



**“Gheorghe Asachi” Technical University of Iasi, Romania**



---

## **PERFORMANCE OF RECYCLED ASPHALT MIXTURES FORMULATED WITH MODIFIED BITUMEN**

**Mehena Oualit<sup>1\*</sup>, Amar Irekti<sup>2</sup>, Brahim Hami<sup>1</sup>**

<sup>1</sup>Unit of Research: Materials, Processes and Environment (UR-MPE), Frantz Fanon city, 35000 Boumerdes, Algeria

<sup>2</sup>Laboratory of Fibrous Polymers Treatment and Forming (LFPTF), M'hamed Bougara University, 35000 Boumerdes, Algeria

---

### **Abstract**

The maintenance of flexible roads or roads at end of life service generates high quantities of reclaimed asphalt pavement every year. The reuse of these materials, considered for a long time as waste, allows a substantial saving in transport, energy, and maintains dwindling natural resources. Recycling of asphalt also helps to reduce inert waste storage volumes, and conserve valuable landfill space. The applicability of recycled asphalt was tested in laboratory, and asphalt mixtures containing 20%, 40% and 50% of reclaimed asphalt pavement (RAP) were designed. Marshall and Duriez tests have been performed on various formulations using paving grade bitumen and modified bitumen as binders, the latter contains a quantity of Styrene /Butadiene / Styrene (SBS) polymer. This investigation led to the conclusion that the performance of recycled asphalt mixture containing 20% of RAP is significantly closer to those obtained with virgin asphalt mixture without recycled materials. In addition, the use of SBS polymer improves the properties of recycled asphalt mixtures even with high amounts of reclaimed asphalt pavement.

*Key words:* asphalt, formulation, performance, reclaimed asphalt pavement, recycling

*Received: March, 2018; Revised final: April, 2019; Accepted: May, 2019; Published in final edited form: December, 2019*

---

---

\* Author to whom all correspondence should be addressed: e-mail: [oualitmehena@yahoo.fr](mailto:oualitmehena@yahoo.fr); Phone: +213 (0)777152300