Evaluation of Selcted polymers PG76VH-22

Reseach prepared for Ministry of transportation

This study compares the effect of polymer modified bitumen on selected base asphalt of PG64. Two materials were selected to be evaluated at different loading levels to meet desired specification, given by the requirements of Ministry of Transportation, Kingdom of Saudi Arabia

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SCOPE OF THE WORK

The Goal of this research was to prove that selective polymers provides exceptional material resistance to hot climates and meeting current standards given by the Ministry of Transportation. The requirement is to meet PG 76 VH (Very Heavy) and at the same time ensure low temperature performance listed as PG 76VH-22.

MATERILAS SELECTED

There were two products selected and evaluated in the study. The first material is called as **PAVEFLEX 140** , produced by Delmon. The second material is **LG 411**, radial type of Styrene – Butadiene- Styrene (SBS), Thermoplastic Elastomer, produced by LG. The the average styrene content, given by the producer, is 31 percent.

POLYMER LOADINGS

Both materials where subjected to two different loadings at base bitumen of a penetration 60/70 pen from Middle Eastern source. Table 1 shows materials and dosages used in this study.

Polymer Type	**Dosage NO 1.**	**Dosage NO 2.**
Paveflex 140	8 percent	7.5 percent
LG 411	4.5 percent	4.2 percent

Table 1. dosages at selected polymers

POLYMER BLENDING

All samples were kept under the steady heated control environment and at the same mixing time of three hours at the temperature range of 175 – 180 ^{o}C. The the case of Paveflex 140, stirrer was found to be a sufficient to melt and dispersed material used with the revolution of 300 – 500 rpm. However, LG 411 , SBS type copolymer was subjected to high shear mixing of