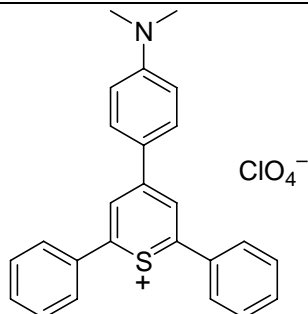


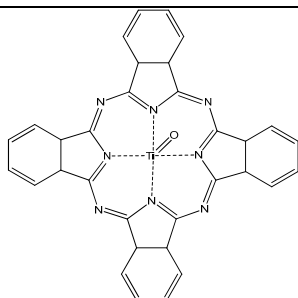
## Iodide



### Iodide ionophore I

4-[4-(Dimethylamino)phenyl]-2,6-diphenylthiopyrylium perchlorate  
 $C_{25}H_{22}ClNO_4S$   $M_r$  467.96 [14039-00-0]

[61928](#) **Selectophore<sup>®</sup>, function tested** 10 mg, 100 mg



### Iodide ionophore IV

Titanyl phthalocyanine  
 $C_{32}H_{16}N_8OTi$   $M_r$  576.39 [26201-32-1]

[57521](#) **Selectophore<sup>®</sup>, function tested** 50 mg

## Electrochemical Transduction

### Ion-Selective Electrodes

### Application 1 and Sensor Type <sup>1</sup>

Assay of I<sup>-</sup> activity with solvent polymeric electrodes based on Iodide ionophore I.

#### Recommended Membrane Composition

5 wt% Iodide ionophore I ([61928](#))  
 2 wt% Hexadecyltrimethyl-ammonium bromide (HTAB) ([52367](#))  
 63 wt% Dibutyl phthalate (DBP) ([80100](#))  
 30 wt% Poly(vinyl chloride) high molecular weight ([81392](#))

#### Recommended Cell Assembly

Reference || sample solution || ion-selective membrane | 0.001 M KI | AgCl, Ag

#### Electrode Characteristics and Function

Selectivity coefficients  $\log K_{I, X}^{\text{Pot}}$  as obtained by the matched potential method, acc. to lit .

$\log K_{I, \text{Cl}}^{\text{Pot}}$	-4.3	$\log K_{I, \text{NO}_3}^{\text{Pot}}$	-4.1
$\log K_{I, \text{Br}}^{\text{Pot}}$	-4.2	$\log K_{I, \text{CN}}^{\text{Pot}}$	-2.9
$\log K_{I, \text{SCN}}^{\text{Pot}}$	-2.8	$\log K_{I, \text{ClO}_4}^{\text{Pot}}$	-3.5
$\log K_{I, \text{S}_2\text{O}_3}^{\text{Pot}}$	-3.0	$\log K_{I, \text{IO}_3}^{\text{Pot}}$	-4.0
$\log K_{I, \text{SO}_3}^{\text{Pot}}$	-3.0	$\log K_{I, \text{CrO}_4}^{\text{Pot}}$	-3.3
$\log K_{I, \text{SO}_4}^{\text{Pot}}$	-4.6	$\log K_{I, \text{Citrate}}^{\text{Pot}}$	-4.6
$\log K_{I, \text{HCO}_3}^{\text{Pot}}$	-3.4	$\log K_{I, \text{Salicylate}}^{\text{Pot}}$	-4.1
$\log K_{I, \text{CO}_2}^{\text{Pot}}$	-3.4	$\log K_{I, \text{Ascorbate}}^{\text{Pot}}$	-4.1
$\log K_{I, \text{NO}_2}^{\text{Pot}}$	-3.3		

Slope of linear regression: - 57 to - 58 mV/dec

Nernstian electrode response ( $1 \cdot 10^{-3}$  to  $1 \cdot 10^{-1}$  M KI)

Detection limit:  $\log a_i \sim -3.1$

<sup>1</sup> T. Poursaberi, M. Hosseini, M. Taghizadeh, H. Pirelahi, M. Shamsipur, M.R. Ganjali, A selective membrane electrode for iodide ion based on a thiopyrilium ion derivative as a new ionophore, **Microchem. Journ.** **72**, 77 (2002).

### Application 2 and Sensor Type <sup>2</sup>

Assay of I<sup>-</sup> activity with solvent polymeric electrodes based on Iodide ionophore IV at pH 5.

#### Recommended Membrane Composition

- 3.8 wt% Iodide ionophore IV ([57521](#))
- 0.3 wt% Hexadecyltrimethyl-ammonium bromide (HTAB) ([52367](#))
- 63.9 wt% 2-nitrophenyl octyl ether (o-NPOE) ([73732](#))
- 32.0 wt% Poly(vinyl chloride) high molecular weight ([81392](#))

#### Recommended Cell Assembly

Reference || sample solution || liquid membrane | 0.1 mol/L KCl + 0.01 mol/L NaI | AgCl, Ag

#### Electrode Characteristics and Function

Selectivity coefficients  $\log K_{I, X}^{\text{Pot}}$  as obtained by the separate solution method (0.01 M sodium solutions)

$\log K_{I, \text{Cl}}^{\text{Pot}}$	-4.8	$\log K_{I, \text{NO}_3}^{\text{Pot}}$	-2.1
$\log K_{I, \text{Br}}^{\text{Pot}}$	-3.8	$\log K_{I, \text{Acetate}}^{\text{Pot}}$	-3.2
$\log K_{I, \text{SCN}}^{\text{Pot}}$	+0.2	$\log K_{I, \text{ClO}_4}^{\text{Pot}}$	+1.7

Slope of linear regression: -30.0 mV/dec ( $9 \cdot 10^{-6}$  –  $1 \cdot 10^{-1}$  M NaI)

Detection limit:  $6 \cdot 10^{-6}$  M NaI

<sup>2</sup> W.J. Xu, R. Yuan, Y. Chai, T. Zhang, W.n Liang, X. Wu, Fabrication of an iodide-selective electrode based on phthalocyaninatotitanium(IV) oxide and the selective determination of iodide in actual samples, **Anal. Bioanal. Chem.** **329**, 297 (2008).