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In this paper the mixture experiment design was used to determine the optimum mixture of Nitrocellulose Automotive Refinish Paint Thinner in the conditions that made Nitrocellulose Automotive Refinish Paint dissolve and dry fastest. In generally the production component had been consisted of Toluene, Methyl Ethyl Ketone, Acetone, Ethyl Acetate, Isobutyl Alcohol, Isopropanol Alcohol and Methanol.

The experiments made up of 38 runs by D-optimal experiment design. Finally the developed formula contains Toluene, Methyl Ethyl Ketone, Acetone, Isopropanol Alcohol and Methanol 60.0%, 27.40%, 2.60%, 2.75% and 7.25% by volume respectively. After the new formula was verified, a painted dissolvable time usage from formulation is 9.30 minute in average with standard deviation 0.51 minute, a painted dry time usage is 8.91 minute in average with standard deviation 0.33 minute with a minimum cost is 43.27 bath/kg. The mixture did not have a stain appearance when applied on the surface that left until dry and satisfied passed an adherence test. Furthermore the three qualification predictions can be applied by the regression equation to provide for a formula may be changed as the producer needs.

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