



**STUDY OF EFFICIENCY OF DISPERSANTS  
AND ENHANCING THE QUALITY OF  
EMULSION PAINTS**

**Bachelor of Science and Technology Dissertation**

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## **Abstract**

Paint industry faces challenges due to increasing of raw material cost and regulatory compliance. Delivering paints with good paint properties in a cost effective way is another challenge. Therefore, paint formulations should produce paints with required gloss, colour intensity, contrast ratio, abrasion resistance and levelling properties. Energy reduction with minimum grinding times is also desired. Better pigment dispersion is the best solution to overcome the above mentioned challenges which makes dispersants an important auxiliary at this stage. A better pigment dispersion can be achieved by developing a completely new dispersant or discovering a better blend of dispersants using existing dispersants. Research studies have been conducted in developing amphoteric dispersants and high molecular weight dispersants with low viscosity and high stability. This particular research was conducted to find a better blend of dispersants using existing dispersants in the market R 40N; Sodium salt of carboxylic acid, Sodium hexametaphosphate and TAMOL; Sodium salt of condensed arylsulfonic acid. The efficiency of each dispersant were checked by plotting dispersant demand curve. R 40N and TAMOL were selected to form the blends 2:1, 1:2 and 1:1. White interior emulsion paint with Titanium dioxide pigment was prepared using the blends 2:1 and R 40N alone. Standard tests such as gloss D 65/ 10°, contrast ratio, abrasion resistance, water resistance, viscosity and levelling properties were conducted for the produced paints to investigate paint properties. The paint formed with blend R 40N:TAMOL in 2:1 ratio showed higher gloss, lower viscosity and opacity than the paint formed with R 40N alone, while providing equal values for other properties like, abrasion resistance, water resistance and levelling properties. According to the research the blend R 40N:TAMOL in 2:1 ratio gave a better paint formulation at lower cost than the existing dispersants in the market.