Long Lasting Durable Mix as Alternative of Porous asphalt

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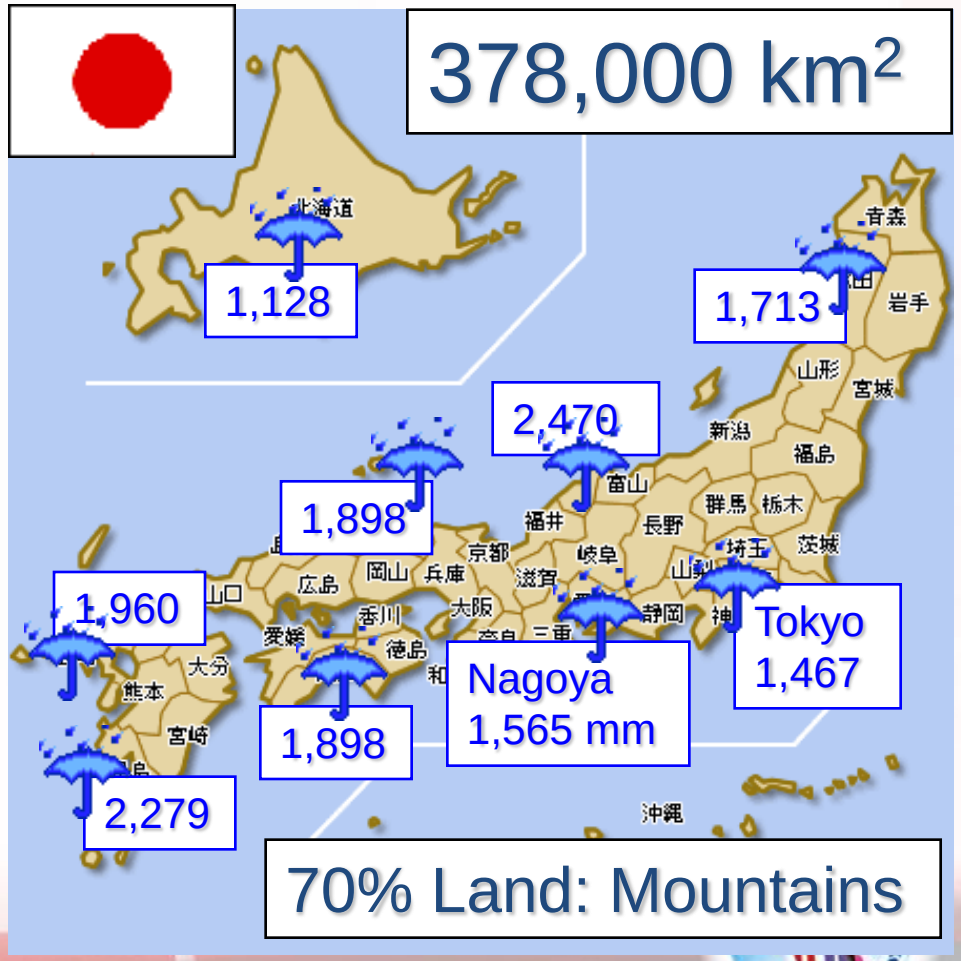
Country Information

World City	Annual Rainfall (Average 1970-2000)
Mexico City	1,266 mm
Paris	648 mm
Zurich	1,120 mm
Cape Town	539 mm
New York	1,123 mm
Jakarta	1,903 mm
Bangkok	1,530 mm
Hong Kong	2,360 mm

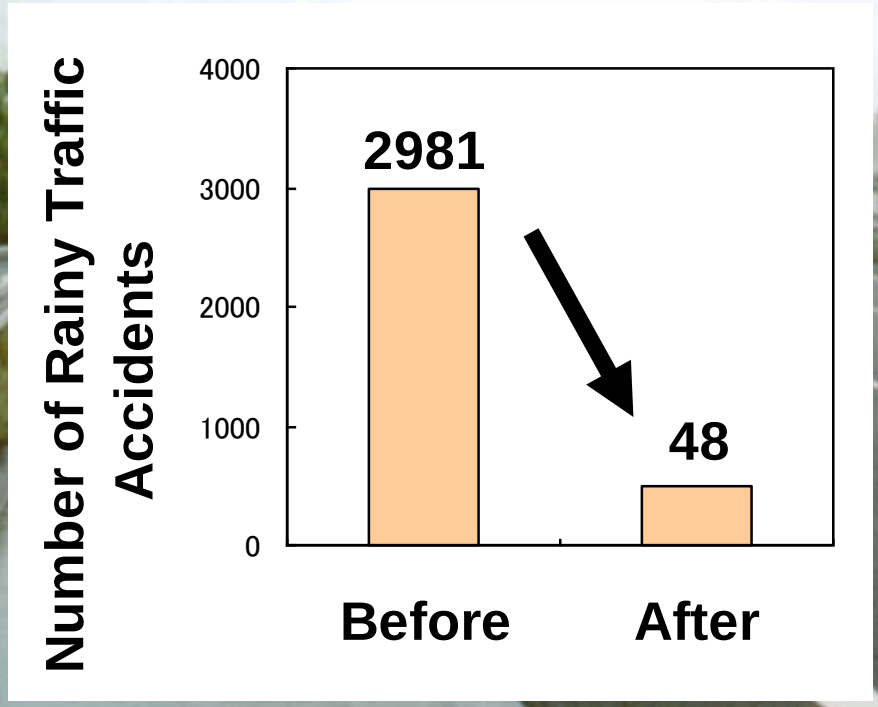


Source: Japanese Ministry of International Affairs Communications

Profile of Japanese PA

70% share in Motorway

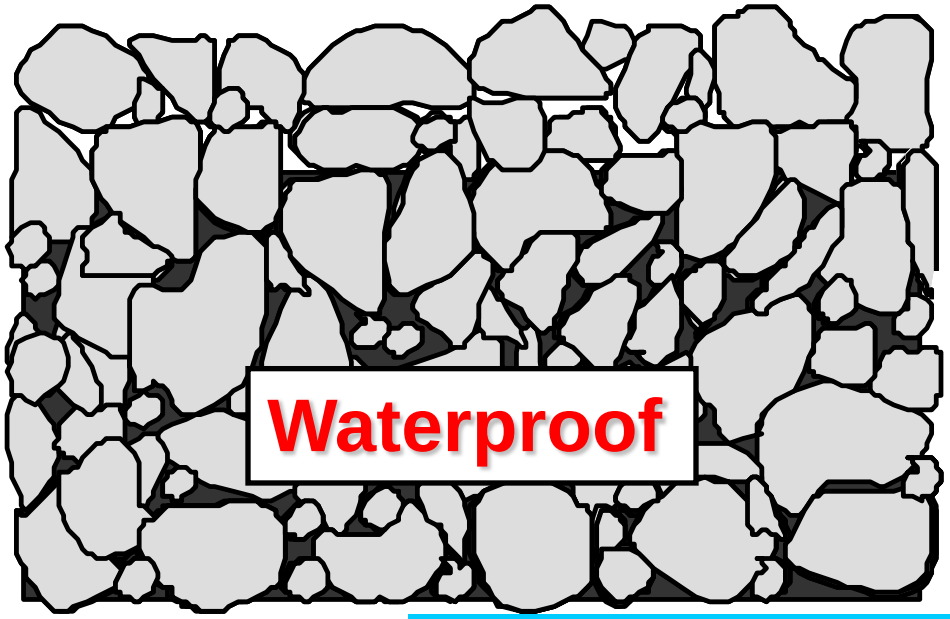
Highly Viscous Modified Bitumen



Long Lasting Mix Needed!

Concept of Hybrid Mix

Skid Resistance



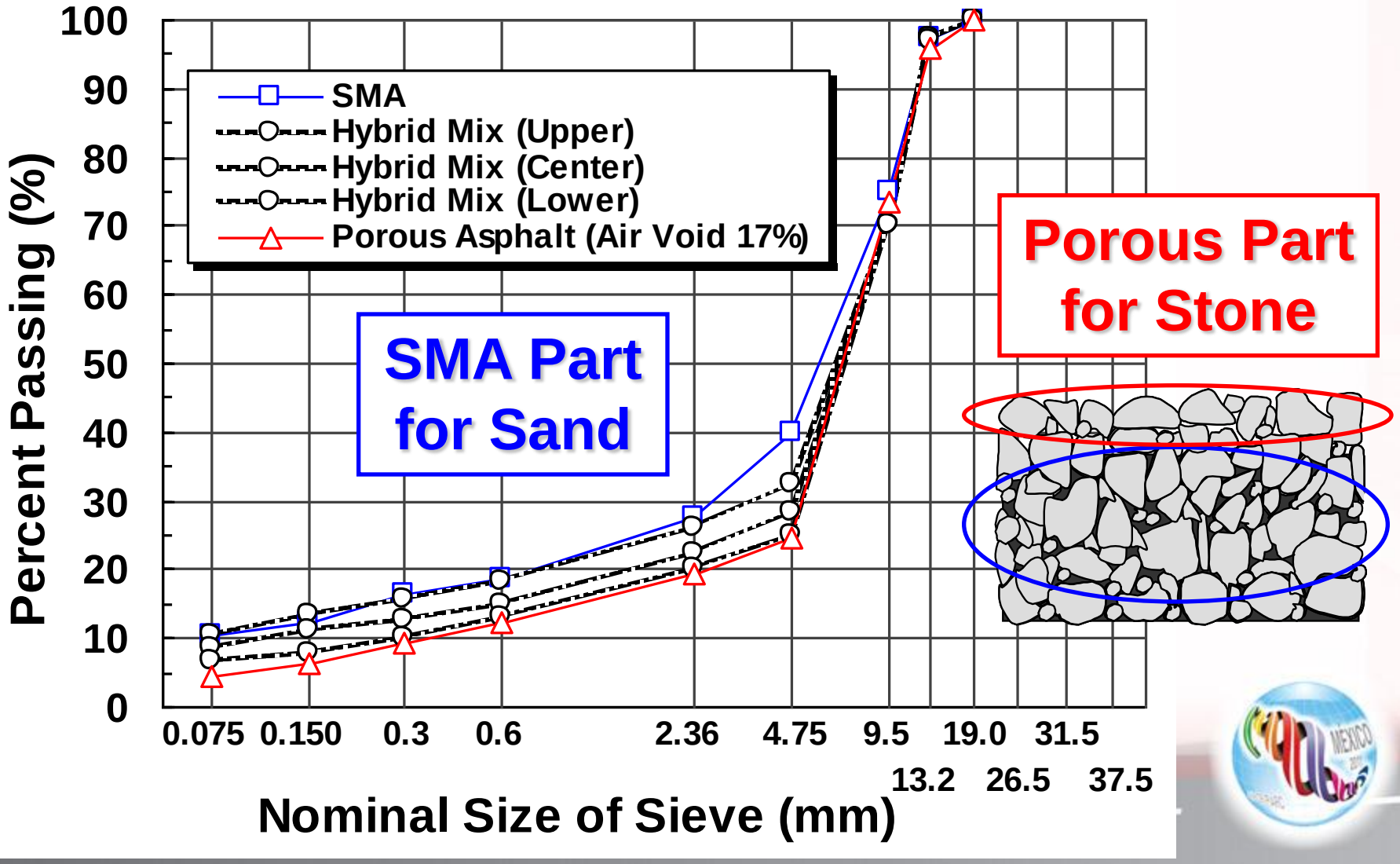
Texture as Porous Asphalt

Impermeability as SMA

Intentionally not Uniformed Mix

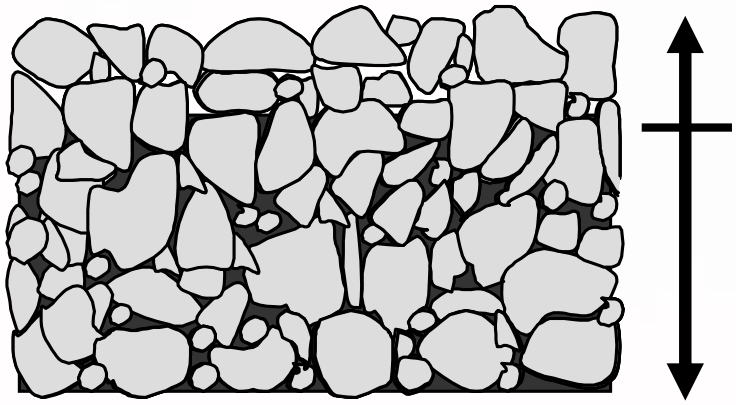
One Mix with Two Functions

Aggregate Gradation Design



Air Void Evaluation

Porous Part

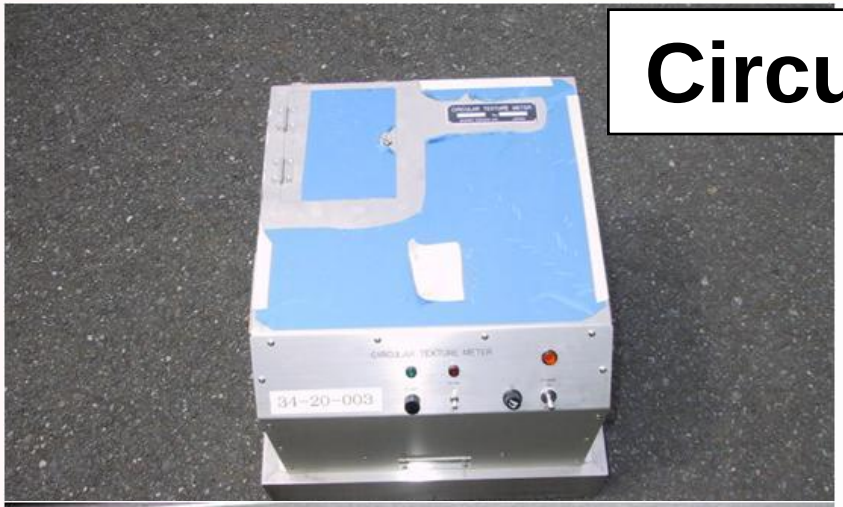


SMA Part

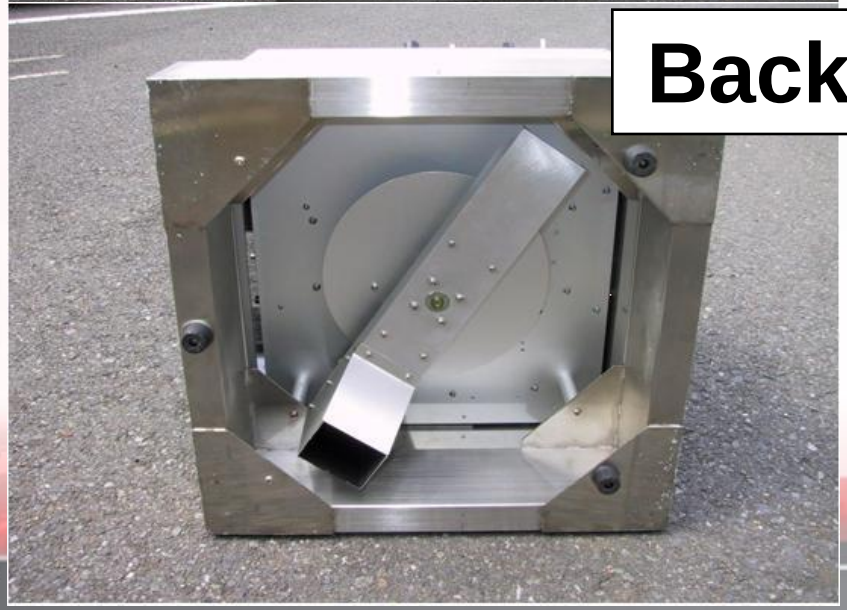
Bulk
Specific Gravity
(Vacuum Pack)

Apparent
Specific Gravity

Texture Measurement

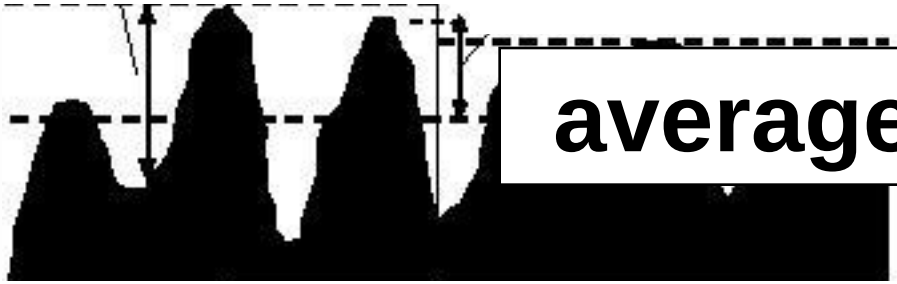


Circular Track Meter



Back

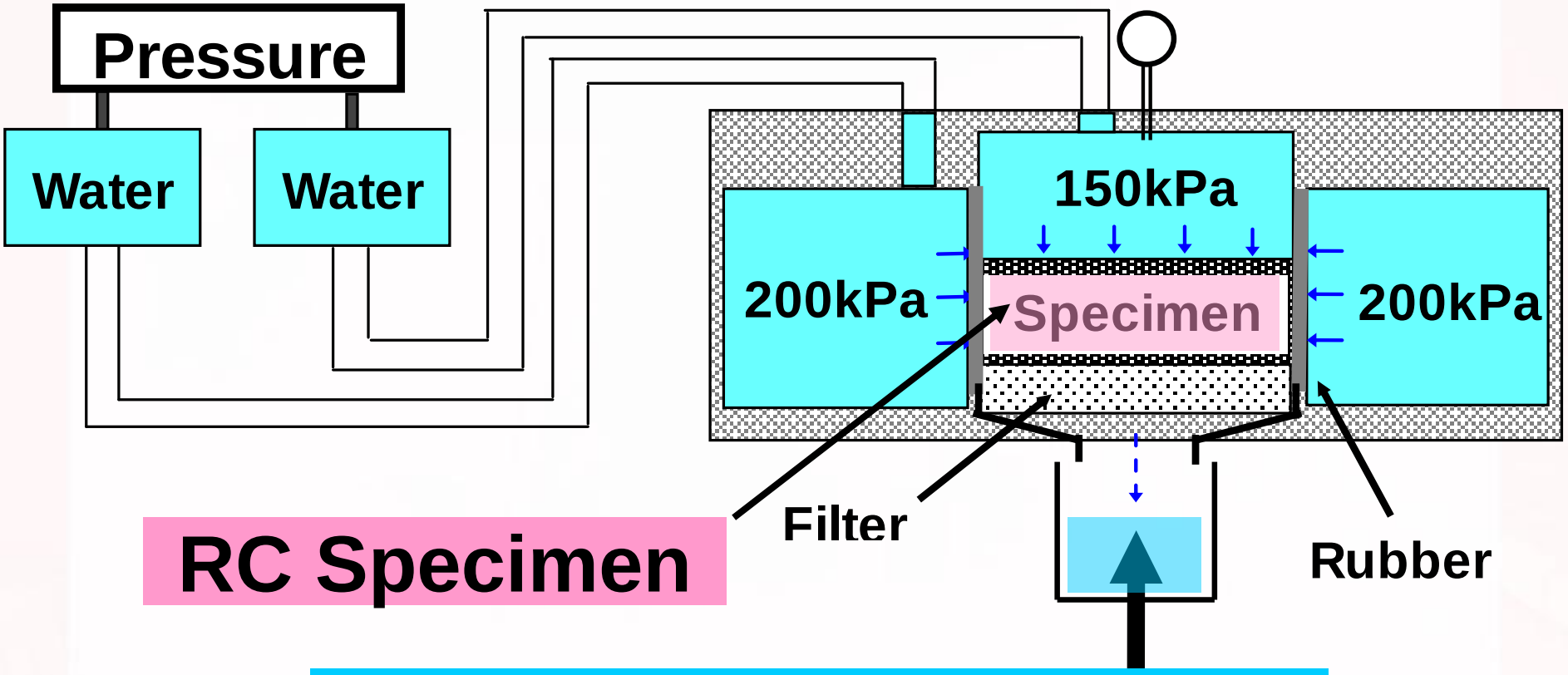
Mean Profile Depth



average

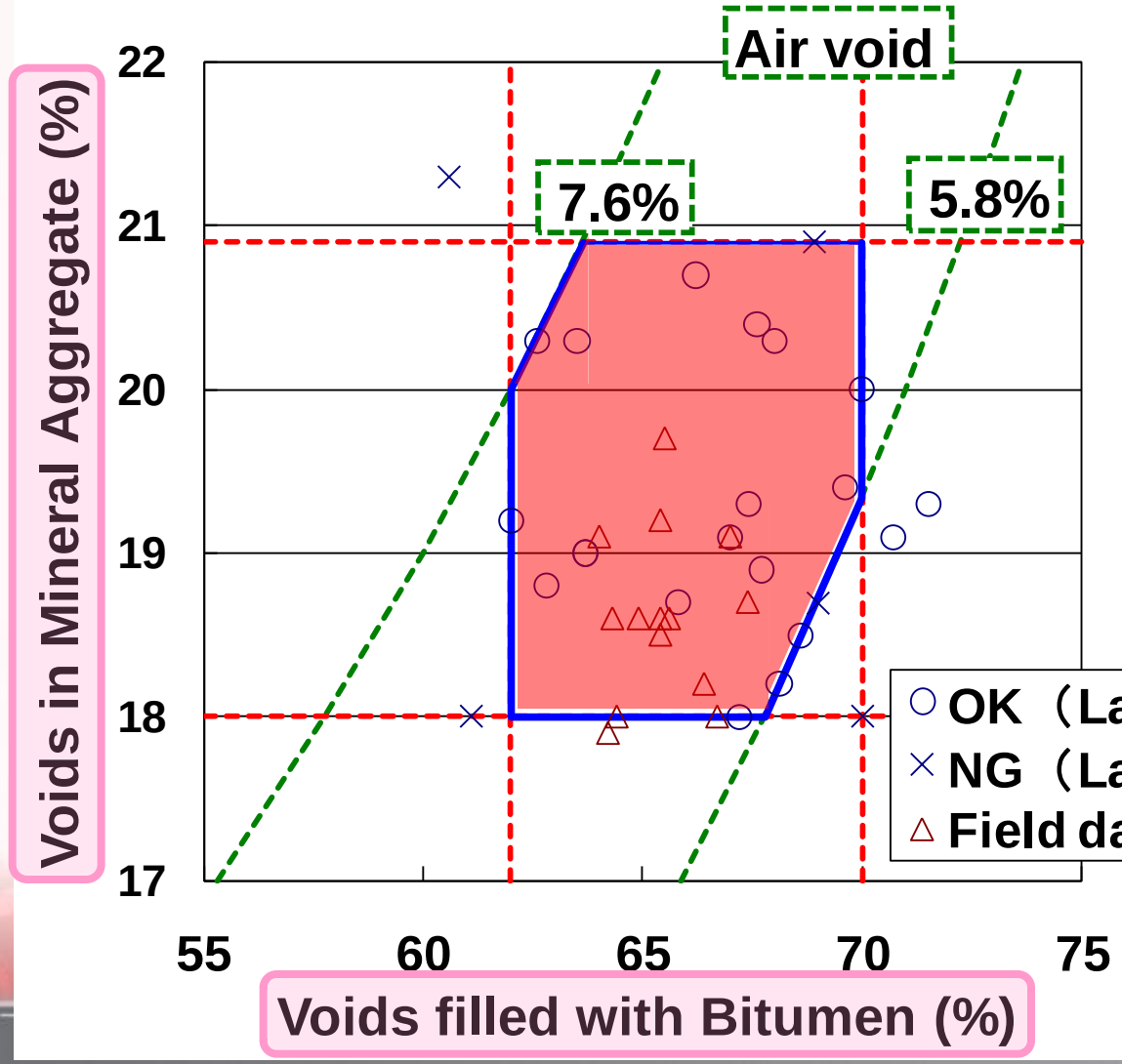
Roller Compacted Specimen

Permeability Measurement



Vol. for 10 min. after 24hr under Pressure

VMA, VFB & Functions



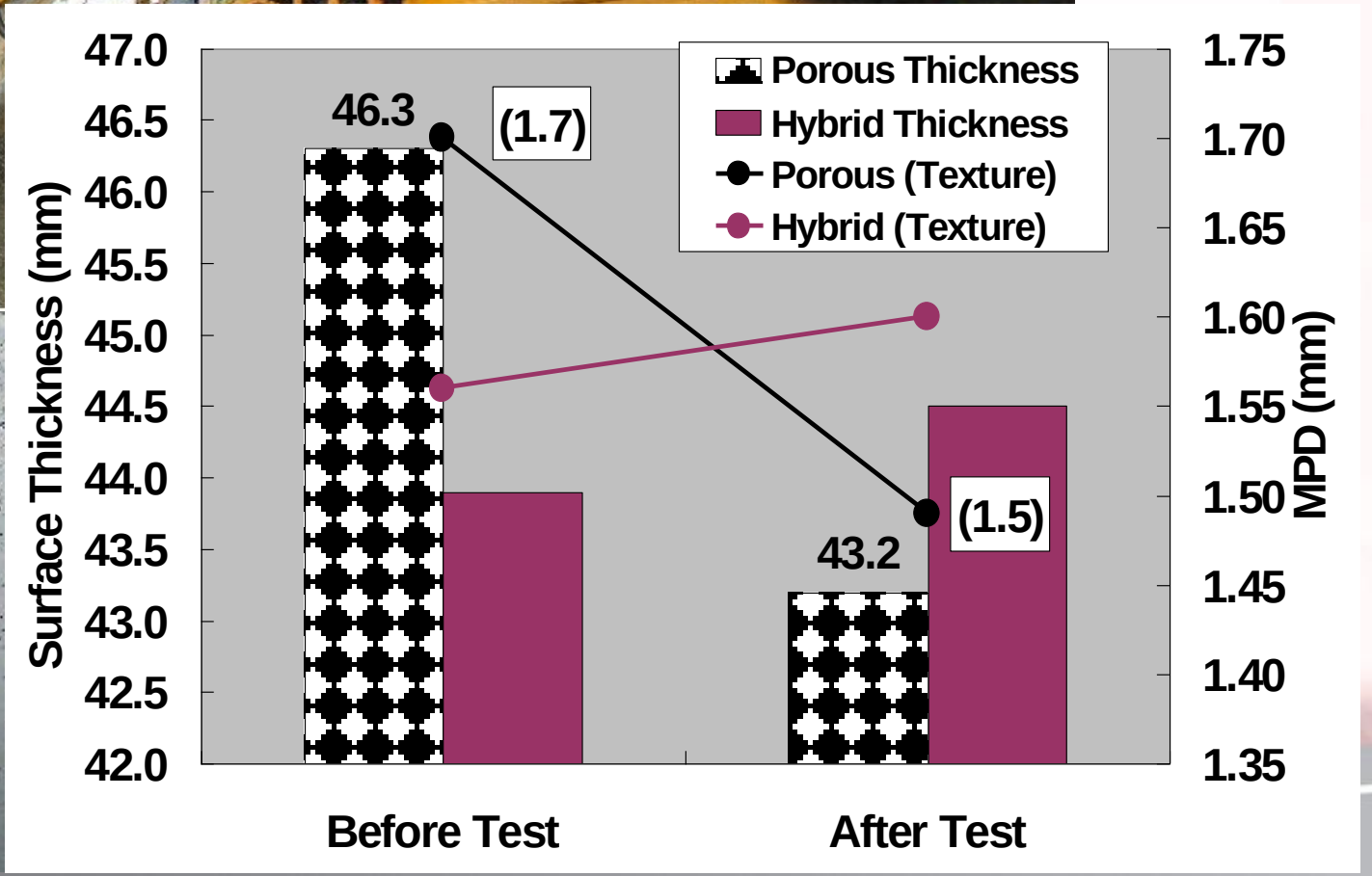
Texture

Impermeability

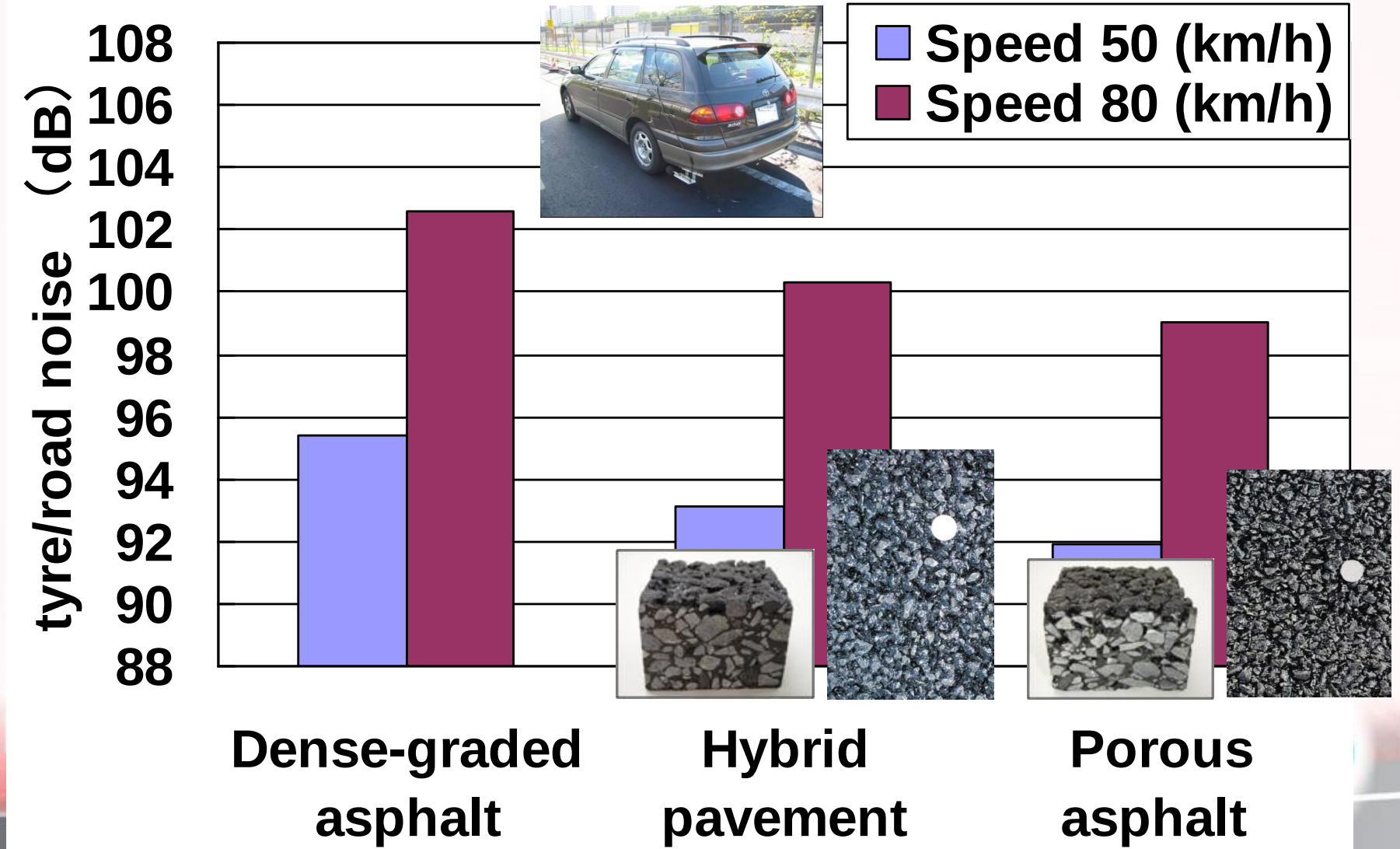
Rutting Resistance

Survived Mix

Dry Plowing Experiment



Noise Reduction Levels



CONCLUSION

- By controlling aggregate gradation, VMA and VFB, the concept of Hybrid mix is achievable in the field.
- Hybrid mix is durable against raveling.
- Noise reduction of Hybrid is between porous and dense graded mixes.

Thank you for your attention!

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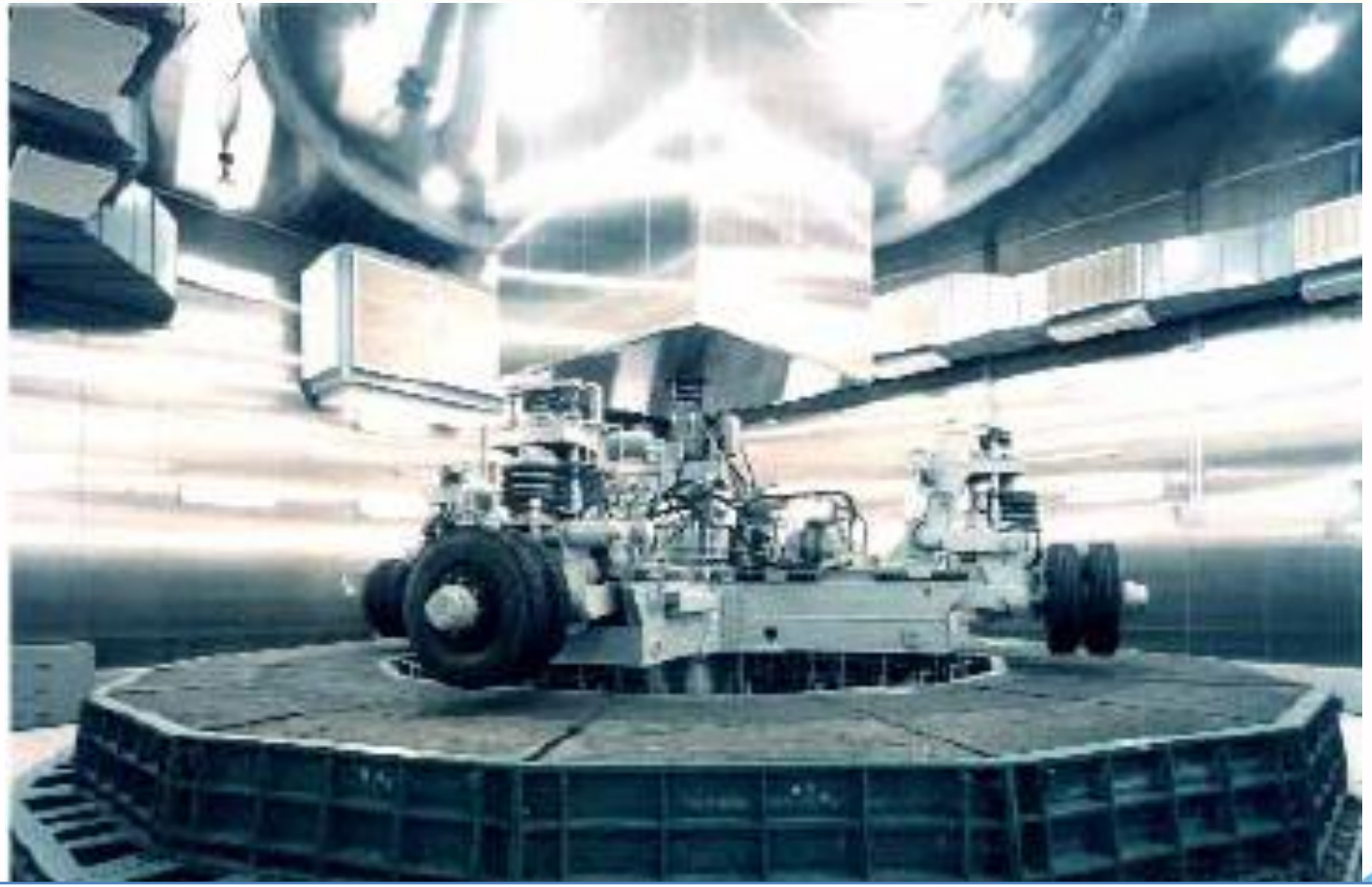
Accelerated Pavement Test



Accelerated Loading and Environmental Simulator

Raveling Resistance by ALES