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QUALITY VS COST

OPTIMIZING THE FORMULATION OF

EMULSION PAINT

CR

BY

NIHAL KUMARA IDIRISINGHE

174367

M.SC. POLYMER SCIENCE AND TECHNOLOGY

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ABSTRACT

The existing Emulsion paint was studied in detail. (The main aim is to identify the quality level of the existing Emulsion paint).

According to the existing Emulsion paint formulation the high cost centers were identified. The highest cost contribution is coming from Titanium Dioxide and binder. The main objective of this project is to reduce the raw material cost of the emulsion paint. Hence the trials were carried out to reduce the Titanium Dioxide and binder level by reformulating with a new cost effective raw materials.

Trial one was planned to introduce a new opacifying agent called Opaque polymer. Opaque polymer is non film forming aqueous emulsion polymer which aids to reduce the raw material cost of the emulsion paint. The polymer consists of hollow acrylic styrene beads supplied in emulsion form. Initially these beads are filled with water. When a paint containing opaque polymer dries, the water permanently diffuses from the core of the particles and is replaced by air. These encapsulated air voids supplement the hiding effect of Titanium Dioxide.

In standard paint the Titanium Dioxide percentage is 27.5%. The binder percentage is 25%. But in the trial 1 formulation the Titanium Dioxide and binder percentage was reduced to 16.5% and 15%. The quality level of this was tested against standard paint and results show respectively. According to the results new formulation give very much superior quality than existing paint.

Second trial was planned to introduce a new extender called Polstar. Because of its distinct benefits in opacity, whiteness and scrub resistance, the amount of Titanium Dioxide can be reduced.

Here the trial was carried out by using 25% Titanium Dioxide and 25% binder and incorporating 2.5% Polstar. However the results of this were also compared with the standard paint. But the quality level of this was not up to the standard.

When compared the trial one and trial two with the standard paint the lowest raw material cost contribute from trial 1 formulation. The highest quality level also can be seen in trial one formulation. So that the main objective of this project is achieved by trial one formulation as it has the lowest cost and highest quality when compared with the standard formulation.

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