EUROMET PROJECT FINAL REPORT *)

1. Ref. No.: 760					2. Subject Field: Metrology in Chemistry							
3	Type of collaboration: Intercomparison of measurement procedure											
4A.	Partne (institu	rs: NCM utions)	, PTB						4I no	3. C	EC funded?	
5.	Participating countries: BG, DE											
6.	6. Title: pH determination of phosphate buffer by Harned cell											
7. Progress: The project was performed in order to demonstrate and document the capability of the participants to measure the pH of a phosphate buffer by the primary measurement procedure for pH (Harned cell). Good agreement of the reported results was observed. The sample was very similar to the one used in the comparison CCQM-K9[1]. PTB acts as coordinator in CCQM-K9 and in this EUROMET comparison. Therefore it is possible to link the result of NCM in the bilateral EUROMET comparison (table 1) to CCQM-K9. The pH values given in table 1 are calculated by PTB for an ionic strength of the buffer $I = 0.100$ mol·kg ⁻¹ from the acidity function at zero chloride molality, pa_0 , reported by the participants. PTB applied coulometric titration (H ⁺) to determine the molality of HCl, m_{HCl} , which was used to determine the potential of the Ag/AgCl electrodes. The standard uncertainty was estimated to $u(m_{HCl}) = 1 \cdot 10^{-5}$ mol·kg. No information was given by NCM on how m_{HCl} was obtained. A standard uncertainty of $u(m_{HCl}) = 2.1 \cdot 10^{-6}$ mol·kg was declared by NCM.												
Table 1 Besult of the hildstard comparison between NCM BC and DTD DE Civen is not the existing												
at zero chloride molality, $m_{Cl} = 0$ and its standard uncertainty, the slope of the acidity function, the pH and U the expanded uncertainty of pH with a coverage factor $k = 2$.												
Temper Result	ature	pa_0	u (p <i>a</i> ₀)	25 °C Slope	e pH	<i>U</i> (pH)	pa_0	37 u (p <i>a</i> ₀)	°C Slope	рН	<i>U</i> (pH)	
Particip NCM PTB	ants	6.9735 6.9729	9.3·10 ⁻⁴ 3.7·10 ⁻⁴	-1.27 -1.12	6.8635 6.8634	0.004 0.002	6.9522 6.9517	9.1·10 ⁻⁴ - 2.8·10 ⁻⁴ -	1.05 1.16	6.8402 6.8398	0.004 0.002	
8.	8. Coordinator's name: Petra Spitzer											
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9. Completion Date 15 May 2003					10. Coordinator's signature11.Petra Spitzer12			11. Date 12 Janu	11. Date 12 January 2004			

*) Delete as appropriate