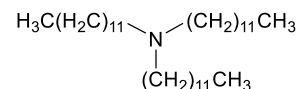


Product Information



95292 Hydrogen ionophore I

(Tridecylamine)

Selectophore®, function-tested

Electrochemical Transduction

Ion-selective Electrodes

Application 1 and Sensor Type^{1,2,3}

Assay of H⁺ activity in whole blood, plasma, serum, and aqueous solutions with solvent polymeric membrane electrodes based on Hydrogen ionophore I.

Recommended Membrane Composition

- 1.00 wt% Hydrogen ionophore I ([95292](#))
- 65.50 wt% Bis(1-butylpentyl)decan-1,10-diyl diglutarate ([30585](#))^{a)}
- 0.50 wt% Potassium tetrakis(4-chlorophenyl)borate ([60591](#))
- 33.00 wt% Poly(vinyl chloride) high molecular weight ([81392](#))

^{a)} The use of bis(1-butylpentyl)adipate ([02150](#)) or bis(2-ethylhexyl)sebacate ([84818](#)) leads to membrane electrodes of similar performance.

Recommended Cell Assembly

Reference || sample solution || ion-selective membrane | buffer pH 5.6 | AgCl, Ag

Electrode Characteristics and Function

Selectivity coefficients $\log K_{H,M}^{Pot}$ as obtained by the separate solution method (0.1 M solution of the sodium salts).

| | Required ^{b)} | Found |
|--|-------------------------|---------|
| $\log K_{H,Na}^{Pot}$ | <-8.5 | -10.4 |
| $\log K_{H,K}^{Pot}$ | <-7.0 | -9.8 |
| $\log K_{H,Ca}^{Pot}$ | <-7.7 | <-11.1 |
| Slope of linear regression: | 57.8±0.1 mV/dec at 20°C | |
| Practical pH measuring range: | 4.5-11.0 | |
| Stability: Standard deviation: | <0.35 mV | 0.05 mV |
| Response time: 90% response time: | 0.4 s | |
| Lifetime: $\log P_{TLC}^{c)}$ ionophore: | >8.4 | 11.6 |
| $\log P_{TLC}^{c)}$ plasticizer: | >12.8 | 10.8 |

^{b)} for measurements in whole blood (1% interference, worst case)^{4,5}

^{c)} lipophilicity, determined by thin-layer chromatography⁶



Application 2 and Sensor Type⁷

Assay of H⁺ activity with solvent polymeric membrane electrodes based on Hydrogen ionophore I.

Recommended Membrane Composition

- 10.00 wt% Hydrogen ionophore I ([95292](#))
- 0.70 wt% Sodium tetraphenylborate ([72018](#))
- 64.30 wt% Dibutyl sebacate ([84838](#))
- 25.00 wt% Poly(vinyl chloride) high molecular weight ([81392](#))

Recommended Cell Assembly

Reference || sample solution || ion-selective membrane | 0.25 M KH₂PO₄ + 0.25 M Na₂HPO₄ + 0.1 M NaCl | Ag, AgCl

Electrode Characteristics and Function

Selectivity coefficients $\log K_{H,M}^{Pot}$ as obtained by the fixed interference method on pH-buffered solutions.

| | | | |
|-----------------------|--------|----------------------|-------|
| $\log K_{H,Ca}^{Pot}$ | <-11.3 | $\log K_{H,K}^{Pot}$ | -10.5 |
| $\log K_{H,Na}^{Pot}$ | -11.2 | | |

| | |
|-------------------------------|--------------------------------|
| Slope of linear regression: | 58.3 mV |
| Practical pH measuring range: | 5.5-10.8 |
| Electrical resistance: | $2.4 \cdot 10^6 \Omega$ |
| Lifetime: | $\log P_{TLC}$ ionophore: 11.6 |

¹ D. Ammann, P. Anker, E. Metzger, U. Oesch, W. Simon, in: Ion Measurements in Physiology and Medicine, Eds. M. Kessler, D. K. Harrison, J. Höper, Springer-Verlag, Berlin, Heidelberg 102 (1985).

² A hydrogen ion-selective liquid-membrane electrode based on tri-n-dodecylamine as neutral carrier. P. Schulthess, Y. Shijo, H. V. Pham, E. Pretsch, D. Ammann, W. Simon, Anal. Chim. Acta 131, 111 (1981).

³ Blood pH Measurement with a Solvent Polymeric Membrane Electrode in Comparison with a Glass Electrode. P. Anker, D. Ammann, W. Simon, Mikrochim. Acta I, 237 (1983).

⁴ Ion selective electrodes in clinical chemistry. A. Lewenstam, Anal. Proc. 28, 106 (1991).

⁵ U. Oesch, P. Anker, D. Ammann, W. Simon, in: Ion-Selective Electrodes, Eds. E. Pungor, I. Buzás, Akadémiai Kiadó, Budapest 81 (1985).

⁶ Lifetime of neutral-carrier-based liquid membranes in aqueous samples and blood and the lipophilicity of membrane components. O. Dinten, U. E. Spichiger, N. Chaniotakis, P. Gehrig, B. Rusterholz, W. E. Morf, W. Simon, Anal. Chem. 63, 596 (1991).

⁷ Response properties of ion-selective polymeric membrane electrodes prepared with aminated and carboxylated poly(vinyl chloride). S. C. Ma, N. A. Chaniotakis, M. E. Meyerhoff, Anal. Chem. 60, 2293 (1988).

