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MICRO-WINKLER TITRATION METHOD FOR DISSOLVED OXYGEN CONCENTRATION MEASUREMENT

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In this report a gravimetric micro-Winkler titration method for determination of dissolved oxygen concentration in water is presented. Mathematical model of the method taking into account all influence factors is derived and an uncertainty analysis is carried out to determine the uncertainty contributions of all influence factors. The method is highly accurate: the relative expanded uncertainties ($k = 2$) are around 1% in the case of small (9–10 g) water samples. The uncertainty analysis carried out in characterizing the uncertainty of the method is the most comprehensive published for a micro-Winkler method, resulting in experimentally obtained estimates for all uncertainty sources of practical significance (around 20 uncertainty sources altogether).

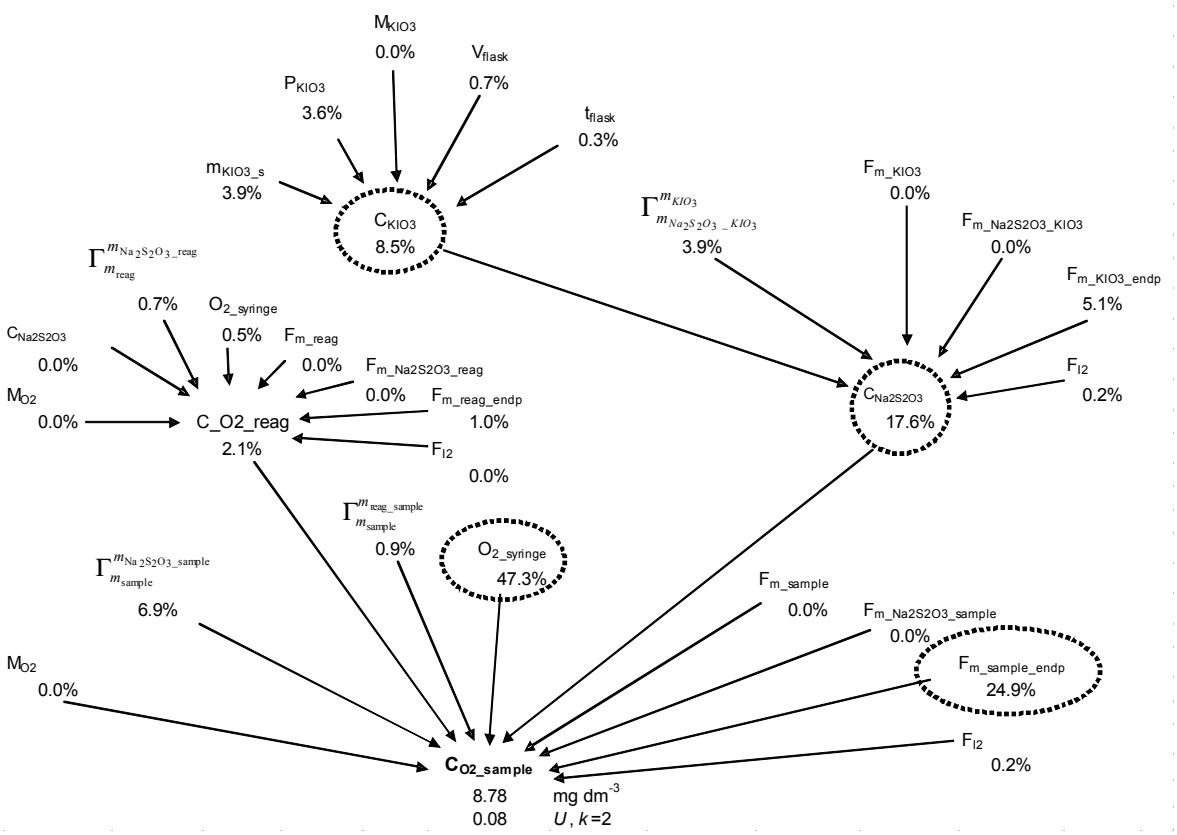

Fig. 1. Uncertainty budget of the gravimetric micro-Winkler method.

References:

1. I. Helm, L. Jalukse, M. Vilbaste, I. Leito, *Anal. Chim. Acta*, **648**, (2009) 2, 167 – 173