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A Project Report on

**“ROLE OF FOURIER TRANSFORMER INFRARED
SCANNER IN DETERMINING QUALITY CONTROL
OF BITUMINOUS BINDER”**

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**BACHELOR OF ENGINEERING
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ABSTRACT

The use of bitumen as a construction material dates back to antiquity. The materials in use then were mostly naturally occurring in contrast to modern binders which have become highly technical artificial materials. In India since many highway projects are in great swing, the requirement of bituminous binder is also in great demand, hence small time bitumen manufactures have surfaced like mushrooms. The technology and capital that are required to manufacture quality modified bitumen is high, hence the quality of modified binders produced by small time bitumen manufactures are compromised. The current research project reviews the application of Fourier Transform Infrared (FTIR) Spectroscopy in determination of quality and quantity of modifiers in given modified bitumen, with a strong emphasis on the rheological properties. Quantification of modifier in bitumen is based on the relationship between the intensity ratio of 966 cm^{-1} /1375 cm^{-1} absorption bands to the modifiers concentration (wt%). Further an attempt was made by compromising the quantity and quality of modified binder by replacing photo copying toner powder and charcoal powder with that of modifier. Using FTIR scanner becomes convenient and quick way to determine the adulteration of bituminous binder if done and stop the same being used for construction. It also acts as a quality control regulator.