Table 9: Ca^{2+}-Selective Electrodes

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
Ca^{2+}-1	**Ca^{2+}-1** (w = 9.0 %), KTpClPB (x_i = 43 %), crosslinking agent (w = 8.6 %), silicone rubber (w = 74.9 %), DOS (w = 9.0 %)	H^+, –4.1; Na^+, –7.6; K^+, –6.9; Mg^{2+}, –5.9	SSM	10^{-1}	10^{-1}	29.5 ± 0.1	$10^{-5.3}$–10^{-1}	20 °C	[1]
	Ca^{2+}-1 (w = 4.7 %), KTpClPB (x_i = 26 %), crosslinking agent (w = 11.2 %), silicone rubber (w = 78.9 %)	H^+, –2.2; Na^+, –4.7; K^+, –4.7; Mg^{2+}, –5.2	SSM	10^{-1}	10^{-1}	31.3 ± 0.3	10^{-5}–10^{-1}	20 °C	[1]
	Ca^{2+}-1 (w = 1 %), PVC (w = 33.0 %), KTpClPB (x_i = 97 %), oNPOE (w = 65.3 %)	Na^+, –3.6†, –5.5††; K^+, –3.7†, –5.6††; Mg^{2+}, –4.2†, –5.9††	SSM	0.1† 0.01††	0.1† 0.01††	29.2††† 28.7††††	–	c_{dl} = $10^{-5.8}$ M†††	[2]
	Ca^{2+}-1 (w = 3.4 %), KTpClPB (x_i = 81 %), DOS (w = 62.9 %), PVC (w = 31.7 %)	Na^+, –3.1†, –3.5††; K^+, –3.2†, –3.7††; Mg^{2+}, –4.1†, –5.7††	SSM	0.1	0.1	29.6††† 28.8††††	–	c_{dl} = $10^{-5.7}$ M†††	[2]
	Ca^{2+}-1 (w = 4.2 %), PVC (w = 29.0 %), bis(1,1',3,3'-tetramethylbutyl)phenyl-phosphoric acid (w = 3.0 %), DOPP (w = 63.8 %)	Li^+, –2.28; Na^+, –3.06; K^+, –3.33; Rb^+, –3.29; Cs^+, –3.23; NH_4^+, –2.85; H^+, +0.30; Mg^{2+}, –2.62; Sr^{2+}, –1.51; Ba^{2+}, –2.31	FIM	–	0.15	–	–	–	[3]
	Ca^{2+}-1 (w = 3.5 %), KTpClPB (x_i = 83 %), DOPP (w = 65.4 %), PVC (w = 29.0 %)	Li^+, –1.55; Na^+, –2.26; K^+, –2.68; Rb^+, –2.75; Cs^+, –2.80; $NH4^+$, –2.00; H^+, –0.66; Mg^{2+}, –3.20; Sr^{2+}, –1.42; Ba^{2+}, –1.39	FIM	–	0.15	–	–	–	[3]
	Ca^{2+}-1 (w = 10.0 %), phthalic acid polyester (w = 59.0 %), KTpClPB (x_i = 28 %), PVC (w = 29.0 %)	Li^+, –3.70; Na^+, –4.00; K^+, –4.09; Rb^+, –3.96; Cs^+, –4.85; NH_4^+, –4.05; H^+, –4.20; Mg^{2+}, –5.06; Sr^{2+}, –1.96; Ba^{2+}, –2.96	FIM	–	0.15	29.6	10^{-6}–10^{-2}	c_{dl} = $10^{-6.3}$ M	[3]
	Ca^{2+}-1 (w = 5.0 %), KTpClPB (x_i = 86 %),	Li^+, –3.68; Na^+, –4.00; K^+, –4.09; Rb^+, –3.96 ;	FIM	–	0.15	–	–	–	[3]

† without EGTA.
†† with 4×10^{-4} M EGTA.
††† at pH 9.5.
†††† in unbuffered solution.

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	BEHS (w = 62.9 %), PVC (w = 29.0 %)	Cs^+, –3.85; NH_4^+, –4.05; H^+, –4.44; Mg^{2+}, –5.12; Sr^{2+}, –2.07; Ba^{2+}, –3.34							
	Ca^{2+}-1 (w = 10.0 %), tri-*p*-cresyl phosphate (w = 59.0 %), KTpClPB (x_i = 28 %), PVC (w = 29.0 %)	Li^+, –3.17; Na^+, –3.80; K^+, –4.04; Rb^+, –4.08; Cs^+, –3.89; NH_4^+, –3.96; H^+, –3.60; Mg^{2+}, –5.31; Sr^{2+}, –1.89; Ba^{2+}, –2.74	FIM	–	0.15	–	–		[3]
	Ca^{2+}-1 (w = 10.0 %), KTpClPB (x_i = 28 %), didodecyl phthalate (w = 59.0 %), PVC (w = 29.0 %)	Li^+, –3.41; Na^+, –3.74; K^+, –3.92; Rb^+, –3.92; Cs^+, –3.85; NH_4^+, –3.89; H^+, –4.36; Mg^{2+}, –5.02; Sr^{2+}, –2.10; Ba^{2+}, –2.82	FIM	–	0.15	–	–		[3]
	Ca^{2+}-1 (w = 6.0 %), KTpClPB (x_i = 23 %), BEHS (w = 66.0 %), PVC (w = 29.0 %)	Li^+, –3.48; Na^+, –3.74; K^+, –3.60; Rb^+, –4.04; Cs^+, –4.15; NH_4^+, –3.74; H^+, –3.74; Mg^{2+}, –5.17; Sr^{2+}, –2.06; Ba^{2+},– 2.93	FIM	–	0.15	–	–	–	[3]
	Ca^{2+}-1 (w = 10.0 %), BEHS (w = 59.0 %), KTpClPB (x_i = 28 %), PVC (w = 29.0 %)	Li^+, –3.30; Na^+, –3.57; K^+, –3.85; Rb^+, –4.00; Cs^+, –4.00; NH_4^+, –3.85; H^+, –3.70; Mg^{2+}, –6.40; Sr^{2+}, –1.89; Ba^{2+}, –2.70	FIM	–	0.15	–	–	–	[3]
	Ca^{2+}-1 (w = 10.0 %), KTpClPB (x_i = 14 %), didodecyl phthalate (w = 60.0 %), PVC (w = 29.0 %)	Li^+, –3.26; Na^+, –3.57; K^+, –3.82; Rb^+, –4.00; Cs^+, –4.00; NH_4^+, –3.85; H^+, –3.80; Mg^{2+}, –5.64; Sr^{2+}, –2.00; Ba^{2+},–2.80	FIM	–	0.15	–	–		[3]
	Ca^{2+}-1 (w = 10.0 %), KTpClPB (x_i = 14 %), phthalic acid polyester (w = 60.0 %), PVC (w = 29.0 %)	Li^+, –3.28 ; Na^+, –3.60; K^+, –3.77; Rb^+, –1.85; Cs^+, –3.80; NH_4^+, –3.77; H^+, –3.55; Mg^{2+}, –5.00; Sr^{2+}, –1.85; Ba^{2+}, –2.70	FIM	–	0.15	–	–		[3]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	Ca^{2+}-1 (w = 0.8 %), silicone rubber (w = 78.0 %), DOS (w = 21.2 %)	Li^+, –0.41; Na^+, –0.06; K^+, –0.64; Mg^{2+}, –5.00	SSM ($E_A = E_B$)	–	10^{-1}	27.4	10^{-5}–10^{-2}	Ag CWE; $c_{dl} < 10^{-6}$ M	[4]
	Ca^{2+}-1 (w = 0.8 %), silicone rubber (w = 77.2 %), KTpClPB (x_i = 21.0 %), DOA (w = 21.6 %), ETH 500 (x_i = 21.0 %)	Li^+, <–5.00; Na^+, <–5.00; K^+, <–5.00; Mg^{2+}, <–5.00	SSM ($E_A = E_B$)	–	10^{-1}	28.5 ± 0.5	10^{-5}–10^{-2}	Ag CWE; c_{dl} = $10^{-6.54 \pm 0.32}$ M	[4]
		Na^+, –4.3	FIM	–	10^{-1}				
	Ca^{2+}-1 (w = 1.6 %), NaTPB (x_i = 120 %), oNPOE (w = 23.4 %), fluorosilicone rubber (w = 61.4 %)	Na^+, –3.6; K^+, –3.7; Mg^{2+}, –4.4	FIM	–	10^{-1}	30.56 ± 0.68	$10^{-5.2}$–10^{-1}	c_{dl} = $10^{-5.8}$ M; ISFET	[5]
	Ca^{2+}-1 (w = 1.8 %), KTpClPB (x_i = 69 %), DOS (w = 10 %), silicone rubber (w = 87.3 %)	Na^+, –3.4; K^+, –3.4	FIM	–	10^{-1}	22	–	22 ± 2 °C; τ > 14 d	[6]
	Ca^{2+}-1 (w = 1.0 %), KTFPB (x_i = 68 %), silicone rubber (w = 98.1 %)	Na^+, –3.6; K^+, –3.8	FIM	–	10^{-1}	27.6	–	22 ± 2 °C	[6]
	Ca^{2+}-1 (w = 1.0 %), KTFPB (x_i = 68 %), DOS (w = 10 %), silicone rubber (w = 88.1 %)	Na^+, –3.6; K^+, –3.7	FIM	–	10^{-1}	28.1	–	22 ± 2 °C	[6]
	Ca^{2+}-1 (w = 1.0 %), KTFPB (x_i = 15 %), DOS (w = 8 %), silicone rubber (w = 90.8 %)	Na^+, –2.9; K^+, –3.0	FIM	–	10^{-1}	29.0	–	22 ± 2 °C	[6]
	Ca^{2+}-1 (w = 1.0 %), DOS (w = 10 %), silicone rubber (w = 89.0 %)	Na^+, –0.7; K^+, –0.4	FIM	–	10^{-1}	26	–	22 ± 2 °C	[6]
	Ca^{2+}-1 (w = 1.8 %), KTpClPB (x_i = 77 %), silicone rubber (w = 97.2 %)	Na^+ –2.8	FIM	–	10^{-1}	18	–	22 ± 2 °C; ISFET	[6]
	Ca^{2+}-1 (w = 1.0 %), KTFPB (x_i = 68 %), silicone rubber (w = 98.1 %)	Na^+, –3.7; K^+, –3.8	FIM	–	10^{-1}	28.6	–	22 ± 2 °C; ISFET	[6]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	Ca^{2+}-1 (w = 1.0 %), KTFPB (x_i = 68 %), DOS (w = 4.6 %), silicone rubber (w = 93.5 %)	Na^+, –3.7; K^+, –3.8	FIM	–	10^{-1}	28.5	–	22 ± 2 °C; ISFET	[6]
	Ca^{2+}-1, KTpClPB (x_i = 70 %), oNPOE/ PVC–COOH (2:1 by weight) (weight ratio not reported)	Li^+, –2.79 ± 0.03; Na^+, –2.92 ± 0.01; K^+ –3.03 ± 0.03; NH_4^+, –3.14 ± 0.10; Mg^{2+}, –3.66 ± 0.11	SSM	10^{-1}	10^{-1}	29.7 ± 0.21	10^{-5}–10^{-1}	microelec.; 24.5 ± 0.5 °C; Ag/AgCl CWE	[7]
	Ca^{2+}-1, KTpClPB (x_i = 70 %), oNPOE/aliphatic polyurethane (2:1 by weight), (weight ratio not reported)	Li^+ –2.97 ± 0.10; Na^+, –2.83 ± 0.04; K^+, –2.88 ± 0.04; NH_4^+, –3.11 ± 0.12; Mg^{2+}, –3.37 ± 0.12	SSM	10^{-1}	10^{-1}	28.7 ± 0.3	10^{-5}–10^{-1}	microelec.; 24.5 ± 0.5 °C; Ag/AgCl CWE	[7]
	Ca^{2+}-1, KTpClPB (x_i = 70 %), DOS/PVC–COOH (2:1) (weight ratio not reported)	Li^+, –1.98 ± 0.16; Na^+, –2.09 ± 0.14; K^+, –2.49 ± 0.18; NH_4^+, –2.65 ± 0.19; Mg^{2+} –3.49 ± 0.17	SSM	10^{-1}	10^{-1}	29.0 ± 0.1	10^{-5}–10^{-1}	Ag/AgCl CWE; 24.5 ± 0.5 °C	[7]
Ca^{2+}-2	**Ca^{2+}-2**, covalently attached to polysiloxane	Na^+ <–2.6; K^+ <–2.6; NH_4^+,<–2.6; Mg^{2+} <–3.7	MSM	–	–	–	–	ISFET; Poly(hydroxyethyl methacrylate) was covalently attached to SiO_2 FET gate.	[8]
Ca^{2+}-3	**Ca^{2+}-3** (w = 2.5 %), KTPB (x_i = 44 %), PVC (w = 30 %), dinonyl sebacate (w = 66.8 %)	Na^+, –4.2; K^+, –4.4 ; Mg^{2+}, –4.6; Sr^{2+}, –3.1; Ba^{2+}, –3.3; Fe^{2+}, –2.6; Co^{2+}, –3.1; Ni^{2+}, –2.8; Cu^{2+}, –4.1; Zn^{2+}, –2.1; Cd^{2+}, –2.9; Pb^{2+}, –2.7	FIM	–	0.5 Zn^{2+}, 0.1	28.8	$10^{-7.50}$ –10^{-1}	τ > 240 d; 3.5 < pH < 12.3; $c_{dl} = 10^{-8.0}$ M; t_{resp} = 10–30 s	[9]
	Ca^{2+}-3 (w = 2.5 %), KTPB (x_i = 44 %), PVC (w = 30 %), trioctyl phosphate (w = 66.8 %),	Na^+, –3.9; K^+, –4.1; Mg^{2+}, –3.6; Ba^{2+}, –2.5; Zn^{2+},–2.6	FIM	–	0.5 Zn^{2+}, 0.1	–	–		[9]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
Ca^{2+}-4	**Ca^{2+}-4** (w = 0.56–1 %), oNPOE (w = 66 %), NaTPB (x_i = 16 %), PVC (w = 33 %)	Li^+, –3.30; Na^+, –3.38 K^+, –4.00; NH_4^+, –3.28; Mg^{2+}, –3.12; Sr^{2+}, –3.07; Ba^{2+}, –3.03; Mn^{2+}, –1.00; Co^{2+}, –3.04; Ni^{2+}, –3.06; Zn^{2+},–0.82; Cd^{2+},–2.30	FIM or SSM	– 0.1	0.1 0.1	–	–	25 ± 1 °C	[10]
	Ca^{2+}-4 (w = 0.56–1 %), oNPOE (w = 66 %), NaTPB (x_i = 82 %), PVC (w = 33 %)	Li^+, –4.07; Na^+, –4.0 5; K^+, –4.10; NH_4^+, –3.96; Mg^{2+}, –3.30; Sr^{2+}, –3.24; Ba^{2+}, –3.14; Mn^{2+}, –1.02; Co^{2+}, –3.20; Ni^{2+},–3.14; Zn^{2+}, –1.05; Cd^{2+}, –3.00	FIM or SSM	– 0.1	0.1 0.1	29.0 ± 0.21	10^{-5}–10^{-1}	25 ± 1 °C ; $c_{dl} = 10^{-5.3}$ M; τ = 180 d; 4.2 < pH < 10.8	[10]
	Ca^{2+}-4 (w = 0.56–1 %), oNPOE (w = 66 %), NaTPB (w = 164 %), PVC (w = 33 %)	Li^+, –2.00; Na^+, –1.66; K^+, –1.85; NH_4^+, –1.96; Mg^{2+}, –2.99; Sr^{2+}, –2.80; Ba^{2+}, –2.55; Mn^{2+}, –0.68; Co^{2+}, –2.51; Ni^{2+}, –2.38; Zn^{2+}, –0.49; Cd^{2+}, –1.71	FIM or SSM	– 0.1	0.1 0.1	–	–	25 ± 1 °C	[10]
	Ca^{2+}-4 (w = 0.56–1 %), oNPOE (w = 66 %), NaTpClPB (x_i = 12 %), PVC (w = 33 %)	Li^+, –3.42 ; Na^+, –3.64; K^+, –2.03; NH_4^+, –3.51; Mg^{2+}, –3.19; Sr^{2+}, –3.15; Ba^{2+}, –3.10; Mn^{2+}, –1.02; Co^{2+}, –3.07; Ni^{2+}, –3.07; Zn^{2+},–0.96; Cd^{2+}, –2.38	FIM or SSM	0.1 0.1	– 0.1	–	–	25 ± 1 °C	[10]
	Ca^{2+}-4 (w = 0.56–1 %), oNPOE (w = 66 %), NaTpClPB (x_i = 58 %), PVC (w = 33 %)	Li^+, –4.21; Na^+, –4.1 4; K^+, –4.17; NH_4^+, –4.55; Mg^{2+}, –3.70; Sr^{2+}, –3.43; Ba^{2+},–3.25; Mn^{2+}, –2.66; Co^{2+}, –3.23; Ni^{2+}, –3.25; Zn^{2+}, –1.22; Cd^{2+}, –2.52	FIM or SSM	0.1 0.1	– 0.1	–	–	25 ± 1 °C	[10]
	Ca^{2+}-4 (w = 0.56–1 %), oNPOE (w = 66 %), NaTpClPB (x_i = 120 %), PVC (w = 33 %)	Li^+, –2.38; Na^+, –2.68; K^+, –2.96; NH_4^+, –2.24; Mg^{2+}, –3.28; Sr^{2+}, –3.28; Ba^{2+}, –3.12; Mn^{2+}, –1.30;	FIM or SSM	0.1 0.1	– 0.1	–	–	25 ± 1 °C	[10]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
		Co^{2+}, –3.16; Ni^{2+}, –3.16; Zn^{2+}, –1.03; Cd^{2+}, –2.42							
	Ca^{2+}-4, oNPOE, NaTPB or KTpClPB or NaTpClPB, PVC (weight ratio not reported)	K^+, –2.28; Mg^{2+},–2.20; Sr^{2+}, –1.72; Ba^{2+}, –1.49	MSM	–	0.1	19.7	$>10^{-4.7}$	–	[11]
Ca^{2+}-5	**Ca^{2+}-5** (w = 4.6 %), KTpClPB (x_i = 48 %), oNPPE (w = 70.8 %), PVC (w = 23.3 %)	Na^+, –3.3; K^+, –2.6; Mg^{2+}, –2.8	MSM	–	Na^+, K^+, 0.2; Mg^{2+}, 0.1	29.8	10^{-5}–10^{-2}	25 °C	[12]
Ca^{2+}-6	**Ca^{2+}-6**(w = 2 %), oNPOE (w = 64 %), PVC (w = 34 %)	Li^+, –1.2; Na^+, –1.3; K^+, –0.8; NH_4^+, –0.1; Mg^{2+}, –1.1	SSM	0.1	0.1	–	–	room temp.; 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	[13]
	Ca^{2+}-6 (w = 2.1 %), oNPOE (w = 63.3 %), KTpClPB (x_i = 30 %), PVC (w = 33.7 %)	Li^+, –1.3; Na^+, –1.9; K^+, –0.4; NH_4^+, –0.3; Mg^{2+}, 0.0	SSM	0.1	0.1	–	–	room temp.; 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	[13]
	Ca^{2+}-6 (w = 2.1 %), oNPOE (w = 62.7 %), KTpClPB (x_i = 70 %), PVC (w = 33.4 %)	Li^+, –2.2; Na^+, –2.7; K^+, –1.0; NH_4^+, –1.1; Mg^{2+}, –0.1	SSM	0.1	0.1	28.6	10^{-5}–10^{-1}	room temp.; $c_{dl} = 10^{-5.0}$ M; 5 mM Tris–HCl, pH = 8.8	[13]
	Ca^{2+}-6 (w = 2.1 %), oNPOE (w = 62.6 %), KTpClPB (x_i = 80 %), PVC (w = 33.5 %)	Li^+, –0.9; Na^+, +0.3; K^+, +3.8; NH_4^+, +3.6; Mg^{2+}, –0.3	SSM	0.1	0.1	–	–	room temp.; 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	[13]
	Ca^{2+}-6 (w = 2.1 %), oNPOE (w = 62.0 %), KTpClPB (x_i = 120 %), PVC (w = 33.1 %)	Li^+, –0.3; Na^+, +1.2; K^+, +3.8; NH_4^+, +3.0; Mg^{2+}, –0.3	SSM	0.1	0.1	–	–	room temp.;[13] 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	
	Ca^{2+}-6 (w = 2.1 %), CP (w = 32.1 %), KTpClPB (x_i = 70 %), PVC (w = 34.2 %), oNPOE (w = 32.1 %)	Li^+, –1.1; Na^+, –1.7; K^+, –1.0; NH_4^+, –0.6; Mg^{2+}, –0.2	SSM	0.1	0.1	25.67	–	room temp.; t_{90} = 5817 ms; 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	[13]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	Ca^{2+}-6 (w = 2.1 %), CP (w = 64.2 %), PVC (w = 34.2 %), KTpClPB (x_i = 70 %)	Li^+, –1.0; Na^+, –1.8; K^+, –1.0; NH_4^+, –0.4; Mg^{2+}, –0.3	SSM	0.1	0.1	19.66	–	room temp.; t_{90} = 9229 ms; 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	[13]
Ca^{2+}-7	**Ca^{2+}-7** (w = 2.1 %), oNPOE (w = 62.4 %), KTpClPB (x_i = 70 %), PVC (w = 33.3 %)	Li^+, –2.6; Na^+, –3.3; K^+, –1.8; NH_4^+, –2.4; Mg^{2+}, –2.2	SSM	0.1	0.1	26.2	10^{-5}–10^{-1}	room temp.; $c_{dl} = 10^{-4.9}$ M; 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	[13]
Ca^{2+}-8	**Ca^{2+}-8** (w = 2.1 %), oNPOE (w = 62.4 %), KTpClPB (x_i = 70 %), PVC (w = 35.4 %)	Li^+, –1.8; Na^+, –1.2; K^+, +1.5; NH_4^+, +1.0; Mg^{2+}, –1.2	SSM	0.1	0.1	25.7	10^{-5}–10^{-1}	room temp.; $c_{dl} = 10^{-4.8}$ M; 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	[13]
Ca^{2+}-9	**Ca^{2+}-9** (w = 2.1 %), oNPOE (w = 62.3 %), KTpClPB (x_i = 70 %), PVC (w = 33.2 %)	Li^+, –2.9; Na^+, –3.0; K^+, –2.4; NH_4^+, –2.5; Mg^{2+}, –4.0	SSM	0.1	0.1	26.0	10^{-5}–10^{-1}	room temp.; $c_{dl} = 10^{-4.9}$ M; 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	[13]
Ca^{2+}-10	**Ca^{2+}-10** (w = 2.1 %), oNPOE (w = 62.6 %), KTpClPB (x_i = 70 %), PVC (w = 33.4 %)	Li^+, –2.9; Na^+, –2.4; K^+, –2.3; NH_4^+, –2.4; Mg^{2+}, –3.7	SSM	0.1	0.1	25.8	10^{-5}–10^{-1}	room temp.; $c_{dl} = 10^{-4.9}$ M; 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	[13]
Ca^{2+}-11	**Ca^{2+}-11** (w = 2.1 %), oNPOE (w = 63.1 %), KTpClPB (x_i = 70 %), PVC (w = 33.6 %)	Li^+, –2.6; Na^+, –2.7; K^+, –2.2; NH_4^+, –2.5; Mg^{2+}, –3.6	SSM	0.1	0.1	25.8	10^{-5}–10^{-1}	room temp.; $c_{dl} = 10^{-4.8}$ M; 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	[13]
Ca^{2+}-12	**Ca^{2+}-12** (w = 2.1 %), oNPOE (w = 63.1 %), KTpClPB (x_i = 70 %), PVC (w = 33.4 %)	Li^+, 1.4; Na^+, –2.0; K^+, –1.1; NH_4^+, –1.5; Mg^{2+}, –2.6	SSM	0.1	0.1	24.8	10^{-5}–10^{-1}	room temp.; $c_{dl} = 10^{-4.7}$ M; 5 mM Tris–HCl, pH = 8.8; r.o.o.g.	[13]
Ca^{2+}-13	**Ca^{2+}-13** (w = 1.6 %), NaTPB(x_i = 60 ± 5 %), oNPOE (w = 65.2 %),	Li^+, –4.2; K^+, –3.7; NH_4^+,–5.3; Mg^{2+} –4.0; Sr^{2+}, –0.52; Ba^{2+}, –1.2;	MSM	–	Li^+, NH_4^+, 0.1; K^+, Mg^{2+}, 10^{-2};	34 ± 4	10^{-6}–10^{-2}		[14]

† without EGTA.
†† with 4×10^{-4} M EGTA.
††† at pH 9.5.
†††† in unbuffered solution.

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	PVC (w = 32.6 %)	Na^+, –4.7†,–4.4††			Sr^{2+},Ba^{2+}, 10^{-3}; Na^+, †0.1, ††10^{-2}				
	Ca^{2+}-13 (w = 1.6 %), oNPOE (w = 65.2 %), 3,3-como-bis(undecahydro-1,2-dicarba -3-cobalta-closododecaborate (x_i = 60 ± 5 %), PVC (w = 32.6 %)	Li^+, –4.0; K^+, –3.2; Mg^{2+}, –3.0; Sr^{2+}–1.0; Ba^{2+}, –1.2; Na^+, –3.8†, –3.3††, –1.6†††	MSM	–	Li^+, 0.1; K^+, Mg^{2+}, 10^{-2} ; Sr^{2+}, Ba^{2+}, 10^{-3}; Na^+, †10^{-1}, ††10^{-2}, †††10^{-3}	43	$10^{-4.2}$–10^{-2}		[14]
	Ca^{2+}-13 (w = 1.6 %), pNPOE (w = 65.2 %), NaTPB (x_i = 60 ± 5 %), PVC (w = 32.6 %)	Li^+, –4.1; Na^+, –4.7; K^+, –4.5; NH_4^+, –5.2; Mg^{2+}, –3.5; Sr^{2+}, –0.46	MSM	–	Li^+, NH_4^+, 0.1; K^+, Mg^{2+}, 10^{-2} ; Sr^{2+}, 10^{-3}	38	$10^{-4.4}$–10^{-2}		[14]
	Ca^{2+}-13, oNPOE, NaTPB or KTpClPB or NaTpClPB, PVC (weight ratio not reported)	Li^+, –2.5; K^+, –3.0; Mg^{2+}, –4.8; Sr^{2+}, –0.38; Ba^{2+} –1.4	MSM	–	0.1	24.0	–	c_{dl} = $10^{-5.7}$ M	[11]
Ca^{2+}-14	**Ca^{2+}-14**, oNPOE, NaTPB or KTpClPB or NaTpClPB, PVC (weight ratio not reported)	Li^+, –0.2; Na^+, –1.1; K^+, –1.0; Mg^{2+}, –0.5; Sr^{2+} –0.7; Ba^{2+}, –0.8	MSM	–	0.1	–	–	r.o.o.g.	[11]
Ca^{2+}-15	**Ca^{2+}-15**, oNPOE, NaTPB or KTpClPB or NaTpClPB, PVC (weight ratio not reported)	Li^+, –0.7; Na^+, –2.7; K^+, –2.9; Mg^{2+}, –1.0; Sr^{2+}, –1.7; Ba^{2+}, –2.0	MSM	–	0.1	–	–	r.o.o.g.	[11]
Ca^{2+}-16	**Ca^{2+}-16**, oNPOE, NaTPB or KTpClPB or NaTpClPB, PVC (weight ratio not reported)	Li^+, –0.8; Na^+, –0.2; K^+, –0.2; Mg^{2+}, –1.3; Sr^{2+}, –0.8; Ba^{2+}, –1.0	MSM	–	0.1	–	–	r.o.o.g.	[11]
Ca^{2+}-17	**Ca^{2+}-17**, oNPOE, NaTPB or KTpClPB or NaTpClPB, PVC (weight ratio not reported)	Li^+, –1.9; Na^+, –2.8; K^+, –2.5; Mg^{2+} –1.3; Sr^{2+}, –0.8; Ba^{2+}, –1.5	MSM	–	0.1	–	–	r.o.o.g.	[11]

† without EGTA.
†† with 4×10^{-4} M EGTA.
††† at pH 9.5.
†††† in unbuffered solution.

Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
Ca^{2+}-18	**Ca^{2+}-18**, oNPOE, NaTPB or KTpClPB or NaTpClPB, PVC (weight ratio not reported)	Li^+, –2.0; Na^+, –2.8; K^+, –2.6; Mg^{2+}, –1.2; Sr^{2+}, –0.7; Ba^{2+}, –1.2	MSM	–	0.1	–	–	r.o.o.g.	[11]
Ca^{2+}-19	**Ca^{2+}-19**, oNPOE, NaTPB or KTpClPB or NaTpClPB, PVC (weight ratio not reported)	Li^+, 2.0; Na^+, –2.8; K^+, –2.5; Mg^{2+}, –1.2; Sr^{2+}, –0.9; Ba^{2+}, –1.2	MSM	–	0.1	–	–	r.o.o.g.	[11]
Ca^{2+}-20	**Ca^{2+}-20** (w = 1.0 %), silicone rubber (w = 99.0 %)	Li^+, –2.16; Na^+, –2.61; K^+, –2.73; Mg^{2+}, –2.88	SSM ($E_A = E_B$)	–	–	41.0	10^{-4}–10^{-2}	Ag CWE	[4]
	Ca^{2+}-20 (w = 0.8 %), silicone rubber (w = 78.0 %), DOA (w = 21.2 %)	Li^+, –2.17; Na^+, –2.10; K^+, –3.63; Mg^{2+}, –4.41	SSM ($E_A = E_B$)	–	–	44.0	10^{-4}–10^{-2}	Ag CWE	[4]
	Ca^{2+}-20 (w = 0.8 %), silicone rubber (w = 78.0 %), BEHS (w = 21.2 %)	Li^+, –1.80; Na^+, –2.40; K^+, <–5.00; Mg^{2+}, <–5.00	SSM ($E_A = E_B$)	–	–	39.6	10^{-4}–10^{-2}	Ag CWE	[4]
	Ca^{2+}-20 (w = 0.8 %), silicone rubber (w = 77.9 %), KTpClPB (x_i = 14.0 %) DOA (w = 21.2 %)	Li^+, –2.30; Na^+, –3.80; K^+, –4.70; Mg^{2+}, –3.10	SSM ($E_A = E_B$)	–	–	28.8	10^{-5}–10^{-2}	Ag CWE; $c_{dl} < 10^{-6}$ M	[4]
	Ca^{2+}-20 (w = 0.8 %), silicone rubber (w = 77.2 %), KTpClPB (x_i = 14.0 %), ETH 500 (x_i = 14.0 %), DOA (w = 21.6 %)	Li^+, <–5.00; Na^+, <–5.00; K^+, <–5.00; Mg^{2+},<–5.00	SSM ($E_A = E_B$)	–	–	28.3 ± 0.5	10^{-5}–10^{-2}	c_{dl} = $10^{-6.57 \pm 0.32}$ M	[4]
		Na^+, –4.3	FIM	–	10^{-1}	–	–		
	Ca^{2+}-20 (10 mmol/kg), NaTFPB (x_i = 50 %), PVC/BEHS (1:2 by weight)	Na^+, –6.2 ± 0.4; K^+, –7.7 ± 0.4; Mg^{2+}, –9.7 ± 0.3	SSM	10^{-2}	10^{-2}	33.2 ± 0.2	10^{-3}–10^{-1}	membranes conditioned in 0.01M NaCl; 21.5 ± 0.5 °C	[15]
	Ca^{2+}-20 (10 mmol/ kg %), NaTFPB (w = 50 %), PVC/DOS (1:2 by weight)	Na^+, –3.6 ± 0.1; K^+ –4.0 ± 0.1; Mg^{2+}, –4.9 ± 0.1	SSM	10^{-2}	10^{-2}	34.9 ± 0.1	10^{-3}–10^{-1}	membranes conditioned in 0.01M $CaCl_2$; 21.5 ± 0.5 °C;	[15]
	Ca^{2+}-20 (membrane composition not reported)	Na^+, –3.1; K^+, –2.8; NH_4^+, <–6.0	–	10^{-4}–10^{-2}	10^{-4}–10^{-3}	41.0	–	FIA K was calculated with generic algorithm.	[16]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	Ca^{2+}-20 (w = 24.8 %), KTpClPB (x_i = 55 %), silicone rubber (w = 96.0 %)	Li^+, –4.8; Na^+, –4.9; K^+, –5.0; Mg^{2+}, –5.0	SSM	1.0	10^{-1}	26.95 ± 0.74	$10^{-5.3}$–10^{-1}	$c_{dl} = 10^{-6}$ M	[5]
Ca^{2+}-21	**Ca^{2+}-21** (w = 2.0 %), KTpClPB (x_i = 50 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, +1.8; Na^+, –0.8; K^+, +1.8; Rb^+, +2.7; Cs^+, +4.2; NH_4^+, +1.9; H^+, +1.8; Mg^{2+}, –1.1; Sr^{2+}, –0.4; Ba^{2+}, –0.1	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; $\lg P_{o/w}$ = 2.9 ± 0.2	[17]
	Ca^{2+}-21 (w = 2.0 %), KTpClPB (x_i = 50 %), DOS ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, +2.5; Na^+, +2.3; K^+, +3.3; Rb^+, +3.8; Cs^+, +4.8; NH_4^+, +3.6; H^+, +4.5; Mg^{2+}, –0.4; Sr^{2+}, –0.2; Ba^{2+}, +0.5	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C	[17]
Ca^{2+}-22	**Ca^{2+}-22** (w = 2.0 %), KTpClPB (x_i = 50 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, +1.8; Na^+, –0.6; K^+, +1.6; Rb^+, +2.9; Cs^+, +4.4; NH_4^+, +2.0; H^+, +1.5; Mg^{2+}, –1.3; Sr^{2+}, –0.6; Ba^{2+}, +0.2	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; $\lg P_{o/w}$ = 2.0 ± 0.2	[13]
Ca^{2+}-23	**Ca^{2+}-23** (w = 2.0 %), KTPClPB (x_i = 50 %), oNPOE (w = 66 %), PVC (w = 32 %)	Li^+, –0.4 Na^+, +1.0; K^+, +4.1; Rb^+, +5.3; Cs^+, +6.6; NH_4^+, +3.4; H^+, +1.4; Mg^{2+}, –0.1; Sr^{2+}, +0.1; Ba^{2+}, +0.7	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; $\lg P_{o/w}$ = 2.6 ± 0.2	[17]
Ca^{2+}-24	**Ca^{2+}-24** (w = 2.0 %), KTpClPB (x_i = 50 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, +1.8; Na^+, +0.8; K^+, +3.9; Rb^+, +5.0; Cs^+, +6.4; NH_4^+, +3.3; H^+, +1.8; Mg^{2+}, –0.3; Sr^{2+}, +0.1; Ba^{2+}, +0.6	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; $\lg P_{o/w}$ = 3.1 ± 0.3	[17]
Ca^{2+}-25	**Ca^{2+}-25** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –0.5; Na^+, –1.6; K^+, –1.6; Rb^+, –1.2; Cs^+, –0.3; NH_4^+, –1.6; H^+, +1.7; Mg^{2+}, –2.1; Sr^{2+}, –0.7; Ba^{2+}, –0.5	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; $\lg P_{o/w}$ = 8.1 ± 0.4	[17]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
Ca^{2+}-26	**Ca^{2+}-26** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –2.0 Na^+, –0.8; K^+, +0.6; Rb^+, +1.7; Cs^+, +3.0; NH_4^+, +0.3; H^+, +1.1; Mg^{2+}, +1.3; Sr^{2+}, –0.7; Ba^{2+}, –0.5	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; lg $P_{o/w}$ = 7.1 ± 0.4	[17]
Ca^{2+}-27	**Ca^{2+}-27** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –2.6; Na^+, –3.4; K^+, –3.1; Rb^+, –2.9; Cs^+, –2.3; NH_4^+, –2.7; H^+, +2.8; Mg^{2+}, –2.1; Sr^{2+}, –0.5; Ba^{2+}, –0.4	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; lg $P_{o/w}$ = 6.9 ± 0.4	[17]
Ca^{2+}-28	**Ca^{2+}-28** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –1.7; Na^+, –2.8; K^+, –2.5; Rb^+, –2.6; Cs^+, –2.5; NH_4^+, –2.8; H^+, +1.7; Mg^{2+}, –2.5; Sr^{2+}, –0.9; Ba^{2+}, –0.3	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; lg $P_{o/w}$ = 6.8 ± 0.4	[17]
Ca^{2+}-29	**Ca^{2+}-29** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –2.8; Na^+, –2.7; K^+, –3.3; Rb^+, –3.2; Cs^+, –3.2; NH_4^+, –3.0; H^+, –2.2; Mg^{2+}, –4.0; Sr^{2+}, –0.4; Ba^{2+}, –0.8	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; lg $P_{o/w}$ = 7.4 ± 0.4	[17]
Ca^{2+}-30	**Ca^{2+}-30** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –2.7; Na^+, –3.1; K^+, –3.6; Rb^+, –3.5; Cs^+, –3.4; NH_4^+, –3.4; H^+, –2.7; Mg^{2+}, –4.1; Sr^{2+}, –0.8; Ba^{2+}, –1.6	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; lg $P_{o/w}$ = 7.0 ± 0.4	[17]
Ca^{2+}-31	**Ca^{2+}-31** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –4.0; Na^+, –3.8; K^+, –4.0; Rb^+, –3.8; Cs^+, –2.7; NH_4^+, –3.8; H^+, –2.5; Mg^{2+}, –4.2; Sr^{2+}, –0.8; Ba^{2+}, –1.4	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; lg $P_{o/w}$ = 6.9 ± 0.3	[17]
Ca^{2+}-32	**Ca^{2+}-32** (w = 2.0 %), KTpClPB (x_i = 50 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –5.0; Na^+, –2.0; K^+, –1.5; Rb^+, –1.7; Cs^+, –1.7; NH_4^+, –2.5; H^+, –1.5; Mg^{2+}, –3.8; Sr^{2+}, –0.6; Ba^{2+}, –1.4	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; lg $P_{o/w}$ = 4.1 ± 0.3	[17]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
Ca^{2+}-33	**Ca^{2+}-33** (w = 2.0 %), KTpClPB (x_i = 50 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –3.8; Na^+, –3.4; K^+, –1.4; Rb^+, –0.2; Cs^+, +0.9; NH_4^+, –1.5; H^+, +0.2; Mg^{2+}, –3.6; Sr^{2+}, –1.0; Ba^{2+}, –1.8	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; $\lg P_{o/w}$ = 7.7 ± 0.4	[17]
Ca^{2+}-34	**Ca^{2+}-34** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –3.5; Na^+, –3.6; K^+, –3.8; Rb^+, –4.0; Cs^+, –3.5; NH_4^+, –4.1; H^+, –3.3; Mg^{2+}, –4.2; Sr^{2+}, –1.0; Ba^{2+}, –3.0	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; $\lg P_{o/w}$ = 14.4 ± 0.4	[17]
Ca^{2+}-35	**Ca^{2+}-35** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –4.1; Na^+, –4.1; K^+, –4.4; Rb^+, –4.2; Cs^+, –4.0; NH_4^+, –4.2; H^+, –3.6; Mg^{2+}, –5.0; Sr^{2+}, –1.0; Ba^{2+}, –2.1	SSM	10^{-1}	10^{-1}	29†	10^{-5}–10^{-1}	25 ± 0.5 °C; $\lg P_{o/w}$ = 14.6 ± 0.4	[17]
	Ca^{2+}-35 (w = 2.0 %), KTpClPB (x_i = 50 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –4.2; Na^+, –3.8; K^+, –4.0; Rb^+, –4.0; Cs^+, –3.8; NH_4^+, –4.1; H^+, –3.7; Mg^{2+}, –4.2; Sr^{2+}, –1.1; Ba^{2+}, –2.2	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C	[17]
	Ca^{2+}-35 (w = 2.0 %), KTpClPB (x_i = 75 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –4.2; Na^+, –3.9; K^+, –4.1; Rb^+, –4.0; Cs^+, –3.9; NH_4^+, –4.1; H^+, –3.7; Mg^{2+}, –4.8; Sr^{2+}, –1.1; Ba^{2+}, –2.2	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C	[17]
	Ca^{2+}-35 (w = 2.0 %), KTpClPB (x_i = 125 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –4.1; Na^+, –3.2; K^+, –1.2; Rb^+, –0.2; Cs^+, +1.2; NH_4^+, –1.9; H^+, +1.0; Mg^{2+}, –3.4; Sr^{2+}, –0.6; Ba^{2+}, +0.7	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C	[17]
Ca^{2+}-36	**Ca^{2+}-36** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %),	Li^+, –2.4; Na^+, –2.4; K^+, –3.1; Rb^+, –3.0; Cs^+, –3.0; NH_4^+, –3.0;	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; $\lg P_{o/w}$ = 9.5 ± 0.2	[17]

† background, 150 mM Na^+, 5 mM K^+, 0.8 mM Mg^{2+}.

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	PVC (w = 32 %)	H^+, –3.1; Mg^{2+}, –3.9; Sr^{2+}, –0.9; Ba^{2+}, –2.6							
Ca^{2+}-37	**Ca^{2+}-37** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –4.2; Na^+, –4.3; K^+, –3.3; Rb^+, –3.3; Cs^+, –1.6; NH_4^+, –4.0; H^+, –2.6; Mg^{2+}, –3.3; Sr^{2+}, –1.6; Ba^{2+}, –1.6	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; lg $P_{o/w}$ = 2.9 ± 0.2	[17]
Ca^{2+}-38	**Ca^{2+}-38** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –3.5; Na^+, –3.7; K^+, –4.3; NH_4^+, –3.9; H^+, –3.1; Mg^{2+}, –4.5; Sr^{2+}, –1.0; Ba^{2+}, –3.3	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; lg $P_{o/w}$ = 5.2 ± 0.2	[17]
Ca^{2+}-39	**Ca^{2+}-39** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –3.8; Na^+, –3.9; K^+, –4.3; Rb^+, –4.1; Cs^+, –3.6; NH_4^+ –4.2; H^+, –2.9; Mg^{2+}, –3.6; Sr^{2+}, –0.6; Ba^{2+}, –2.9	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; lg $P_{o/w}$ = 3.3 ± 0.2	[17]
Ca^{2+}-40	**Ca^{2+}-40** (w = 2.0 %), KTpClPB (x_i = 100 %), oNPOE ($w \approx$ 66 %), PVC (w = 32 %)	Li^+, –4.9; Na^+, –4.8; K^+, –4.8; Rb^+, –4.6; Cs^+, –3.9; NH_4^+, –4.4; H^+, –3.4; Mg^{2+}, –5.1; Sr^{2+}, –1.0; Ba^{2+}, –2.3	SSM	10^{-1}	10^{-1}	–	–	25 ± 0.5 °C; lg $P_{o/w}$ = 3.1 ± 0.2	[17]
Ca^{2+}-41	**Ca^{2+}-41** (w = 1.3 %), KTpClPB (x_i = 50 %), oNPOE (w = 65.4 %), PVC (w = 32.8 %)	Na^+, –3.5; K^+, –3.5; Mg^{2+}, –3.1	FIM	–	10^{-1}	–	10^{-6}–10^{-3}	37 °C; $c_{dl} < 10^{-3.9}$ M	[18]
	Ca^{2+}-42 (w = 1.3 %), KTpClPB (x_i = 50 %), BBPA (w = 65.4 %), PVC (w = 32.8 %)	Na^+, –2.8; K^+, –2.7; Mg^{2+}, –3.3	FIM	–	10^{-1}	–	–	37 °C	[18]
Ca^{2+}-42	**Ca^{2+}-42** (w = 1.3 %), KTpClPB (x_i = 53 %), oNPOE (w = 65.4 %), PVC (w = 32.8 %)	Na^+, –2.3; K^+, –3.2; Mg^{2+}, –4.8	FIM	–	10^{-1}	25	10^{-6}–10^{-3}	37 °C; $c_{dl} < 10^{-4.0}$ M	[18]
Ca^{2+}-43	**Ca^{2+}-43** (w = 1.3 %), KTpClPB (x_i = 37 %),	Na^+, –0.1; K^+, –0.1; Mg^{2+}, –3.4	FIM	–	10^{-1}	–	–	37 °C	[18]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	oNPOE (w = 65.4 %), PVC (w = 32.8 %)								
Ca^{2+}-44	**Ca^{2+}-44** (w = 1.3 %), KTpClPB (x_i = 57 %), oNPOE (w = 65.4 %), PVC (w = 32.8 %)	Na^+, –1.2; K^+, –2.1; Mg^{2+}, –1.5	FIM	–	10^{-1}	–	–	37 °C	[18]
Ca^{2+}-45	**Ca^{2+}-45** (w = 1.3 %), KTpClPB (x_i = 40 %), oNPOE (w = 65.4 %), PVC (w = 32.8 %)	Na^+, –0.1; K^+, –0.1; Mg^{2+}, –3.8	FIM	–	10^{-1}	–	–	37 °C	[18]
Ca^{2+}-46	**Ca^{2+}-46** (w = 0.66 %), KTpClPB (x_i = 33 %), oNPOE (w = 66.18 %), PVC (w = 33.09 %)	Li^+, –1.6; Na^+, –2.2; K^+, –2.7; NH_4^+, –2.0; Mg^{2+}, –2.6	SSM	10^{-2}	10^{-2}	26.3	10^{-4}–10^{-1}	τ = 42 d	[19]
Ca^{2+}-47	**Ca^{2+}-47**, KTpClPB, oNPOE, PVC (weight ratio not reported)	Li^+, –2.2; Na^+, –2.4; K^+, –2.0; Mg^{2+}, –3.6; Zn^{2+}, –2.4	FIM	–	–	N	10^{-5}–10^{-1}	lg $P_{o/w}$ = 4.0	[20]
Ca^{2+}-48	**Ca^{2+}-48,** KTpClPB, oNPOE, PVC (weight ratio not reported)	Li^+, –2.5; Na^+, –2.4; K^+, –1.9; Mg^{2+}, –3.1; Zn^{2+}, –2.1	FIM	–	–	N	10^{-5}–10^{-1}	lg $P_{o/w}$ = 6.6	[20]
Ca^{2+}-49	**Ca^{2+}-49**, KTpClPB, oNPOE, PVC (weight ratio not reported)	Li^+, –3.0; Na^+, –2.5; K^+, –2.1; Mg^{2+}, –3.0; Zn^{2+}, –2.6	FIM	–	–	N	10^{-5}–10^{-1}	lg $P_{o/w}$ = 6.5	[20]
Ca^{2+}-50	**Ca^{2+}-50**, KTpClPB, oNPOE, PVC (weight ratio not reported)	Li^+, –2.3; Na^+, –2.1; K^+, –1.7; Mg^{2+}, –3.2; Zn^{2+}, –2.4	FIM	–	–	–	–	lg $P_{o/w}$ = 5.6	[20]
Ca^{2+}-51	**Ca^{2+}-51** (w = 3 %), oNPOE (w = 65 %), PVC (w = 32 %)	Li^+, –0.3; Na^+, +2.0; K^+, –0.5; Rb^+, –1.6; Sr^{2+}, –0.5	SSM	–	–	–	–	22 ± 1 °C; r.o.o.g.	[21]
	Ca^{2+}-51 (w = 3 %), KTpClPB (x_i = 0.22 %), oNPOE (w = 65 %), PVC (w = 32 %)	Li^+, –0.8; Na^+, +1.8; K^+, –1.0; Rb^+, –2.2; Sr^{2+}, –0.5	SSM	–	–	–	–	22 ± 1 °C ; r.o.o.g.	[21]
	Ca^{2+}-51 (w = 3 %), KTpClPB (x_i = 0.58 %),	Li^+, –1.2; Na^+, +1.5; K^+, –1.4; Rb^+, –2.4;	SSM	–	–	–	–	22 ± 1 °C; r.o.o.g.	[21]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	oNPOE (w = 65 %), PVC (w = 32 %)	Sr^{2+}, –0.5							
	Ca^{2+}-51 (w = 3 %), KTpClPB (x_i = 1.2 %), oNPOE (w = 65 %), PVC (w = 32 %)	Li^+, –1.5; Na^+, +1.2; K^+, –1.6; Rb^+, –2.6; Sr^{2+}, –0.5	SSM	–	–	–	–	22 ± 1 °C; r.o.o.g.	[21]
	Ca^{2+}-51 (w = 3 %), KTpClPB (x_i = 2.85 %), oNPOE (w = 65 %), PVC (w = 32 %)	Li^+, –1.8; Na^+, +0.7; K^+, –1.9; Rb^+, –2.7; Sr^{2+}, –0.5	SSM	–	–	–	–	22 ± 1 °C; r.o.o.g.	[21]
	Ca^{2+}-51 (w = 3 %), KTpClPB (x_i = 0.025 %), oNPOE (w = 65 %), aliphatic polyurethane (w = 32 %)	K^+, –0.7	SSM	–	–	–	–	22 ± 1 °C; r.o.o.g.	[21]
	Ca^{2+}-51 (w = 3 %), KTpClPB (x_i = 0.05 %), oNPOE (w = 65 %), aliphatic polyurethane (w = 32 %)	K^+, –1.0	SSM	–	–	–	–	22 ± 1 °C; r.o.o.g.	[21]
	Ca^{2+}-51 (w = 3 %), KTpClPB (x_i = 0.1 %), oNPOE (w = 65 %), aliphatic polyurethane (w = 32 %)	K^+, –1.3	SSM	–	–	–	–	22 ± 1 °C; r.o.o.g.	[21]
	Ca^{2+}-51 (w = 3 %), KTpClPB (x_i = 0.2 %), oNPOE (w = 65 %), aliphatic polyurethane (w = 32 %)	K^+, –1.6	SSM	–	–	–	–	22 ± 1 °C; r.o.o.g.	[21]
Ca^{2+}-52	**Ca^{2+}-52** in DOPP (100 µL), ethylene-vinyl acetate (350 mg), DOP (1 mL), nitrobenzene (1 mL)	Li^+, <–4; Na^+, <–4; K^+, <–4; Mg^{2+}, –1.4; Sr^{2+}, –1.3; Ba^{2+}, –0.35; Mn^{2+}, –0.52; Fe^{2+}, <–4; Co^{2+}, –1.5; Ni^{2+}, –1.6; Cu^{2+}, –1.7; Zn^{2+}, –1.5; Cd^{2+}, –1.3; Sn^{2+}, –1.5; Hg^{2+}, –2.2; Pb^{2+}, –1.6	FIM	–	Fe^{2+}, Pb^{2+}, Sn^{2+}, Cd^{2+}, 10^{-3}; others, 10^{-2}	26	10^{-5}–10^{-1}	room temp.; τ > 180 d; 8 < pH < 11	[22]
		Li^+, <–4; Na^+, <–4; K^+, < –4; Mg^{2+}, –1.7; Sr^{2+}, –2.3; Ba^{2+}, –1.5;	SSM ($E_A = E_B$)	–	–	–	–		

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
		Mn^{2+}, –0.57; Fe^{2+}, <–4; Co^{2+}, –2.3; Ni^{2+}, –2.1; Cu^{2+}, –2.4; Zn^{2+}, –1.6; Cd^{2+}, –3.0; Sn^{2+}, <–4; Hg^{2+}, –2.3; Pb^{2+}, –3.2							
	Ca^{2+}-52 in DOPP (100 μL), PVC (300 mg), DOP (1mL), nitrobenzene (1mL)	Na^+, < –4; K^+, –2.2; Mg^{2+}, –1.6; Mn^{2+}, –0.70; Cu^{2+}, +1.0; Zn^{2+}, –1.4; Hg^{2+}, –2.0	FIM	–	10^{-3}	24	–	8 < pH < 11	[22]
		Na^+, <–4; K^+, <–4: Mg^{2+}, <–3; Mn^{2+}, –0.40; Zn^{2+}, –1.5; Hg^{2+}, –0.52	SSM ($E_A = E_B$)	–	10^{-3}	–	–	–	
Ca^{2+}-53	**Ca^{2+}-53**, DOPP, PVC (weight ratio not reported)	Na^+, –2.7; K^+, –3.0; Mg^{2+}, –3.1; Ba^{2+}, –2.1; Fe^{2+}, –1.3; Cu^{2+}, –2.1	FIM	–	–	26.8 ± 2.2	–	ISFET, Ta_2O_5 gate; τ > 120 d; 5 < pH < 9	[23]
Ca^{2+}-54	**Ca^{2+}-54** (w = 6.0 %), KTpClPB (x_i = 8 %), aromatic epoxyacrylate (w = 44.8 %), copolymerizable benzophenone photo-initiator (w = 5.4 %), DOPP (w = 19.9 %), 1,6–hexanediyl diacrylate (w = 22.4 %)	Li^+, –4.9; Na^+, –4.5; K^+, –4.5; NH_4^+, –4.5; Mg^{2+}, –1.7; Sr^{2+}, –1.85; Ni^{2+}, –2.9; Cu^{2+}, –1.9; Ba^{2+}, Zn^{2+}, interfere	FIM	–	–	31.0	10^{-5}–10^{-1}	FIA; photocured membrane; pH > 4	[24]
	Ca^{2+}-54 (w = 6.0 %), DOPP (w = 65.0 %), PVC (w = 29.0 %)	Li^+, –3.14; Na^+, –3.34; K^+, –3.24; Rb^+, –3.18; Cs^+, –3.08; NH_4^+, –3.38; H^+, –1.44; Mg^{2+}, –3.89; Sr^{2+}, –1.64; Ba^{2+}, –3.48	FIM	–	0.15	–	–	–	[25]
	Ca^{2+}-54 (w = 0.20 %), KTFPB (x_i = 70.9 %), oNPOE (w = 66.5 %), PVC (w = 33.0 %)	Li^+, +0.7; Na^+, +2.4; K^+, +6.0; Rb^+, +7.0; Cs^+, +8.0; NH_4^+, +5.0; H^+, +3.0; Mg^{2+}, –0.6; Sr^{2+}, +0.1; Ba^{2+}, +0.9	SSM	10^{-1}	10^{-1}	24.8 ± 0.9	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.21 %), KTFPB (x_i = 29.6 %),	Li^+, +0.3; Na^+, +2.4; K^+, +6.0; Rb^+, +7.0;	SSM	10^{-1}	10^{-1}	25.3 ± 0.3	10^{-4}–10^{-1}	r.o.o.g.; 22 C	[26]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	oNPOE (w = 66.7 %), PVC (w = 33.0 %)	Cs^+, +8.0; NH_4^+, +5.1; H^+, +3.3; Mg^{2+}, –0.5; Sr^{2+}, –0.5; Ba^{2+}, –0.2							
	Ca^{2+}-54 (w = 0.14 %), KTFPB (x_i = 10.5 %), oNPOE (w = 66.8 %), PVC (w = 33.0 %)	Li^+, –0.6; Na^+, +0.6; K^+, +3.8; Rb^+, +5.5; Cs^+, +6.9; NH_4^+, + 3.7; H^+, +4.5; Mg^{2+}, –0.2; Sr^{2+}, +0.3; Ba^{2+}, –0.3	SSM	10^{-1}	10^{-1}	11.2 ± 2.4	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.18 %), oNPOE (w = 66.54 %), PVC (w = 33.28 %)	Li^+, –0.2; Na^+, +0.6; K^+, –0.5; Rb^+, –0.3; Cs^+, 0.7; NH_4^+, –0.5; H^+, +4.5; Mg^{2+}, +0.5; Sr^{2+}, –0.5; Ba^{2+}, +0.5	SSM	10^{-1}	10^{-1}	13.4 ± 0.3	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.10 %), TDDMACl (x_i = 16.3 %), oNPOE (w = 66.9 %), PVC (w = 33.0 %)	Li^+, –2.1; Na^+, –1.9; K^+, –1.7; Rb^+, –1.7; Cs^+, –0.6; NH_4^+, –1.0; H^+, +5.3; Mg^{2+}, –1.0; Sr^{2+}, –0.5; Ba^{2+}, –0.2	SSM	10^{-1}	10^{-1}	23.2 ± 0.4	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.21 %), TDDMACl (x_i = 37.3 %), oNPOE (w = 66.7 %), PVC (w = 33.0 %)	Li^+, –2.3; Na^+, –2.8; K^+, –2.7; Rb^+, –2.6; Cs^+, –2.4; NH_4^+, –2.7; H^+, +3.8; Mg^{2+}, –1.1; Sr^{2+}, –0.3; Ba^{2+}, –0.1	SSM	10^{-1}	10^{-1}	26.8 ± 0.1	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.20 %), TDDMACl (x_i = 79.0 %), oNPOE (w = 66.6 %), PVC (w = 33.0 %)	Li^+, –1.4; Na^+, –1.0; K^+, –0.9; Rb^+, –1.4; Cs^+, –1.9; NH_4^+, –0.7; H^+, +5.3; Mg^{2+}, –0.9; Sr^{2+}, –1.0; Ba^{2+}, –1.1	SSM	10^{-1}	10^{-1}	24.6 ± 0.2	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.11 %), KTFPB (x_i = 177.8 %), BEHS (w = 66.5 %), PVC (w = 33.0 %)	Li^+, +4.2; Na^+, +4.9; K^+, +5.8; Rb^+, +5.9; Cs^+, +6.0; NH_4^+, +5.5; H^+ +6.4; Mg^{2+}, –0.5; Sr^{2+}, +0.2; Ba^{2+}, +0.1	SSM	10^{-1}	10^{-1}	23.0 ± 1.3	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.16 %), KTFPB (x_i = 30.3 %),	Li^+, –1.5; Na^+, +2.0; K^+, +4.2; Rb^+, +5.5;	SSM	10^{-1}	10^{-1}	33.8 ± 1.7	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	BEHS (w = 66.75 %), PVC (w = 33.0 %)	Cs^+, +6.0; NH_4^+, +4.8; H^+, +6.3; Mg^{2+}, –3.5; Sr^{2+}, –2.9; Ba^{2+}, –4.0							
	Ca^{2+}-54 (w = 0.10 %), KTFPB (x_i = 20.3 %), BEHS (w = 66.86 %), PVC (w = 33.0 %)	Li^+, –4.3; Na^+, –4.0; K^+, –3.4; Rb^+, –3.3; Cs^+, 2.9; NH_4^+, –3.0; H^+, –2.5; Mg^{2+}, –6.5; Sr^{2+}, –3.0; Ba^{2+}, –4.1	SSM	10^{-1}	10^{-1}	31.9 ± 2.3	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.09 %), KTFPB (x_i = 12.9 %), BEHS (w = 66.89 %), PVC (w = 33.0 %)	Li^+, –4.3; Na^+, –4.1; K^+, –3.3; Rb^+, –2.8; Cs^+, –2.8; NH_4^+, –3.4; H^+, –2.1; Mg^{2+}, –5.5; Sr^{2+}, –3.2; Ba^{2+}, –4.0	SSM	10^{-1}	10^{-1}	36.5 ± 0.2	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.19 %), BEHS (w = 66.81 %), PVC (w = 33.0 %)	Li^+, –3.1; Na^+, –3.9; K^+, –3.6; Rb^+, –4.8; Cs^+, –5.2; NH_4^+, –3.6; H^+, –3.7; Mg^{2+}, –2.0; Sr^{2+}, –3.8; Ba^{2+}, –3.9	SSM	10^{-1}	10^{-1}	34.1 ± 0.2	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.10 %), TDDMACl (x_i = 15.9 %), BEHS (w = 66.88 %), PVC (w = 33.0 %)	Li^+, –1.0; Na^+, –1.5; K^+, –1.2; Rb^+, –1.6; Cs^+, –1.6; NH_4^+, –1.5; H^+, +4.6; Mg^{2+}, –1.1; Sr^{2+}, +1.0; Ba^{2+}, +1.2	SSM	10^{-1}	10^{-1}	25.3 ± 0.2	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.20 %), TDDMACl (x_i = 35.2 %), BEHS (w = 66.72 %), PVC (w = 33.0 %)	Li^+, –2.3; Na^+, –2.5; K^+, –2.5; Rb^+, –2.4; Cs^+, –2.2; NH_4^+, –2.4; H^+, +3.3; Mg^{2+}, –1.8; Sr^{2+}, +0.1; Ba^{2+}, +0.5	SSM	10^{-1}	10^{-1}	24.7 ± 0.2	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 0.10 %), TDDMACl (x_i = 81.3 %), BEHS (w = 66.81 %), PVC (w = 33.0 %)	Li^+, –2.0; Na^+, –2.1; K^+, –2.1; Rb^+, –2.4; Cs^+, –2.9; NH_4^+, –1.7; H^+, +5.2; Mg^{2+}, –1.0; Sr^{2+}, –1.4; Ba^{2+}, –1.2	SSM	10^{-1}	10^{-1}	26.7 ± 0.2	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 1.0 %), KTFPB (x_i = 70.6 %),	Li^+, +1.5; Na^+, –0.9; K^+, –1.7; Rb^+, –2.0;	SSM	10^{-1}	10^{-1}	29.1 ± 0.4	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	DOPP (w = 63.71 %), PVC (w = 33.0 %)	Cs^+, –2.0; NH_4^+, –0.1; H^+, +3.4; Mg^{2+}, –1.1; Sr^{2+}, –1.3; Ba^{2+}, –1.1							
	Ca^{2+}-54 (w = 0.9 %), KTFPB (x_i = 38.2 %), DOPP (w = 64.45 %), PVC (w = 33.0 %)	Li^+, +0.4; Na^+, –2.0; K^+, –2.8; Rb^+, –3.0; Cs^+, –3.0; NH_4^+, –1.0; H^+, +2.1; Mg^{2+}, –1.5; Sr^{2+}, –1.5; Ba^{2+}, –1.5	SSM	10^{-1}	10^{-1}	29.2 ± 0.6	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 1.0 %), KTFPB (x_i = 19.9 %), DOPP (w = 64.63 %), PVC (w = 33.0 %)	Li^+, –1.6; Na^+, –2.8; K^+,, –4.0; Rb^+, –4.0; Cs^+, –4.5; NH_4^+ –2.8; H^+, +0.3; Mg^{2+}, –3.0; Sr^{2+}, –1.8; Ba^{2+}, –3.0	SSM	10^{-1}	10^{-1}	29.5 ± 0.1	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 1.0 %), KTFPB (x_i = 11.7 %), DOPP (w = 64.78 %), PVC (w = 33.0 %)	Li^+, –2.0; Na^+,–4.0; K^+, –4.6; Rb^+, –4.7; Cs^+, –4.7; NH_4^+, –3.0; H^+, +0.1; Mg^{2+}, –3.2; Sr^{2+}, –1.9; Ba^{2+}, –3.2	SSM	10^{-1}	10^{-1}	29.5 ± 0.2	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 1.0 %), DOPP (w = 66.0 %), PVC (w = 33.0 %)	Li^+, –2.3; Na^+, –4.4; K^+, –4.0; Rb^+, –4.8; Cs^+, –4.3; NH_4^+, –3.0; H^+, +0.2; Mg^{2+}, –3.2; Sr^{2+}, –1.9; Ba^{2+}, –3.2	SSM	10^{-1}	10^{-1}	29.4 ± 0.1	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 1.0 %), TDDMACl (x_i = 10.5 %), DOPP (w = 65.88 %), PVC (w = 33.0 %)	Li^+, –2.4; Na^+, –4.0; K^+, –3.7; Rb^+, –3.8; Cs^+, –3.7; NH_4^+ –2.8; H^+, +1.4; Mg^{2+}, –2.8; Sr^{2+}, –1.9; Ba^{2+}, –3.0	SSM	10^{-1}	10^{-1}	29.0 ± 0.4	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 1.0 %), KTFPB (x_i = 32.2 %), DOPP (w = 65.62 %), PVC (w = 33.0 %)	Li^+, –2.1; Na^+, –3.8; K^+, –3.4; Rb^+, –4.2; Cs^+, –3.0; NH_4^+, –2.8; H^+, +2.2; Mg^{2+}, –2.6; Sr^{2+}, –2.0; Ba^{2+}, –2.8	SSM	10^{-1}	10^{-1}	27.2 ± 0.1	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-54 (w = 1.0 %), KTFPB (x_i = 60.8 %),	Li^+, –2.0; Na^+, –3.0; K^+, –2.9; Rb^+, –3.1;	SSM	10^{-1}	10^{-1}	28.0 ± 0.2	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	DOPP (w = 65.39 %), PVC (w = 33.0 %)	Cs^+, –3.0; NH_4^+, –2.5; H^+, +2.6; Mg^{2+}, –2.2; Sr^{2+}, –1.9; Ba^{2+}, –2.5							
	Ca^{2+}-54 (w = 1.0 %), KTFPB (x_i = 87.2 %), DOPP (w = 64.97 %), PVC (w = 33.0 %)	Li^+, –0.7; Na^+, –1.5; K^+, –1.5; Rb^+, –2.3; Cs^+, –1.4; NH_4^+, –1.3; H^+, +2.5; Mg^{2+}, –1.5; Sr^{2+}, –1.4; Ba^{2+}, –2.0	SSM	10^{-1}	10^{-1}	23.7 ± 1.0	10^{-4}–10^{-1}	r.o.o.g.; 25 ± 0.1 °C	[26]
Ca^{2+}-55	**Ca^{2+}-55** (w = 6.3 %), oNPOE (w = 63.2 %), PVC (w = 30.5 %)	Li^+, –3.80; Na^+, –4.10 ; K^+, –3.50; NH_4^+, –2.90; Mg^{2+}, –2.10; Sr^{2+}, –1.60; Ba^{2+}, –1.50; Co^{2+}, –0.88; Cu^{2+}, +0.09; Zn^{2+}, –1.60	SSM	–	–	30.03	10^{-4}–10^{-1}	25 ± 0.1 °C; CWE; τ = 90–120 d	[27]
	Ca^{2+}-55 (w = 6.3 %), TBEP* (w = 63.2 %), PVC (w = 30.5 %)	Li^+, –2.80; Na^+, –2.80; K^+, –3.10; NH_4^+, –2.20; Mg^{2+}, –1.60; Sr^{2+} –1.70; Ba^{2+}, –0.56; Co^{2+}, –0.63; Cu^{2+}, –0.43; Zn^{2+}, –1.40	SSM	–	–	29.88	10^{-5}–10^{-1}	25 ± 0.1 °C; CWE; τ = 90–120 d * tributoxy-ethyl phosphate	[27]
Ca^{2+}-56	**Ca^{2+}-56** (w = 3.4 %), DOPP (w = 73.4 %), PVC (w = 23.0 %)	Mg^{2+},–2.35; Ba^{2+}, –2.19; Ni^{2+}, –2.52; Cu^{2+}, –1.37; Zn^{2+}, –1.15; Pb^{2+}, –0.74;	SSM	10^{-2}	10^{-2}	–	–	CWE	[28]
	Ca^{2+}-56 (w = 3.4 %), DOPP (w = 88.1 %), ferrocene (w = 0.8 %), PVC (w = 22.8 %)	Mg^{2+}, –1.72; Ba^{2+}, –1.70; Ni^{2+}, –2.03; Cu^{2+}, –0.22; Zn^{2+}, +0.49; Pb^{2+}, +0.32	SSM	10^{-2}	10^{-2}	-	-	CWE	[28]
Ca^{2+}-57	**Ca^{2+}-57** (w = 1.1 %), KTFPB (x_i = 48.7 %), BEHS (w = 64.9 %), PVC (w = 33.0 %)	Li^+, +2.6; Na^+, +3.0; K^+, +4.0; Rb^+, +4.2; Cs^+, +4.3; NH_4^+, +3.9; H^+, +4.8	SSM	10^{-1}	10^{-1}	27.8 ± 0.1	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-57 (w = 1.1 %), KTFPB (x_i = 9.1 %), BEHS (w = 65.7 %), PVC (w = 33.0 %)	Li^+, +0.3; Na^+, +0.5; K^+, +1.4; Rb^+, +1.9; Cs^+, +2.0; NH_4^+, +1.4; H^+ +2.1	SSM	10^{-1}	10^{-1}	30.0 ± 0.2	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-57 (w = 1.1 %),	Li^+, –1.4; Na^+ –1.3;	SSM	10^{-1}	10^{-1}	29.4 ± 0.5	10^{-4}–10^{-1}	r.o.o.g.;	[26]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

ionophore	membrane composition	$\lg K_{Ca^{2+},B^{n+}}$	method	primary ion conc. (M)	interfering ion conc. (M)	slope (mV/ decade)	linear range (M)	remarks	ref.
	BEHS (w = 65.9 %), PVC (w = 33.0 %)	K^+, –0.7; Rb^+, –0.6; Cs^+, –0.2; NH_4^+, –0.6; H^+, –1.3						22 °C	
	Ca^{2+}-57 (w = 1.0 %), TDDMACl (x_i = 9.5 %), BEHS (w = 65.9 %), PVC (w = 33.0 %)	Li^+, –1.0; Na^+, –0.8; K^+, –0.2; Rb^+, –0.1; Cs^+, 0.0; NH_4^+, –0.1; H^+, +0.2	SSM	10^{-1}	10^{-1}	29.1 ± 0.6	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-57 (w = 1.1 %), TDDMACl (x_i = 47.9 %), BEHS(w = 65.4 %), PVC (w = 33.0 %)	Li^+, –2.3; Na^+ –1.4; K^+, –1.0; Rb^+, –1.0; Cs^+, –1.0; NH_4^+, –0.9; H^+, +1.0	SSM	10^{-1}	10^{-1}	29.2 ± 0.3	10^{-4}–10^{-1}	r.o.o.g.; 22 °C	[26]
	Ca^{2+}-57 (w = 1.0 %), oNPOE (w = 66 %), PVC (w = 33 %)	Li^+, –1.3; Na^+, –0.8; K^+, +0.2; Rb^+, +0.7; Cs^+, +1.4; Mg^{2+}, –0.4; Sr^{2+}, +0.1; Ba^{2+}, +0.4	SSM	10^{-1}	10^{-1}	24.8 ± 0.9	10^{-4}–10^{-1}	22 ± 1 °C; τ > 30 d; r.o.o.g.	[29]
	Ca^{2+}-57 (w = 1.0 %), TDDMACl (x_i = 9.1 %), oNPOE (w = 65.9 %), PVC (w = 33 %)	Li^+, –1.5; Na^+, –1.1; K^+, –0.6; Rb^+, –0.4; Cs^+, –0.2; Mg^{2+}, –0.5; Sr^{2+}, +0.2; Ba^{2+}, +0.5	SSM	10^{-1}	10^{-1}	28.2 ± 0.2	10^{-4}–10^{-1}	22 ± 1 °C; τ > 30 d; r.o.o.g.	[29]
	Ca^{2+}-57 (w = 1.0 %), TDDMACl (x_i = 47.6 %), oNPOE (w = 65.4 %), PVC (w = 33 %)	Li^+, –1.7; Na^+, –1.4; K^+, –1.1; Rb^+, –0.9; Cs^+, –0.7; Mg^{2+}, –0.5; Sr^{2+}, –0.1; Ba^{2+}, +0.4	SSM	10^{-1}	10^{-1}	28.6 ± 0.2	10^{-4}–10^{-1}	22 ± 1 °C; τ > 30 d; r.o.o.g.	[29]

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Table 9: Ca^{2+}-Selective Electrodes (*Continued*)

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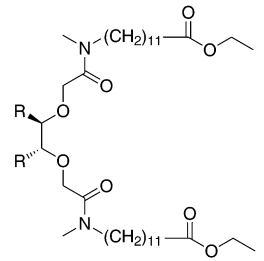
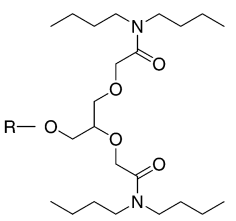
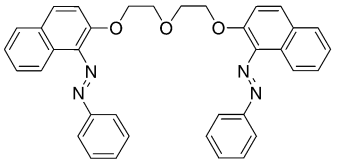


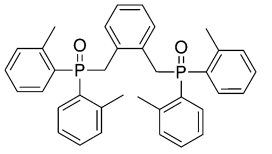
Ca^{2+}-1 (ETH 1001, M_r = 685.00): R = CH_3



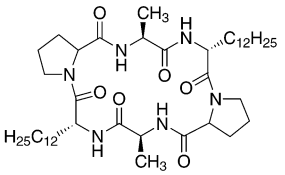
Ca^{2+}-2: R = polysiloxane



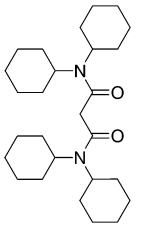
Ca^{2+}-3 (M_r = 566.66)



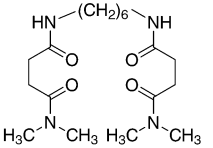
Ca^{2+}-4 (M_r = 562.63)



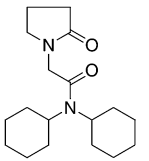
Ca^{2+}-5 (M_r = 787.14)



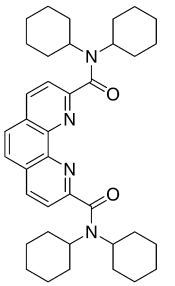
Ca^{2+}-6 (M_r = 430.67)



Ca^{2+}-7 (M_r = 370.49)



Ca^{2+}-8 (M_r = 306.45)



Ca^{2+}-9 (M_r = 594.84)

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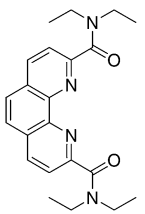
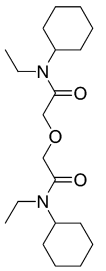
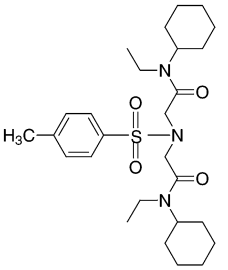
Table 9: Ca^{2+}-Selective Electrodes (*Continued*)



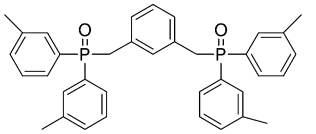
Ca^{2+}-10 (M_r = 378.47)



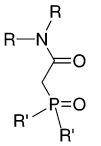
Ca^{2+}-11 (M_r = 352.52)



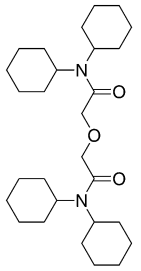
Ca^{2+}-12 (M_r = 505.71)



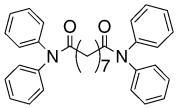
Ca^{2+}-13 (M_r = 562.63)



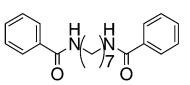
Ca^{2+}-14 (M_r = 214.31): R=C_2H_5, R'=C_2H_5
Ca^{2+}-15 (M_r = 270.41): R=C_4H_9, R'=C_2H_5
Ca^{2+}-16 (M_r = 302.41): R=OC_4H_9, R'=C_2H_5
Ca^{2+}-17 (M_r = 310.39): R=C_6H_5, R'=C_2H_5
Ca^{2+}-18 (M_r = 366.50): R=C_6H_5, R'=C_4H_9
Ca^{2+}-19 (M_r = 478.72): R=C_6H_5, R'=C_8H_{17}



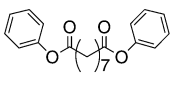
Ca^{2+}-20 (ETH 129, M_r = 460.70)



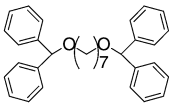
Ca^{2+}-21 (M_r = 490.64)



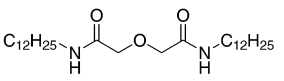
Ca^{2+}-22 (M_r = 338.45)



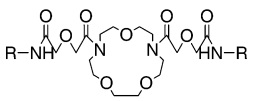
Ca^{2+}-23 (M_r = 340.42)



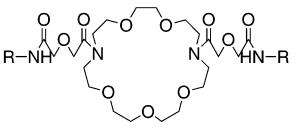
Ca^{2+}-24 (M_r = 464.45)



Ca^{2+}-33 (M_r = 468.76)



Ca^{2+}-29 (M_r = 785.12): R=$C_{12}H_{25}$
Ca^{2+}-34 (M_r = 997.49): R=$C_{18}H_{37}$



Ca^{2+}-31 (M_r = 873.22): R=$C_{12}H_{25}$
Ca^{2+}-35 (M_r = 1041.54): R=$C_{18}H_{37}$
Ca^{2+}-40 (M_r = 873.22): R=$C_{10}H_{15}$ (adamantyl)

continues on next page

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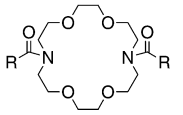
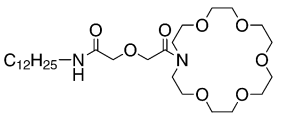
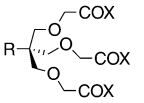
Table 9: Ca^{2+}-Selective Electrodes (*Continued*)



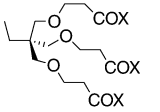
Ca^{2+}-25 (M_r = 655.01): R=$C_{12}H_{25}$
Ca^{2+}-26 (M_r = 769.12): R=$CH_2CONHC_{12}H_{25}$
Ca^{2+}-27 (M_r = 797.17): R=$C_2H_4CONHC_{12}H_{25}$
Ca^{2+}-28 (M_r = 825.22): R=$C_3H_6CONHC_{12}H_{25}$
Ca^{2+}-30 (M_r = 829.17): R=$CH_2OCH_2CONHC_{12}H_{25}$
Ca^{2+}-36 (M_r = 941.38): R=$CH_2OCH_2CON(C_8H_{17})_2$
Ca^{2+}-37 (M_r = 652.78): R=$CH_2OCH_2CONC_6H_{10}NC_6H_{10}$; NC_6H_{10} =
Ca^{2+}-38 (M_r = 821.11): R=$CH_2OCH_2CON(C_6H_{11})_2C_6H_{11}$
Ca^{2+}-39 (M = 760.97): R=CH OCH CONHC H (adamantyl)



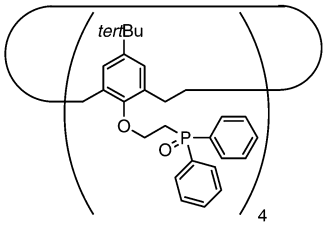
Ca^{2+}-32 (M_r = 546.74)



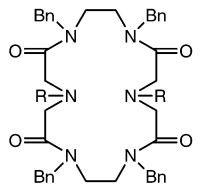
Ca^{2+}-41 (M_r = 641.97): R=Et, X=NBu_2
Ca^{2+}-42 (M_r = 690.02): R=Ph, X=NBu_2
Ca^{2+}-43 (M_r = 476.61): R=Et, X=OBu



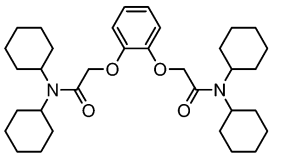
Ca^{2+}-44 (M_r = 684.05): X=NBu_2
Ca^{2+}-45 (M_r = 518.69): X=OBu



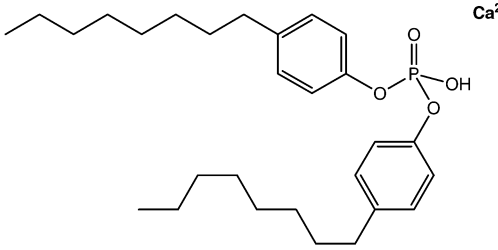
Ca^{2+}-46 (M_r = 1617.95)



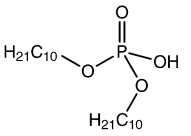
Ca^{2+}-47 (M_r = 818.97): R=COO(tBu)Boc
Ca^{2+}-48 (M_r = 646.79): R=Me
Ca^{2+}-49 (M_r = 788.94): R=CH_2CONMe_2
Ca^{2+}-50 (M_r = 800.96): R=CH_2Py



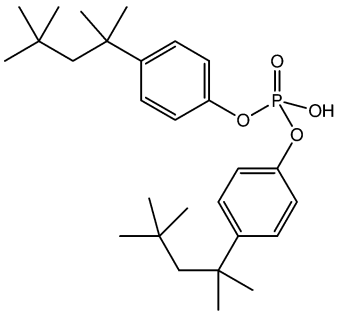
Ca^{2+}-51 (M_r = 552.80)



Ca^{2+}-53 (M_r = 474.62)



Ca^{2+}-52 (M_r = 378.53)



Ca^{2+}-54 (M_r = 474.62)

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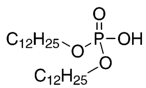
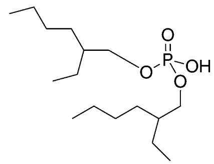
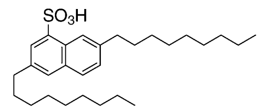
Table 9: Ca^{2+}-Selective Electrodes (*Continued*)



Ca^{2+}-55 (M_r = 434.64)



Ca^{2+}-56 (M_r = 322.42)



Ca^{2+}-57 (M_r = 460.30)