

CHAPTER VI

CONCLUSION AND RECOMMENDATION

6.1 Conclusions

Based on the results, conclusions of this research are:

1. UHMWPE is strongly recommended as an additive in asphalt mixture, as all the results are within the standard requirements
2. The addition of UHMWPE tends to increase the strength and quality of asphalt mixture. It is shown by an increase in stability, a decrease in flow. It has more stiffness and strength to cracking. Hence the asphalt mixture has more resistance in permanent deformation.
3. The increase in VFWA indicates an increasing effective asphalt film thickness, which results higher durability of asphalt mixture.
4. The higher VITM makes the asphalt content inside mixture become smaller, thus mixture permeability increases. As permeability increases, asphalt mixture become less durable. Finer UHMWPE makes VITM smaller, thus increase the durability of mixture. However, UHMWPE with big size will decrease the durability.

6.2 Recommendation

It is important to note that as the binder, aggregates, and mix design parameters are essential in the performance of the asphalt mixture, the percentage of the proposed additive will be different for each research or field

project. The results of this study show that the use of 2% UHMWPE with size #50 (Sample C), significantly improves the performance of asphalt mixtures. Accordingly, it is recommended to use Sample C of UHMWPE for each research or field project and then examine the percentages close to it to select the optimum percentage for each asphalt mixture.



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