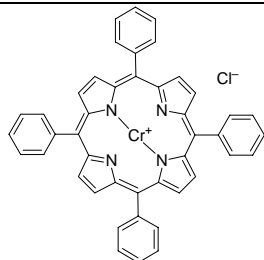


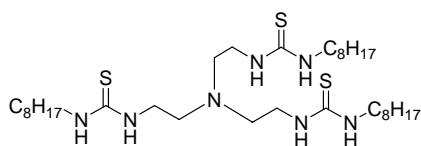
Salicylate



Salicylate ionophore I

(*meso*-Tetraphenylporphyrine Chromium(III) chloride Complex)
C₄₄H₂₈ClCrN₄ M_r 700.17 [28110-70-5]

[61429](#) Selectophore® 50 mg, 250 mg



Salicylate ionophore II

(N-Octyl-5-[2-[[[(octylamino)thioxomethyl]amino]ethyl]-9-thioxo-2,5,8,10-tetrazaoctadecanethioamide)
C₃₃H₆₉N₇S₃ M_r 660.14 [1005344-82-0]

[68813](#) Selectophore® 50 mg

Electrochemical Transduction

- Ion-Selective Electrodes

Electrochemical Transduction

Ion-Selective Electrodes

Application 1 and Sensor Type ¹

Determination of salicylate activity with solvent polymeric membrane electrodes based on Salicylate ionophore I.

Recommended Membrane Composition

5.1	wt%	Salicylate ionophore I (61429)
1.6	wt%	Bis(2-ethylhexyl) phthalate (80030)
61.5	wt%	Sodium tetraphenylborate (72018)
31.8	wt%	Poly(vinyl chloride) high molecular weight (81392)

Recommended Cell Assembly

Reference || sample solution || ion-selective membrane | salicylate (0.01 M), NaCl (0.01 M) | AgCl, Ag

Electrode Characteristics and Function

Selectivity coefficients $\log K^{\text{Pot}}_{\text{Salicylate, X}}$ as obtained by the modified separate solution method (solutions buffered to pH 4.0 using phosphate buffer).

$\log K^{\text{Pot}}_{\text{Salicylate, SCN}}$	-3.7	$\log K^{\text{Pot}}_{\text{Salicylate, Phthalate}}$	-4.7
$\log K^{\text{Pot}}_{\text{Salicylate, ClO}_4}$	-3.8	$\log K^{\text{Pot}}_{\text{Salicylate, Maleate}}$	-4.8
$\log K^{\text{Pot}}_{\text{Salicylate, I}}$	-4.9	$\log K^{\text{Pot}}_{\text{Salicylate, Acetate}}$	-5.9
$\log K^{\text{Pot}}_{\text{Salicylate, Br}}$	-4.5	$\log K^{\text{Pot}}_{\text{Salicylate, Lactate}}$	-6.3
$\log K^{\text{Pot}}_{\text{Salicylate, Cl}}$	-4.6	$\log K^{\text{Pot}}_{\text{Salicylate, Nicotinate}}$	-4.5
$\log K^{\text{Pot}}_{\text{Salicylate, F}}$	-4.5	$\log K^{\text{Pot}}_{\text{Salicylate, Oxalate}}$	-6.3
$\log K^{\text{Pot}}_{\text{Salicylate, NO}_3}$	-4.5	$\log K^{\text{Pot}}_{\text{Salicylate, Citrate}}$	-7.9
$\log K^{\text{Pot}}_{\text{Salicylate, NO}_2}$	-5.9	$\log K^{\text{Pot}}_{\text{Salicylate, Tartrate}}$	-7.2
$\log K^{\text{Pot}}_{\text{Salicylate, HCO}_3}$	-5.2		
$\log K^{\text{Pot}}_{\text{Salicylate, H}_2\text{PO}_4}$	-6.8		
$\log K^{\text{Pot}}_{\text{Salicylate, SO}_4}$	-7.1		

Slope of linear regression: -56.9 ± 1.8 mV (measured in phosphate buffer solution pH 4.0)

Linear Range: $5 \cdot 10^{-6}$ to 10^{-1} M

Detection limit: $3.5 \cdot 10^{-6}$ M

Practical pH measuring range: 3-9

¹ S. Shahrokhian, A. Hamzehloei, M. Bagherzadeh, Chromium(III) Porphyrin as a Selective Ionophore in a Salicylate-Selective Membrane Electrode. **Anal. Chem.** **74**, 3312 (2002).

Application 2 and Sensor Type ²

Determination of salicylate activity with solvent polymeric membrane electrodes based on Salicylate ionophore II.

Recommended Membrane Composition

1.0	wt%	Salicylate ionophore II (68813)
	wt%	TDMACI ()
66.0	wt%	BEHA ()
33.0	wt%	Poly(vinyl chloride) high molecular weight (81392)

Recommended Cell Assembly

Reference || sample solution || ion-selective membrane | salicylate (0.01 M), phosphate buffer pH 7.0 | AgCl, Ag

Electrode Characteristics and Function

Selectivity coefficients $\log K_{\text{Salicylate, X}}^{\text{Pot}}$ as obtained by the modified separate solution method (solutions buffered to pH 7.0 using phosphate buffer).

$\log K_{\text{Salicylate, SCN}}^{\text{Pot}}$	-3.7	$\log K_{\text{Salicylate, Phthalate}}^{\text{Pot}}$	-4.7
$\log K_{\text{Salicylate, ClO}_4}^{\text{Pot}}$	-3.8	$\log K_{\text{Salicylate, Maleate}}^{\text{Pot}}$	-4.8
$\log K_{\text{Salicylate, I}}^{\text{Pot}}$	-4.9	$\log K_{\text{Salicylate, Acetate}}^{\text{Pot}}$	-5.9
$\log K_{\text{Salicylate, Br}}^{\text{Pot}}$	-4.5	$\log K_{\text{Salicylate, Lactate}}^{\text{Pot}}$	-6.3
$\log K_{\text{Salicylate, Cl}}^{\text{Pot}}$	-4.6	$\log K_{\text{Salicylate, Nicotinate}}^{\text{Pot}}$	-4.5
$\log K_{\text{Salicylate, F}}^{\text{Pot}}$	-4.5	$\log K_{\text{Salicylate, Oxalate}}^{\text{Pot}}$	-6.3
$\log K_{\text{Salicylate, NO}_3}^{\text{Pot}}$	-4.5	$\log K_{\text{Salicylate, Citrate}}^{\text{Pot}}$	-7.9
$\log K_{\text{Salicylate, NO}_2}^{\text{Pot}}$	-5.9	$\log K_{\text{Salicylate, Tartrate}}^{\text{Pot}}$	-7.2
$\log K_{\text{Salicylate, HCO}_3}^{\text{Pot}}$	-5.2		
$\log K_{\text{Salicylate, H}_2\text{PO}_4}^{\text{Pot}}$	-6.8		
$\log K_{\text{Salicylate, SO}_4}^{\text{Pot}}$	-7.1		

Slope of linear regression: -63.2 mV/dec (measured in phosphate buffer solution pH 7.0)

Linear Range: $4.4 \cdot 10^{-4}$ to 0.07 M

Detection limit: $2.2 \cdot 10^{-4}$ M

Practical pH measuring range: 3-9

² C. Lee, J. Kim, D.W. Kim, S. S. Lee, J. Kim, J.S. Kim, Salicylate-Selective Electrodes Based on Tripodal Tris-thiourea Derivatives. **Bull. Korean Chem. Soc.** **28**, 2466 (2007).