



Life Cycle Assessment of Hot Mixed Asphalt (HMA) with and without addition of hydrated lime, executed for the European association for lime, EuLA

Hydrated lime in the Hot Mixed Asphalt (HMA) has been known to have several beneficial effects in the overall road performance (moisture damage and frost, decrease bitumen ageing) and as a result the extension of road durability.

On behalf of the European Lime Association (EuLA) EESAC has conducted a life cycle assessment (LCA) study to compare the environmental impact of the classical Hot Mixed Asphalt (HMA) versus modified HMA (with 1.5% of hydrated lime) for the lifetime of a road. By using the ISO 14040-14044 standards, it was shown that thanks to the 25 percent extension of the road durability, the use of hydrated lime in Hot Mix Asphalt leads to a decrease in the overall environmental footprint over the lifetime of a road (50 years).

The key outcome of the EuLA study is that the use of modified HMA in the wearing course has clearly the lower environmental footprint for the main environmental impact categories: energy consumption, abiotic depletion, climate change, air acidification, photochemical oxidant formation, stratospheric ozone depletion and eutrophication. Additionally for each maintenance step avoided, formation of traffic jams by the maintenance works is avoided.

The results from this study have been validated by an external critical reviewer and have an overall benefit for the sustainability development in the road construction sector.