

Optimization of Pretreatment Process of Lip Gloss for the
Determination of Lead by Flame Atomic Absorption
Spectroscopy

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ABSTRACT

The optimization of the pretreatment process for the analysis of lead in lip gloss using a flame atomic absorption spectrophotometer (FAAS) was proposed in this study. Two variables were tested for this study: volume of nitric acid, HNO_3 and volume of hydrogen peroxide, H_2O_2 . Results of the optimization and statistical analysis revealed that 47.3 mL HNO_3 and 2 mL H_2O_2 were the optimum volumes suited for the digestion of lip gloss in obtaining high analytical results for the lead analysis. Five different samples were randomly purchased from local markets in Iloilo City that may contain high levels of lead due to a report from BFAD that warned people about the use of several lipsticks imported abroad. Lip gloss samples were analyzed using the optimized protocol. The heavy metal content in the lip gloss samples were found to be between 52.0 - 126.3 mg lead/kg of sample. Results show that these were slightly higher than the allowable limits for lead contents in lip gloss set by BFAD and WHO. One-way ANOVA statistics showed that there was a significant difference in the lead contents among the different lip gloss samples.