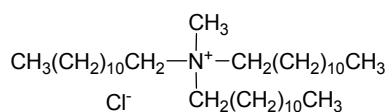


Penicillin

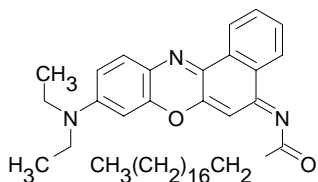


Tridodecylmethylammonium chloride

(TMAC)

 $\text{C}_{37}\text{H}_{78}\text{ClN}$ M_r 572.49 [7173-54-8]

[91661](#) **Selectophore[®], function tested** 100 mg, 1 g



Chromoionophore I

(ETH 5294; 9-(Diethylamino)-5-(octadecanoylimino)-5H-benzo[a]phenoxazine; N-Octadecanoyl-Nile blue)

 $\text{C}_{38}\text{H}_{53}\text{N}_3\text{O}_2$ M_r 583.86 [125829-24-5]

[27086](#) **Selectophore[®], function tested** 10 mg, 10 mg

Optical Transduction

Optical Transduction

Application and Sensor Type ¹

Assay of penicillin activity with polymer membrane optode based on Tridodecylmethylammonium chloride and Chromoionophore I.

Recommended Membrane Composition

6.52	wt%	Chromoionophore I (27086)
65.22	wt%	Bis(-dodecanoyloxy-2-hydroxypropyl)adipate (WM-3) (95385)
26.09	wt%	Poly(vinyl chloride) high molecular weight (81392)
2.17	wt%	Tridodecylmethylammonium chloride (91661)

Recommended Cell Assembly

50 mM sodium citrate / 50 mM sodium tartrate, pH 5.5

Electrode Characteristics and Function

Selectivity coefficients $\log K_{\text{Pen, X}}^{\text{Pot}}$ as obtained by a method similar to the separate solution method

$\log K_{\text{Pen, Salicylate}}^{\text{Pot}}$	0.30	$\log K_{\text{Pen, Cl}}^{\text{Pot}}$	-1.83
$\log K_{\text{Pen, NO}_2}^{\text{Pot}}$	0.20	$\log K_{\text{Pen, AcO}}^{\text{Pot}}$	-2.53
$\log K_{\text{Pen, Ascorbate}}^{\text{Pot}}$	0.15	$\log K_{\text{Pen, I}}^{\text{Pot}}$	-1.08
$\log K_{\text{Pen, Benzoate}}^{\text{Pot}}$	-0.45	$\log K_{\text{Pen, Glycinate}}^{\text{Pot}}$	-2.80
$\log K_{\text{Pen, Oxalate/Phenylalaninate}}^{\text{Pot}}$			-2.70
$\log K_{\text{Pen, Glumate/Am oxilin lactose/Glucose/SO}_4^{2-}/\text{CO}_3^{2-}/\text{H}_3\text{PO}_4}^{\text{Pot}}$			< -3.00

Dynamic measuring range at 20°C: 0.01-10 mM (penicillin V) and 0.03-10 mM (penicillin G)

Membrane thickness: .0-1.5 µm on glass plates (12 • 50 mm)

Fluorescence maxima: λ_{ex} 565 nm and λ_{em} 670 nm

Response time: ~ 5 min

¹ H.He, H.Li, G. Uray, O.S. Wolfbeis, Non-enzymatic optical sensor for penicillins. **Talanta** **40**, 453 (1993).