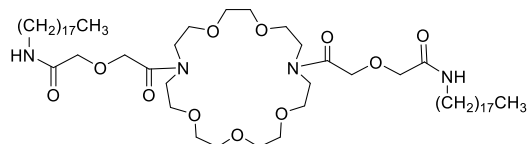


Product Information



21203 Calcium ionophore V

(K23E1; 10,19-Bis[(octadecylcarbamoyl)methoxyacetyl]-1,4,7,13,16-pentaoxa-10,19-diazacycloheptadecane)

Selectophore®, function tested

Electrochemical Transduction Ion-Selective Electrodes

Application 1 and Sensor Type¹

Assay of Ca^{2+} activity with solvent polymeric membrane electrodes based on Calcium ionophore V.

Recommended Membrane Composition

- 2.0 wt% Calcium ionophore V ([21203](#))
- 0.9 wt% Potassium tetrakis(4-chlorophenyl)borate ([60591](#))
- 66.0 wt% Nitrophenyl octyl ether ([73732](#))
- 31.1 wt% Poly(vinyl chloride) high molecular weight ([81392](#))

Recommended Cell Assembly

Reference || sample solution || ion-selective electrode | 0.1 M CaCl_2 | AgCl, Ag

Electrode Characteristics and Function

Selectivity coefficients $\log K_{Ca,M}^{Pot}$ as obtained by the separate solution method in (0.1 M solutions of the chlorides).

$\log K_{Ca,H}^{Pot}$	-3.6	$\log K_{Ca,Cs}^{Pot}$	-4.0
$\log K_{Ca,Li}^{Pot}$	-4.1	$\log K_{Ca,NH_4}^{Pot}$	-4.2
$\log K_{Ca,Na}^{Pot}$	-4.1	$\log K_{Ca,Mg}^{Pot}$	-5.0
$\log K_{Ca,K}^{Pot}$	-4.4	$\log K_{Ca,Sr}^{Pot}$	-1.0
$\log K_{Ca,Rb}^{Pot}$	-4.2	$\log K_{Ca,Ba}^{Pot}$	-2.1

Lifetime: $\log P_{TLC}^{a)}$ ionophore: 14.6

^{a)} lipophilicity, determined by thin-layer chromatography²



Optical Transduction

Application 1 and Sensor Type³

Flow-through type Ca^{2+} ion selective optodes for determination of Ca^{2+} in biological samples such as human serum based on Calcium ionophore V.

Recommended Membrane Composition

- 1.0 wt% Calcium ionophore V ([21203](#))
- 1.2 wt% Chromoionophore (LAD-3)^{b)}
- 31.0 wt% o-Trifluoromethylphenyl dodecyl ether (TFPDE)^{b)}
- 66.8 wt% ODS beads^{b)}

^{b)} not available from Merck

Recommended pH Buffer

0.05 M Tris-HCl, pH 7.0

¹ Design and Synthesis of Calcium and Magnesium Ionophores Based on Double-Armed Diazacrown Ether Compounds and Their Application to an Ion Sensing Component for an Ion-Selective Electrode. K. Suzuki, K. Watanabe, Y. Matsumoto, M. Kobayashi, S. Sato, D. Siswanta, H. Hisamoto, Anal. Chem. 67, 324 (1995).

² Lifetime of neutral-carrier-based liquid membranes in aqueous samples and blood and the lipophilicity of membrane components. O. Dinten, U.E. Spichiger, N. Chaniotakis, P. Gehrig, B. Rusterholz, W.E. Morf, W. Simon, Anal. Chem. 63, 596 (1991).

³ Flow-through type calcium ion selective optodes based on novel neutral ionophores and a lipophilic anionic dye. H. Hisamoto, K. Watanabe, E. Nakagawa, D. Siswanta, Y. Shichi, K. Suzuki, Anal. Chim. Acta 299, 179 (1994).



The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada

