

Rapid method for determining very low fluoride concentrations using an ion-selective electrode

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A mathematical treatment is presented that allows the experimental determination of fluoride concentrations at the ng ml^{-1} level with good precision. The proposed method is able to determine blank concentrations of solutions that are currently considered to be "fluoride-free." When suitable blank corrections are applied, it can be shown that fluoride-selective electrodes exhibit linear calibration behaviour down to $2\text{-}3 \text{ ng ml}^{-1}$ with the theoretical slope, thus avoiding the use of more involved procedures and saving time and effort when determining fluoride in plasma, serum, bone, food and many other materials. A re-examination of the usual calibration techniques was made. The proposed method is considered very suitable for clinical and quality control laboratories. An appendix containing suggested procedures and simple, rapid techniques for fluoride determination is provided.