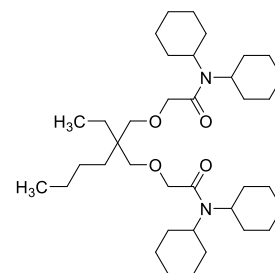


Product Information



99387 Lithium ionophore IV

(ETH 2137; 5-Butyl-5-ethyl-*N,N,N',N'*-tetracyclohexyl-3,7-dioxazelaic diamide)
Selectophore®, function tested

Electrochemical Transduction

Ion-Selective Electrodes

Application 1 and Sensor Type^{1,2}

Determination of Li⁺/Na⁺ concentration ratios in blood serum (therapeutical Li⁺ range) with solvent polymeric membrane electrodes based on Lithium ionophore IV, combined with a Na⁺-selective polymeric membrane electrode.

Recommended Membrane Composition

2.00 wt%	Lithium ionophore IV (ETH 2137) (99387)
65.60 wt%	Bis(1-butylpentyl) adipate (02150)
32.40 wt%	Poly(vinyl chloride) high molecular weight (81392)

Recommended composition of the Na⁺-selective solvent polymeric membrane¹

1.00 wt%	Sodium ionophore III (ETH 2120) (71734)
66.00 wt%	Bis(1-butylpentyl)decane-1,10-diyl diglutarate (ETH 469) (30585)
33.00 wt%	Poly(vinyl chloride) high molecular weight (81392)

Recommended Cell Assembly

AgCl, Ag | 0.001 M LiCl, 0.14 M NaCl in 0.5 % aqueous agar | Na⁺-selective membrane || sample solution | Li⁺-selective membrane liquid membrane | 0.001 M LiCl, 0.14 M NaCl in 0.5% aqueous agar | AgCl, Ag

Electrode and System Characteristics

The electrode response function for Li⁺/Na⁺ concentration ratio is described by the following equation¹:

$$E_{ratio} = E_{ratio}^0 + s \cdot \log \left(\frac{c_{Li}}{c_{Na}} + K_{Li,Na}^{Pot} \right)$$

Selectivity coefficient $\log K_{Li,Na}^{Pot}$:	-1.9
Response time:	~20 s
Residual standard deviation (EMF response function):	<0.1 mV

¹ 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).

² 3,7-Dioxazelaamides as Ionophores for Lithium Ion Selective Liquid Membrane Electrodes E. Metzger, R. Aeschmann, M. Egli, G. Suter, R. Dohner, D. Ammann, M. Dobler, W. Simon, Helv. Chim. Acta 69, 1821 (1986).

