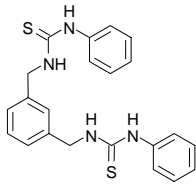


Sulfate



Sulfate ionophore I

(1,3-[Bis(3-phenylthioureidomethyl)]benzene)
 $C_{22}H_{22}N_4S_2$ $M_r = 406.57$ [37042-63-0]

[17892](#) **Selectophore[®], function tested** 50 mg, 250 mg

Electrochemical Transduction

- Ion-Selective Electrodes

Electrochemical Transduction

Ion-Selective Electrodes

Application 1 and Sensor Type¹

Assay of SO_4^{2-} activity with solvent polymeric membrane electrode based on Sulfate ionophore I.

Recommended Membrane Composition

1.0	wt%	Sulfate ionophore I (17892)
0.7	wt%	Tridodecylmethylammonium chloride (TDDMACI) (91661)
65.5	wt%	2-Nitrophenyl octyl ether (73732)
32.8	wt%	Poly(vinyl chloride) high molecular weight (81392)

Recommended Cell Assembly

Reference | | sample solution | | liquid membrane | 0.1 M BaCl_2 | AgCl, Ag

Electrode Characteristics and Function

Recommended Cell Assembly

Reference | | 0.1 M HEPES-NaOH (pH 7.0) | | sample solution | | liquid membrane | 0.01 M KCl + 0.01 Na_2SO_4 | AgCl, Ag

Electrode Characteristics and Function

Selectivity coefficients $\log K_{\text{SO}_4^{2-}, X}^{\text{Pot}}$ as obtained by the matched potential method (in 0.1 M HEPES-NaOH buffer (pH 7.0))

$\log K_{\text{SO}_4^{2-}, \text{SCN}}^{\text{Pot}}$	2.9	$\log K_{\text{SO}_4^{2-}, \text{HSO}_3}^{\text{Pot}}$	-0.3
$\log K_{\text{SO}_4^{2-}, \text{NO}_3}^{\text{Pot}}$	1.6	$\log K_{\text{SO}_4^{2-}, \text{HCO}_3}^{\text{Pot}}$	-0.9
$\log K_{\text{SO}_4^{2-}, \text{NO}_2}^{\text{Pot}}$	1.1	$\log K_{\text{SO}_4^{2-}, \text{Acetate}}^{\text{Pot}}$	-1.5
$\log K_{\text{SO}_4^{2-}, \text{Br}}^{\text{Pot}}$	0.6	$\log K_{\text{SO}_4^{2-}, \text{H}_2\text{PO}_4}^{\text{Pot}}$	-1.5
$\log K_{\text{SO}_4^{2-}, \text{Cl}}^{\text{Pot}}$	-0.1		

Slope of linear regression: -28 mV ($7 \cdot 10^{-7}$ to $2 \cdot 10^{-2}$ M NaSO_4)

Detection limit: 33 $\mu\text{g SO}_4^{2-}/\text{L}$

Membrane resistance: 50 $\text{k}\Omega$

¹ S. Nishizawa, P. Bühlmann, K. Xiao, Y. Umezawa, Application of a bis-thiourea ionophore for an anion selective electrode with a remarkable sulfate selectivity, *Anal. Chim Acta* **358**, 35 (1998).