

Ti Application Note No. T- 71

Title:	Determination of palladium using the «Ionic Surfactant» electrode
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Summary:	Determination of palladium(II) by potentiometric titration with hexadecylpyridinium chloride using the «Ionic Surfactant» electrode.
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Sample:	Palladium plating bath or PdCl_2 salt
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Sample Preparation:	none
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Instruments and Accessories:	702, 716, 736, 751 or 785 Titrino or 726 Titroprocessor, 6.0507.120 «Ionic Surfactant» electrode, 6.0726.100 Ag/AgCl reference electrode
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Analysis:	Pipette a suitable volume of sample solution that contains at least 6 mg Pd^{2+} into a beaker, then add 20 mL of a solution containing 1 mol/L HCl and 1 mol/L NaCl. After addition of 20 mL dist. water titrate with hexadecylpyridinium chloride $c(\text{HDPCI}) = 0.02 \text{ mol/L}$.
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Calculation:	$1 \text{ mL } c(\text{HDPCI}) = 0.02 \text{ mol/L}$ corresponds to $1.0642 \text{ mg Pd}^{2+}$ $\text{g/L Pd}^{2+} = \text{EP1} * \text{C01} / \text{C00}$ $\text{EP1} = \text{titrant consumption in mL}$ $\text{C00} = \text{sample volume in mL}$ $\text{C01} = 1.0642$
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Results:	$\text{AVG}(4) = 1.110 \pm 0.002 \text{ g/L Pd}^{2+}$
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Remarks:	If the quantity of Pd^{2+} is too small wrong results are obtained (outside the linear range of the determination).
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