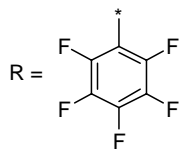
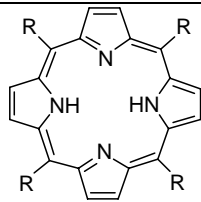


Iron



Iron(III) ionophore IV

(5,10,15,20-Tetrakis(pentafluorophenyl)porphyrin)
C₄₄H₁₀F₂₀N₄ M_r 974.55 [25440-14-6]

[52945](#) **Selectophore[®], function tested** 50 mg

Electrochemical Transduction

- Ion-Selective Electrodes

Electrochemical Transduction

Ion-Selective Electrodes

Application 1 and Sensor Type ¹

Assay of Fe³⁺ activity in aqueous solution with solvent polymeric membrane electrode based on Iron(III) ionophore IV at pH 3-4.

Recommended Membrane Composition

5.0	wt%	Iron(III) ionophore IV (52945)
55.0	wt%	Benzyl acetate (43957)
10.0	wt%	Oleic acid (OA) (05508)
30.0	wt%	Poly(vinyl chloride) high molecular weight (81392)

Recommended Cell Assembly

Reference || sample solution || liquid membrane | 1•10⁻³ M Fe(NO₃)₃ | AgCl, Ag

Electrode Characteristics and Function

Selectivity coefficients $\log K_{\text{Fe(III), M}}^{\text{Pot}}$ as obtained by the separate solution method (0.1 M solutions of nitrates, pH 3-4 (2.5•10⁻³ M formate buffer)). Optimum conditioning time for the membrane sensor in a 5•10⁻³ M Fe(NO₃)₃ solution is >24 h.

$\log K_{\text{Fe(III), Mn}}^{\text{Pot}}$	-2.1	$\log K_{\text{Fe(III), Co}}^{\text{Pot}}$	-2.4
$\log K_{\text{Fe(III), Fe(II)}}^{\text{Pot}}$	-1.8	$\log K_{\text{Fe(III), Cu}}^{\text{Pot}}$	-2.3
$\log K_{\text{Fe(III), Ni}}^{\text{Pot}}$	-2.3	$\log K_{\text{Fe(III), Zn}}^{\text{Pot}}$	-10.7

Slope of linear regression: +35.3 mV/dec (4•10⁻¹⁰ to 2•10⁻³ M Fe(NO₃)₃)
 Detection limit: 2•10⁻¹⁰ M Fe³⁺

¹ A.R. Fakhari, M. Alaghemand, M. Shamsipur, Iron(III)-Selective Membrane Potentiometric Sensor Based on 5,10,15,20-Tetrakis-(pentafluorophenyl)-21H,23H-porphyrin. **Analytical Letters** **34(2)**, 1097 (2001).