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**POLLUTION REDUCTION OF TIRES WASTE THROUGH INCORPORATION
IN THE BITUMEN TO FIGHT AGAINST PAVEMENT RUTTING.**

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ABSTRACT

Rutting is one of the most encountered degradation phenomenon in the Algerian roads especially in the south where the climate condition are severe. In order to reduce the reach of this phenomenon we made the modification of bitumen with crumb rubber from used tires. The number of used tires is increasing every year by simply due to increased fleet. The problem of waste management is a huge problem both economically and ecologically. Using scrap tires as construction materials in civil engineering is of growing interest.

The current study focuses on waste recycling of used tires in the road sector to reduce pollution due to the latter; and secondly to improve the characteristics of asphalt to respond to sustainability criteria. For this we shall modify the asphalt with rubber crumb. Different percentages of rubber crumb (RC) are added to the bitumen to evaluate their influence on modified bitumen behaviour. The addition percentage is from 3% to 12% with an increase of 3% based on the weight of the bitumen. The experiments were performed on 35/50 grade bitumen.

The results show a significant improvement on the softening point (SP), penetration and thermal sensitivity (PI).

The incorporation of (RC) in the bitumen has a positive influence on the bitumen characteristics, the best performance is recorded to the content of 6% with PR:

- An increase of 48.1% softening point.
- A decrease in the penetration value of 58.3%.
- The consistency of the bitumen that represented by the penetration index is improved by the incorporation of PC with attractive decrease in thermal susceptibility value.

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