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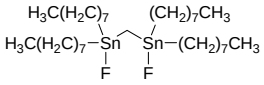
Fluoride



Fluoride Ionophore I

(n-Octyl)$_2$(F)SnCH$_2$Sn(F)(n-Octyl)$_2$; Bis[fluoro(di-n-dioctyl)stannyl]methane; Stannane, methylenbis[fluoro(di-n-octyl)]

$C_{33}H_{70}F_2Sn_2$ M_r 742.33 [767355-17-9]

02536	**Selectophore®, function tested**	100 mg

Electrochemical Transduction

Ion-Selective Electrodes

Application 1 and Sensor Type [1,2]

Assay of F^- activity with solvent polymeric electrodes based on Fluoride Ionophore I. The major interfering ions are $H_2PO_4^{2-}$ and SCN^-.

Recommended Cell Assembly

Reference ‖ sample solution ‖ ion-selective membrane | 0.01 M KF (47073), buffered with 0.001M MES pH 5.5 (69892) | AgCl, Ag

Recommended Membrane Composition

1.5	wt%	Fluoride Ionophore I (02536)
65.3	wt%	Bis(2-ethylhexyl) sebacate (DOS) (84818)
33.2	wt%	Poly(vinyl chloride) high molecular weight (81392)

Electrode Characteristics and Function

Selectivity coefficients $\log K^{Pot}_{F,X}$ as obtained by the separate solution method (0.01 M of the potassium salts).

$\log K^{Pot}_{F,SCN}$	0.1	$\log K^{Pot}_{F,NO_2}$	-2.0
$\log K^{Pot}_{F,Br}$	-2.5	$\log K^{Pot}_{F,NO_3}$	-3.3
$\log K^{Pot}_{F,Cl}$	-3.0	$\log K^{Pot}_{F,H_2PO_4}$	0.9

Slope of linear regression: 57-58 mV/decade

Nernstian electrode response (3×10^{-5} to 10^{-1} M KF)
Detection limit: log a_{F^-} ~ -4.5

[1] K. Perdikaki, I. Tsagkatakis, N. Chaniotakis, R. Altmann, K. Jurkschat, G. Reeske, Selective fluoride recognition and potentiometric properties of ion-selective electrodes based on bis(halodiphenylstannyl)alkanes, **Anal. Chim. Acta** *467*, 197 (2002).

[2] N. Chaniotakis, K. Jurkschat, D. Müller, K. Perdikaki, G. Reeske, Bis[di-n-alkyl(fluoro)stannyl]methanes, $(R_2FSn)_2CH_2$ (R = n-octyl, n-dodecyl): Stable Fluoride-Selective Carriers, **Eur. J. Inorg. Chem.** *11*, 2283 (2004).