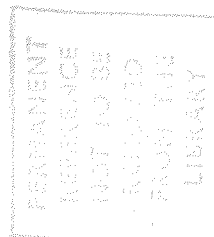


# STUDY OF THE FACTORS AFFECTING THE COLOUR VARIATION OF SOME EMULSION PAINTS

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## Abstract

A special type of emulsion paint made with copper phthalocyanine blue and iron oxide yellow dispersed pigments was found to exhibit colour variation during the manufacturing process and storage. This project is on the study of the factors affecting the colour variation which lead to proposed remedial measures to mitigate the colour variation.

It has been found that there are several factors which contribute greatly to this colour variation. The hardness, pH and the concentration of electrolytes of water used for the manufacturing of paints are the main factors. Apart from that, the type of surfactants also contributes to the colour variation. The colour acceptance and the colour development of the paint with these factors have been investigated.

The sample paints for the investigation were prepared according to the standard methods used in the manufacturing of paints. All the necessary tests required for the preparation of the paints have been utilized.

The polyacrylate surfactants react with  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  leading to the precipitation of respective salts. The use of de-ionized water not only reduces hardness below the optimum level of 30 ppm of  $\text{CaCO}_3$  but also gives the necessary electrolyte concentration to the water. The increase of electrolyte

concentration improves the colour development but in turn increases the viscosity of the paint.

In acidic medium polyacrylate surfactants precipitate as polyacrylic acids. Some of the additives used for the production of paints are not stable at high pH. Hence maintaining the pH of water between 6.5 and 7.5 minimizes the colour variation. Using a sulfosuccinate surfactant not only minimizes the precipitation of surfactant but also improves the colour development.