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Reacted and Activated Rubber - An Elastomeric Asphalt Extender – Key Aspects and Case Studies

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ABSTRACT: A new rubberized asphalt technology has developed a new innovative product called Reacted and Activated Rubber (RAR). RAR is composed of neat soft bitumen, fine grinded crumb tire rubber, and active fillers at optimized proportions. It can be added, directly to the pugmill, for producing any type of rubberized Hot Mix Asphalt (HMA) – Dense, Open Graded, Gap graded, Stone Mastic Asphalt (SMA), etc., for replacing part of the asphalt cement (bitumen) at different proportions. RAR modifies the neat bitumen by increasing its PG grading, while modifying also the resilience, and recovery properties. When added to HMA mixes, RAR showed much better Stability, Rutting & Fatigue resistance and low draindown in SMA mixes (without the fibers), under attractive cost/benefit and environmental conditions.

This paper shows some R&D efforts in the laboratory and the description of actual Road Tests that were performed and monitored in, Russia, Israel, Bulgaria, France, Portugal, and Italy, using RAR HMA mixes under different climatic conditions. The RAR HMA mixes (Dense, SMA, GAP, Superpave and THING GAP) were produced in conventional batch asphalt plants with the use of the regular SMA fiber-feeder for feeding the RAR directly to the pugmill or commercial filler silos without any additional heating or setting. In the Case Studies, the road tests included a residential streets, highly trafficked industrial & urban roads and freeways. The performance and results so far (after more than four years of service from the first road test) have clearly shown the strength of the advantages of RAR Asphalt Rubber mixes.

KEYWORDS: Rubberized Asphalt, Elastomeric Asphalt Extender, Reacted and Activated Rubber-RAR, Economic and Environmental Advantages .
