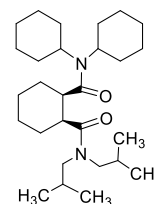


Product Information



62558 Lithium ionophore III

(ETH 1810; *N,N*-Dicyclohexyl-*N',N'*-diisobutyl-*cis*-cyclohexane-1,2-dicarboxamide)
Selectophore®, function tested

Electrochemical Transduction

Ion-Selective Electrodes

Application 1 and Sensor Type¹⁻⁴

Assay of Li⁺ activity in whole blood, plasma and serum (therapeutic Li⁺ range) with solvent polymeric membrane electrode based on Lithium ionophore III.

Recommended Membrane Composition

1.20 wt%	Lithium ionophore III (ETH 1810) (62558)
0.40 wt%	Potassium tetrakis(4-chlorophenyl)borate (60591)
65.60 wt%	2-Nitrophenyl octyl ether (73732)
32.80 wt%	Poly(vinyl chloride) high molecular weight (81392)

Recommended Cell Assembly

Reference || sample solution || liquid membrane | 0.001 M LiCl | AgCl, Ag

Electrode Characteristics and Function

Selectivity coefficients $\log K_{Li,M}^{Pot}$.

	Required (blood ^{a)})	Found
$\log K_{Li,H}^{Pot}$	<2.1	1.0
$\log K_{Li,Na}^{Pot}$	<-4.3	-2.3 (-2.45) ^{c)}
$\log K_{Li,K}^{Pot}$	<-2.8	-2.6
$\log K_{Li,Mg}^{Pot}$	<-3.5	-4.0
$\log K_{Li,Ca}^{Pot}$	<-3.6	-2.7
Lifetime: $\log P_{TLC}$ ionophore ^{b)} :	>8.4	8.3
$\log P_{TLC}$ plasticizer ^{b)} :	>12.8	9.3
Stability: Drift 0.02 mV/h		

^{a)} for therapeutic Li⁺ concentrations (1% interference, worst case)^{5,6}

^{b)} lipophilicity, determined by thin-layer chromatography

^{c)} fixed interference method⁷

¹ Lipophilic neutral carriers for lithium selective liquid membrane electrodes. E. Metzger, D. Ammann, U. Schefer, E. Pretsch, W. Simon, *Chimia* 38, 440 (1984).

² Ion selective liquid membrane electrode for the assay of lithium in blood serum. E. Metzger, D. Ammann, R. Asper, W. Simon, *Anal. Chem.* 58, 132 (1986).

³ Lithium/sodium ion concentration ratio measurements in blood serum with lithium and sodium ion selective liquid membrane electrodes. E. Metzger, R. Dohner, W. Simon, D. J. Vonderschmitt, K. Gautschi, *Anal. Chem.* 59, 1600 (1987).

⁴ Lithium Ion-Selective Electrode with Improved Lifetime. J. H. Sim, K. M. Lee, J. S. Lee, D. H. Cho, H. Nam, G. S. Cha, *Bull. Korean Chem. Soc.* 22, 765 (2001).

⁵ Ion selective electrodes in clinical chemistry. A. Lewenstam, *Anal. Proc.* 28, 106 (1991).

⁶ U. Oesch, P. Anker, D. Ammann, W. Simon, in: *Ion-Selective Electrodes*, Eds. E. Pungor, I. Buzás, Akadémiai Kiadó, Budapest 81 (1985).

⁷ Ion selective liquid membrane electrode for the assay of lithium in blood serum. E. Metzger, D. Ammann, R. Asper, W. Simon, *Anal. Chem.* 58, 132 (1986).

