

## Synthetic Colorful Aluminates Applied as Commercial White Paint Pigments.

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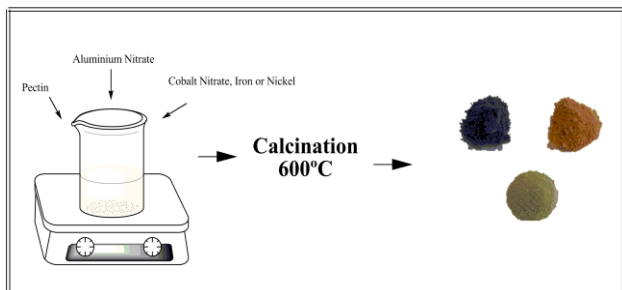
### Introduction

Aluminates are compounds that contain an oxyanion ( $\text{AlO}_2^-$ ) group, which when combined in the form oxides typically exhibit spinel structure containing aluminum ion ( $\text{Al}^{3+}$ ).<sup>1</sup> This class of material is important in pigment area and it can be applied in paints industries, ceramics, among others, which due to new and growing necessities of consumer market need innovations in their products.

In this work we report the synthesis of new aluminates containing coloring ions (cobalt, iron and nickel), obtained through a preparation route containing pectin, organic material with gelling properties. The aluminates were dispersed in commercial white paint and evaluated as to its ability to dispersal and staining.

### Results and Discussion

Cobalt, iron and nickel aluminates were synthesized according to the method shown in **Figure 1**. They were obtained in powder form, presenting purple color for cobalt, orange color to iron and green color to nickel. The aluminates were characterized by techniques of TG/DTA, DRX, Raman, among others, that confirmed the chemical and physical stability of the products and the formation of aluminates.

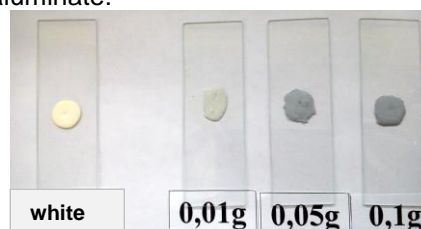


**Figure 1.** Scheme of the synthesis the aluminates.

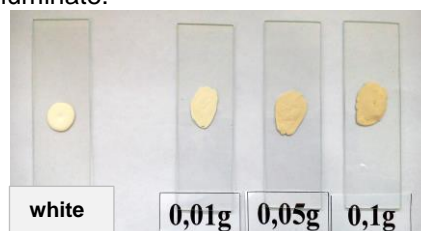
The materials were dispersed in white paint and the results are shown in **Figure 2**. The tests were performed the ratios of 0.5 mL paint to 0.01 g; 0.05 g and 0.1 g of each pigment. In all proportions the aluminates applied showed good dispersion and

increase tonality with increasing of the pigment concentration.

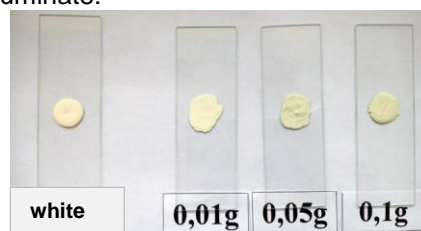
a) Co\_aluminate:



b) Fe\_aluminate:



c) Ni\_aluminate:



**Figure 2.** Tests dispersion of aluminates in commercial white paint.

### Conclusions

Three new colored aluminates were obtained and characterized. Previous studies show that these compounds are potential pigments for applications in paints industries.

### Acknowledgement

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<sup>1</sup> Housecroft, C. E. e Sharpe, A. G. *Inorganic Chemistry*. 3.ed. Harlow: Pearson Education Limited, 2008, 351p.