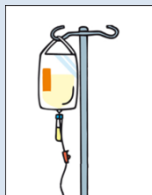


# Microwave Plasma Atomic Emission Spectrometry: A new method of measuring ions in paediatric parenteral nutrition pockets.

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## CONTEXT



For the ion determination, the unit had to acquire new equipment in 2018 following the shutdown of the flame photometer maintenance and consumables. Our choice was a microwave plasma atomic emission spectrometer (MP AES 4210 from Agilent).



K+

Na+

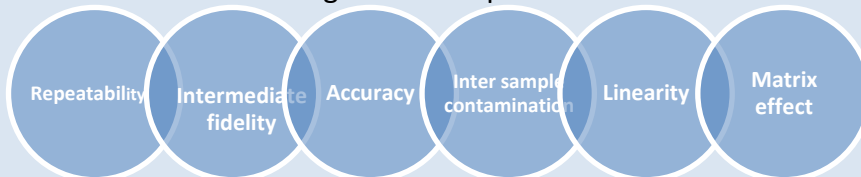
Mg<sup>2+</sup>

Ca<sup>2+</sup>

## OBJECTIVE :

Installation of a microwave plasma atomic emission spectrometer for the control of sodium, potassium, calcium and magnesium ions in pediatric parenteral nutrition preparations.

## METHOD :

 The following tests were performed:

La méthode a été testée sur nos échantillons et comparée pour le Na et le K aux résultats obtenus avec notre méthode en place. Tous ces tests ont été réalisés en multi-élémentaires pour être proche des conditions analytiques qui seront développées en routine. Deux longueurs d'onde ont été choisis pour l'analyse de chaque élément.

## RESULTS :

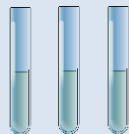


For each test, 3 series (low, medium and high element concentrations, representative of routine expected values) of 20 replicates were performed.

Coefficients of variation for repeatability, intermediate fidelity and accuracy are 5%  
for inter-sample contamination 1%  
for matrix effect 10%



The tests were carried out on three different dilutions: 1/500e, 1/250e, 1/100e:  
selected for best results



## CONCLUSION :

The Na and K assays by MP AES 4210 have been routine since January 2019. The Ca and Mg assays will be implemented in October 2019. We are currently testing P and are also planning to implement future element determinations for the pharmacopoeial quantification of waters for hemodialysis.