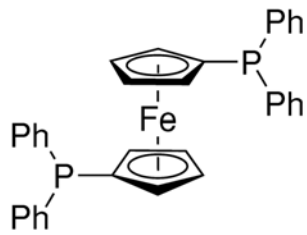


Zirconium



Zirconium ionophore I

(1,1'-Bis(diphenylphosphino) ferrocene, dppf)

$C_{34}H_{28}FeP_2$ M, 554.38 [12150-46-8]

[68646](#) **Selectophore[®], function tested** 50 mg

Electrochemical Transduction

Ion-Selective Electrodes

Application 1 and Sensor Type ¹

Assay of zirconium ion activity in aqueous solution with solvent polymeric membrane electrode based on Zirconium ionophore I.

Recommended Membrane Composition

1.0	wt%	Zirconium ionophore I (68646)
65.0	wt%	Tris(2-ethylhexyl) phosphate (TEHP) (93299)
1.0	wt%	Sodium tetraphenylborate (NaTBP) (72018)
33.0	wt%	Poly(vinyl chloride) high molecular weight (81392)

Recommended Cell Assembly

Reference || sample solution || liquid membrane | $1 \cdot 10^{-3}$ M zirconyl chloride + $1 \cdot 10^{-3}$ M KCl | AgCl, Ag

Electrode Characteristics and Function

Selectivity coefficients $\log K_{Zr, M}^{Pot}$ as obtained by the separate solution method (0.001 M solutions of chlorides, pH 4.7).

$\log K_{Zr, Ni}^{Pot}$	-4.8	$\log K_{Zr, Hg}^{Pot}$	-4.1
$\log K_{Zr, Cu}^{Pot}$	-5.0	$\log K_{Zr, Pd}^{Pot}$	-3.1
$\log K_{Zr, Cd}^{Pot}$	-4.2	$\log K_{Zr, Y}^{Pot}$	-5.5
$\log K_{Zr, Co}^{Pot}$	-3.3	$\log K_{Zr, Ce}^{Pot}$	-4.3
$\log K_{Zr, Zn}^{Pot}$	-3.6	$\log K_{Zr, Al}^{Pot}$	-6.3
$\log K_{Zr, Pb}^{Pot}$	-4.7	$\log K_{Zr, Cr}^{Pot}$	-6.1
$\log K_{Zr, Mn}^{Pot}$	-4.2	$\log K_{Zr, Ca}^{Pot}$	-2.8
$\log K_{Zr, Ba}^{Pot}$	-2.4	$\log K_{Zr, Sr}^{Pot}$	-2.5
$\log K_{Zr, Na}^{Pot}$	-5.0	$\log K_{Zr, K}^{Pot}$	-3.0

Slope of linear regression: 53.9 mV/dec ($6 \cdot 10^{-6}$ - $1 \cdot 10^{-1}$ M Zr)
 Detection limit: $5 \cdot 10^{-6}$ M $[ZrOOH \cdot xH_2O]^+$

¹ M.B. Gholivand, A. Babakhanian, M. Joshaghani, Zirconium ion selective electrode based on bis(diphenylphosphino) ferrocene incorporated in a poly(vinyl chloride) matrix. **Anal. Chim. Acta** **584**, 302 (2007).