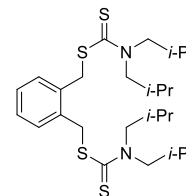


## Product Information



### 61193 Copper(II) ionophore I

(*o*-Xylylenebis-(*N,N*-diisobutyldithiocarbamate))

Selectophore®, function tested

## Electrochemical Transduction

### Ion-Selective Electrodes

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

Lipophilic neutral carrier (ionophore) as copper sensing material in ion-selective polymer membrane electrodes; rejecting the interference alkali, alkaline earth and transition metal cations, and showing a high selectivity for Cu<sup>2+</sup> even in chloride and bromide media.

#### Recommended Membrane Composition

|           |                                                                      |
|-----------|----------------------------------------------------------------------|
| 6.90 wt%  | Copper(II) ionophore I ( <a href="#">61193</a> )                     |
| 34.30 wt% | 2-Nitrophenyl octyl ether ( <a href="#">73732</a> )                  |
| 1.60 wt%  | Potassium tetrakis(4-chlorophenyl)borate ( <a href="#">60591</a> )   |
| 57.20 wt% | Poly(vinyl chloride) high molecular weight ( <a href="#">81392</a> ) |

#### Recommended Cell Assembly

Reference || sample solution || liquid membrane | 0.001 M CuCl<sub>2</sub> | AgCl, Ag

#### Electrode Characteristics and Function

Selectivity coefficients  $\log K_{Cu,M}^{Pot}$  as obtained by the mixed solution method (concentration of the interfering is are: 10<sup>-2</sup> M for alkaline earth cations and transition metal ions and 10<sup>-1</sup> M for alkali cations).

|                        |       |                           |      |
|------------------------|-------|---------------------------|------|
| $\log K_{Cu,Pb}^{Pot}$ | -0.75 | $\log K_{Cu,Ni}^{Pot}$    | -3.2 |
| $\log K_{Cu,Zn}^{Pot}$ | -2.25 | $\log K_{Cu,Ca/Mg}^{Pot}$ | -3.6 |
| $\log K_{Cu,K}^{Pot}$  | -2.35 | $\log K_{Cu,Sr}^{Pot}$    | -3.7 |
| $\log K_{Cu,Mn}^{Pot}$ | -2.5  | $\log K_{Cu,Co}^{Pot}$    | -4.0 |
| $\log K_{Cu,Na}^{Pot}$ | -2.65 | $\log K_{Cu,Cd}^{Pot}$    | -4.4 |

|                             |                                                                          |
|-----------------------------|--------------------------------------------------------------------------|
| Slope of linear regression: | 28-29 mV/dec (10 <sup>-6</sup> to 10 <sup>-1</sup> M CuCl <sub>2</sub> ) |
| pH range:                   | 3.2-5.5                                                                  |
| Detection limit:            | 1.4·10 <sup>-7</sup> M Cu <sup>2+</sup>                                  |
| Response time:              | 9 s (10 <sup>-3</sup> to 10 <sup>-2</sup> M Cu <sup>2+</sup> )           |

<sup>1</sup> Copper(II)-selective membrane electrodes based on *o*-xylylene bis(dithiocarbamates) as neutral carriers. S. Kamata, H. Murata, Y. Kubo, A. Bhale, Analyst 114, 1029 (1989).

