



Research & Technology

We continued to focus our research on environmentally friendly technology, such as recycling waste rubber tyre for production of road paving material and alternative low noise road surfacing material.

Recycling Waste Rubber Tyre for Production of Road Paving Material

In Hong Kong, approximate 30,000 to 40,000 tonnes of waste vehicle tyres are generated every year. While effort has been made to collect them for reuse, retreading and recycling, some waste tyres are still disposed of at landfills each year. With the vision to bring in both environmental and engineering benefits, HyD and EPD, in collaboration with local academia, are exploring the feasibility to utilize the recycled waste rubber tyres as an additive in the production of bituminous road paving material. Overseas experiences and local laboratory tests indicated that, with proper mix design and well-controlled production, the site performance of bituminous pavement with waste rubber tyres is comparable to ordinary one. After ironing out the technical issues relating to plant modification, material production and field operation, trials will be then launched to further evaluate the application potentials of this new material.



Crumb Rubber Modified Bitumen in laboratory

Alternative Low Noise Road Surfacing Material

Like other metropolitan cities with dense population and busy road network, road traffic noise is a challenge faced by Hong Kong. Low noise road surfacing (LNRS) is one of the practicable engineering measures being adopted to tackle the problem. Polymer modified friction course (PMFC) has been proven a suitable paving material for roads with free flow traffic, giving lower road/tyre noise and better driving condition. Nonetheless, both overseas and local experiences revealed that PMFC, attributed to its porous nature, is not durable and requires frequent maintenance when used on typical urban roads. In view of the limitations of PMFC, the suitability of 6mm nominal aggregate size polymer modified stone mastic asphalt (PMSMA6), which is recognized by some overseas countries as a better LNRS alternative for urban roads, is being studied in Hong Kong. PMSMA6 is made of fine-grained gap-graded aggregates with thickness not more than 30mm. Its smooth and optimized surface texture reduces road/tyre noise and its gap-graded aggregates composition forms a stronger skeleton than PMFC to better withstand heavy traffic load. To evaluate its applicability in Hong Kong, some trial sections have been laid and, in parallel, some laboratory tests are being conducted to examine its engineering properties. HyD and EPD are working closely to monitor the durability and noise reducing ability of PMSMA6, as a potential alternative LNRS.



PMSMA6 laid at Ting Kok Road, Tai Po