

FINE SHEET

FEUILLE FINE



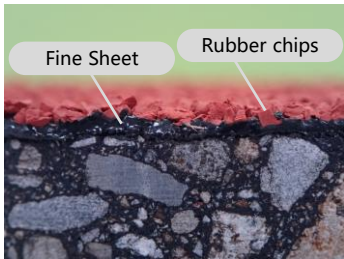
Easy-to-apply anti-freezing sheet

■ Features

- “Fine Sheet” is a sheeting applied to pavement to suppress freezing
- “Fine Sheet” is a soft, sheet-like elastic material
- Simply applying it to existing pavement prevent frost damage on road surfaces and suppress freezing



- Can be easily applied using just a sheet and rubber chips
- Some of the rubber chips are recycled from disposed tires
- Rubber chip color can be chosen to suit the application



“Fine Sheet” Cross-Section



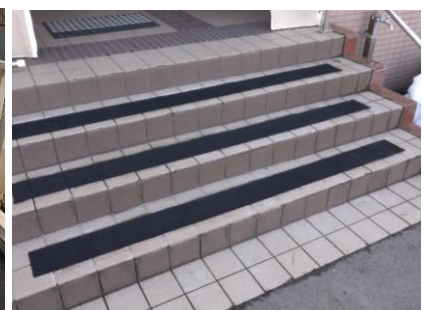
“Fine Sheet” Appearance



Color Lineup Examples

■ Applicable areas

Steep uphill lanes, tunnel entrances & exits, before curves, icy sections of bridge pavement, slopes, shaded areas, anti-slip treads on stairs



Flexi-Pave Method

Procédé Flexi-Pave



Flexible anti-cracking asphalt mixtures

- Capable of being bent under load
- High crack resistance

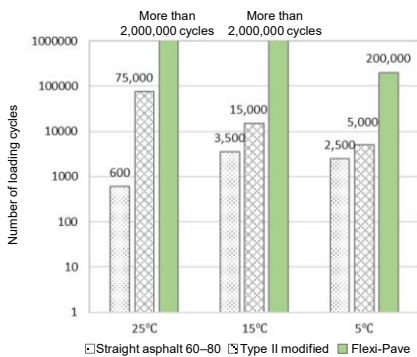


Ordinary asphalt



Flexi-Pave

Flexural fatigue test



- A flexural fatigue test measures the number of load cycles until failure.
- Flexi-Pave withstands a far greater number of load cycles than conventional pavements.
- Flexi-Pave is soft even at 5°C.

Paving work

It can be applied in the same way as conventional asphalt mixtures



Paving/Laying



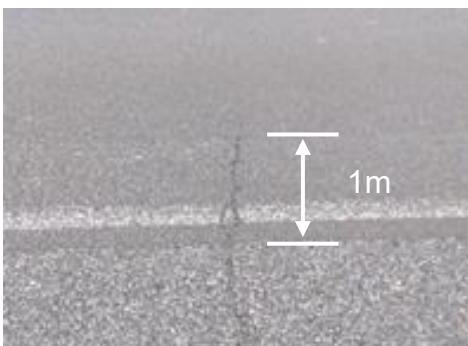
Compaction



Finished surface

Repaired pavement after two years of use

- Comparison of road surface cracks after two years of use
- Cracks in Flexi-Pave are shorter.



Ordinary asphalt pavement



Flexi-Pave



Fine PET-S

PET-S Fine



High-durability pavement using waste PET

Characteristics

- Uses an additive (NEWTLAC 5500) made from recycled waste PET as a raw material
- Technology for building highly durable, long-life roads



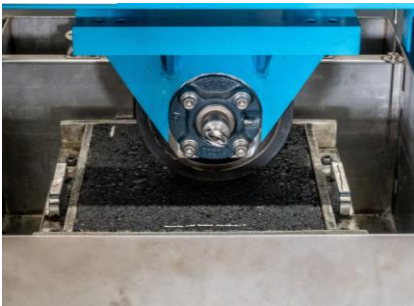
Applications

- Pavement for parking areas expected to accommodate heavy vehicles
- Driving lanes within factories

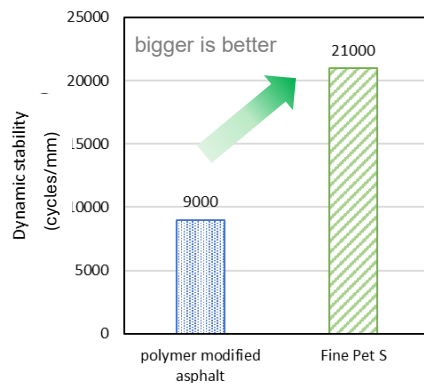


Rutting resistance evaluation

- A wheel tracking test was used to measure dynamic stability, an indicator of rutting resistance.
- Dynamic stability of Fine PET-S is higher than that of polymer-modified asphalt.



wheel tracking test



Oil resistance evaluation

- After immersing the test piece in kerosene at 60°C for 48 hours, mass retention and Marshall stability are measured.
- Fine PET-S retains its original shape even after being immersed in kerosene.

Before immersion in kerosene

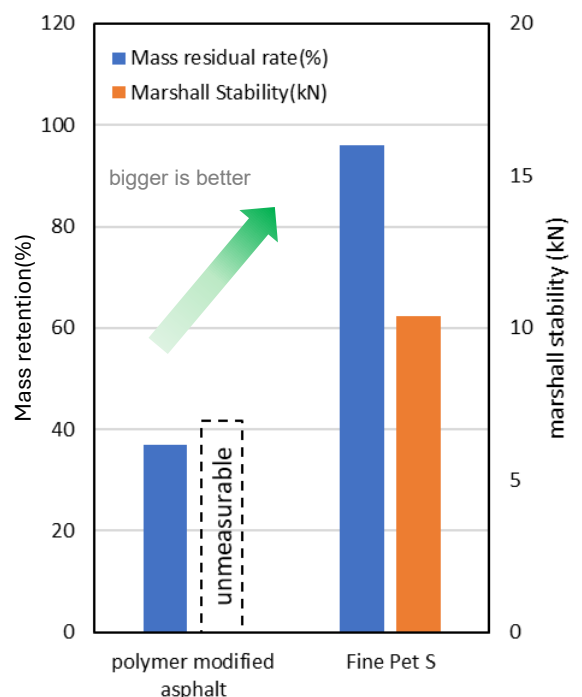


After immersion in kerosene



Polymer-modified asphalt

[Fine PET-S](#)



Multi Fine Eye

Oeil Multi-fine



Simple road surface inspection technology using DX

- High-precision simple road surface inspection and measurement technology utilizing portable digital video camera and depth camera systems installed to a commercially available vehicle.
- The crack rate is automatically identified and evaluated by AI using video data captured by the digital video camera.
- Rutting depth and IRI are evaluated by analyzing road surface profiles derived from point cloud data captured by the depth camera.
- Evaluation results can be visualized on a map, clearly indicating damage levels. This enables screening of damaged areas and supports efficient and effective management of existing infrastructure.



Digital video camera



Depth camera

How analysis is performed

AI detects cracked areas and calculates the crack rate from the percentage of the pavement surface area that is cracked.

Point cloud data of the road surface obtained by the depth camera is used to analyze the longitudinal and transverse profiles and evaluate the level of damage.



Measurement accuracy

This technology is listed as one of the technologies to be supported by the Ministry of Land, Infrastructure, Transport and Tourism in connection with pavement inspection and road patrol, and the measurement accuracy achieved with the technology has been verified.

Detection Rate and Accuracy of Damage Classification	Detection rate of II or more ¹⁾	Accuracy of II or higher ²⁾	Detection rate of III ¹⁾	Accuracy of III ²⁾
Crack rate	90~100%	90~100%	60~70%	90~100%
Rutting depth	90~100%	90~100%	80~90%	90~100%
IRI	90~100%	80~90%	90~100%	80~90%

1) Detection rate; an indicator used to evaluate whether damage can be detected and whether anything is overlooked.

2) Accuracy: A metric for measuring proportion of correctly detected results over total results

