6; Rb^+, –1.7; Cs^+, –1.7; Mg^{2+}, –4.3; Ca^{2+}, –3.8; Sr^{2+}, –3.8; Ba^{2+}, –4.6	SSM	–	–	58	$10^{-5.5}$ –10^{-1}	8.5 < pH < 10.4; 20 °C; r.o.o.g.	[2]
		guanidinium, 0; K^+, –1.5	FIM	–	10^{-2}				
GD-13	**GD-13**, DOS, PVC (weight ratio not reported)	guanidinium, 0; Li^+, –2.3; Na^+, –2.2; K^+, –1.6; Rb^+, –1.4; Cs^+, –1.5; Mg^{2+}, –5.0; Ca^{2+}, –4.2; Sr^{2+}, –4.1; Ba^{2+}, –4.4	SSM	–	–	57	$10^{-5.5}$ –10^{-1}	8.5 < pH < 10.4; 20 °C; r.o.o.g.	[2]
		guanidinium, 0; K^+, –1.3	FIM	–	10^{-2}				
GD-14	**GD-14**, DOS, PVC (weight ratio not reported)	guanidinium, 0; Li^+, –2.6; Na^+, –2.5; K^+, –1.7; Rb^+, –1.9; Cs^+, –1.8; Mg^{2+}, –4.8; Ca^{2+}, –4.5; Sr^{2+}, –5.3; Ba^{2+}, –4.4	SSM	–	–	59	$10^{-6.0}$ –10^{-1}	8.5 < pH < 10.4; 20 °C; r.o.o.g	[2]
		guanidinium, 0; K^+, –1.6	FIM	–	10^{-2}				
GD-15	**GD-15**, DOS, PVC (weight ratio not reported)	guanidinium, 0; H^+, –1.7; Li^+, –2.3; Na^+, –2.1; K^+, –1.65; NH_4^+, –1.8; $(C_2H_5)_4N^+$, –0.5; creatinine, –1.3	SSM	10^{-2}	10^{-2}	58	$10^{-5.5}$ –10^{-1}	3.0 < pH < 5.15; 20 °C; $t_{resp} \leq$ 30 sec; $\tau \geq$ 60–90 d (soaked in guanidium chloride), > 1 year (kept dry); r.o.o.g	[3]

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Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	GD-15, oNPOE, PVC (weight ratio not reported)	guanidinium, 0; H^+, –2.3; Li^+, –1.7; Na^+, –1.5; K^+, –1.0; NH_4^+, –0.8; $(C_2H_5)_4N^+$, +0.2; creatinine, 0.0	SSM	10^{-2}	10^{-2}	61	$10^{-5.2}$–10^{-1}	3.0 < pH < 5.15; 20 °C; t_{resp} ≤ 30 sec; τ ≥ 60–90 d (soaked in guanidium chloride) > 1 year (kept dry); r.o.o.g.	[3]
	GD-15, TEHP, PVC (weight ratio not reported)	guanidinium, 0; H^+, –0.5; Li^+, –1.6; Na^+, –2.4; K^+, –3.0; NH_4^+, –1.8; $(C_2H_5)_4N^+$, –2.8; creatinine, –1.0	SSM	10^{-2}	10^{-2}	56	$10^{-5.0}$–10^{-1}	3.0 < pH < 5.15; 20 °C; t_{resp} ≤ 30 sec; τ ≥ 60–90 d (stored in guanidium chloride solution) τ > 1 year (kept dry); r.o.o.g.	[3]
	GD-15, BEHS, PVC (weight ratio not reported) KTpClPB (x_i = 5 %)	guanidinium, 0; Li^+, –2.2; Na^+, –2.1; K^+, –1.65; Mg^{2+}, –3.7; Ca^{2+}, –3.0; Sr^{2+}, –3.5; Ba^{2+}, –3.3; Zn^{2+}, –1.8; Cd^{2+}, –4.0	SSM	10^{-1}	10^{-1}	58	$10^{-5.5}$–10^{-1}	20 °C; r.o.o.g.	[4]
GD-16	**GD-16**, BEHS, PVC (weight ratio not reported)	guanidinium, 0; H^+, –1.8; Li^+, –1.6; Na^+, –1.1; K^+, –0.8; NH_4^+, –1.2; $(C_2H_5)_4N^+$, +0.2; creatinine, –0.7	SSM	10^{-2}	10^{-2}	57	$10^{-5.2}$–10^{-1}	3.0 < pH < 5.15; 20 °C; t_{resp} ≤ 30 sec; τ ≥ 60–90 d (stored in guanidium chloride solution) τ > 1 year (kept dry); r.o.o.g.	[3]
	GD-16, oNPOE, PVC (weight ratio not reported)	guanidinium, 0; H^+, –2.4; Li^+, –0.8; Na^+, –0.3; K^+, +0.4; NH_4^+, –0.4; $(C_2H_5)_4N^+$, +1.5; creatinine, –0.3	SSM	10^{-2}	10^{-2}	56	$10^{-5.0}$–10^{-1}	3.0 < pH < 5.15; 20 °C; t_{resp} ≤ 30 sec; τ ≥ 60–90 d (soaked in guanidium chloride solution), τ > 1 year (kept dry); r.o.o.g.	[3]
	GD-16, TEHP, PVC (weight ratio not reported)	guanidinium, 0; H^+, –0.6; Li^+, –1.5; Na^+, –2.4; K^+, –2.9; NH_4^+, –1.8; $(C_2H_5)_4N^+$, –3.3; creatinine, –1.5	SSM	10^{-2}	10^{-2}	53	$10^{-5.5}$–10^{-1}	3.0 < pH < 5.15; 20 °C; t_{resp} ≤ 30 sec; τ ≥ 60–90 d (stored in guanidium chloride solution), τ > 1 year (kept dry); r.o.o.g.	[3]

Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	GD-16, BEHS, PVC (weight ratio not reported) KTpClPB (x_i = 5 %)	guanidinium, 0; Li^+, –1.5; Na^+, –0.7; K^+, +0.10; Mg^{2+}, –2.9; Ca^{2+}, –2.5; Sr^{2+}, –2.4; Ba^{2+}, –2.3; Zn^{2+}, –2.0; Cd^{2+}, –3.3	SSM	10^{-1}	10^{-1}	60	$10^{-5.4}$–10^{-1}	20 °C; r.o.o.g.	[4]
GD-17	**GD-17**, BEHS, PVC (weight ratio not reported)	guanidinium, 0; H^+, –2.0; Li^+, –2.6; Na^+, –2.3; K^+, –1.6; NH_4^+, –1.8; $(C_2H_5)_4N^+$, +0.2; creatinine, –1.1	SSM	10^{-2}	10^{-2}	55	$10^{-5.2}$–10^{-1}	3.0 < pH < 5.15; 20 °C; t_{resp} ≤ 30 sec; τ ≥ 60–90 d (stored in guanidium chloride solution), τ > 1 year (kept dry); r.o.o.g.	[3]
	GD-17, oNPOE, PVC (weight ratio not reported)	guanidinium, 0; H^+, –2.5; Li^+, –2.4; Na^+, –1.3; K^+, +0.7; NH_4^+, –1.2; $(C_2H_5)_4N^+$, +1.4; creatinine, –0.3	SSM	10^{-2}	10^{-2}	59	$10^{-5.0}$–10^{-1}	3.0 < pH < 5.15; 20 °C; t_{resp} ≤ 30 sec; τ ≥ 60–90 d (stored in guanidium chloride solution), τ > 1 year (kept dry); r.o.o.g.	[3]
	GD-17, TEHP, PVC (weight ratio not reported)	guanidinium, 0; H^+, –0.4; Li^+, –1.4; Na^+, –2.5; K^+, –3.1; NH_4^+, –2.2; $(C_2H_5)_4N^+$, –3.5; creatinine, –0.8	SSM	10^{-2}	10^{-2}	56	$10^{-5.5}$–10^{-1}	3.0 < pH < 5.15; 20 °C; t_{resp} ≤ 30 sec; τ ≥ 60–90 d (stored in guanidium chloride solution), τ > 1 year (kept dry);r.o.o.g.	[3]
	GD-17, BEHS, PVC (weight ratio not reported) KTpClPB (x_i = 5 %)	guanidinium, 0; Li^+, –2.4; Na^+, –2.1; K^+, –1.65; Mg^{2+}, –3.6; Ca^{2+}, –3.0; Sr^{2+}, –3.4; Ba^{2+}, –3.2; Zn^{2+}, –1.8; Cd^{2+}, –3.6	SSM	10^{-1}	10^{-1}	50	$10^{-4.8}$–10^{-1}	20 °C; r.o.o.g.	[4]
GD-18	**GD-18**, BEHS, PVC (weight ratio not reported) KTpClPB (x_i = 5 %)	guanidinium, 0; Li^+, –2.2; Na^+, –1.8; K^+, –1.00; Mg^{2+}, –3.8; Ca^{2+}, –3.2; Sr^{2+}, –3.5; Ba^{2+}, –3.3; Zn^{2+}, –2.0; Cd^{2+}, –4.0	SSM	10^{-1}	10^{-1}	53	$10^{-5.0}$–10^{-1}	20 °C; r.o.o.g.	[4]

(*continues on next page*)

Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
GD-19	**GD-19**, BEHS, PVC KTpClPB (x_i = 5 %) (weight ratio not reported)	guanidinium, 0; Li^+, –2.2; Na^+, –1.5; K^+, –0.10; Mg^{2+}, –3.4; Ca^{2+}, –3.2; Sr^{2+}, –3.0; Ba^{2+}, –3.1; Zn^{2+}, –2.1; Cd^{2+}, –3.5	SSM	10^{-1}	10^{-1}	52	$10^{-4.8}$ -10^{-1}	20 °C; r.o.o.g.	[4]
GD-20	**GD-20**, BEHS, PVC KTpClPB (x_i = 5 %) (weight ratio not reported)	guanidinium, 0; Li^+, –2.5; Na^+, –1.7; K^+, –0.65; Mg^{2+}, –4.0; Ca^{2+}, –3.2; Sr^{2+}, –3.3; Ba^{2+}, –3.0; Zn^{2+}, –2.0; Cd^{2+}, –4.1	SSM	10^{-1}	10^{-1}	55	$10^{-4.8}$ -10^{-1}	20 °C; r.o.o.g.	[4]
GD-21	**GD-21**, BEHS, PVC (weight ratio not reported) KTpClPB (x_i = 5 %)	guanidinium, 0; Li^+, –2.0; Na^+, –1.7; K^+, –0.20; Mg^{2+}, –3.5 Ca^{2+}, –3.0; Sr^{2+}, –2.8; Ba^{2+}, –2.6; Zn^{2+}, –2.2; Cd^{2+}, –3.5	SSM	10^{-1}	10^{-1}	53	$10^{-4.5}$ -10^{-1}	20 °C; r.o.o.g.	[4]
GD-22	**GD-22**, BEHS, PVC (weight ratio not reported) KTpClPB (x_i = 5 %)	guanidinium, 0; Li^+, –2.3; Na^+, –2.2; K^+, –1.50; Mg^{2+}, –3.9 Ca^{2+}, –3.2; Sr^{2+}, –3.7; Ba^{2+}, –3.6; Zn^{2+}, –2.0; Cd^{2+}, –4.1	SSM	10^{-1}	10^{-1}	50	$10^{-4.8}$ -10^{-1}	20 °C; r.o.o.g.	[4]
GD-23	**GD-23** (w = 5 %), DBP (w = 47.5 %), PVC (w = 47.5 %)	guanidinium, 0; Li^+, –1.11; Na^+, –1.47; K^+, –1.54; NH_4^+, –1.20; $CH_3NH_3^+$, –1.18	MSM	–	–	30	10^{-4} -10^{-1}	3.3 < pH < 10.8; $c_{dl} = 5 \times 10^{-5}$ M; $t_{resp} > 30$ s; $\tau \leq 20$ d	[5]
	GD-23 (w = 5 %), DBP (w = 47.5 %), PVC (w = 47.5 %), GDTPB* (x_i = 41 %)	guanidinium, 0; $C_6H_5CH_2NH_3^+$, +0.53; $(C_2H_5)_2NH_2^+$, –0.26; $(CH_3)_3NH^+$, –0.77; $(CH_3)_4N^+$, –0.41	MSM	–	–	–	–	3.3 < pH < 10.8; $\tau \leq 20$ d *, guanidinium tetraphenylborate	[5]
	GD-23 (w = 5 %), oNPPE (w = 47.5 %), PVC (w = 47.5 %)	guanidinium, 0; Li^+, –1.01; Na^+, –0.32; K^+, –0.59	MSM	–	–	64	2×10^{-4} -10^{-1}	3.3 < pH < 10.8; $c_{dl} = 1.8 \times 10^{-4}$ M; $t_{resp} = 30$ s; $\tau \leq 20$ d	[5]

Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	GD-23 (w = 5 %), oNPOE (w = 47.5 %), PVC (w = 47.5 %)	guanidinium, 0; Li^+, –1.21; Na^+, –0.17; K^+, –0.48; NH_4^+, –0.25; $CH_3NH_3^+$, –0.59	MSM	–	–	56	10^{-4}–10^{-1}	3.3 < pH < 10.8; $c_{dl} = 5 \times 10^{-5}$ M; t_{resp} = 30 s; $\tau \le 20$ d	[5]
		guanidinium, 0; Li^+, –2.04; Na^+, –0.02; K^+, –1.23; NH_4^+, –1.20; $CH_3NH_3^+$, –0.49	SSM	–	–				
	GD-23 (w = 5 %), oNPOE (w = 47.5 %), PVC (w = 47.5 %), GDTPB* (x_i = 41 %)	guanidinium, 0; Li^+, –1.80; Na^+, +0.50; K^+, –0.92; NH_4^+, –1.70; $CH_3NH_3^+$, –0.54	SSM	–	–	–	–	3.3 < pH < 10.8; $\tau \le 20$ d	[5]
		guanidinium, 0; $C_6H_5CH_2NH_3^+$, +0.29; $(C_2H_5)_2NH_2^+$, –1.05; $(CH_3)_3NH^+$, –1.70; $(CH_3)_4N^+$, –0.39	MSM	–	–				[5]
GD-24	**GD-24** (w = 1 %), DBP (w = 66 %), PVC (w = 33 %), KTpClPB (x_i = 50 %)	guanidinium, 0; Na^+, –1.5; K^+, –1.1; NH_4^+, –1.6; Ca^{2+}, –2.75	FIM	–	10^{-1}	57	$10^{-1.8}$–10^{-1}	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]
GD-25	**GD-25** (w = 1 %), DBP (w = 66 %), PVC (w = 33 %), KTpClPB (x_i = 50 %)	guanidinium, 0; Na^+, –1.55; K^+, –1.2; NH_4^+, –1.6; Ca^{2+}, –2.8	FIM	–	10^{-1}	57	–	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]
GD-26	**GD-26** (w = 1 %), DBP (w = 66 %), PVC (w = 33 %), KTpClPB (x_i = 50 %)	guanidinium, 0; Na^+, –1.7; NH_4^+, –1.6	FIM	–	10^{-1}	57	–	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]
GD-27	**GD-27** (w = 1 %), DBP (w = 66 %), PVC (w = 33 %), KTpClPB (x_i = 50 %)	guanidinium, 0; Na^+, –1.85; K^+, –1.8; NH_4^+, –1.8; Ca^{2+}, –2.85	FIM	–	10^{-1}	59	$10^{-1.6}$–10^{-1}	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]

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Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	GD-27 (w = 1 %), DOS (w = 66 %), PVC (w = 33 %), KTpClPB (x_i = 50 %)	guanidinium, 0; Na^+, –1.85	FIM	–	10^{-1}	59	–	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]
	GD-27 (w = 1 %), DOA (w = 66 %), PVC (w = 33 %), KTpClPB (x_i = 50 %)	guanidinium, 0; Na^+, –1.85	FIM	–	10^{-1}	59	–	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]
	GD-27 (w = 1 %), TOP (w = 66 %), PVC (w = 33 %), KTpClPB (x_i = 50 %)	guanidinium, 0; Na^+, –1.85	FIM	–	10^{-1}	59	–	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]
	GD-27 (w = 1 %), oNPOE (w = 66 %), PVC (w = 33 %), KTpClPB (x_i = 50 %)	guanidinium, 0; Na^+, –1.85	FIM	–	10^{-1}	52	–	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]
GD-28	**GD-28** (w = 1 %), DBP (w = 66 %), PVC (w = 33 %), KTpClPB(x_i = 50 %)	guanidinium, 0; Na^+, –1.6; K^+, –1.15; NH_4^+, –1.5; Ca^{2+}, –2.8	FIM	–	10^{-1}	58	$10^{-1.8}$–10^{-1}	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]
GD-29	**GD-29** (w = 1 %), DBP (w = 66 %), PVC (w = 33 %), KTpClPB (x_i = 50 %)	guanidinium, 0; Na^+, –1.6; K^+, –0.95; NH_4^+, –1.55; Ca^{2+}, –2.75	FIM	–	10^{-1}	58	–	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]
GD-30	**GD-30** (w = 1 %), DBP (w = 66 %), PVC (w = 33 %), KTpClPB (x_i = 50 %)	guanidinium, 0; Na^+, –1.75; K^+, –1.4; NH_4^+, –1.6; Ca^{2+}, –2.8	FIM	–	10^{-1}	58	–	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]
GD-31	**GD-31** (w = 1 %), DBP (w = 66 %), PVC (w = 33 %), KTpClPB (x_i = 50 %)	guanidinium, 0; Na^+, –1.8; K^+, –1.4; NH_4^+, –1.6; Ca^{2+}, –2.4	FIM	–	10^{-1}	58	–	pH = 4.0; CHEMFET; t_{resp} = 15 s	[6]

Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
GD-32	**GD-32** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 58 %)	guanidinium, 0; creatinine, –2.4; Na^+, –2.9; K^+, –1.3; NH_4^+, –1.6; Ca^{2+}, –3.5 $Na^+/K^+/Ca^{2+}$, –2.5†	FIM	–	10^{-1}	61.5†	–	37 °C; $c_{dl} = 10^{-5.8}$ M; †, clinical background (Na^+, 145 mM, K^+, 4.3 mM, Ca^{2+}, 1.26 mM)	[8]
		creatinine, –0† $Na^+/K^+/Ca^{2+}$, –2.4†	FIM	–	–	57.6† 54.5††	–	37 °C; $c_{dl} = 10^{-5.0}$ M; †, clinical background; †† , 10^{-3}M HCl in clinical background	[8]
GD-33	**GD-33** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 58 %)	guanidinium, 0; Na^+, –2.9; K^+, –1.3; NH_4^+, –1.7; Ca^{2+}, –3.9 $Na^+/K^+/Ca^{2+}$, –2.7†	FIM	–	10^{-1}	60.2†	–	37 °C; $c_{dl} = 10^{-5.7}$ M; †, clinical background	[8]
		metforminium, 0; Na^+, –3.3; K^+, –2.5; NH_4^+, –2.4; Ca^{2+}, –4.3 $Na^+/K^+/Ca^{2+}$, –3.1†	FIM	–	10^{-1}	61.4†	–	37 °C; $c_{dl} = 10^{-5.6}$ M; †, clinical background	[9]
		phenforminium, 0†; $Na^+/K^+/Ca^{2+}$, –3.3†	FIM	–	–	55.6†	–	$c_{dl} = 10^{-4.3}$ M; †, clinical background	[8]
		arginine, 0† $Na^+/K^+/Ca^{2+}$, –0.6† lysine, –0.9†	FIM	–	–	60.2†	–	$c_{dl} = 10^{-4.8}$ M; †, clinical background	[8]
		creatinine, 0† $Na^+/K^+/Ca^{2+}$, –2.7†	FIM	–	–	57.4†	–	$c_{dl} = 10^{-5.0}$ M; †, clinical background	[8]
		creatinine, 0†† $Na^+/K^+/Ca^{2+}$, –2.5††	FIM	–	–	57.4††	–	$c_{dl} = 10^{-5.1}$ M; †† , 10^{-3} M HCl in clinical background	[8]

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Table 5 (*Continued*).

ionophore	membrane composition	$\lg K_{GD^+B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
GD-34	**GD-34** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %),	creatinine, 0† $Na^+/K^+/Ca^{2+}$, –2.5†	FIM	–	–	58.2† 57.1††	–	37 °C; $c_{dl} = 10^{-5.1}$ M; †, clinical background; ††, 10^{-3} M HCl in clinical background	[8]
GD-35	**GD-35** (1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), NaTFPB (x_i = 55 %)	creatinine, 0; $Na^+/K^+/Ca^{2+}$, –2.5† $Na^+/K^+/Ca^{2+}$, –2.5††	FIM	–	–	55.7† 55.6††	–	37 °C; $c_{dl} = 10^{-5.1}$ M; †, clinical background; ††, 10^{-3} M HCl in clinical background	[8]

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(2) M. Bochenska, J.F. Biernat, *J. Coord. Chem.*, **27**, 145-149 (1992).

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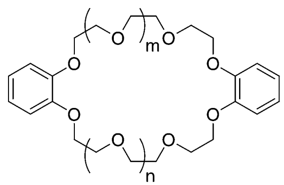
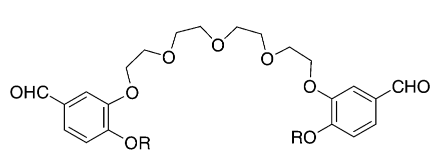
(9) D. Parker, R. Kataky, P.M. Kelly, S. Palmer, *Pure Appl. Chem.*, **68**, 1219-1223 (1996).

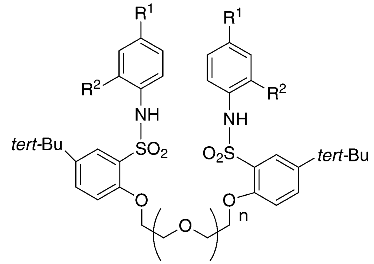
Table 5 (*Continued*).



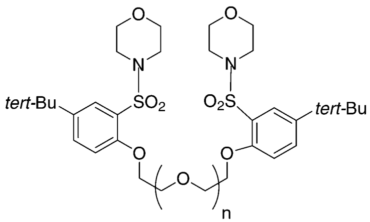
GD-1 (M_r = 492.57): m=2, n=1
GD-2 (M_r = 536.63): m=2, n=2
GD-3 (M_r = 448.51): m=1, n=1



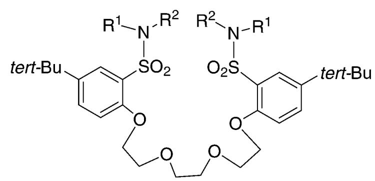
GD-4 (M_r = 614.69): R=$CH_2C_6H_5$
GD-5 (M_r = 434.44): R=H



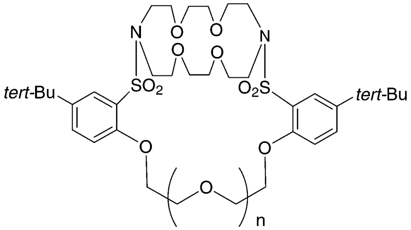
GD-6 (M_r = 740.85): n=0, R^1=NO_2, R^2=H
GD-7 (M_r = 770.88): n=1, R^1=NO_2, R^2=H
GD-8 (M_r = 814.93): n=2, R^1=NO_2, R^2=H
GD-9 (M_r = 740.93): n=0, R^1=H, R^2=OCH_3
GD-10 (M_r = 784.99): n=1, R^1=H, R^2=OCH_3
GD-11 (M_r = 740.85): n=2, R^1=H, R^2=OCH_3
GD-12 (M_r = 784.99): n=2, R^1=OCH_3, R^2=H
GD-13 (M_r = 708.94): n=1, R^1=H, R^2=CH_3
GD-14 (M_r = 752.99): n=2, R^1=CH_3, R^2=H



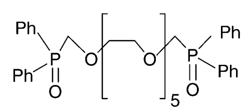
GD-15 (M_r = 668.8): n=1
GD-18 (M_r = 712.92): n=2



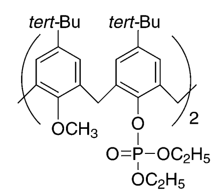
GD-16 (M_r = 901.32): R^1, R^2=cyclohexyl
GD-19 (M_r = 933.24): R^1=phenyl, R^2=benzyl
GD-20 (M_r = 905.19): R^1, R^2=phenyl
GD-21 (M_r = 933.24): R^1=C_7H_{15}, R^2=CH_3



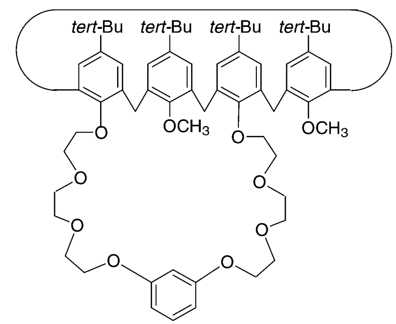
GD-17 (M_r = 801.03): n=2
GD-22 (M_r = 756.97): n=1



GD-23 (M_r = 666.69)



GD 25 (M_r = 943.12)



GD-24 (M_r = 1015.39)

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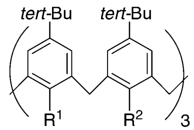
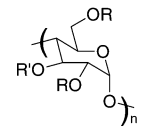
Table 5 (*Continued*).



GD-26 (M_r = 1652.37): R^1=$CH_2CON\ (C_2H_5)_2$, R^2=$CH_2CON(C_2H_5)_2$

GD-27 (M_r = 1344.89): R^1=$CH_2CON\ (C_2H_5)_2$, R^2=CH_3
GD-28 (M_r = 1183.68): R^1=CH_2COCH_3, R^2=CH_3
GD-29 (M_r = 1273.76): R^1=$CH_2COOC_2H_5$, R^2=CH_3
GD-30 (M_r = 1539.29): R^1=$C_6H_4ClO_2S$, R^2=CH_3
GD-31 (M_r = 1423.75): R^1=$PO\ (OC_2H_5)_2$, R^2 =CH_3



GD-32(M_r = 3702.05): n=7, R=C_8H_{17}, R'=C_8H_{17}
GD-33 (M_r = 3702.05): n=7, R=$C_{12}H_{25}$, R'=H
GD-34 (M_r = 2499.88): n=6, R=C_8H_{17}, R'=H
GD-35 (M_r = 3309.29): n=7, R=C_8H_{17}, R'=H (50%), C_8H_{17} (50%)

Table 6 Aromatic nitrogen compound-selective electrodes.

ionophore	membrane composition	$\lg K_{AN^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
AN-1	**AN-1** (w = 5.0 %), oNPOE (w = 63.3 %), PVC (w = 31.7 %)	dodecylpyridinium, 0; Li^+, –1.2; Na^+, –1.3; K^+, –1.4; NH_4^+, –1.5; Ca^{2+}, –3.0; $C_8H_{17}NH_3^+$, –0.5; $(C_4H_9)_2NH_2^+$, –0.9	SSM	10^{-3}	10^{-3}	56.5 ± 6.4	–	22 ± 0.1 °C; $c_{dl} = 3.1 \times 10^{-6}$ M; t_{resp} = 10 s; $\tau \leq$ 180 d; r.o.o.g.	[1]
AN-2	**AN-2** (w = 5.0 %), oNPOE (w = 63.3 %), PVC (w = 31.7 %)	dodecylpyridinium, 0; Li^+, –1.0; Na^+, –1.1; K^+, – 0.8; NH_4^+, –0.8; Ca^{2+}, –2.3; $C_8H_{17}NH_3^+$, 0; $(C_4H_9)_2NH_2^+$, –0.7	SSM	10^{-3}	10^{-3}	57.1 ± 3.6	–	22 ± 0.1 °C; $c_{dl} = 4.5 \times 10^{-5}$ M; $\tau \leq$ 180 d; t_{resp} = 10 s; r.o.o.g.	[1]
AN-3	**AN-3** (w = 5.0 %), oNPOE (w = 63.3 %), PVC (w = 31.7 %)	dodecylpyridinium, 0; Na^+, –1.1; K^+, –1.1; NH_4^+, –1.0; Ca^{2+}, –2.8; $C_8H_{17}NH_3^+$, –1.1; $(C_4H_9)_2NH_2^+$, –1.8	SSM	10^{-3}	10^{-3}	56.2 ± 2.3	–	5 < pH < 9; 22 ± 0.1 °C; $c_{dl} = 5.6 \times 10^{-5}$ M; $\tau \leq$ 180 d; t_{resp} = 5 s; r.o.o.g.	[1]
	AN-3 (w = 5.0 %), DOP (w = 63.3 %), PVC (w = 31.7 %)	dodecylpyridinium, 0; Na^+, +0.3; K^+, –0.2; NH_4^+, –0.3; Ca^{2+}, –1.7; $C_8H_{17}NH_3^+$, –0.5; $(C_4H_9)_2NH_2^+$, –1.5	SSM	10^{-3}	10^{-3}	–	–	22 ± 0.1 °C; r.o.o.g.	[1]
AN-4	**AN-4** (w = 5.0 %), oNPOE (w = 63.3 %), PVC (w = 31.7 %)	dodecylpyridinium, 0; Li^+, –1.1; Na^+, –1.5; K^+, –1.5; NH_4^+, –2.0; Ca^{2+}, –3.3; $C_8H_{17}NH_3^+$, –1.1; $(C_4H_9)_2NH_2^+$, –1.5	SSM	10^{-3}	10^{-3}	51.2 ± 3.2	–	5 < pH < 9; 22 ± 0.1 °C; $c_{dl} = 1.0 \times 10^{-5}$ M; $\tau \leq$ 180 d; t_{resp} = 5 s; r.o.o.g.	[1]
		dodecylpyridinium, 0; Li^+, –1.5; Na^+, –2.0; K^+, –2.3; NH_4^+, –2.6; $C_8H_{17}NH_3^+$, –1.8; $(C_4H_9)_2NH_2^+$, –2.3	MSM	10^{-3}	10^{-3}			22 ± 0.1 °C; r.o.o.g.	

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Table 6 (*Continued*).

ionophore	membrane composition	$\lg K_{AN^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
AN-5	**AN-5** (w = 5.0 %), oNPOE (w = 63.3 %), PVC (w = 31.7 %)	dodecylpyridinium, 0; Li^+, –0.9; Na^+, –1.3; K^+, –1.3; NH_4^+, –1.5; Ca^{2+}, –3.0; $C_8H_{17}NH_3^+$, –1.3; $(C_4H_9)_2NH_2^+$, –1.5	SSM	10^{-3}	10^{-3}	55.6 ± 1.2	–	9 < pH < 11; 22 ± 0.1 °C; $c_{dl} = 1.3 \times 10^{-5}$ M; $\tau \leq 180$ d; t_{resp} = 5 s; r.o.o.g.	[1]
	AN-5 (w = 5.0 %), oNPPE (w = 63.3 %), PVC (w = 31.7 %)	dodecylpyridinium, 0; Li^+, –0.7; Na^+, –0.7; K^+, –1.4; NH_4^+, –0.8; Ca^{2+}, –2.2; $C_8H_{17}NH_3^+$, –1.1; $(C_4H_9)_2NH_2^+$, –0.8	SSM	10^{-3}	10^{-3}	–	–	22 ± 0.1 °C; r.o.o.g.	[1]
AN-6	**AN-6** PVC DBP (ratio not reported)	dibazol, 0; bifonazol, +1.2; clotrimazole, +1.1; aminazine, +0.1; Etap, –0.1; Jt $^+$, –0.5; norsulfazole, –1.1; ethazole, –1.3; novocaine, –1.4; metronidazole, –1.5	FIM	–	10^{-3}	58.0 ± 1.5	1.1×10^{-5} -5×10^{-2}	$c_{dl} = 5.6 \times 10^{-6}$ M; t_{resp} = 15–30 s; τ = 65–90 d; r.o.o.g.	[2]
	AN-6 DBP cellulose hydrate (ratio not reported)	dibazol, 0; bifonazol, +1.3; clotrimazole, +1.1; aminazine, +0.2; Etap, +0.1; Jt $^+$, –0.1; norsulfazole, –0.8; ethazole, –1.1; novocaine, –0.8; metronidazole, –1.6	FIM	–	10^{-3}	53.0 ± 1.0	1.8×10^{-5} -5×10^{-2}	$c_{dl} = 8.9 \times 10^{-6}$ M; t_{resp} = 10–20 s; τ = 65–90 d; r.o.o.g.	[2]
AN-7	**AN-7** (w = 3.6 %), BBDG* (w = 63.5 %), PVC (w = 30.0 %), NaTFPB (x_i = 22 %)	paraquat, 0; Li^+, –2.75; Na^+, –2.22; K^+, –1.22; Ca^{2+}, –1.97; Mg^{2+}, –2.53; Cu^{2+}, –2.38; diquat, –1.88	SSM	10^{-2}	10^{-2}	31.2	–	pH = 5.6; t_{95} = 20 s; $\tau \geq 120$ d; *, see figure	[3]

Table 6 (*Continued*).

ionophore	membrane composition	$\lg K_{AN^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	AN-7 (w = 3.6 %), BBDG* (w = 63.5 %), PVC (w = 30.0 %), KTpClPB (x_i = 33 %)	paraquat, 0; Li^+, –4.38; Na^+, –4.15; K^+, –3.60; Ca^{2+}, –3.57; Mg^{2+}, –3.92; Cu^{2+}, –3.88; diquat, –0.13; sodium dithiocarbamate, –1.95; berberine, +2.79	SSM	10^{-2}	10^{-2}	34.0	–	pH = 5.6; t_{95} = 20 s; $\tau \geq$ 120 d; *, see figure	[3]
	AN-7 (w = 3.6 %), TBT* (w = 63.5 %), PVC (w = 30.0 %), NaTFPB (x_i = 22 %)	paraquat, 0; Li^+, –5.83; Na^+, –4.30; K^+, –2.45; Ca^{2+}, –4.83; Mg^{2+}, –5.40; Cu^{2+}, –4.10; diquat, –0.66;	SSM	10^{-2}	10^{-2}	30.2	–	pH = 5.6; t_{95} = 20 s; $\tau \geq$ 120 d; *, see figure	[3]
	AN-7 (w = 3.6 %), TBT* (w = 63.5 % , PVC (w = 30.0 %), KTpClPB (x_i = 33 %)	paraquat, 0; Li^+, –3.73; Na^+, –3.66; K^+, –2.94; Ca^{2+}, –3.80; Mg^{2+}, –3.78; Cu^{2+}, –3.66; diquat, –0.38; sodium dithiocarbamate, –1.56; berberine, –3.30	SSM	10^{-2}	10^{-2}	34.0	–	pH = 5.6; t_{95} = 20 s; $\tau \geq$ 120 d; *, see figure	[3]
	AN-7 (w = 3.6 %), oNPOE (w = 63.5 %), PVC (w = 30.0 %), KTpClPB (x_i = 33 %)	paraquat, 0; Li^+, –3.10; Na^+, –4.37; K^+, –4.50; Ca^{2+}, –4.90; Mg^{2+}, +4.90; Cu^{2+}, –4.89; diquat, –0.62; sodium dithiocarbamate, –4.40; berberine, –2.57	SSM	10^{-2}	10^{-2}	32.0	–	pH = 5.6; t_{95} = 20 s; $\tau \geq$ 120 d	[3]
		paraquat, 0; Li^+, –2.84; Na^+, –3.78; K^+, –2.42; Ca^{2+}, –4.12; Mg^{2+}, –4.47; Cu^{2+}, –4.42; diquat, –0.51; glucose, –4.75; urea, –4.11	SSM	–	–	31.2	–	3.5 < pH < 12.5; t_{resp} = 20 s; c_{dl} = 6.3 × 10^{-6} M	[4]
		paraquat, 0; Na^+, –3.10; K^+, –2.31	MSM	–	–				

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Table 6 (*Continued*).

ionophore	membrane composition	$\lg K_{AN^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
AN-8	**AN-8** (w = 3.6 %), oNPOE (w = 64.7 %), PVC (w = 30.5 %), KTpClPB (x_i = 33 %)	paraquat, 0; Li^+, –4.44; Na^+, –4.19; K^+, –3.75; Ca^{2+}, –4.37; Mg^{2+}, –4.42; Cu^{2+}, –4.22; diquat, –0.44; glucose, –4.51; berberine, –4.66	SSM	10^{-2}	10^{-2}	26.8	–	4.0 < pH < 11.0; t_{resp} = 20 s; $c_{dl} = 7.3 \times 10^{-6}$ M	[4]
		paraquat, 0; Na^+, –3.42; K^+, –2.06	MSM	–	–				
AN-9	**AN-9** (0.028 mol/kg), oNPPE (w = 42.5–66 %), PVC (w = 28.3–49.5 %)	dodecylpyridinium, 0; Na^+, –1.10; K^+, –1.10; NH_4^+, –1.16; Ca^{2+}, –3.89; Hg^{2+}, –2.59; $CH_3NH_3^+$, –1.12; $C_8H_{17}NH_3^+$, –1.40; $C_6H_5CH_2NH_3^+$, –1.34; $(CH_3)_3NH^+$, –1.32; $C_{10}H_{21}(CH_3)_3N^+$, –0.70; hexadecylpyridinium, +1.27; Triton X-100, –1.52; Tween 60, –0.92	MSM	10^{-3}	10^{-3}	–	–	2 < pH < 11; τ > 180 d; t_{resp} = 5–10 s	[5]
	AN-9 (0.042 mol/kg), oNPPE (w = 42.5–66 %), PVC (w = 28.3–49.5 %)	dodecylpyridinium, 0; Na^+, –1.02; K^+, –1.11; NH_4^+, –1.07; Ca^{2+}, –4.00; Hg^{2+}, –2.66; $CH_3NH_3^+$, –1.13; $C_8H_{17}NH_3^+$, –1.24; $C_6H_5CH_2NH_3^+$, –1.35; $(CH_3)_3NH^+$, –1.34; $C_{10}H_{21}(CH_3)_3N^+$, –0.92; hexadecylpyridinium, +1.22; Triton X-100, –1.48; Tween 60, –0.96	MSM	10^{-3}	10^{-3}	–	–	2 < pH < 11; τ > 180 d; t_{resp} = 5–10 s	[5]

Table 6 (*Continued*).

ionophore	membrane composition	$\lg K_{A^{N+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	AN-9 (0.07 mol/kg), oNPPE (w = 42.5–66 %), PVC (w = 28.3–49.5 %)	dodecylpyridinium, 0; Na^+, –1.05; K^+, –1.15; NH_4^+, –1.07; Ca^{2+}, –3.96; Hg^{2+}, –2.80; $CH_3NH_3^+$, –2.22; $C_8H_{17}NH_3^+$, –1.40; $C_6H_5CH_2NH_3^+$, –1.30; $(CH_3)_3NH^+$, –1.44; $C_{10}H_{21}(CH_3)_3N^+$, –1.00; hexadecylpyridinium, +1.30; Triton X-100, –1.52; Tween 60, –1.00	MSM	10^{-3}	10^{-3}	–	–	2 < pH < 11; τ > 180 d; t_{resp} = 5–10 s	[5]
	AN-9 (0.14 mol/kg), oNPPE (w = 42.5–66 %), PVC (w = 28.3–49.5 %)	dodecylpyridinium, 0; Na^+, –2.10; K^+, –1.09; NH_4^+, –2.00; Ca^{2+}, –4.47; Hg^{2+}, –3.68; $CH_3NH_3^+$, –2.40; $C_8H_{17}NH_3^+$, –2.64; $C_6H_5CH_2NH_3^+$, –2.96; $(CH_3)_3NH^+$, –3.10; $C_{10}H_{21}(CH_3)_3N^+$, –1.62; hexadecylpyridinium, +2.15; Triton X-100, –3.28; Tween 60, –1.70	MSM	10^{-3}	10^{-3}	59 ± 1	$n \times 10^{-5}$ –1.25×10^{-2}	2 < pH < 11; $c_{dl} = 5 \times 10^{-6}$ M; τ > 180 d; t_{resp} = 5–10 s	[5]
	AN-9 (0.028 mol/kg), DOP (w = 42.5–66 %), PVC (w = 28.3–49.5 %)	dodecylpyridinium, 0; Na^+, –0.80; K^+, –0.92 NH_4^+, –0.70; Ca^{2+}, –2.96; Hg^{2+}, –1.89; $CH_3NH_3^+$, –0.77; $C_8H_{17}NH_3^+$, –1.40; $C_6H_5CH_2NH_3^+$, –1.66; $(CH_3)_3NH^+$, –1.70; $C_{10}H_{21}(CH_3)_3N^+$, –1.15; hexadecylpyridinium, +1.73; Triton X-100, –1.92; Tween 60, –0.77	MSM	10^{-3}	10^{-3}	–	–	2 < pH < 11; τ > 180 d; t_{resp} = 20 s	[5]

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Table 6 (*Continued*).

ionophore	membrane composition	$\lg K_{AN^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	AN-9 (0.042 mol/kg), DOP (w = 42.5–66 %), PVC (w = 28.3–49.5 %)	dodecylpyridinium, 0; Na^+, –0.85; K^+, –0.85; NH_4^+, –0.85; Ca^{2+}, –2.82; Hg^{2+}, –2.00; $CH_3NH_3^+$, –0.77; $C_8H_{17}NH_3^+$, –1.40; $C_6H_5CH_2NH_3^+$, –1.52; $(CH_3)_3NH^+$, –1.57; $C_{10}H_{21}(CH_3)_3N^+$, –1.17; hexadecylpyridinium +1.58; Triton X-100, –1.62; Tween 60, –0.77	MSM	10^{-3}	10^{-3}	–	–	$2 < pH < 11$; $\tau > 180$ d; $t_{resp} = 20$ s	[5]
	AN-9 (0.07 mol/kg), DOP (w = 42.5–66 %), PVC (w = 28.3–49.5 %)	dodecylpyridinium 0; Na^+, –1.10; K^+, –1.00; NH_4^+, –0.89; Ca^{2+}, –2.72; Hg^{2+}, –2.00; $CH_3NH_3^+$, –0.77; $C_8H_{17}NH_3^+$, –1.40; $C_6H_5CH_2NH_3^+$, –1.70; $(CH_3)_3NH^+$, –1.57; $C_{10}H_{21}(CH_3)_3N^+$, –1.17; hexadecylpyridinium, +2.22; Triton X-100, –1.54; Tween 60, –0.72	MSM	10^{-3}	10^{-3}	–	–	$2 < pH < 11$; $\tau > 180$ d	[5]
	AN-9 (0.14 mol/kg), DOP (w = 42.5–66 %), PVC (w = 28.3–49.5 %)	dodecylpyridinium, 0; Na^+, –1.02; K^+, –1.02; NH_4^+, –0.83; Ca^{2+}, –3.15; Hg^{2+}, –2.00; $CH_3NH_3^+$, –0.77; $C_8H_{17}NH_3^+$, –1.40; $C_6H_5CH_2NH_3^+$, –1.85; $(CH_3)_3NH^+$, –1.82; $C_{10}H_{21}(CH_3)_3N^+$, –1.30; hexadecylpyridinium, +2.04; Triton X-100, –1.89; Tween 60, –0.57	MSM	10^{-3}	10^{-3}	–	–	$2 < pH < 11$; $\tau > 180$ d; t_{resp} = 5–10 s	[5]

Table 6 (*Continued*).

ionophore	membrane composition	$lgK_{AN^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	AN-9, TBP, PVC (weight ratio not reported)	dodecylpyridinium, 0; Na^+, –1.04; K^+, –1.10; NH_4^+, –1.05; Ca^{2+}, –2.80; Hg^{2+}, –2.18; $CH_3NH_3^+$, –1.12; $C_8H_{17}NH_3^+$, –1.85; $C_6H_5CH_2NH_3^+$, –2.07; $(CH_3)_3NH^+$, –2.80; Triton X-100, –2.92; Tween 60, –1.05 hexadecylpyridinium, +1.91	MSM	10^{-3}	10^{-3}	–	–	2 < pH < 11; $\tau > 180$ d; $t_{resp} = 5–10$ s	[5]
AN-10	**AN-10** (w = 4.5 %), DOP (w = 60.3 %), PVC (w = 35.2 %)	HGA*, 0; Na^+, –0.3; K^+, –2.8; NH_4^+, –5.4; $C_4H_9NH_3^+$, –1.9; HCHO, –1.9; C_3H_7CHO, –1.7; 3-OMe-4-OH-CH_6H_3CHO, –1.6	FIM	–	1×10^{-5} (Na^+) 1×10^{-3} (K^+) 0.5 (NH_4^+) 1.8×10^{-4} (HCHO) 2×10^{-4} (C_3H_7CHO, $C_4H_9NH_3^+$, 3-OMe-4-OH-CH_6H_3CHO)	67.7 ± 0.7	9×10^{-7} -1×10^{-2}	pH = 5.5; $c_{dl} = 9 \times 10^{-7}$ M; $\tau \le 60$ d; $t_{resp} < 2$ min 22–25 °C; *, heptanal-Girard's reagent P adduct, (see Figure)	[7]
	AN-10 (w = 4.5 %), DOP (w = 60.3 %), PVC (w = 35.2 %)	FGA2*, 0; Na^+, +0.93; K^+, –2.59; NH_4^+, –3.47; C_2H_5OH, –3.57; C_3H_7CHO, +0.83; G2**, –1.62	FIM	–	5×10^{-5} (Na^+) 0.01 (K^+) 0.1 (NH_4^+, C_2H_5OH) 1×10^{-3} (C_3H_7CHO, $C_4H_9NH_3^+$, $G2^{+**}$)	32.4	4×10^{-5} -10^{-1}	pH = 5.4; $c_{dl} = 1.2 \times 10^{-5}$ M; $\tau \le 60$ d; $t_{resp} < 1$ min; 22–25 °C; *, adduct formalde-hyde-reagent G2 (see Figure); **, see Figure, used for indirect aldehyde determination	[6]

(*continues on next page*)

Table 6 (*Continued*).

ionophore	membrane composition	$\lg K_{AN^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
AN-11	**AN-11** (w = 3 %), DOP (w = 62 %), PVC (w = 35 %)	AGG*, 0; Li^+, –2.9; Na^+, –2.7; K^+, –2.0; NH_4^+, –2.1; Ca^{2+}, –3.6; Mg^{2+}, –3.4; C_2H_5OH, –4.1; lysine, –1.6; HCHO, –1.2 (indirect); $C_4H_9NH_3^+$, –0.7; $(C_2H_5)_2NH_2^+$, –0.8; $(C_2H_5)_3NH^+$, +5.7; GRP'**, –0.3	FIM	–	10^{-3}	59.3	10^{-4}–10^{-1}	pH = 9.0; $c_{dl} = 1.00 \times 10^{-5}$ M; $\tau \leq 30$ d; $t_{resp} < 1$ min; 21–23 °C; *, adduct glucose-Girard's reagent P' (see Figure); **, Girard's reagent P', used for indirect deterimnation of glucose	[8]

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(3) B. Saad, M.M. Ariffin, M.I. Saleh, *Anal. Chim. Acta*, **338**, 89-96 (1997) .

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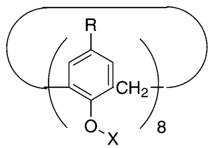
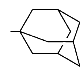
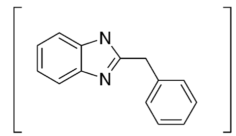
Table 6 (*Continued*).

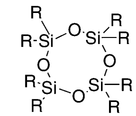


AN-1 (M_r = 977.36): R=H, X= CH_3
AN-2 (M_r = 2051.12): R=1-Ad, X=CH_3
AN-3 (M_r = 2627.60): R=1-Ad, X=$CH_2COOCH_2CH_3$
AN-4 (M_r = 2867.84): R=1-Ad, X=$CH_2COOCH_2CH_2OCH_3$
AN-5 (M_r = 2403.20): R=1-Ad, X=CH_2COOH

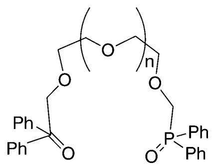
1-Ad = 



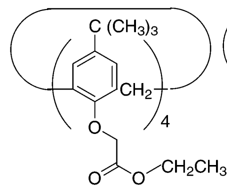
AN-6 (M_r = 2030.49; $[Dibazol]_3 PMo_{12}O_{40}$)



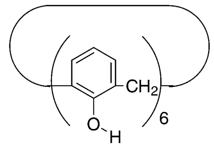
AN-7 (M_r = 296.62): R=CH_3
AN-8 (M_r = 801.26): R=C_6H_6



AN-9 (M_r = 710.75): n=5

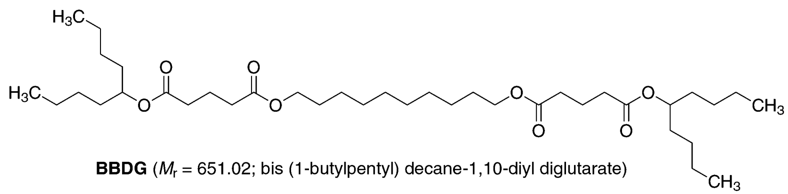


AN-10 (M_r = 993.3)

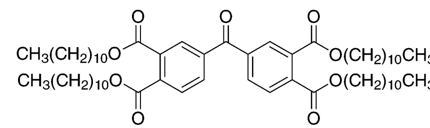


AN-11 (M_r = 636.7)

Plasticizers

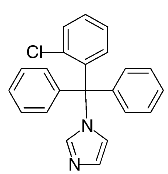


BBDG (M_r = 651.02; bis (1-butylpentyl) decane-1,10-diyl diglutarate)

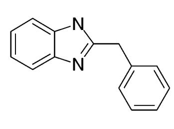


TBT (M_r = 959.54; tetra-*n*-undecyl 3,3',4,4'-benzophenonetetracarboxylate)

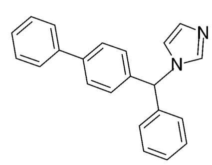
Analytes and Reagents



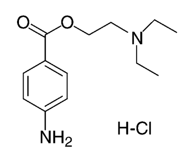
Clotrimazole (diphenyl-(2-chlorophenyl)-1-imidazolylmethane)



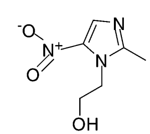
Dibazol (2-benzylbenzimidazol)



Bifonazol (phenyl-(4-diphenyl)-1-imidazoylmethane)



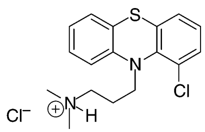
Novocaine (diethylaminoethyl *para*-aminobenzoate hydrochloride)



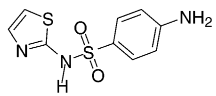
Metronidazole (1-hydroxyethyl-2-methyl-5-nitroimidazole)

(*continues on next page*)

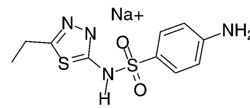
Table 6 (*Continued*).



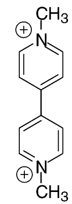
Aminazine (2-chloro-10-(3-dimethylaminopropyl)-phenothiazine hydrochloride)



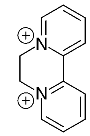
Norsulfazol ([2-*para*-aminobenzenesulfamido]-thiazole)



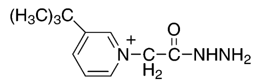
Ethazole (sodium [2-*para*-aminobenzenesulfamido) - 5-ethyl,1,3,4-thiadiazole])



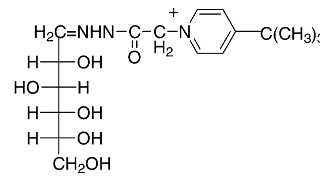
Paraquat



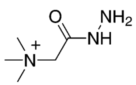
Diquat



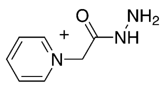
G2



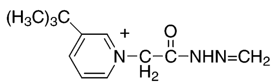
Adduct of glucose and Girard's reagent P'.



Girard's reagent T



Girard's reagent P



FGA2

Table 7 Enantiomer-selective electrodes.

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
EN-1	**EN-1** (w = 0.5 %), oNPOE (w = 66.1 %), PVC (w = 33.0 %), NaTPB (x_i = 53.9 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.037	SSM	10^{-3}	10^{-3}	55.0 (10^{-3}–10^{-2})		pH = 4.4; 25 °C; 1-PEA, 1-phenyl-ethylamine	[1]
		1-PEA (*S*), 0; 1-PEA (*R*), +0.037	SSM	10^{-2}	10^{-2}				
		1-PEA (*S*), 0; 1-PEA(*R*), +0.041	SSM	10^{-1}	10^{-1}				
EN-2	**EN-2** (w = 0.7 %), oNPOE (w = 65.5 %), PVC (w = 33.8 %)	1-PEA (*R*), 0; 1-PEA (*S*), 0.0	SSM	10^{-1}	10^{-1}	–	–	pH = 4.4; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-2 (w = 0.7 %), DOA (w = 65.6 %), PVC (w = 33.7 %)	1-PEA (*R*), 0; 1-PEA (*S*), 0.0	SSM	10^{-1}	10^{-1}	–	–	pH = 4.4; 25 °C 1-PEA, 1-phenyl-ethylamine	[2]
EN-3	**EN-3** (w = 0.5 %), NaTPB (x_i = 52.3 %), oNPOE (w = 66.1 %), PVC (w = 33.0%),	1-PEA (*R*), 0; 1-PEA (*S*), –0.041	SSM	10^{-1}	10^{-1}	–	–	pH = 4.4; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
		1-PEA (*R*), 0; 1-PEA (*S*), –0.037	SSM	10^{-2}	10^{-2}	–	–	pH = 4.4; 25 °C 1-PEA, 1-phenyl-ethylamine	[2]
	EN-3 (w = 0.5 %), oNPOE (w = 66.3 %), PVC (w = 33.2 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.041	SSM	10^{-2}	10^{-2}	–	–	pH = 6.8; 25 °C 1-PEA, 1-phenyl-ethylamine	[2]
	EN-3 (w = 0.5 %), oNPOE (w = 66.1 %), PVC (w = 33.0 %), NaTPB (x_i = 52 %)	1-PEA (*R*), 0; 1-PEA (*S*), +0.037	SSM	10^{-3}	10^{-3}	–	–	pH = 4.4; 25 °C 1-PEA, 1-phenyl-ethylamine	[2]
	EN-3 (w = 0.7 %), oNPOE (w = 66.0 %), PVC (w = 33.3 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.049	SSM	10^{-1}	10^{-1}	–	–	pH = 4.4; 25 °C 1-PEA, 1-phenyl-ethylamine	[2]
	EN-3 (w = 0.9 %), oNPOE (w = 66.1 %), PVC (w = 33.0 %)	EPH (+), 0; EPH (–), +0.033	SSM	10^{-1}	10^{-1}	–	–	pH = 4.4; 25 °C; EPH, ephedrinium	[2]
EN-4	**EN-4** (w = 0.8 %), oNPOE (w = 65.9 %), PVC (w = 33.6%),	1-PEA (*R*), 0; 1-PEA (*S*), –0.021	SSM	10^{-1}	10^{-1}	–	–	pH = 4.4; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]

(*continues on next page*)

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
	EN-4 (w = 0.9 %), DOA (w = 65.5 %), PVC (w = 33.6 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.017	SSM	10^{-1}	10^{-1}	–	–	pH = 4.4; 25 °C 1-PEA, 1-phenyl-ethylamine	[2]
EN-5	**EN-5** (w = 0.5 %), oNPOE (w = 66.1 %), PVC (w = 33.0 %), NaTPB (x_i = 68.9 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.021	SSM	10^{-1}	10^{-1}	–	–	pH = 4.4; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
		EPH (+), 0; EPH (–), +0.025	SSM	10^{-1}	10^{-1}	–	–	pH = 4.4; 25 °C; EPH, ephedrinium	[2]
EN-6	**EN-6** (w = 0.6 %), oNPOE (w = 67.1 %), PVC (w = 32.3 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.041	SSM	10^{-1}	10^{-1}	–	–	25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-6 (w = 0.6 %), DOA (w = 66.6 %), PVC (w = 32.8 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.068	SSM	10^{-1}	10^{-1}	–	–	25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
EN-7	**EN-7** (w = 0.5 %), oNPOE (w = 66.7 %), PVC (w = 32.8%)	1-PEA (*R*), 0; 1-PEA (*S*), –0.021	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
EN-8	**EN-8** (w = 0.4 %), oNPOE (w = 66.2 %), PVC (w = 32.4%)	1-PEA (*R*), 0; 1-PEA (*S*), +0.053	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
		EPH (+), 0; EPH (–), +0.053	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; EPH, ephedrinium	[2]
		ψEP (+), 0; ψEP (–), +0.086	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; ψEP, ψ-ephedrinium	[2]
	EN-8 (w = 0.4 %), DOA (w = 67.5 %), PVC (w = 32.1 %)	1-PEA (*R*), 0; 1-PEA (*S*), +0.013	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
		EPH (+), 0; EPH (–), +0.0	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; EPH, ephedrinium	[2]
		ψEP (+), 0; ψEP (–), +0.009	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; ψEP, ψ-ephedrinium	[2]
EN-9	**EN-9** (w = 2.5 %), oNPOE (w = 64.5 %), PVC (w = 33.0 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.204	SSM	10^{-2}	10^{-2}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
		PGA (+), 0; PGA (–), –0.076	SSM	10^{-2}	10^{-2}	–	–	pH = 6.8; 25 °C; PGA, phenyl-glycinamide	[2]
		PhGlyOMe (+), 0; PhGlyOMe (–), –0.63	SSM	10^{-2}	10^{-2}	–	–	pH = 6.8; 25 °C; PhGlyOMe, phenyl-glycine methyl ester	[2]
EN-10	**EN-10** (w = 1.0 %), oNPOE (w = 66.6 %), PVC (w = 32.4 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.037	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-10 (w = 0.9 %), oNPOE (w = 65.9 %), PVC (w = 32.2 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.053	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
EN-11	**EN-11** (w = 0.9 %), oNPOE (w = 67.2 %), PVC (w = 31.9 %)	1-PEA (*R*), 0; 1-PEA (*S*), +0.057	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-11 (w = 0.9 %), DOA (w = 67.6 %), PVC (w = 31.5 %)	1-PEA (*R*), 0; 1-PEA (*S*), +0.086	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
EN-12	**EN-12** (w = 0.9 %), oNPOE (w = 66.8 %), PVC (w = 32.3 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.049	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-12 (w = 1.0 %), oNPOE (w = 66.3 %), PVC (w = 32.7 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.041	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-12 (w = 0.5 %), oNPOE (w = 66.9 %), PVC (w = 32.6 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.045	SSM	10^{-2}	10^{-2}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-12 (w = 0.5 %), oNPOE (w = 66.3 %), PVC (w = 33.2 %)	PGA (*R*), 0; PGA (*S*), +0.057	SSM	10^{-2}	10^{-2}	–	–	pH = 6.8; 25 °C; PGA, phenyl-glycinamide	[2]
	EN-12 (w = 0.5 %), oNPOE (w = 66.3 %), KTpClPB (x_i = 38 %), PVC (w = 33.0 %)	PhGlyOMe(+), 0; PhGlyOMe(–), 0.045	SSM	10^{-2}	10^{-2}	–	–	pH = 6.8; 25 °C; PhGlyOMe, phenyl-glycine methyl ester	[2]
EN-13	**EN-13** (w = 1.0 %), oNPOE (w = 66.1 %), PVC (w = 32.9 %)	1-PEA (*R*), 0; 1-PEA (*S*), +0.061	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]

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Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	EN-13 (w = 1.0 %), DOA (w = 65.9 %), PVC (w = 33.1 %)	1-PEA (*R*), 0; 1-PEA (*S*), +0.064	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-13 (w = 0.5 %), oNPOE (w = 66.3 %), PVC (w = 32.2 %)	1-PEA (*R*), 0; 1-PEA (*S*), +0.064	SSM	10^{-2}	10^{-2}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
		PGA (+), 0; PGA (–), –0.049	SSM	10^{-2}	10^{-2}	–	–	pH = 6.8; 25 °C; PGA, phenyl-glycinamide	[2]
		PhGlyOMe(+), 0; PhGlyOMe(+), –0.072	SSM	10^{-2}	10^{-2}	–	–	pH = 6.8; 25 °C; PhGlyOMe, phenyl-glycine methyl ester	[2]
EN-14	**EN-14** (w = 0.5 %), oNPOE (w = 58.7 %), PVC (w = 40.8 %)	1-PEA (*R*), 0; 1-PEA (*S*), +0.021	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-14 (w = 1.0 %), DOA (w = 66.8 %), PVC (w = 32.2 %)	1-PEA (*R*), 0; 1-PEA (*S*), +0.029	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
EN-15	**EN-15** (w = 1.0 %), oNPOE (w = 65.4 %), PVC (w = 33.6 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.021	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-15 (w = 1.0 %), DOA (w = 66.9 %), PVC (w = 32.1 %)	1-PEA (*R*), 0; 1-PEA (*S*), 0.0	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
EN-16	**EN-16** (w = 1.3 %), oNPOE (w = 66.8%), PVC (w = 31.9 %)	1-PEA (*R*), 0; 1-PEA (*S*), –0.041	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-16 (w = 1.6 %), DOA (w = 65.4 %), PVC (w = 33.0 %)	1-PEA (*R*), 0; 1-PEA (*S*), 0.0	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
EN-17	**EN-17** (w = 1.0 %), oNPOE (w = 67.4 %), PVC (w = 31.6 %)	1-PEA (*R*), 0; 1-PEA (*S*), +0.057	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
	EN-17 (w = 1.0 %), DOA (w = 66.3 %), PVC (w = 32.7 %)	1-PEA (*R*), 0; 1-PEA (*S*), +0.021	SSM	10^{-1}	10^{-1}	–	–	pH = 6.8; 25 °C; 1-PEA, 1-phenyl-ethylamine	[2]

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
EN-18	**EN-18** (w = 1.5 %), oNPOE (w = 65.5 %), PVC (w = 33.0 %)	1-PEA (*R*), 0; 1-PEA (*S*), 0.0	SSM	10^{-1}	10^{-1}	–	–	25 °C; 1-PEA, 1-phenyl-ethylamine	[2]
EN-19	**EN-19** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %),	PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.77	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; PhGlyOMe, 2-phenyl-glycine methyl ester	[3]
	KTpClPB (x_i = 39 %)	PheOMe (*S*), 0; PheOMe (*R*), –0.93	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; PheOMe, phenylalanine methylester	[3]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.85	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; LeuOMe, leucine methyl ester	[3]
		LysOMe (*S*), 0; LysOMe (*R*), –0.68	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; LysOMe, lysine methyl ester	[3]
		ArgOMe (*S*), 0; ArgOMe (*R*), 0.0	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; ArgOMe, arginine methyl ester	[3]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.35	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C	[3]
		phenylethylamine(*S*), 0; phenylethylamine(*R*), +0.29	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C	[3]
EN-20	**EN-20** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %),	PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.54	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; PhGlyOMe, 2-phenyl-glycine methyl ester	[3]
	KTpClPB (x_i = 39.0 %)	PheOMe (*S*), 0; PheOMe (*R*), –0.38	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; PheOMe, phenylalanine methyl ester	[3]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.43	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; LeuOMe, leucine methyl ester	[3]
		LysOMe(*S*), 0; LysOMe(*R*), –0.34	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; LysOMe, lysine methyl ester	[3]

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Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
		ArgOMe (*S*), 0; ArgOMe (*R*), –0.15	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; ArgOMe, arginine methyl ester	[3]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.32	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C	[3]
		1-PEA (*S*), 0; 1-PEA (*R*), +0.24	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C 1-PEA, 1-phenylethylamine	[3]
EN-21	**EN-21** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 39.0 %)	PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.45	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; PhGlyOMe, 2-phenylglycine methyl ester	[3]
		PheOMe (*S*), 0; PheOMe (*R*), –0.28	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; PheOMe, phenylalanine methyl ester	[3]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.32	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; LeuOMe, leucine methyl ester	[3]
		LysOMe (*S*), 0; LysOMe (*R*), –0.45	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; LysOMe, lysine methyl ester	[3]
		ArgOMe (*S*), 0; ArgOMe (*R*), –0.04	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; ArgOMe, arginine methyl ester	[3]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.23	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C;	[3]
		1-PEA (*S*), 0; 1-PEA (*R*), +0.16	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; 1-PEA, 1-phenylethylamine	[3]
EN-22	**EN-22** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 39 %)	PhGlyOMe(*S*), 0; PhGlyOMe(*R*), –0.46	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; PhGlyOMe, 2-phenylglycine methyl ester	[3]
		PheOMe (*S*), 0; PheOMe (*R*), –0.26	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; PheOMe, phenylalanine methyl ester	[3]

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.32	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; LeuOMe, leucine methyl ester	[3]
		LysOMe (*S*), 0; LysOMe(*R*), –0.32	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; LysOMe, lysine methyl ester	[3]
		ArgOMe (*S*), 0; ArgOMe (*R*), 0.0	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; ArgOMe, arginine methyl ester	[3]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.24	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C	[3]
		1-PEA (*S*), 0; 1-PEA (*R*), +0.17	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C 1-PEA, 1-phenyl-ethylamine	[3]
EN-23	**EN-23** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 38 %)	PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.60	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; PhGlyOMe, 2-phenyl-glycine methyl ester	[3]
		PheOMe (*S*), 0; PheOMe (*R*), –0.34	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; PheOMe, phenylalanine methyl ester	[3]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.40	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; LeuOMe, leucine methyl ester	[3]
		LysOMe(*S*), 0; LysOMe (*R*), –0.36	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; LysOMe, lysine methyl ester	[3]
		ArgOMe (*S*), 0; ArgOMe (*R*), –0.04	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C; ArgOMe, arginine methyl ester	[3]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.32	SSM	10^{-2}	10^{-2}	–	–	4.8 < pH < 8.6; 20 °C	[3]
		1-PEA (*S*), 0; 1-PEA (*R*), +0.25	10^{-2}	10^{-2}	–	–		4.8 < pH < 8.6; 20 °C 1-PEA, 1-phenylethyl-amine	[3]

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Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
EN-24	**EN-24** (w = 1.2 %), DPP (w = 69.7 %), PVC (w = 29.1 %)	PheOMe (*S*), 0; PheOMe (*R*), 0.0	SSM	–	–	56	10^{-4}–10^{-2}	25 ± 0.1 °C; PheOMe, phenylalanine methyl ester	[4]
		1-PEA (*S*), 0; 1-PEA (*R*), 0.0	SSM	–	–	56	10^{-4}–10^{-2}	25 ± 0.1 °C; 1-PEA, phenylethyl-amine	[4]
EN-25	**EN-25** (w = 1.2 %), DPP (w = 69.7 %), PVC (w = 29.1 %)	PheOMe (*S*), 0; PheOMe (*R*), +0.15	SSM	–	–	56	10^{-4}–10^{-2}	25 ± 0.1 °C; PheOMe, phenylalanine methyl ester	[4]
		1-PEA (*S*), 0; 1-PEA (*R*), +0.18	SSM	–	–	55	10^{-4}–10^{-2}	25 ± 0.1 °C; 1-PEA, 1-phenylethyl-ammonioum	[4]
EN-26	**EN-26** (w = 1.2 %), DPP (w = 69.7 %), PVC (w = 29.1 %)	PheOMe (*S*), 0; PheOMe (*R*), 0.0	SSM	–	–	55	10^{-4}–10^{-2}	25 ± 0.1 °C; PheOMe, phenylalanine methyl ester	[4]
		1-PEA (*S*), 0; 1-PEA (*R*), 0.0	SSM	–	–	55	10^{-4}–10^{-2}	25 ± 0.1 °C; 1-PEA, 1-phenylethyl-amine	[4]
EN-27	**EN-27** (w = 1.2 %), DPP (w = 69.7 %), PVC (w = 29.1 %)	PheOMe (*S*), 0; PheOMe (*R*), 0.0	SSM	–	–	55	10^{-4}–10^{-2}	25 ± 0.1 °C; PheOMe, phenylalanine methyl ester	[4]
		1-PEA (*S*), 0; 1-PEA (*R*), 0.0						25 ± 0.1 °C; 1-PEA, 1-phenylethyl-amine	[4]
EN-28	**EN-28** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %),	1-PEA (*S*), 0; 1-PEA (*R*), +0.045	SSM	–	–	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethyl-amine	[5]
	KTpClPB (x_i = 32 %)	PheOMe (*S*), 0; PheOMe (*R*), –0.079	SSM	–	–	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[5]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.11	SSM	–	–	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methylester	[5]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.041	SSM	–	–	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenylglycine methyl ester	[5]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	–	–	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ProOMe, proline methyl ester	[5]

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
EN-29	**EN-29** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 32 %)	1-PEA (*S*), 0; 1-PEA (*R*), 0.0	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethyl-amine	[5,6]
		PheOMe(*S*), 0; PheOMe (*R*), –0.26	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[5,6]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.36	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[5,6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.32	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenyl-glycine methyl ester	[5,6]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ProOMe, proline methylester	[5,6]
		LysOMe(*S*), 0; LysOMe(*R*), –0.36	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LysOMe, lysine methyl ester	[5,6]
		ArgOMe (*S*), 0; ArgOMe (*R*), +0.076	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ArgOMe, arginine methyl ester	[5,6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.21	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6	[5,6]
EN-30	**EN-30** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 34 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.37	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethyl-amine	[5,6]
		PheOMe (*S*), 0; PheOMe (*R*), –0.79	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[5,6]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.78	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[5,6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.71	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenylglycine methyl ester	[5,6]

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Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
		ProOMe (*S*), 0; ProOMe (*R*), –0.079	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ProOMe, proline methyl ester	[5,6]
		LysOMe (*S*), 0; LysOMe (*R*), –0.52	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LysOMe, lysine methyl ester	[5,6]
		ArgOMe (*S*), 0; ArgOMe (*R*), –0.34	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ArgOMe, arginine methyl ester	[5,6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.23	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6	[5,6]
EN-31	**EN-31** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 36 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.23	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethyl-amine	[5,6]
		PheOMe (*S*), 0; PheOMe (*R*), –0.32	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[5,6]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.28	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[5,6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.43	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenyl-glycine methyl ester	[5,6]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LysOMe, lysine methyl ester	[5,6]
		LysOMe (*S*), 0; LysOMe (*R*), –0.43	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LysOMe, lysine methyl ester	[5,6]
		ArgOMe (*S*), 0; ArgOMe (*R*), +0.20	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ArgOMe, arginine methyl ester	[5,6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.20	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6	[5,6]

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
EN-32	**EN-32** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 37 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.40	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethylamine	[5][6]
		PheOMe (*S*), 0; PheOMe (*R*), –0.79	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[5][6]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.88	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[5][6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.71	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenylglycine methyl ester	[5][6]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ProOMe, proline methyl ester	[5][6]
		LysOMe (*S*), 0; LysOMe (*R*), –0.41	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LysOMe, lysine methyl ester	[5][6]
		ArgOMe (*S*), 0; ArgOMe (*R*), –0.49	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ArgOMe, arginine methyl ester	[5][6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.32	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6	[5][6]
EN-33	**EN-33** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 38 %)	1-PEA (*S*), 1-PEA (*R*), +0.38	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethylamine	[5][6]
		PheOMe (*S*), 0; PheOMe (*R*), –0.76	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[5][6]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.72	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[5][6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.69	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenylglycine methyl ester	[5][6]

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Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
		ProOMe (*S*), 0; ProOMe (*R*), –0.041	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ProOMe, proline methyl ester	[5][6]
		LysOMe (*S*), 0; LysOMe (*R*), –0.43	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LysOMe, lysine methyl ester	[5][6]
		ArgOMe (*S*), 0; ArgOMe (*R*), –0.49	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ArgOMe, arginine methyl ester	[5][6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.21	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6	[5][6]
EN-34	**EN-34** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 38 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.28	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethyl-amine	[5][6]
		PheOMe (*S*), 0; PheOMe (*R*), –0.63	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[5][6]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.53	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[5][6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.52	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenyl-glycine methyl ester	[5][6]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ProOMe, proline methyl ester	[5][6]
		LysOMe (*S*), 0; LysOMe (*R*), –0.30	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LysOMe, lysine methyl ester	[5][6]
		ArgOMe (*S*), 0; ArgOMe (*R*), –0.027	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ArgOMe, arginine methyl ester	[5][6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.21	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6	[5][6]
EN-35	**EN-35** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 31 %)	1-PEA (*S*), 0; 1-PEA(*R*), +0.046	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethyl-amine	[6]
		PheOMe (*S*), 0; PheOMe (*R*), –0.079	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[6]

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.11	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.041	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenylglycine methyl ester	[6]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ProOMe, proline methyl ester	[6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.12	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6	[6]
EN-36	**EN-36** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 32 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.30	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethylamine	[6]
		PheOMe (*S*), 0; PheOMe (*R*), –0.41	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[6]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.43	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.53	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenylglycine methyl ester	[6]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ProOMe, proline methyl ester	[6]
		LysOMe (*S*), 0; LysOMe (*R*), –0.041	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LysOMe, lysine methyl ester	[6]
		ArgOMe (*S*), 0; ArgOMe (*R*), +0.076	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ArgOMe, arginine methyl ester	[6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.33	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6;	[6]

(*continues on next page*)

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
EN-37	**EN-37** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 31 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.31	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethyl-amine	[5,6]
		PheOMe (*S*), 0; PheOMe (*R*), –0.60	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[5,6]
		LeuOMe (*S*), 0; LeuOMe (*R*), –1.02	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[5,6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –1.26	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenyl-glycine methyl ester	[5,6]
		ProOMe (*S*), 0; ProOMe (*R*), –0.11	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ProOMe, proline methyl ester	[5,6]
		LysOMe (*S*), 0; LysOMe (*R*), –0.48	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LysOMe, lysine methyl ester	[5,6]
		ArgOMe (*S*), 0; ArgOMe (*R*), –0.48	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ArgOMe, arginine methyl ester	[5,6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.34	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6	[5,6]
EN-38	**EN-38** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 36 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.36	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethyl-amine	[6]
		PheOMe (*S*), 0; PheOMe (*R*), –0.34	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[6]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.41	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.36	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenylglycine methyl ester	[6]
		ProOMe (*S*), 0; ProOMe (*R*), +0.097	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ProOMe, proline methyl ester	[6]

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
		LysOMe (*S*), 0; LysOMe (*R*), –0.40	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LysOMe, lysine methyl ester	[6]
		ArgOMe (*S*), 0; ArgOMe (*R*), +0.21	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ArgOMe, arginine methyl ester	[6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.24	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6	[6]
EN-39	**EN-39** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 40 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.018	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethyl-amine	[6]
		PheOMe (*S*), 0; PheOMe (*R*), –0.20	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[6]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.23	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.45	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenyl-glycine methyl ester	[6]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ProOMe, proline methyl ester	[6]
		LysOMe (*S*), 0; LysOMe (*R*), –0.23	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; LysOMe, lysine methyl ester	[6]
		ArgOMe (*S*), 0; ArgOMe (*R*), 0.0	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; ArgOMe, arginine methyl ester	[6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.032	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6	[6]

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Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
EN-40	**EN-40** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 31 %)	1-PEA (*S*), 0; 1-PEA (*R*), 0.0	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethylamine	[6]
		PheOMe (*S*), 0; PheOMe (*R*), 0.0	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.041	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenylglycine methyl ester	[6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.027	SSM	0.1	0.1	nN	10^{-4}–10^{-1}	20 °C; 3.3 < pH < 7.6	[6]
		1-PEA (*S*), 0; 1-PEA (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethylamine	[7]
		PheOMe,(*S*), 0; PheOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenylglycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; ProOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), –0.041	SSM	–	–	–	–	20 °C; pH = 3.0	[7]
EN-41	**EN-41** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 32 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.066	SSM	–	–	–	–	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethylamine	[6]
		PheOMe (*S*), 0; PheOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[6]
		LeuOMe (*S*), 0; LeuOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[6]

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenyl-glycine methyl ester	[6]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; 3.3 < pH < 7.6; ProOMe, proline methyl ester	[6]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.21	SSM	–	–	–	–	20 °C; 3.3 < pH < 7.6	[6]
EN-42	**EN-42** (*w* = 3 %), DBE (*w* = 66 %), PVC (*w* = 30 %), KTpClPB (x_i = 33 %)	1-PEA (*S*), 0; 1-PEA (*R*), 0.0	SSM	–	–	–	–	20 °C; 3.3 < pH < 7.6; 1-PEA, 1-phenylethyl-amine	[6]
		PheOMe (*S*), 0; PheOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; 3.3 < pH < 7.6; PheOMe, phenylalanine methyl ester	[6]
		LeuOMe (*S*), 0; LeuOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; 3.3 < pH < 7.6; LeuOMe, leucine methyl ester	[6]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; 3.3 < pH < 7.6; PhGlyOMe, 2-phenyl-glycine methyl ester	[6]
EN-43	**EN-43** (*w* = 3 %), DBE (*w* = 66 %), PVC (*w* = 30 %), KTpClPB (x_i = 32 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.10	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethyl-amine	[7]
		PheOMe (*S*), 0; PheOMe (*R*), –0.20	SSM	–	–	–	–	20 °C; pH = 3.0; PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.20	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.26	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenyl-glycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), 0.00	SSM	–	–	–	–	20 °C; pH = 3.0; ProOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.12	SSM	–	–	–		20 °C; pH = 3.0	[7]

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Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
EN-44	**EN-44** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 32 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.27	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethyl-amine	[7]
		PheOMe (*S*), 0; PheOMe (*R*), –0.32	SSM	–	–	–	–	20 °C; pH = 3.0; PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.38	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.57	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenyl-glycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), +0.045	SSM	–	–	–	–	20 °C; pH = 3.0; ProOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.33	SSM	–	–	–	–	20 °C; pH = 3.0;	[7]
EN-45	**EN-45** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 34 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.25	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethyl-amine	[7]
		PheOMe (*S*), 0; PheOMe (*R*), –0.34	SSM	–	–	–	–	20 °C; pH = 3.0; PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.40	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.60	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenyl-glycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), +0.11	SSM	–	–	–	–	20 °C; pH = 3.0; ProOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.32	SSM	–	–	–	–	20 °C; pH = 3.0	[7]
EN-46	**EN-46** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 34 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.31	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethyl-amine	[7]
		PheOMe (*S*), 0; PheOMe (*R*), –0.43	SSM	–	–	–	–	20 °C; pH = 3.0; PheOMe, phenylalanine methyl ester	[7]

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.49	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.64	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenylglycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), +0.041	SSM	–	–	–	–	20 °C; pH = 3.0; ProOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.44	SSM	–	–	–	–	20 °C; pH = 3.0	[7]
EN-47	**EN-47** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 36 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.28	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethylamine	[7]
		PheOMe (*S*), 0; PheOMe (*R*), –0.40	SSM	–	–	–	–	20 °C; pH = 3.0; PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.53	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.64	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenylglycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; ProOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.43	SSM	–	–	–	–	20 °C; pH = 3.0	[7]
EN-48	**EN-48** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 29 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.017	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethylamine	[7]
		PheOMe (*S*), 0; PheOMe (*R*), –0.04	SSM	–	–	–	–	20 °C; pH = 3.0; PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.041	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]

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Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.079	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenylglycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; ProOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0	[7]
EN-49	**EN-49** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 31 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.060	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethylamine	[7]
		PheOMe (*S*), 0; PheOMe (*R*), –0.11	SSM	–	–	–	–	20 °C; pH = 3.0 PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.18	SSM	–	–	–	–	20 °C; pH = 3.0 LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.26	SSM	–	–	–	–	20 °C; pH = 3.0 PhGlyOMe, 2-phenylglycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), +0.086	SSM	–	–	–	–	20 °C; pH = 3.0 ProOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.14	SSM	–	–	–	–	20 °C; pH = 3.0	[7]
EN-50	**EN-50** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 35 %)	1-PEA (*S*), 0; 1-PEA (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethylamine	[7]
		PheOMe (*S*), 0; PheOMe (*R*), –0.041	SSM	–	–	–	–	20 °C; pH = 3.0 PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.079	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.15	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenylglycine methyl ester	[7]

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
		ProOMe (*S*), 0; ProOMe (*R*), –0.079	SSM	–	–	–	–	20 °C; pH = 3.0; ProOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.041	SSM	–	–	–	–	20 °C; pH = 3.0	[7]
EN-51	**EN-51** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 37 %)	1-PEA (*S*), 0; 1-PEA (*R*), –0.12	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethylamine	[7]
		PheOMe (*S*), 0; PheOMe (*R*), –0.079	SSM	–	–	–	–	20 °C; pH = 3.0; PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.11	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.23	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenylglycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; PRoOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), +0.081	SSM	–	–	–	–	20 °C; pH = 3.0	[7]
EN-52	**EN-52** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 33 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.031	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethylamine	[7]
		PheOMe (*S*), 0; PheOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenylglycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), –0.041	SSM	–	–	–	–	20 °C; pH = 3.0; ProOMe, proline methyl ester	[7]

(*continues on next page*)

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0	[7]
EN-53	**EN-53** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 35 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.11	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethylamine	[7]
		PheOMe (*S*), 0; PheOMe (*R*), –0.26	SSM	–	–	–	–	20 °C; pH = 3.0; PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.20	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.041	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenylglycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; ProOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0	[7]
EN-54	**EN-54** (w = 3 %), DBE (w = 66 %), PVC (w = 30 %), KTpClPB (x_i = 33 %)	1-PEA (*S*), 0; 1-PEA (*R*), +0.018	SSM	–	–	–	–	20 °C; pH = 3.0; 1-PEA, 1-phenylethylamine	[7]
		PheOMe (*S*), 0; ProOMe (*R*), –0.041						20 °C; pH = 3.0; PheOMe, phenylalanine methyl ester	[7]
		LeuOMe (*S*), 0; LeuOMe (*R*), –0.041	SSM	–	–	–	–	20 °C; pH = 3.0; LeuOMe, leucine methyl ester	[7]
		PhGlyOMe (*S*), 0; PhGlyOMe (*R*), –0.079	SSM	–	–	–	–	20 °C; pH = 3.0; PhGlyOMe, 2-phenylglycine methyl ester	[7]
		ProOMe (*S*), 0; ProOMe (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0; ProOMe, proline methyl ester	[7]
		α-(1-naphthyl)ethylamine (*S*), 0; α-(1-naphthyl)ethylamine (*R*), 0.0	SSM	–	–	–	–	20 °C; pH = 3.0	[7]

Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/decade)	linear range (M)	remarks	ref.
EN-55	**EN-55**, BBPA, PVC, KTpClPB (ratio not reported)	(+)-(1*S*, 2*R*) EPH, 0; (–)-(1*R*, 2*S*) EPH, –2.6	FIM	–	10^{-1}	60.0	–	37 °C; $c_{dl} = 10^{-6.6}$ M	[9]
	EN-55 , BBPA, PVC, KTpClPB (ratio not reported)	(+)-(1*S*, 2*R*) NEPH, 0; (–)-(1*R*, 2*S*) NEPH, –1.5	FIM	–	10^{-1}	58.0	–	37 °C; $c_{dl} = 10^{-5.1}$ M; NEPH, norephedrinium	[9]
EN-56	**EN-56** (w = 1.2 %), oNPOE (w = 65.6 %), PVC (w = 32.8 %), KTpClPB (x_i = 86 %)	(+)-(1*S*, 2*R*) EPH, 0; (–)-(1*R*, 2*S*) EPH, –0.40	FIM	–	10^{-1}	56.0	–	37 °C; $c_{dl} = 10^{-5.3}$ M; EPH, ephedrinium	[8]
	EN-56, BBPA, PVC, KTpClPB (ratio not reported)	(+)-(1*S*, 2*R*) EPH, 0; (–)-(1*R*, 2*S*) EPH, –0.42	FIM	–	10^{-1}	60.0	–	37 °C; $c_{dl} = 10^{-6.6}$ M; EPH, ephedrinium	[8]
EN-57	**EN-57**, BBPA, PVC, KTpClPB (ratio not reported)	(+)-(1*S*, 2*R*) EPH, 0; (–)-(1*R*, 2*S*) EPH, –0.049	FIM	–	10^{-1}	42.5	–	37 °C; $c_{dl} = 10^{-2.0}$ M; EPH, ephedrinium	[8]
EN-58	**EN-58**, BBPA, PVC, KTpClPB (ratio not reported)	(+)-(1*S*, 2*R*) EPH, 0; (–)-(1*R*, 2*S*) EPH, –0.389	FIM	–	10^{-1}	24.0	–	37 °C; EPH, ephedrinium	[8]
EN-59	**EN-59**, BBPA, PVC, KTpClPB (ratio not reported)	(+)-(1*S*, 2*R*) EPH, 0; (–)-(1*R*, 2*S*) EPH, –0.471	FIM	–	10^{-1}	58.0	–	37 °C; $c_{dl} = 10^{-3.2}$ M; EPH, ephedrinium	[8]
EN-60	**EN-60**, oNPOE, PVC, KTpClPB (ratio not reported)	(+)-(1*S*, 2*R*) EPH, 0; (–)-(1*R*, 2*S*) EPH, –0.097	FIM	–	10^{-1}	50.0	–	37 °C; $c_{dl} = 10^{-2.0}$ M; EPH, ephedrinium	[8]
EN-61	**EN-61**, nNPOE, PVC, KTpClPB (ratio not reported)	(+)-(1*S*, 2*R*) EPH, 0; (–)-(1*R*, 2*S*) EPH, –0.017	FIM	–	10^{-1}	60.0	–	37 °C; $c_{dl} = 10^{-5.6}$ M; EPH, ephedrinium	[8]
EN-62	**EN-62**, oNPOE, PVC, KTpClPB (ratio not reported)	(+)-(1*S*, 2*R*) EPH, 0; (–)-(1*R*, 2*S*) EPH, –0.16	FIM	–	10^{-1}	50.0	–	37 °C; $c_{dl} = 10^{-3.7}$ M; EPH, ephedrinium	[8]
EN-63	**EN-63**, BBPA, PVC, KTpClPB (ratio not reported)	(+)-(1*S*, 2*R*) EPH, 0; (–)-(1*R*, 2*S*) EPH, 0.0	FIM	–	10^{-1}	56.0	–	37 °C; $c_{dl} = 10^{-4.0}$ M; EPH, ephedrinium	[8]

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Table 7 (*Continued*).

ionophore	membrane composition	$\lg K_{S,R}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
EN-64	**EN-64** oNPOE, PVC, KTpClPB (ratio not reported)	(–) propranolol, 0; (+) propranolol, –2.7	FIM	–	10^{-1}	60.0	–	37 °C; $c_{dl} = 10^{-5.0}$ M	[9]
EN-65	**EN-65** ($w = 1.2$ %), BEHS ($w = 66.2$ %), PVC ($w = 32.6$ %)	1-PEA (*S*), 0; 1-PEA (*R*), –0.154	SSM	10^{-1}	10^{-1}	58.1	5×10^{-4} -10^{-1}	25 °C; $t_{95} = 10.4$ s; 1-PEA, 1-phenylethyl-amine	[10]
	EN-65 ($w = 1.2$ %), BEHS ($w = 65.9$ %), PVC ($w = 32.9$ %)	1-PEA (*S*), 0; 1-PEA (*R*), –0.136	SSM	10^{-1}	10^{-1}	52.0	2×10^{-4} -10^{-1}	25 °C; $t_{95} = 1.8$ s; 1-PEA, 1-phenylethyl-amine	[10]
	EN-65 ($w = 1.0$ %), BEHS ($w = 66.0$ %), PVC ($w = 32.7$ %), KTPB ($x_i = 50$ %)	1-PEA (*S*), 0; 1-PEA (*R*), –0.138	SSM	10^{-1}	10^{-1}	58.6	2×10^{-4} -10^{-1}	25 °C; $t_{95} = 5.2$ s; 1-PEA, 1-phenylethyl-amine	[10]
	EN-65 ($w = 1.2$ %), BEHS ($w = 48.5$ %), PVC ($w = 50.0$ %), KTPB ($x_i = 50$ %)	1-PEA (*S*), 0; 1-PEA (*R*), –0.152	SSM	10^{-1}	10^{-1}	57.6	2×10^{-4} -10^{-1}	25 °C; $t_{95} = 9.1$ s; 1-PEA, 1-phenylethyl-amine	[10]
	EN-65 ($w = 1.1$ %), BEHS ($w = 66.5$ %), PVC ($w = 31.2$ %) KTpClPB ($x_i = 50$ %)	1-PEA (*S*), 0; 1-PEA (*R*), –0.164	SSM	10^{-1}	10^{-1}	51.3	$2x10^{-4}$ -10^{-1}	25 °C; $t_{95} = 7.2$ s; 1-PEA, 1-phenylethyl-amine	[10]

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(2) A.P. Thoma, A. Viviani-Nauer, K.H. Schellenberg, D. Bedekovic, E. Pretsch, V. Prelog, W. Simon, *Helv. Chim. Acta*, **62**, 2303-2316 (1979).

(3) H. Tsukube, H. Sohmiya, *Tetrahedron Lett*., **31**, 7027-7030 (1990).

(4) Y. Yasaka, T. Yamamoto, K. Kimura, T. Shono, *Chem. Lett*., 769-772 (1980).

(5) K. Maruyama, H. Sohmiya, H. Tsukube, *J. Chem. Soc., Chem. Commun*., 864-865 (1989).

(6) K. Maruyama, H. Sohmiya, H. Tsukube, *Tetrahedron*, **48**, 805-818 (1992).

(7) H. Tsukube, H. Sohmiya, *J. Org. Chem*., **56**, 875-878 (1991).

(8) P.S. Bates, R. Kataky, D. Parker, *J. Chem. Soc., Perkin Trans. 2*, 669-675 (1994).

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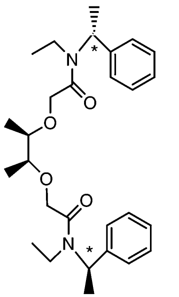
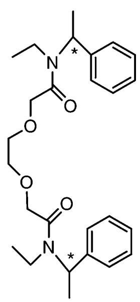
(10) V. Horvath, T. Takacs, G. Horvai, P. Huszthy, J.S. Bradshaw, R.M. Izatt, *Anal. Lett.*, **30**, 1519-1609 (1997).

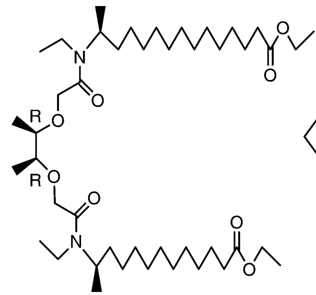
Table 7 (*Continued*).



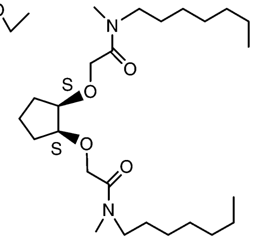
EN-1 (M_r = 500.72): R,R
EN-4 (M_r = 500.72): S,S



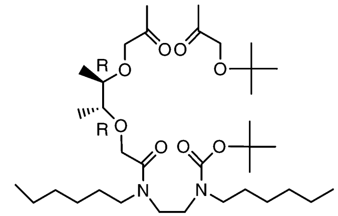
EN-2 (M_r = 468.63): S,S
EN-3 (M_r = 468.63): R,R



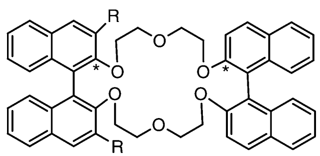
EN-5 (M_r = 757.15)



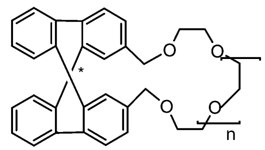
EN-6 (M_r = 440.67)



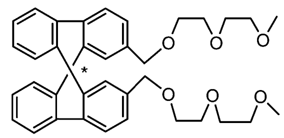
EN-7 (M_r = 594.88)



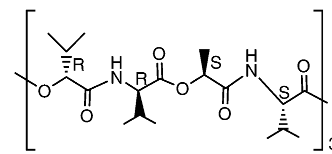
EN-8 (M_r = 728.89): aR, aR; R=H
EN-9 (M_r = 756.95): aS, aS; R=CH_3



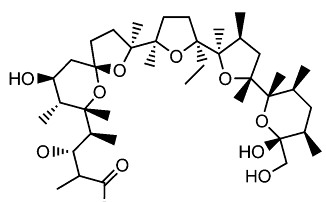
EN-10 (M_r = 508.66): n=1, R
EN-11 (M_r = 508.66): n=1, S
EN-12 (M_r = 538.69): n=2, R
EN-13 (M_r = 538.69): n=2, S
EN-14 (M_r = 568.72): n=3, R
EN-15 (M_r = 568.72): n=3, S



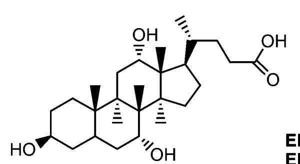
EN-16 (M_r = 598.78): R
EN-17 (M_r = 598.78): S



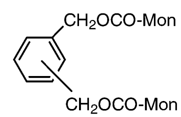
EN-18 (M_r =1345.92)



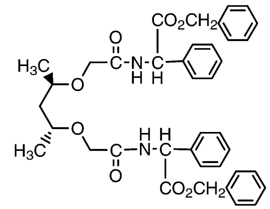
Monensin (Mon)



Cholic acid (Cho)



EN-19 (M_r = 949.24): *ortho*
EN-20 (M_r = 949.24): *meta*
EN-21 (M_r = 949.24): *para*



EN-26 (M_r = 666.78)

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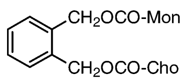
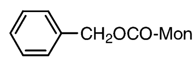
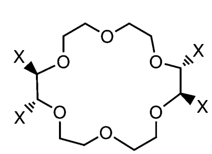
Table 7 (*Continued*).



EN-22 (M_r = 1399.90)

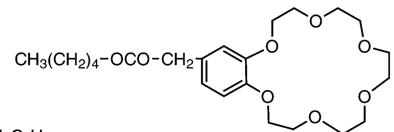


EN-23 (M_r = 892.21)

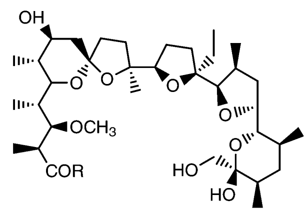


EN-24 (M_r = 548.64): X=CON$(CH_3)_2$

EN-25 (M_r = 1619.01): X=CONH-(S)-CHCH$_2$C$_6$H$_5$ (CO$_2$CH$_3$)

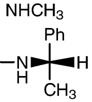


EN-27 (M_r = 440.54)

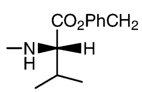


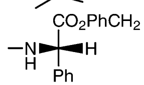
EN-28 (M_r = 692.87): R= O$^-$ Na$^+$

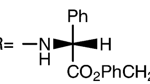
EN-29 (M_r = 683.93): R= NHCH$_3$

EN30 (M_r = 774.06): R= 

EN-31 (M_r = 818.07): R= NHCH$_2$CO$_2$CH$_2$Ph

EN-32 (M_r = 860.15): R= 

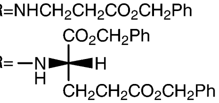
EN-33 (M_r = 894.17): R= 

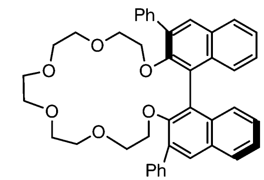
EN-34 (M_r = 894.17): R= 

EN-35 (M_r = 670.89): R= OH

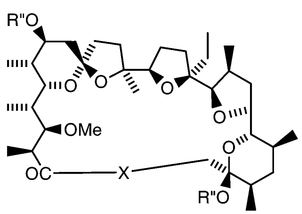
EN-36 (M_r = 684.92): R= OCH$_3$

EN-38 (M_r = 832.09): R=NHCH$_2$CH$_2$CO$_2$CH$_2$Ph

EN-39 (M_r = 980.26): R= 



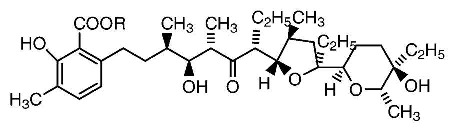
EN-37 (M_r = 658.93)



EN-40 (M_r = 654.88): X=–O–, R"=H

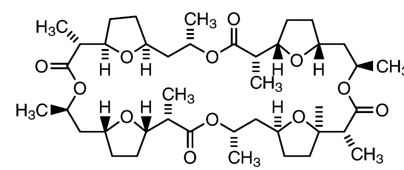
EN-41 (M_r = 709.92): X=–NHCH$_2$COO–, R"=H

EN-42 (M_r = 723.94): X=–NHCH$_2$CH$_2$COO–, R"=H



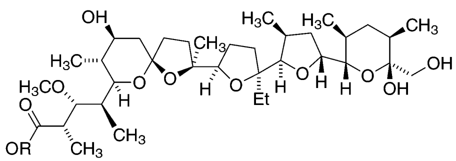
EN-48 (M_r = 612.79): R=Na$^+$

EN-49 (M_r = 680.93): R=CH$_2$C$_6$H$_5$

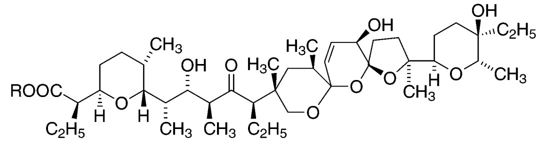


EN-54 (M_r = 750.97)

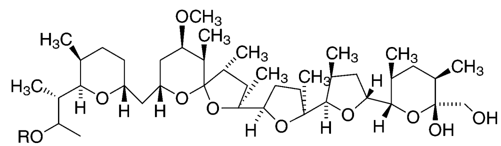
Table 7 (*Continued*).



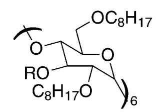
EN-43 (M_r = 692.87): R=Na^+
EN-44 (M_r = 684.92): R=CH_3
EN-45 (M_r = 761.01): R=$CH_2C_6H_5$
EN-46 (M_r = 779.01): R=$CH_2C_6H_4F$ (F in meta position)
EN-47 (M_r = 850.97): R=$CH_2C_6F_5$



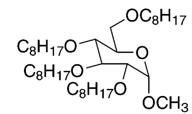
EN-50 (M_r = 789.04): R=Na^+
EN-51 (M_r = 857.19): R=$CH_2C_6H_5$



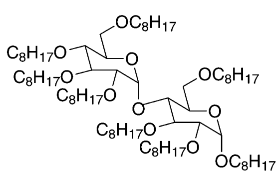
EN-52 (M_r = 747.01): R=Na^+
EN-53 (M_r = 815.15): R=$CH_2C_6H_5$



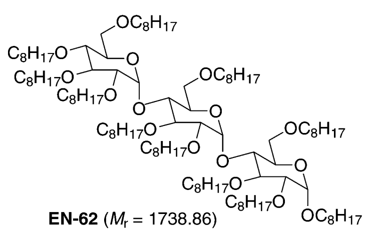
EN-55 (M_r = 2992.76): R=OC_8H_{17}
EN-56: R=H or C_8H_{17}
EN-57: R=CH_3 or C_8H_{17}
EN-58 (M_r = 2319.46): R=H
EN-59 (M_r = 2571.69): R=$COCH_3$



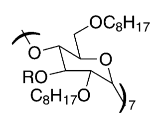
EN-60 (M_r = 643.06)



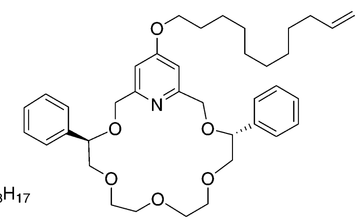
EN-61 (M_r = 1240.06)



EN-62 (M_r = 1738.86)



EN-63: R=H or C_8H_{17}
EN-64 (M_r = 3491.06): R=C_8H_{17}



EN-65 (M_r = 631.89)

Table 8 Nucleotide-selective electrodes.

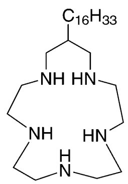
ionophore	membrane composition	$\lg K_{NT^{m-},B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
NT–1	**NT–1** (w = 3.0 %), PVC (w = 22.4 %), DOP (w = 74.6 %)	ATP^{4-}, 0; ADP^{3-}, –0.72; AMP^{2-}, –1.15	SSM (E_A=E_B)	–	–	–	–	25 °C; pH = 6.7	[1]
NT–2	**NT–2** (w = 2.8 %), PVC (w = 22.4 %), DOP (w = 74.7 %)	ATP^{4-}, 0; ADP^{3-}, –1.15	MPM	0.01	–	–	–	25 °C; pH = 6.7	[1]
NT-3	**NT-3** (w = 2 %), PVC (w = 28 %), DBS (w = 70 %)	5'-GMP^{2-}, 0; HPO_4^{2-}, –0.73; 2'-GMP^{2-}, –0.10	SSM	0.01	0.01	–10	–	25 °C; pH = 6.6	[2]
NT-4	**NT-4** (w = 1.3 %), TDDMACl (x_i = 50 %), PVC (w = 26.7 %), DOP (w = 68–72 %)	5'-GMP^{2-}, 0; 5'-AMP^{2-}, –0.08	SSM	$10^{-2.2}$	$10^{-2.2}$	–31.7	–	pH = 6.8; t_{resp} < 3 min	[3]
	NT-4 (w = 1.3 %), TDDMACl (x_i = 80 %), PVC (w = 26.7 %), DOP (w = 68–72 %)	5'-GMP^{2-}, 0; 5'-AMP^{2-}, –0.15	SSM	$10^{-2.2}$	$10^{-2.2}$	–31.0	–	pH = 6.8; t_{resp} < 3 min	[3]
	NT-4 (w = 1.3 %), TDDMACl (x_i = 150 %), PVC (w = 26.7 %), DOP (w = 68–72 %)	5'-GMP^{2-}, 0; 5'-AMP^{2-}, –0.35	SSM	$10^{-2.2}$	$10^{-2.2}$	–30.8	–	pH = 6.8; t_{resp} < 3 min	[3]
	NT-4 (w = 1.3 %), TDDMACl (x_i = 210 %), PVC (w = 26.7 %), DOP (w = 68–72 %)	5'-GMP^{2-}, 0; 5'-AMP^{2-}, –0.15	SSM	$10^{-2.2}$	$10^{-2.2}$	–30.9	–	pH = 6.8; t_{resp} < 3 min	[3]

[1] R. Naganawa, M. Kataoka, K. Odashima, Y. Umezawa, E. Kimura, T. Koike, *Bunseki Kagaku*, **39**, 671–676 (1990).

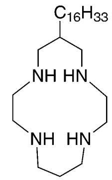
[2] K. Tohda, M. Tange, K. Odashima, Y. Umezawa, H. Furuta, J. L. Sessler, *Anal. Chem.*, **64**, 960–964 (1992).

[3] S. Amemiya, P. Bühlmann, K. Tohda, Y. Umezawa, *Anal. Chim. Acta*, **341**, 129–139 (1997).

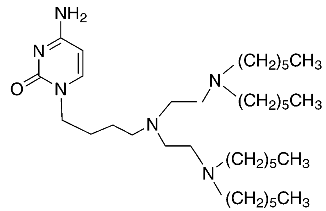
Table 8 (*Continued*).



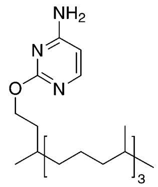
NT-1 (M_r = 451.81)



NT-2 (M_r = 424.76)



NT-3 (M_r = 605.01)

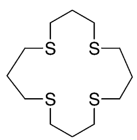


NT-4 (M_r = 383.58)

Table 9 Alkyllead ion-selective electrodes.

ionophore	membrane composition	$\lg K_{Pb(C_2H_5)_3^+,B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
AL-1	**AL-1** (w = 1 %), KTpClPB (x_i = 50 %), PVC (w = 33 %), FNDPE (w = 66 %)	$Pb(C_2H_5)_3^+$, 0; Pb^{2+}, –1.99	MPM	–	–	N	10^{-5}–10^{-3}	pH = 4.0	[1]

[1] D. Zielinska, H. Radecka, J. Radecki, *Anal. Sci.*, **14**, 151–155 (1998).



AL-1 (M_r = 296.56)

Table 10 Salicylate-selective electrode.

ionophore	membrane composition	lg $K_{Sal^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
SAL-1	**SAL-1** (w = 1 %), PVC (w = 33 %), DBS (w = 66 %)	salicylate, 0; SCN^-, –2.5; Cl^-, –3.8; ClO_4^-, –3.4; Br^-, –3.7; I^-, –3.7; IO_4^-, –3.6; acetate, –3.9; lactate, –4.0; citrate, –3.8; salicylurate, –1.5; benzoate, –1.4; *m*-hydroxybenzoate, –1.1; *p*-hydroxybenzoate, –1.0	SSM	0.01	0.01	–55 to – 60	10^{-5}–10^{-2}	25 °C; pH = 5.5	[1]
	SAL-1 (w = ca. 1 %), PVC, DBS (ratio not reported)	salicylate, 0; SCN^-, –2.5; Cl^-, –3.8; ClO_4^-, –3.4; Br^-, –3.7; I^-, –3.7; IO_4^-, –3.6; benzoate, –1.4; 3-hydroxybenzoate, –1.1; 4-hydroxybenzoate, –1.0; 2,4-dihydroxybenzoate, –1.4; 2,6-dihydroxybenzoate, –0.6; 2,5-dihydroxybenzoate, –1.3; salicylurate, –1.5; phenylacetate, –1.8; 2,4-dichlorophenoxyacetate, –1.1; *p*-toluenesulfonate, –2.9; phenylphosphonate, –2.9	–	–	–	–	–	pH = 5.5	[2]
	SAL-1 (w = 1 %), PVC (w = 33 %), oNPOE (w = 66 %)	salicylate, 0; SCN^-, –1.0; NO_2^-, –2.0; NO_3^-, –2.4; Cl^-, –2.2; ClO_4^-, –0.9; I^-, –1.9	SSM	0.01	0.01	–55	10^{-4}–10^{-1}	22 ± 2 °C; pH = 5.5	[3]
	SAL-1 (w = 0.6 –1 %), KTFPB (x_i = 10 %), PVC (w = 33 %), oNPOE (w = 66 %)	salicylate, 0; SCN^-, –2.9; Cl^-, –4.2; NO_2^-, –3.1; NO_3^-, –3.8; ClO_4^-, –3.6; I^-, –4.0	SSM	0.01	0.01	–93	10^{-4}–10^{-1}	22 ± 2 °C; pH = 5.5	[3]
	SAL-1 (w = 0.6 –1 %), KTFPB (x_i = 20 %), PVC (w = 33 %), oNPOE (w = 66 %)	salicylate, 0; SCN^-, –2.5; NO_2^-, –2.4; NO_3^-, –2.8; Cl^-, –3.0; ClO_4^-, –2.9; I^-, –2.9	SSM	0.01	0.01	–73	10^{-4}–10^{-1}	22 ± 2 °C; pH = 5.5	[3]
	SAL-1 (w = 0.6 –1 %), oNPOE (w = 66 %), PVC (w = 33 %), KTFPB (x_i = 30 %)	salicylate, 0; SCN^-, –2.4; NO_2^-, –2.3; NO_3^-, –2.8; Cl^-, –2.8; ClO_4^-, –2.8; I^-, –2.8	SSM	0.01	0.01	–73	10^{-4}–10^{-1}	22 ± 2 °C; pH = 5.5	[3]
	SAL-1 (w = 0.6 –1 %), TDDMACl (x_i = 10 %), PVC (w = 33 %), oNPOE (w = 66 %)	salicylate, 0; SCN^-, 0.0; NO_2^-, –2.4; NO_3^-, –1.6; Cl^-, –2.3; ClO_4^-, 1.2; I^-, –0.2	SSM	0.01	0.01	–	–	22 ± 2 °C; pH = 5.5	[3]

(*continues on next page*)

Table 10 (*Continued*).

ionophore	membrane composition	lg $K_{Sal^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
SAL-2	**SAL-2** (w = 1 %), PVC (w = 33 %), BBPA (w = 66 %)	salicylate, 0; SCN^-, +0.1; NO_2^-, –0.1; NO_3^-, –0.2; SO_4^{2-}, –0.8; Cl^-, –0.2; ClO_4^-, +0.1; Br^-, –0.2; I^-, –0.1; acetate, –0.1; benzoate, –0.2	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.	[4]
SAL-3	**SAL-3** (w = 1 %), PVC (w = 33 %), BBPA (w = 66 %)	salicylate, 0; SCN^-, –0.3; NO_2^-, –0.5; NO_3^-, –0.5; SO_4^{2-}, –1.8; Cl^-, –1.0; ClO_4^-, –0.5; Br^-, –0.6; I^-, –0.4; acetate, –0.5; benzoate, –1.0	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.	[4]
SAL-4	**SAL-4** (w = 1 %), PVC (w = 33 %), BBPA (w = 66 %)	salicylate, 0; SCN^-, –0.2; NO_2^-, –0.4; NO_3^-, –0.4; SO_4^{2-}, –0.8; Cl^-, –0.5; ClO_4^-, –0.1; Br^-, –0.4; I^-, –0.4; acetate, –0.4; benzoate, –0.3	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.	[4]
SAL-5	**SAL-5** (w = 1 %), PVC (w = 33 %), BBPA (w = 66 %)	salicylate, 0; HCO_3^-, –1.2; SCN^-, –0.8; NO_2^-, –1.7; NO_3^-, –1.7;HPO_4^-, –1.7; SO_4^{2-}, –2.5; Cl^-, –1.8; ClO_4^-, –0.8; Br^-, –1.7; I^-, –1.6; acetate, –1.7; benzoate, –0.2	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.; t_{resp} < 30 s; τ > 14 d	[4]
	SAL-5 (w = 1 %), PVC (w = 33 %), DOA (w = 66 %)	salicylate, 0; SCN^-, –0.5; NO_2^-, –1.9; NO_3^-, –1.7; SO_4^{2-}, –2.0; Cl^-, –2.0; ClO_4^-, –0.3; Br^-, –1.9; I^-, –1.2; acetate, –2.0; benzoate, –1.0	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.; t_{95} < 30 s; τ > 14 d	[4]
	SAL-5 (w = 1 %), PVC (w = 33 %), BEHS (w = 66 %)	salicylate, 0; SCN^-, –0.5; NO_2^-, –1.7; NO_3^-, –1.7; SO_4^{2-}, –2.1; Cl^-, –1.9; ClO_4^-, –0.3; Br^-, –1.7; I^-, –1.1; acetate, –1.9; benzoate, –0.9	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.; t_{95} < 30 s; τ > 14 d	[4]

Table 10 (*Continued*).

ionophore	membrane composition	lg $K_{Sal^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
	SAL-5 (w = 1 %), PVC (w = 33 %), BEHP (w = 66 %)	salicylate, 0; SCN^-, +0.1; NO_2^-, –1.1; NO_3^-, –1.0; SO_4^{2-}, –1.3; Cl^-, –1.2; ClO_4^-, 0.0; Br^-, –1.2; I^-, –0.6; acetate, –1.3; benzoate, –1.0	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.; t_{95} <30 s; τ > 14 d	[4]
	SAL-5 (w = 1 %), PVC (w = 33 %), oNPOE (w = 66 %)	salicylate, 0; SCN^-, +0.1; NO_2^-, –0.8; NO_3^-, –0.6; SO_4^{2-}, –1.7; Cl^-, –1.2; ClO_4^-, +0.5; Br^-, –0.9; I^-, –0.2; acetate, –0.9; benzoate, –0.7	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.; t_{95} < 30 s; τ > 14 d	[4]
	SAL-5 (w = 0.25 %), PVC (w = 33.75 %), BBPA (w = 66 %)	salicylate, 0; HCO_3^-, –0.9; SCN^-, –0.5; NO_2^-, –1.3; NO_3^-, –1.3; HPO_4^-, –1.3; SO_4^{2-}, –2.0; Cl^-, –1.8; ClO_4^-, –0.5; Br^-, –1.3; I^-, –1.1; acetate, –1.3; benzoate, –0.3	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.	[4]
	SAL-5 (w = 0.5 %), PVC (w = 33.5 %), BBPA (w = 66 %)	salicylate, 0; HCO_3^-, –1.0; SCN^-, –0.8; NO_2^-, –1.4; NO_3^-, –1.4; HPO_4^-, –1.4; SO_4^{2-}, –2.0; Cl^-, –1.9; ClO_4^-, –0.7; Br^-, –1.4; I^-, –1.2; acetate, –1.0; benzoate, –0.3	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.	[4]
	SAL-5 (w = 2.0 %), PVC (w = 32 %), BBPA (w = 66 %)	salicylate, 0; HCO_3^-, –1.1; SCN^-, –0.9; NO_2^-, –0.8; NO_3^-, –0.8; HPO_4^-, –0.8; SO_4^{2-}, –2.5; Cl^-, –2.2; ClO_4^-, –0.9; Br^-, –1.9; I^-, –1.7; acetate, –1.9; benzoate, –0.2	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.	[4]
		salicylate, 0; HCO_3^-, –1.9; SCN^-, –1.3; NO_2^-, –2.7; NO_3^-, –2.7; HPO_4^-, –2.9; SO_4^{2-}, –4.2; Cl^-, –3.4; ClO_4^-, –1.3; Br^-, –3.2; I^-, –2.3; acetate, –2.9; benzoate, –0.4	SSM	0.1	0.1	super-Nernstian	10^{-3}–10^{-1}	pH = 5.5	[4]

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Table 10 (*Continued*).

ionophore	membrane composition	lg $K_{Sal^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
SAL-6	**SAL-6** (w = 1 %), PVC (w = 33 %), BBPA (w = 66 %)	salicylate, 0; SCN^-, 0.0; NO_2^-, 0.0; NO_3^-, –0.2; SO_4^{2-}, –0.6; Cl^-, –0.2; ClO_4^-, 0.0; Br^-, –0.1; I^-, –0.1; acetate, –0.2; benzoate, –0.3	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.	[4]
SAL-7	**SAL-7** (w = 1 %), PVC (w = 33 %), BBPA (w = 66 %)	salicylate, 0; SCN^-, 0.0; NO_2^-, –0.2; NO_3^-, –0.2; SO_4^{2-}, –1.2; Cl^-, –0.3; ClO_4^-, –0.1; Br^-, –0.2; I^-, –0.1; acetate, –0.2; benzoate, –0.6	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.	[4]
SAL-8	**SAL-8** (w = 1 %), PVC (w = 33 %), BBPA (w = 66 %)	salicylate, 0; SCN^-, –0.7; NO_2^-, –1.4; NO_3^-, –1.3; SO_4^{2-}, –1.9; Cl^-, –1.5; Br^-, –1.4; I^-, –1.2; acetate, –1.5; benzoate, 0.0	SSM	0.1	0.1	–58	10^{-3}–10^{-1}	25 °C; pH = 7.4; r.o.o.g.	[4]
SAL-9	**SAL-9** (w = 2 %), PVC (w = 31 %), dinonyl sebacate (w = 67 %)	salicylate, 0; SCN^-, –1.65; NO_2^-, –2.89; NO_3^-, –3.60; Cl^-, –4.78; ClO_4^-, –1.78; Br^-, –3.95; I^-, –2.58; citrate, –3.36; acetate, –3.31; lactate, –1.29; benzoate, –0.76	SSM	0.1	0.1	–50 to –54	10^{-5}–10^{-1}	10 °C; pH = 5.5; $c_{dl} = 10^{-5.2}$ M; t_{90} = 6 – 20 s	[5]
	SAL-9 (w = 2 %), KTPB (x_i = 14.7 %), PVC (w = 31 %), dinonyl sebacate (w = 67 %)	salicylate, 0; SCN^-, –2.91; NO_2^-, –3.40; NO_3^-, –4.00; Cl^-, –4.80; ClO_4^-, –3.33; Br^-, –4.20; I^-, –3.58; citrate, –3.48; acetate$^-$, –3.42; lactate, –1.64; benzoate, –1.12	SSM	0.1	0.1	–50 to –54	10^{-5}–10^{-1}	10 °C; pH = 5.5; $c_{dl} = 10^{-5.2}$ M; t_{90} = 6 – 20 s	[5]
SAL-10	**SAL-10** (w = 2.7 %), TDDMACl (x_i = 40 %), PVC (w = 47.7 %), oNPOE (w = 47.7 %)	salicylate, 0; HCO_3^-, –2.4; Cl^-, –4.4; acetate, –3.9; acetylsalicylate, –0.6	FIM	– – –	0.05 0.5 0.0005	–55	$10^{-3.7}$–10^{-2}	25 °C; pH = 7.4; $c_{dl} = 10^{-4.4}$ M; t_{90} < 10 s	[6]
SAL-11	**SAL-11** (w = 1.5 %), PVC (w = 34.5 %), oNPOE (w = 64.0 %)	salicylate, 0; SCN^-, –1.96; NO_2^-, –3.00; NO_3^-, –4.17; Cl^-, –4.52; ClO_4^-, –2.98; Br^-, –3.92; I^-, –3.66; citrate, –3.31; acetate, –3.76; lactate, –2.46; benzoate, –1.21	SSM	0.1	0.1	–	–	20 °C; pH = 5.5	[7]

Table 10 (*Continued*).

ionophore	membrane composition	lg $K_{Sal^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
SAL-12	**SAL-12** (w = 1.5 %), PVC (w = 34.5 %), oNPOE (w = 64.0 %)	salicylate, 0; SCN^-, –2.01; NO_2^-, –2.94 NO_3^-, –4.14; Cl^-, –4.79; ClO_4^-, –3.02; Br^-, –3.84; I^-, –3.79; citrate, –3.47; acetate, –3.77; lactate, –2.52; benzoate, –1.28	SSM	0.1	0.1	–	–	20 °C; pH = 5.5	[7]
SAL-13	**SAL-13** (w = 1.5 %), PVC (w = 34.5 %), oNPOE (w = 64.0 %)	salicylate, 0; SCN^-, –2.14; NO_2^-, –3.12; NO_3^-, –4.20; Cl^-, –4.85; ClO_4^-, –3.07; Br^-, –3.95; I^-, –3.78; citrate, –3.40; acetate, –3.89; lactate, –2.95; benzoate, –1.26	SSM	0.1	0.1	–57.5	$10^{-5.2}$–10^{-1}	20 °C; pH = 5.5; t_{90} < 30 s	[7]
SAL-14	**SAL-14** (w = 1.0 %), PVC (w = 33.0 %), BEHS (w = 66.0 %)	salicylate, 0; SCN^-, –2.0; ClO_4^-, –1.7; benzoate, –1.2;	MPM	–	–	–60 ± 2	–	25.0 °C; pH = 6.00; $c_{dl} = 10^{-3.2}$ M	[8]
		salicylate, 0; Cl^-, –2.4	FIM	–	$10^{-3.8}$				
SAL-15	**SAL-15** (w = 1.0 %), PVC (w = 33.0 %), BEHS (w = 66.0 %)	salicylate, 0; HSO_3^-, –2.7; ClO_4^-, –2.7; acetate, –2.4; benzoate, –1.7	MPM	–	–	–61 ± 0.4	–	25.0 °C; pH = 6.00; $c_{dl} = 10^{-3.9}$M	[8]
SAL-16	**SAL-16** (w = 1.5 %), PVC (w = 32 %), DBP (w = 66.5 %)	salicylate, 0; SCN^-, –1.92; NO_2^-, –3.30; NO_3^-, –3.22; SO_4^{2-}, –4.02; Cl^-, –3.92; ClO_4^-, –1.41; Br^-, –2.73; I^-, 0.75; citrate, –3.51; acetate, –3.85; lactate, –2.68; benzoate, –2.52	SSM	0.01	0.01	–57.4	$10^{-5.6}$–10^{-1}	25 °C; pH = 5.0; $c_{dl} = 10^{-6}$ M; t_{99} < 2 min	[9]
SAL-17	**SAL-17** (1.1 × 10^{-1} M), oNPOE (w = 33.3 %), PVC (w = 66.7 %)	salicylate, 0; ClO_4^-, +2.2; sulfosalicylate, –2.2; toluenesulfonate, –0.7; naphtholsulfonate, +0.7	SSM	–	–	N	10^{-4}–10^{-2}	pH = 6	[10]
		salicylate, 0; ClO_4^-, +0.7; sulfosalicylate, –3.7; toluenesulfonate, –2.4; naphtholsulfonate, –1.0	SSM	–	–	super-Nernstian	10^{-4}–10^{-2}	pH = 3	
	SAL-17 (1.1 × 10^{-1} M), DBP (w = 33.3 %), PVC (w = 66.7 %)	salicylate, 0; ClO_4^-, +1.8; sulfosalicylate, –2.4; toluenesulfonate, –1.1; naphtholsulfonate, 0.4	SSM	–	–	N	10^{-4}–10^{-2}	pH = 6	[10]

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Table 10 (*Continued*).

ionophore	membrane composition	lg $K_{Sal^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
		salicylate, 0; ClO_4^-, +0.8; sulfosalicylate, –3.4; toluenesulfonate, –2.1; naphtholsulfonate, –0.7	SSM	–	–	super-Nernstian	10^{-4}–10^{-2}	pH = 3	
SAL-18	**SAL-18** (1.1 × 10^{-1} M), oNPOE (w = 33.3 %), PVC (w = 66.7 %)	salicylate, 0; ClO_4^-, +1.6; sulfosalicylate, –2.0; toluenesulfonate, –0.7; naphtholsulfonate, +0.7	SSM	–	–	N	10^{-4}–10^{-2}	pH = 6	[10]
		salicylate, 0; ClO_4^-, +0.6; sulfosalicylate, –3.0; toluenesulfonate, –1.7; naphtholsulfonate, –0.3	SSM	–	–	super-Nernstian	10^{-4}–10^{-2}	pH = 3	
	SAL-18 (1.1 × 10^{-1} M), DBP (w = 33.3 %), PVC (w = 66.7 %)	salicylate, 0; ClO_4^-, +1.3; sulfosalicylate, –2.1; toluenesulfonate, –1.1; naphtholsulfonate, +0.4	SSM	–	–	N	10^{-4}–10^{-2}	pH = 6	[10]
		salicylate, 0; ClO_4^-, +0.5; sulfosalicylate⁻, –3.0; toluenesulfonate, –2.0; naphtholsulfonate, –0.4	SSM	–	–	super-Nernstian	10^{-4}–10^{-2}	pH = 3	
SAL-19	**SAL-19** (w = 2.5 %), PVC (w = 31 %), oNPOE (w = 66.5 %)	salicylate, 0; SCN^-, –1.02; NO_2^-, –2.56; NO_3^-, –3.16; Cl^-, –3.98; ClO_4^-, –1.45; Br^-, –3.62; I^-, –1.97; acetate, –3.58; benzoate, –1.19	SSM	0.1	0.1	–52.32	$10^{-4.45}$–10^{-1}	25 °C; pH = 5.38; $c_{dl} = 10^{-4.71}$ M	[11]
SAL-20	**SAL-20** (w = 2.5 %), PVC (w = 31 %), oNPOE (w = 66.5 %)	salicylate, 0; SCN^-, –0.81; NO_2^-, –3.14; NO_3^-, –4.01; Cl^-, –4.80; ClO_4^-, –2.52; Br^-, –4.62; I^-, –2.68; acetate, –4.57; benzoate, –1.37	SSM	0.1	0.1	–57.05	$10^{-5.40}$–10^{-1}	25 °C; pH = 5.38; $c_{dl} = 10^{-5.68}$ M	[11]
SAL-21	**SAL-21** (w = 2.5 %), PVC (w = 31 %), oNPOE (w = 66.5 %)	salicylate, 0; SCN^-, –1.30; NO_2^-, –1.98; NO_3^-, –2.31; Cl^-, –3.16; ClO_4^-, –0.42; Br^-, –2.61; I^-, –1.26; acetate, –2.58; benzoate, –1.00	SSM	0.1	0.1	–55.70	$10^{-3.41}$–10^{-1}	25 °C; pH = 5.38; $c_{dl} = 10^{-3.61}$ M	[11]
SAL-22	**SAL-22** (w = 2.5 %), PVC (w = 31 %), oNPOE (w = 66.5 %)	salicylate, 0; SCN^-, –0.75; NO_2^-, –1.83; NO_3^-, –2.71; Cl^-, –2.98; ClO_4^-, –1.44; Br^-, –2.58; I^-, –1.35; acetate, –2.62; benzoate, –0.96	SSM	0.1	0.1	–46.63	$10^{-3.52}$–10^{-1}	25 °C; pH = 5.38; $c_{dl} = 10^{-3.78}$ M	[11]

Table 10 (*Continued*).

[1] N.A. Chaniotakis, S.B. Park, M.E. Meyerhoff, *Anal. Chem.*, **61**, 566–570 (1989).
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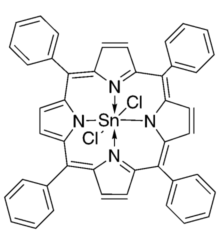
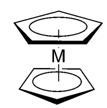
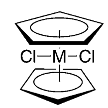


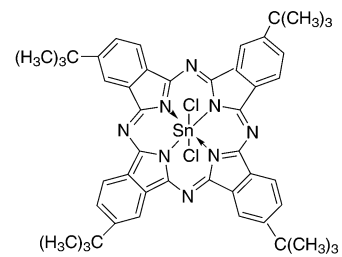
SAL-1 (M_r = 802.35)



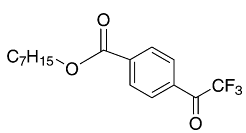
SAL-2 (M_r = 189.12): M=Co
SAL-3 (M_r = 186.04): M=Fe
SAL-4 (M_r = 188.88): M=Ni



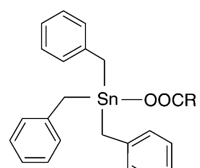
SAL-5 (M_r = 379.59): M=Hf
SAL-6 (M_r = 294.00): M=Nb
SAL-7 (M_r = 405.48): M=Tl
SAL-8 (M_r = 292.32): M=Zr



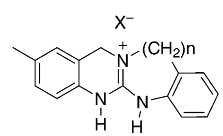
SAL-9 (M_r =1052.90)



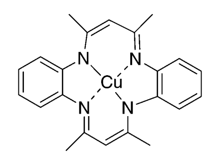
SAL-10 (ETH 6010, M_r = 316.32)



SAL-11 (M_r = 437.13): R= H
SAL-12 (M_r = 479.21): R= C_3H_7
SAL-13 (M_r = 535.32): R= C_7H_{15}



SAL-14 (M_r = 265.36): n = 2, $X^- = ClO_4^-$
SAL-15 (M_r = 279.38): n = 3, $X^- = BF_4^-$



SAL-16 (M_r = 405.99)

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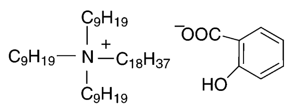
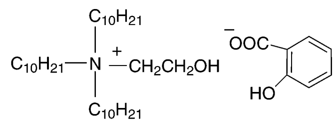
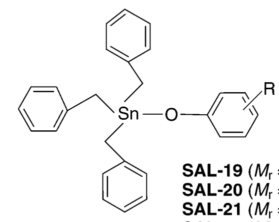
Table 10 (*Continued*).



SAL-17 (M_r = 786.37)



SAL-18 (M_r = 620.02)



SAL-19 (M_r = 485.22): R= H
SAL-20 (M_r = 530.22): R=*p*-NO_2
SAL-21 (M_r = 515.24): R=*o*-OCH_3
SAL-22 (M_r = 541.32): R=*p*-$C(CH_3)_3$

Table 11 Carboxylate-selective electrodes.

ionophore	membrane composition	$\lg K_{CA^{m-},B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
CA-1	**CA-1** (w = 3.0 %), PVC (w = 22.4 %), DOP (w = 74.6 %)	malonate, 0; succinate, –0.11; glutarate, –0.13; adipate, –0.17	SSM	0.01	0.01	–29	10^{-4}–10^{-2}	20 °C; pH = 7.70	[1]
		maleate, 0; fumarate, –1.1	SSM	0.01	0.01	–29	10^{-4}–10^{-2}	20 °C; $t_{0.5\ mV/1\ min}$ = 57 s; $t_{0.5\ mV/2\ min}$ = 67 s; $t_{0.5\ mV/5\ min}$ = 67 s; pH = 8.22	[1]
		o-phthalate, 0; *m*-phthalate, –0.72; *p*-phthalate, –1.4	SSM	0.01	0.01	–29	10^{-4}–10^{-2}	20 °C; pH = 7.41	[1]
	CA-1 (w = 3 %), PVC (w = 22 %), DOP (w = 75 %)	maleate, 0; fumarate, –1.10	SSM	0.01	0.01	–	–	25 °C; pH = 8.2	[2]
		o-phthalate, 0; *m*-phthalate, –0.51; *p*-phthalate, –0.62	SSM	0.01	0.01	–	–	25 °C; pH = 7.4	[2]
		3,5-dinitrobenzoate, 0; 3,4-dinitrobenzoate, +0.08; 2,4-dinitrobenzoate, –0.29; *p*-nitrobenzoate, –0.62; benzoate, –0.92; salycilate, –0.2	MPM	10^{-4} to $10^{-3.7}$	–		10^{-4}–10^{-2}	25 °C; pH = 5.0	[7]
		trichloroacetate, 0; dichloroacetate, –0.44; chloroacetate, –0.68	MPM	10^{-5} to $10^{-3.3}$	–	–	–	25 °C; pH = 5.0	[7]
CA–2	**CA–2** (w = 2.8 %), DOP (w = 74.7 %), PVC (w = 22.4 %)	maleate, 0; fumarate, –0.19	SSM	0.01	0.01	–	–	25 °C; pH = 8.2	[2]
		o-phthalate, 0; *m*-phthalate, –0.01; *p*-phthalate, –0.25	SSM	0.01	0.01	–	–	25 °C; pH = 7.4	[2]
CA-3	**CA-3** (w = 12.5 %), PVC (w = 25 %), DOP (w = 62.5 %)	*p*-phthalate, 0; F^-, < 0; HPO_4^{2-}, –2.7; Cl^-, +0.72; CH_3COO^-, < 0	FIM	–	0.01	–27	5×10^{-5}–10^{-2}	25 °C; pH = 11	[3]
		o-phthalate, –0.90		–	0.001				

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Table 11 (*Continued*).

ionophore	membrane composition	$\lg K_{CA^{m-},B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
CA-4	**CA-4** (w = 12.5 %),	*p*-phthalate, 0;	FIM	–	0.01	–27	10^{-3}–10^{-2}	25 °C;	[3]
	PVC (w = 25 %),	F^-, +0.93; HPO_4^{2-}, –1.5;						pH = 11	
	DOP (w = 62.5 %)	Cl^-, +1.3; acetate, +0.81							
		o-phthalate, +0.10		–	0.001				
CA-5	**CA-5** (w = 17.9 %),	citrate, 0;	SSM	–	–	–22.0	$10^{-4.4}$–$10^{-2.6}$	t_{resp} = 2–8 min;	[4]
	PVC (w = 33.5 %),	HPO_4^{2-}, –0.96; Cl^-, –2.67;	(E_A=E_B)					pH = 7.00 ± 0.01;	
	DBS (w = 36.0 %),	lactate, –2.18;						$c_{dl} = 10^{-4.4}$ M	
	dimethylformamide (w = 12.6 %)	pyruvate, –2.00;							
		ascorbate, –1.54							
CA-6	**CA-6** (w = 17.9 %),	citrate, 0;	SSM	–	–	–18.9	$10^{-4.4}$–$10^{-2.6}$	t_{resp} = 2–8 min;	[4]
	PVC (w = 33.5 %),	HPO_4^{2-}, –3.02; Cl^-, –3.00;	(E_A=E_B)					pH = 7.00 ± 0.01;	
	DBS (w = 36.0 %),	lactate, –2.55; pyruvate, –2.82;						$c_{dl} = 10^{-5.2}$ M	
	dimethylformamide (w = 12.6 %)	ascorbate, –2.40							
CA-7	**CA-7** (w = 2.7 %),	benzoate⁻, 0; HCO_3^-, –1.0;	FIM	–	0.005	–56	$10^{-2.7}$–$10^{-1.3}$	25 °C;	[5]
	TDDMACl (x_i = 40 %),	Cl^-, –3.4;		–	0.5			pH = 7.5;	
	PVC (w = 47.7 %),	Br^-, –2.5; acetate, –2.6;		–	0.05			$c_{dl} = 10^{-4}$ M;	
	oNPOE (w = 47.7 %)	lactate, –2.6;		–	0.05			t_{90} < 10 s	
		pyruvate, –1.9;		–	0.005				
		butyrate, –1.8;		–	0.005				
		salicylate, +0.4		–	0.00005				
		phenylpyruvate, 0;	FIM	–	–	–52	$10^{-2.7}$–$10^{-1.7}$	25 °C;	[6]
		Cl^-, –3.3;		–	0.5			$c_{dl} = 10^{-2.8}$ M;	
		HCO_3^-, –2.2; hippurate, –1.8		–	0.05			t_{90} < 10 s	
		acetate, –3.1; lactate, –3.0;		–	0.5				
		phenylacetylglutamate, –3.0;		–	0.1				
		pyruvate, –2.4;		–	0.1				
		phenyllactate, –1.3;		–	0.005				
		phenylacetate, –1.2;		–	0.005				
		benzoate, –0.8;		–	0.005				
		salicylate, +0.2		–	0.001				
CA-8	**CA-8** (w = 3 %),	3,5-dinitrobenzoate, 0;	MPM	10^{-4} to $10^{-3.7}$	–	–85	10^{-4}–10^{-3}	25 °C;	[7]
	KTpClPB (x_i = 50 %),	SCN^-, –1.70; NO_3^-, <–2.00;						pH = 5.0;	
	PVC (w = 22 %),	Cl^-, <–2.00; ClO_4^-, –0.74;						$c_{dl} = 10^{-4}$ M;	
	DOP (w = 74 %)	Br^-, <–2.00; I^-, <–2.00;						t_{resp} = 1–5 min	
		3,4-dinitrobenzoate, –0.02;							
		2,4-dinitrobenzoate, –0.66;							
		p-nitrobenzoate, –1.11;							
		benzoate, <–2.00;							
		salicylate, –0.60							

Table 11 (*Continued*).

ionophore	membrane composition	$\lg K_{\mathrm{CA}^{m-},\mathrm{B}^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
	CA-8 (w = 3 %), PVC (w = 22 %), DOP (w = 74 %)	hydrogen maleate, 0; hydrogen fumarate, –1.49	MPM	10^{-4} to $10^{-3.3}$	–	–	–	25 °C; pH = 3.5	[7]
		trichloroacetate, 0; dichloroacetate, –1.19; chloroacetate, –2.80	MPM	10^{-5} to $10^{-3.3}$	–	–	–	25 °C; pH = 5.0	[7]
CA-9	**CA-9** (w = 3 %), PVC (w = 22 %), DOP (w = 75 %)	3,5-dinitrobenzoate, 0; 3,4-dinitrobenzoate, –0.05; 2,4-dinitrobenzoate, –2.00; *p*-nitrobenzoate, –1.80; benzoate, <–2.30; salycilate, –1.07	MPM	10^{-4} to $10^{-3.7}$	–	–	10^{-4}–10^{-3}	25 °C; pH = 5.0	[7]
		o-phthalate, 0; *m*-phthalate, –1.00; *p*-phthalate, –1.15	MPM	10^{-4} to $10^{-3.3}$	–	–	–	25 °C; pH = 6.2	[7]
		hydrogen maleate, 0; hydrogen fumarate, –1.19	MPM	10^{-4} to $10^{-3.3}$	–	–	–	25 °C; pH = 3.5	[7]
		trichloroacetate, 0; dichloroacetate, –1.66; chloroacetate, –2.09	MPM	$10^{-3.3}$ to 10^{-5}	–	–	–	25 °C; pH = 5.0	[7]
CA-10	**CA-10** (w = 3 %), PVC (w = 22 %), DOP (w = 75 %)	3,5-dinitrobenzoate, 0; 3,4-dinitrobenzoate, 0.18; 2,4-dinitrobenzoate, –1.66; *p*-nitrobenzoate, –1.41; benzoate, <–2.30; salycilate, –0.20	MPM	10^{-4} to $10^{-3.7}$	–	–	10^{-4}–10^{-3}	25 °C; pH = 5.0	[7]
		o-phthalate, 0; *m*-phthalate, <–2; *p*-phthalate, <–2	MPM	10^{-4} to $10^{-3.3}$	–	–	–	25 °C; pH = 6.2	[7]
		hydrogen maleate, 0; hydrogen fumarate, –1.36	MPM	10^{-4} to $10^{-3.3}$	–	–	–	25 °C; pH = 3.55	[7]
		trichloroacetate, 0; dichloroacetate, –1.62; chloroacetate, <–3	MPM	10^{-5} to $10^{-3.3}$	–		–	25 °C; pH = 5.0	[7]
CA-11	**CA-11** (w = 3 %), PVC (w = 22 %), DOP (w = 75 %)	*o*-phthalate, 0; *m*-phthalate, –1.42; *p*-phthalate, –1.15	MPM	10^{-4} to $10^{-3.3}$	–	–	–	25 °C; pH = 6.2	[7]

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Table 11 (*Continued*).

ionophore	membrane composition	$\lg K_{CA^{m-},B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
		hydrogen maleate, 0; hydrogen fumarate, –1.43	MPM	10^{-4} to $10^{-3.3}$	–		–	25 °C; pH = 3.5	[7]
CA-12	**CA-12** (w = 1.0 %), TDDMACl (x_i = 50 %), PVC (w = 33 %), oNPOE (w = 64–65 %)	acetate, 0; HCO_3^-, –1.34 ± 0.15; SCN^-, +0.60± 0.21; NO_2^-, +0.21 ± 0.12; NO_3^-, +0.68 ± 0.23; HSO_3^-, –0.56 ± 0.16; Cl^-, –0.54 ± 0.08; ClO_4^-, +0.12 ± 0.09; Br^-, –0.13 ± 0.09; I^-, 0.20 ± 0.09; salicylate, +1.58± 0.16; benzoate, +0.48 ± 0.02; formate, +0.37 ± 0.02; pyruvate, –0.05 ± 0.19; propanoate, –0.03 ± 0.01; lactate, –0.12± 0.02	SSM	5.36 × 10^{-3} 5.01 × 10^{-3}	5.36 × 10^{-3} 5.01 × 10^{-3}	–54.8 ± 0.8	$10^{-3.8}$–$10^{-1.8}$	t_{resp} = 3 min; pH = 7.0; $c_{dl} = 10^{-4.5}$ M	[8]
	CA-12 (w = 1.0 %), TDDMACl (x_i = 30 %), PVC (w = 33 %), oNPOE (w = 64–65 %)	acetate, 0; HCO_3^-, –1.38 ± 0.01; SCN^-, +0.65± 0.11; NO_2^-, +0.22 ± 0.06; NO_3^-, 0.76 ± 0.14; HSO_3^-, –0.59 ± 0.05; Cl^-, –0.57 ± 0.02; ClO_4^-, 0.00 ± 0.03; Br^-, –0.15 ± 0.01; I^-, +0.15 ± 0.06	SSM	0.005	0.005	–53.9 ± 1.1	$10^{-3.7}$–$10^{-1.8}$	$t_{0.1\ mV/30\ s}$ = 3 min; pH = 7.0; $c_{dl} = 10^{-4.9}$ M	[8]
CA-13	**CA-13** (w = 1 %), TOABr (x_i = 20 %), oNPOE (w = 66 %), PVC (w = 33 %)	acetate, 0; NO_3^-, –0.3; $H_2PO_4^-$, –2.4; SO_4^{2-}, –2.5; Cl^-, +1.2; Br^-, –1.2	FIM	–	– 0.01 0.1	–56	$10^{-3.7}$–$10^{-1.8}$	22 °C; pH = 6.0; $c_{dl} = 10^{-3.5}$ M	[9]

[1] M. Kataoka, R. Nagnawa, K. Odashima, Y. Umezawa, E. Kimura, T. Koike, *Anal. Lett.*, **22**, 1089–1105 (1989).

[2] R. Naganawa, M. Kataoka, K. Odashima, Y. Umezawa, E. Kimura, T. Koike, *Bunseki Kagaku*, **39**, 671–676 (1990).

[3] A. Ohki, M. Yamura, M. Takagi, S. Maeda, *Anal. Sci.*, **6**, 585–588 (1990).

[4] R.L. DeMeulenaere, P. Onsrud, M.A. Arnold, *Electroanalysis*, **5**, 833–838 (1993).

Table 11 (*Continued*).

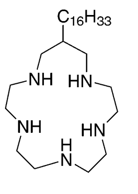
[5] T. Katsu, N. Hanada, *Anal. Chim. Acta*, **321**, 21–25 (1996).

[6] K. Watanabe, O. Noguchi, K. Okada, T. Katsu, *Anal. Sci.*, **13**, 209–211 (1997).

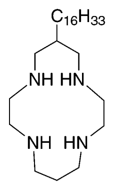
[7] X.M. Lin, K. Umezawa, K. Tohda, H. Furuta, J.L. Sessler, Y. Umezawa, *Anal. Sci.*, **14**, 99–108 (1998).

[8] S. Amemiya, P. Bühlmann, Y. Umezawa, *Anal. Chem.*, **71**, 1049–1054 (1999).

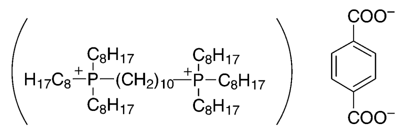
[9] M.M.G. Antonisse, B.H.M. Snellink-Ruél, A.C. Ion, J.F.J. Engbersen, D.N. Reinhoudt, *J. Chem. Soc., Perkin Trans. 2*, 1211–1218 (1999).



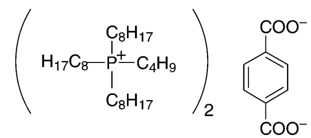
CA-1 (M_r = 451.81)



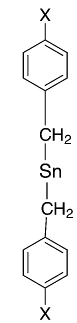
CA-2 (M_r = 424.76)



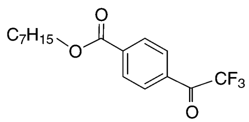
CA-3 (M_r = 881.56)



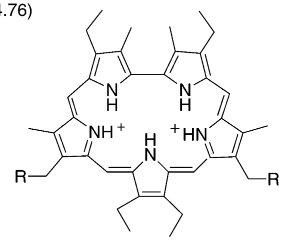
CA-4 (M_r =1019.64)



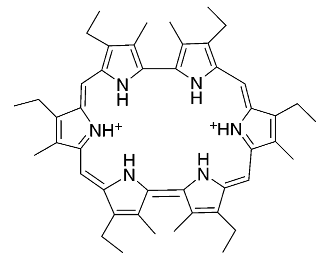
CA-5 (M_r = 369.87): X=Cl
CA-6 (M_r = 336.96): X=F



CA -7 (ETH 6010, M_r = 316.32)



CA-8 (M_r = 573.83): R=H
CA-11 (M_r = 717.96): R=$COOC_2H_5$



CA-9 (M_r = 695.01)

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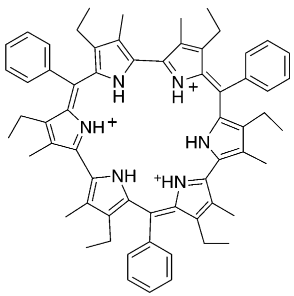
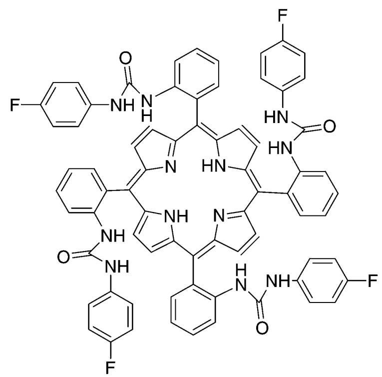
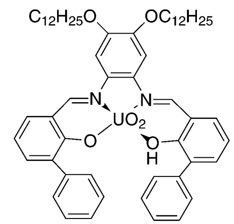
Table 11 (*Continued*).



CA-10 (M_r = 910.29)



CA-12 (M_r = 1223.27)



CA-13 (M_r =1105.22)

Table 12 2-Hydroxybenzhydroxamate-selective electrodes.

ionophore	membrane composition	$\lg K_{HBA^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
HBA-1	**HBA-1** (w = 1.0 %), PVC (w = 33 %), oNPOE (w = 66 %)	2-hydroxybenzhydroxamate, 0; SCN^-, –0.8; NO_3^-, –1.7; Cl^-, –1.9; ClO_4^-, –0.4; Br^-, –1.8; I^-, –1.3; salicylate, –0.8; *m*-hydroxybenzoate, –1.3	SSM	0.01	0.01	–73 to –76	10^{-3}–10^{-2}	25 °C; τ > 21 d; r.o.o.g.; pH = 7.2 ± 0.01; t_{resp}= 90 s; $c_{dl} = 10^{-4.5}$ M	[1]
	HBA-1 (w = 1.0 %), KTFPB (x_i = 10 %), PVC (w = 33 %), oNPOE (w = 66 %)	2-hydroxybenzhydroxamate, 0; SCN^-, –2.2; NO_3^-, –2.6; Cl^-, –2.6; ClO_4^-, –2.4; Br^-, –2.6; I^-, –2.0; salicylate, –1.5; *m*-hydroxybenzoate, –2.6	SSM	0.01	0.01	–73 to –76	10^{-3}–10^{-2}	25 °C; τ > 21 d r.o.o.g.; pH = 7.2 ± 0.01; t_{resp}= 90 s; $c_{dl} = 10^{-4.5}$ M	[1]
	HBA-1 (w = 1.0 %), KTFPB (x_i = 20 %), PVC (w = 33 %), oNPOE (w = 66 %)	2-hydroxybenzhydroxamate, 0; SCN^-, –2.3; NO_3^-, –2.6; Cl^-, –2.6; ClO_4^-, –2.6; Br^-, –2.6; I^-, –1.9; salicylate, –1.4; *m*-hydroxybenzoate, –2.6	SSM	0.01	0.01	–73 to –76	10^{-3}–10^{-2}	25 °C; τ > 21 d; r.o.o.g.; pH = 7.2 ± 0.01; t_{resp} = 90 s; $c_{dl} = 10^{-4.5}$ M	[1]
	HBA-1 (w = 1.0 %), TDDMACl (x_i = 10 %), PVC (w = 33 %), oNPOE (w = 66 %)	2-hydroxybenzhydroxamate, 0; SCN^-, 1.9; NO_3^-, –0.9; Cl^-, 0.7; ClO_4^-, –1.8; Br^-, 0.3; I^-, –1.7; salicylate, 0.1; *m*-hydroxybenzoate, –2.5	SSM	0.01	0.01	–73 to –76	10^{-3}–10^{-2}	25 °C; τ > 21 d; r.o.o.g.; pH = 7.2 ± 0.01; t_{resp} = 90 s; $c_{dl} = 10^{-4.5}$ M	[1]
HBA-2	**HBA-2** (w = 1.0 %), PVC (w = 33 %), oNPOE (w = 66 %)	2-hydroxybenzhydroxamate, 0; SCN^-, –0.3; NO_3^-, –1.8; Cl^-, –0.8; ClO_4^-, –1.3; Br^-, –1.3; I^-, –1.3; salicylate, –0.8	SSM	0.01	0.01	–73 to –76	10^{-3}–10^{-2}	25 °C; τ > 21 d; r.o.o.g.; pH = 7.2 ± 0.01; t_{resp} = 90 s; $c_{dl} = 10^{-4.5}$ M	[1]
	HBA-2 (w = 1.0 %), KTFPB (x_i = 10 %), PVC (w = 33 %), oNPOE (w = 66 %)	2-hydroxybenzhydroxamate, 0; SCN^-, –2.6; NO_3^-, –2.7; Cl^-, –2.3; ClO_4^-, –2.7; Br^-, –2.7; I^-, –2.2; salicylate, –1.4	SSM	0.01	0.01	–73 to –76	10^{-3}–10^{-2}	25 °C; τ > 21 d; r.o.o.g.; pH = 7.2 ± 0.01; t_{resp} = 90 s; $c_{dl} = 10^{-4.5}$ M	[1]

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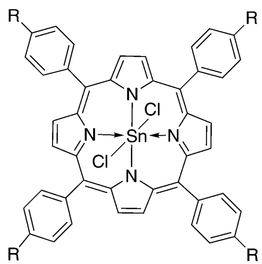
Table 12 (*Continued*).

ionophore	membrane composition	$\lg K_{HBA^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
	HBA-2 (w = 1.0 %), KTFPB (x_i = 20 %), PVC (w = 33 %), oNPOE (w = 66 %)	2-hydroxybenzhydroxamate, 0; SCN^-, –2.3; NO_3^-, –2.7; Cl^-, –2.2; ClO_4^-, –2.7; Br^-, –2.7; I^-, –2.2; salicylate, –1.3	SSM	0.01	0.01	–73 to –76	10^{-3}–10^{-2}	25 °C; τ > 21 d; r.o.o.g.; pH = 7.2 ± 0.01; t_{resp}= 90 s; $c_{dl} = 10^{-4.5}$ M	[1]
	HBA-2 (w = 1.0 %), TDDMACl (x_i = 10 %), PVC (w = 33 %), oNPOE (w = 66 %)	2-hydroxybenzhydroxamate, 0; SCN^-, +1.8; NO_3^-, –0.7; Cl^-, +0.7; ClO_4^-, –1.6; Br^-, +0.3; I^-, –1.2; salicylate, +0.3	SSM	0.01	0.01	–73 to –76	10^{-3}–10^{-2}	25 °C; τ > 21 d; r.o.o.g.; pH = 7.2 ± 0.01; t_{resp} = 90 s; $c_{dl} = 10^{-4.5}$ M	[1]

[1] I.H.A. Badr, M.E. Meyerhoff, S.S.S.M. Hassan, *Anal. Chim. Acta*, **321**, 11–19 (1996).



HBA-1 (M_r = 874.31): R=F
HBA-2 (M_r = 802.35): R=H

Table 13 Sulfonate-selective electrodes.

ionophore	membrane composition	$\lg K_{SA^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
SU-1	**SU-1** (0.05 M), *p*-(1,1,3,3-tetramethylbutyl)-phenol (0.5 M), *o*-dichlorobenzene	*p*-toluenesulfonate, 0; SCN^-, –0.3; NO_2^-, –1.2; NO_3^-, –1.3; BF_4^-, –1.2; Cl^-, –1.8; ClO_3^-, –1.5; ClO_4^-, –0.6; Br^-, –1.5; BrO_3^-, –2.0; I^-, –1.1; benzenesulfonate, –0.5; 1-naphthalenesulfonate, +0.8	SSM	0.01	0.01	–61	$10^{-3.8}$–10^{-1}	$t_{resp} < 3$ min; 25 °C	[1]
	SU-1 (0.05 M), *o*-dichlorobenzene	*p*-toluenesulfonate, 0; SCN^-, 1.2; NO_2^-, –1.3; NO_3^-, –0.4; BF_4^-, 1.6; Cl^-, –1.9; ClO_3^-, –0.2; ClO_4^-, 2.3; Br^-, –1.0; BrO_3^-, –1.5; I^-, +0.6; benzenesulfonate, –0.3; 1-naphthalenesulfonate, +1.1	SSM	0.01	0.01	–	–	25 °C	[1]
	SU-1 (0.05 M), *p*-(1,1,3,3-tetramethylbutyl)-phenol (0.5 M), nitrobenzene	*p*-toluenesulfonate, 0; SCN^-, 0.1; NO_2^-, –1.1; NO_3^-, –1.0; BF_4^-, –0.6; Cl^-, –1.7; ClO_3^-, –1.3; ClO_4^-, 0.0; Br^-, –1.4; BrO_3^-, –1.8; I^-, –1.0; benzenesulfonate, –0.5; 1-naphthalenesulfonate, +0.7	SSM	0.01	0.01	–	–	25 °C	[1]
	SU-1 (0.05 M), nitrobenzene	*p*-toluenesulfonate, 0; SCN^-, 1.1; NO_2^-, –1.0; NO_3^-, –0.2; BF_4^-, 1.4; Cl^-, –1.6; ClO_3^-, –0.1; ClO_4^-, 2.0; Br^-, –0.8; BrO_3^-, –1.1; I^-, +0.7; benzenesulfonate, –0.3; 1-naphthalenesulfonate, +0.8	SSM	0.01	0.01	–	–	25 °C	[1]
	SU-1 (0.05 M), *p*-(1,1,3,3-tetramethylbutyl)-phenol (0.5 M), chloroform	*p*-toluenesulfonate, 0; SCN^-, –0.3; NO_2^-, –1.1; NO_3^-, –1.1; BF_4^-, –1.2; Cl^-, –1.6; ClO_3^-, –1.3; ClO_4^-, –0.7; Br^-, –1.4; BrO_3^-, –1.6; I^-, –0.9; benzenesulfonate, –0.5; 1-naphthalenesulfonate, +0.7	SSM	0.01	0.01	–	–	25 °C	[1]

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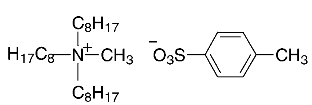
Table 13 (*Continued*).

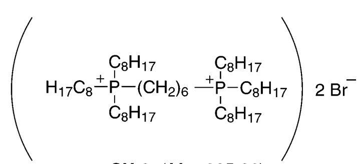
ionophore	membrane composition	$\lg K_{SA^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
	SU-1 (0.05 M), chloroform	*p*-toluenesulfonate, 0; SCN^-, 1.1; NO_2^-, –1.2; NO_3^-, –0.3; BF_4^-, 1.1; Cl^-, –1.5; ClO_3^-, –0.1; ClO_4^-, 1.8; Br^-, –0.6; BrO_3^-, –1.2; I^-, +1.1; benzenesulfonate, –0.3; 1-naphthalenesulfonate, +1.0	SSM	0.01	0.01	–	–	25 °C	[1]
	SU-1 (0.05 M), *p*-(1,1,3,3-tetramethylbutyl)-phenol (0.5 M), 1-octanol	*p*-toluenesulfonate, 0; NO_3^-, –1.0; SCN^-, –0.1; NO_2^-, –1.1; BF_4^-, –0.9; Cl^-, –1.5; ClO_3^-, –1.0; ClO_4^-, –0.3; Br^-, –1.1; BrO_3^-, –1.7; I^-, –0.5; benzenesulfonate, –0.5; 1-naphthalenesulfonate, +0.7	SSM	0.01	0.01	–	–	25 °C	[1]
	SU-1 (0.05 M), 1-octanol	*p*-toluenesulfonate, 0; SCN^-, 0.3; NO_2^-, –1.2; NO_3^-, –0.9; BF_4^-, –0.5; Cl^-, –1.5; ClO_3^-, –0.8; ClO_4^-, 0.1; Br^-, –1.0; BrO_3^-, –1.7; I^-, –0.2; benzenesulfonate, –0.5; 1-naphthalenesulfonate, +0.7	SSM	0.01	0.01	–	–	25 °C	[1]
SU-2	**SU-2** (w = 37.5 %), PVC (w = 62.5 %)	1,5–naphthalenedisulfonate, 0; SO_4^{2-}, –3; Cl^-, –2; Br^-, –0.1	FIM	–	– 0.05 0.01	–29	10^{-5}–10^{-2}	25 °C; CWE	[2]

[1] H. Hara, S. Okazaki, T. Fujinaga, *Bull. Chem. Soc. Jpn.,* **53**, 3610–3614 (1980).

[2] A. Ohki, M. Yamura, S. Kumamoto, S. Maeda, T. Takeshita, M. Takagi, *Chem. Lett.*, 95–98 (1989).



SU-1 (M_r = 539.91)



SU-2 (M_r = 985.26)

Table 14 Dodecyl sulfate-selective electrodes.

ionophore	membrane composition	$\lg K_{DS^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
DS-1	**DS-1** (w = 2.7 %), PVC (w = 27.0 %), oNPOE (w = 70.3 %),	dodecyl sulfate, 0; BO_2^-, –3.5; NO_3^-, –4.7; $H_2PO_4^-$, –4.7; SO_4^{2-}, –4.7; Cl^-, –3.7; ClO_4^-, –3.0; Br^-, –4.4	SSM	–	–	–58	$10^{-6.3}$–10^{-3}	25 ± 0.1 °C; CWE	[1]
	DS-1 (w = 2.7 %), PVC (w = 26.9 %), DBP (w = 70.4 %)	dodecyl sulfate, 0; BO_2^-, <–5; NO_3^-, <–5; $H_2PO_4^-$, <–5; SO_4^{2-}, <–5; Cl^-, –4; ClO_4^-, –3.6; Br^-, –4.7	SSM	–	–	–59	10^{-7}–10^{-3}	25 ± 0.1 °C; CWE	[1]
	DS-1 (w = 2.7 %), PVC (w = 27.0 %), DDP (w = 35.3 %), oNPOE (w = 35.0 %)	dodecyl sulfate, 0; BO_2^-, <–5; NO_3^-, <–5; $H_2PO_4^-$, <–5; SO_4^{2-}, <–5; Cl^-, <–5; ClO_4^-, –3.4; Br^-, <–5	SSM	–	–	–58	10^{-6}–10^{-3}	25 ± 0.1 °C; CWE	[1]
DS-2	**DS-2** (w = 2 %), 1,1,2,2-tetrachloroethane (w = 98 %)	dodecyl sulfate, 0; SCN^-, –3.91; NO_3^-, –20.86; F^-, –17.25; Cl^-, –8.53; ClO_4^-, –14.55; Br^-, –5.50; I^-, –0.61; CH_3COO^-, –3.50; $C_4H_9COO^-$, –2.32; $C_5H_{11}COO^-$, –1.82; $C_8H_{17}COO^-$, –1.10; $C_{10}H_{21}COO^-$, –0.64; $C_{11}H_{23}COO^-$, –0.47; dodecylbenzenesulfonate, +0.70; bis(2-ethylhexyl) sulfosuccinate, +1.36; 1-dodecylsulfonate, –1.02; 1-heptanesulfonate, –1.74; 1-pentanesulfonate, –2.12	SSM	10^{-3} or 10^{-4}	10^{-3} or 10^{-4}	–59	10^{-7}–10^{-3}	25 ± 0.1 °C	[2]
		dodecyl sulfate, 0; $C_4H_9COO^-$, –2.25; $C_5H_{11}COO^-$, –1.96; $C_8H_{17}COO^-$, –1.10; $C_{10}H_{21}COO^-$, –0.66; $C_{11}H_{23}COO^-$, –0.49; dodecylbenzenesulfonate, +0.73; bis(2-ethylhexyl) sulfosuccinate, +1.32; 1-dodecylsulfonate, –1.06; 1-heptanesulfonate, –1.52	TSM	10^{-3}	10^{-3} or 10^{-4}				

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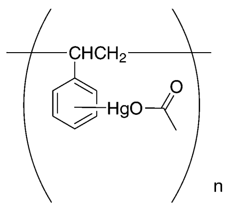
Table 14 (*Continued*).

[1] W. Szczepaniak, *Analyst*, **115**, 1451–1455 (1990).
[2] W. Szczepaniak, M. Ren, *Electroanalysis*, **6**, 341–347 (1994).

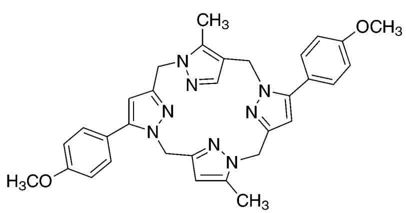


DS-1 (M_r = ca. 9800)
DS-2 (M_r = ca. 2800)

Table 15 Picrate-selective electrodes.

ionophore	membrane composition	$\lg K_{Pic^-,B^{n-}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/dec)	linear range (M)	remarks	ref.
PIC-1	**PIC-1** (w = 1.0 %), PVC (w = 25.1 %), oNPOE (w = 73.9 %)	picrate, +7.8; SCN^-, +6.8; NO_3^-, +0.3; Cl^-, 0.0; ClO_4^-, +5.8; BF_4^-, +3.0; Br^-, +3.2; I^-, +4.2; ReO_4^-, +6.5; salicylate, +2.9	SSM	0.01	0.01	–56.8	10^{-6}–10^{-2}	t_{resp} < 2 min; τ > 90 d; r.o.o.g. K was obtained as $K_{Cl^-,B^{n-}}$.	[1]

[1] Z. Zhou, Y. Wang, J. Tao, Y. Fan, Y. Wu, *J. Inclusion Phenom. Mol. Recognit. Chem.*, **32,** 69–80 (1998).



PIC-1 (M_r = 560.66)