



Asphalt Rubber: Research & Development in Italy

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Definition of Asphalt Rubber & Rubberized Asphalt Concrete



Asphalt Rubber is a blend of asphalt cement and certain additives in which the rubber component is at least 15 percent by weight of the total blend and has reacted in the hot asphalt cement to cause swelling of rubber particles”

Rubberized asphalt concrete (RAC) is a material produced for hot mix applications by mixing asphalt rubber with graded aggregate (gap- or open-graded)”

Benefits of Asphalt Rubber

- Mechanical Performances (rutting, fatigue/reflection cracking).
- Durability (aging resistance).
- Safety (skid resistance, splash & spray)
- Maintenance costs.
- Environment (re-use of waste tires, reduction in traffic noise).

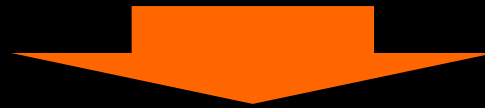
Application of Asphalt Rubber in Italy

- Technology available since 2006.
- Main phases:
 - Asphalt rubber production set up at asphalt concrete plant;
 - laboratory characterization of asphalt rubber;
 - PAC laboratory characterization (in progress);
 - preliminary applications of gap- and open-graded mixes;
 - pilot projects.



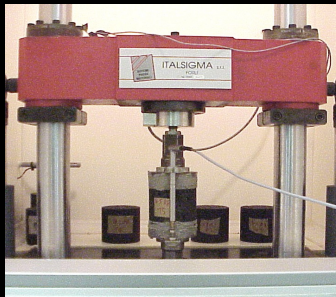
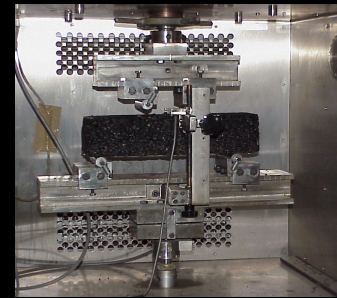
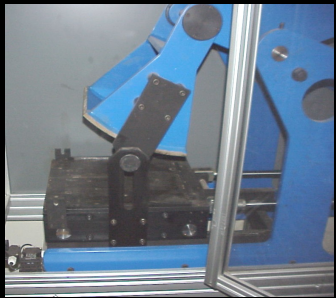
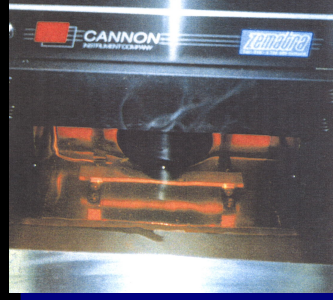
Practical Objectives of Asphalt Rubber in Italy

- prepare **technical specifications** based on the Italian experience both related to public administrations and private companies needs.



- **Statistical based approach** for laboratory investigation and production control to evaluate typical quality/design parameters.

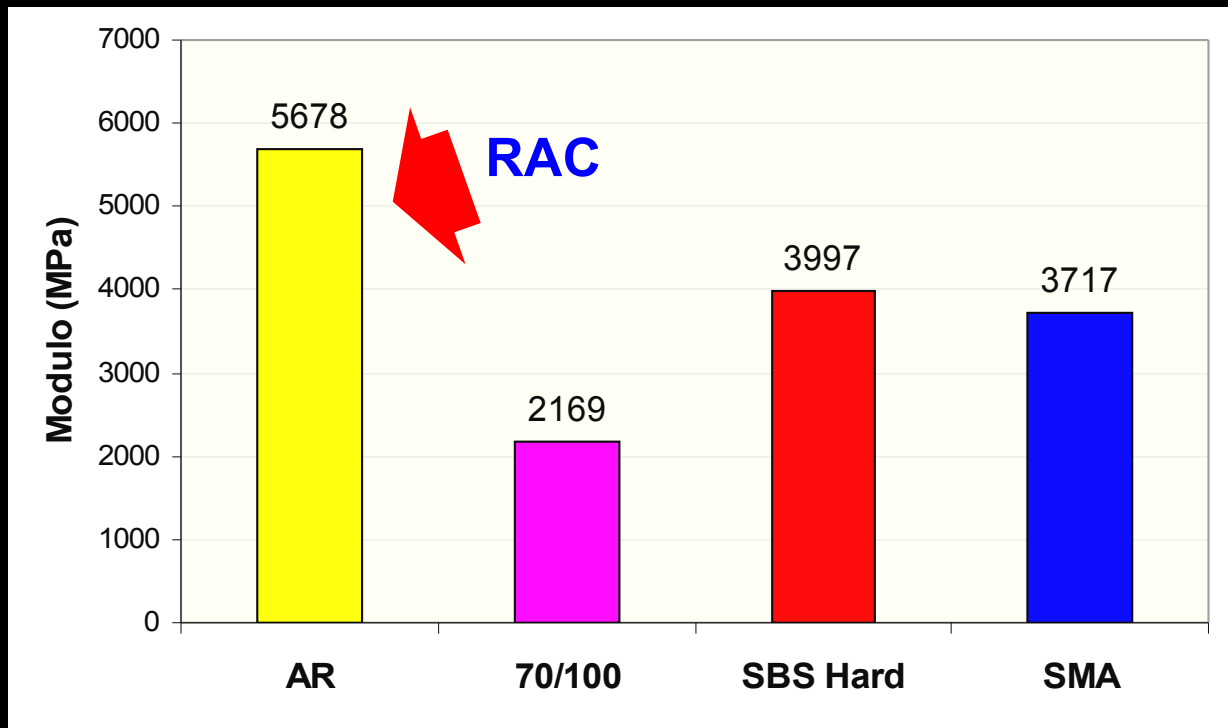
R&D Experimental Evaluation



R&D Experimental Evaluation: AR binder characterization

Binder	PG	
	DSR	BBR
50/70 (asphalt)	64	-22
EVA soft	64	-16
SBS soft	70	-16
SBS hard	70	-22
50/70+18% CRM	82	-22
70/100+18% CRM	70	-28

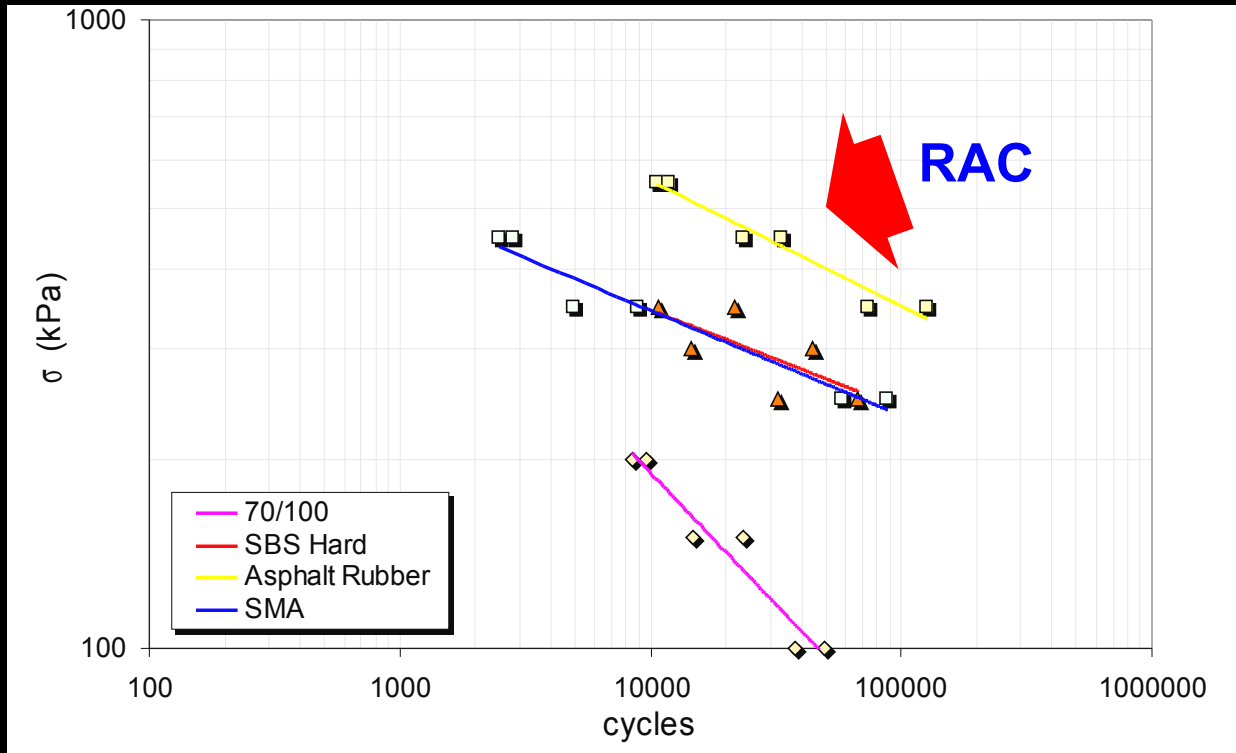
R&D Experimental Evaluation: RAC characterization (ITSM)



- Indirect Tensile Stiffness Modulus

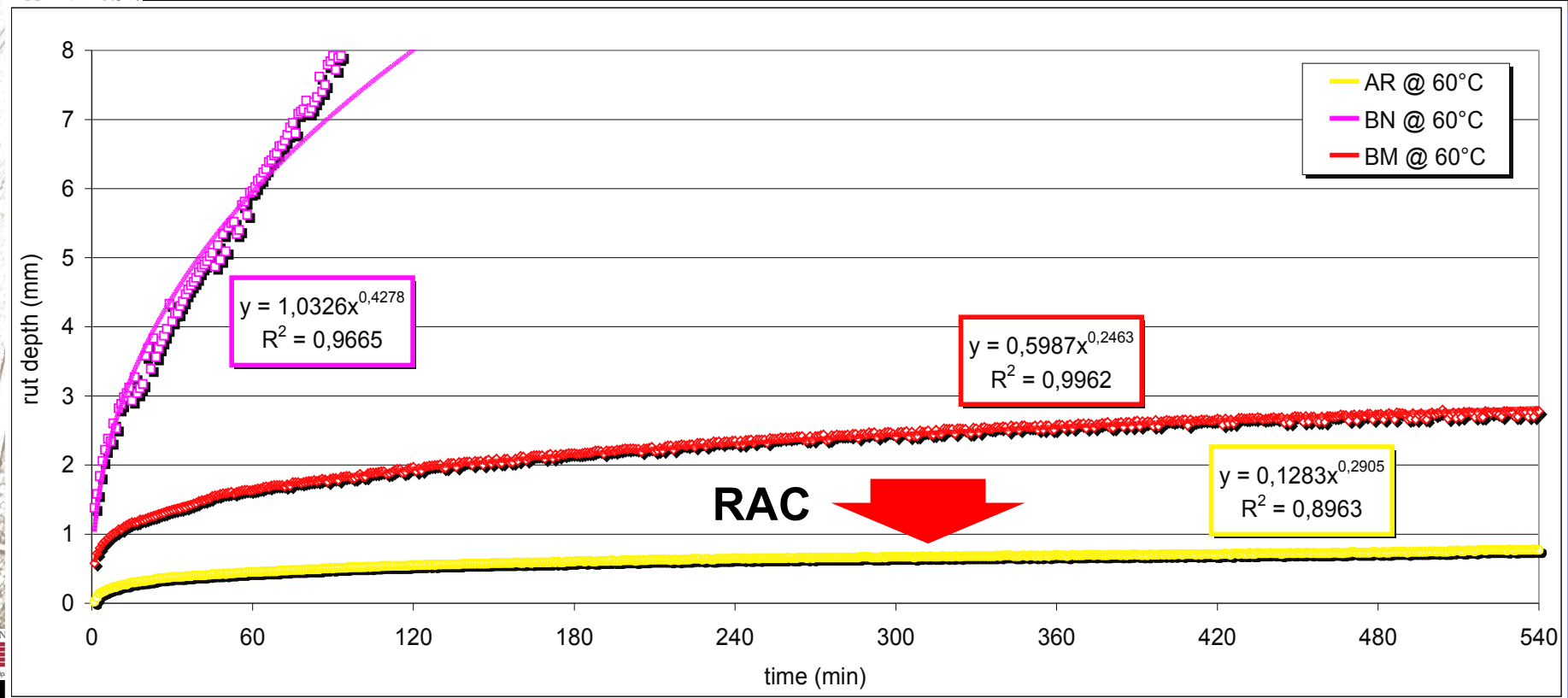


R&D Experimental Evaluation: RAC characterization (fatigue)



R&D Experimental Evaluation: RAC characterization (rutting)

T = 60 °C



R&D Experimental Evaluation: Further actions/needs

- Pilot projects.
- Acoustic analysis of RAC.
- In situ noise measurements.
- Long term monitoring.
- Water sensitivity analysis.
- Advanced mechanical modeling.
- ...



R&D Experimental Evaluation: Goal

ASPHALT RUBBER APPLICATION: AN OPPORTUNITY FOR ITALIAN ROAD NETWORK?



Thank you for your attention
See you in Ancona

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