

ROAD MARKINGS AND MICROPLASTICS

A FACT CHECK OF THE CURRENT SITUATION



INTRODUCTION

The European Union is preparing a draft legislation aiming to minimise emissions of secondary microplastics.

Road markings are essential road safety devices that are subject to abrasion by traffic to a certain extent and can thus be considered as a source of secondary microplastics. Unfortunately up to now the literature on the topic has been dominated by numerous misconceptions and false assumptions due to the lack of industry experts involved and the absence of data from practice.

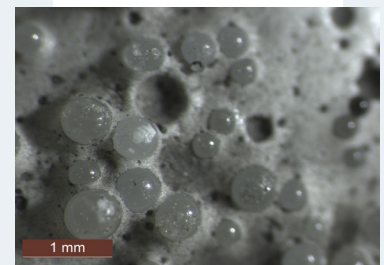
This paper provides the view of road marking professionals and highlights potential measures to minimise the impact of microplastics from road markings, using empirical evidence and practical experiences from various European countries.

POSITION IN BRIEF

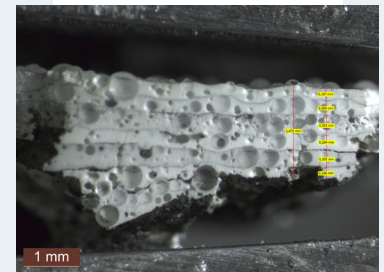
Road markings are systems comprising a coating layer and a glass beads layer. The presence of the glass beads layer is critical because it simultaneously protects the underlying coating layer and delivers retroreflectivity.

Whereas the coating layer contains durable synthetic polymers that might release microplastics into the environment, one must note that the **previously estimated emission quantities were based on fundamentally wrong assumptions:**

- The quantities of road marking materials used for some studies were in some cases incorrect or massively overestimated.
- The polymer-bearing coating layer is fully protected by drop-on glass beads on which the vehicle tyres roll; hence, abrasion is very limited during the functional lifetime.
- Upon loss of retroreflectivity, road markings are being renewed with fresh layers of the coating and the glass beads; consequently, stacking of layers occurs instead of being worn out.
- When renewals are no longer possible, the layers of road markings are mechanically removed without generating dust, collected, and disposed of appropriately.
- Thick-layer Road markings usually contain glass beads as fixed ingredients (so-called premix beads). Glass never deteriorates into microplastics.



Picture showing Road markings that lost some of the drop-on glass beads.



Picture showing the multi layers of coatings applied during various maintenance.

SUPPORTING DATA

Please follow the link to find recent scientific research supporting our position and confirming that the contribution of road markings to microplastic pollution is insignificant compared to other sources.

[Click here for more](#)

CONCLUSIONS

To further minimise the contribution of road marking materials to microplastic pollution, it is recommended to select durable high-quality road markings and implement proactive maintenance programs where the road marking system (coating and glass beads) is renewed as soon as the performance falls below intervention levels based on retroreflectivity. Road markings are critical elements of roadway infrastructure, providing enormous safety benefits to both human drivers and advanced driver-assistance systems (ADAS), so they should be maintained at the highest possible level for the benefits of the entire society.