STUDY THE FACTORS AFFECTING ON THE QUALITY OF SKIM COAT

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Degree of Master of Science

Department of Chemical and Process Engineering

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Thesis/Dissertation submitted in partial fulfillment of the requirements for the degree

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DECLARATION

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Abstract

Quality of skim coat was examined by using both qualitative and quantitative methodologies. The industrial problems of skim coats are of two major types; mixing related and application related. Analytic Hierarchy Process (AHP) was used to rank these problems according to their relative importance. Difficult to trim, poor workability and poor mixing were having the highest ranking based on the comments given by the manufacturers, retailers and users. The effect of thickener percentage in the skim coat was found to be significant for difficulties in mixing. Mixing was easy up to 0.5% of thickener and the flowability was found to be the best in the range of 0.3–0.6% of thickener. Increase of thickener percentage has increased the tendency for forming agglomerates and lumps of paste during mixing. Good workability and optimum setting could be achieved with 0.3–0.5% of thickener. Optimum performance for trimming could be achieved with 0.3–0.6% of thickener. The above qualitative results were verified quantitatively with the physical testing; ram extrusion, set to touch drying time test, pencil hardness test and dust weight on trimming. According to both qualitative and quantitative analysis, the optimum amount of thickener in skim coat was found to be in the range of 0.3–0.5%.

Keywords – Skim coat, Ram extrusion, AHP, Thickener, Quality analysis

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List of abbreviations

AHP	Analytic Hierarchy Process
ANOVA	Analysis of Variance
ASTM	American Society for Testing and Materials
CE	Cellulose Ether
CL	Carbide Lime
EHEC	Ethyl Hydroxyethyl Cellulose
FTIR	Fourier Transformation InfraRed
HEC	Hydroxyethyl Cellulose
HEMC	Hydroxy Ethyl Methyl Cellulose
HL	Hydrated Lime
HPC	Hydroxypropyl Cellulose
HPMC	Hydroxy Propyl Methyl Cellulose
IS	Indian Standard
MC	Methyl Cellulose
NMR	Nuclear Magnetic Resonance
PMMA	Poly Methyl Meth Acrylate
PSD	Particle Size Distribution
SBR	Styrene Butadiene Rubber

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