

Air Quality Pilot Study No. 7

Mineral Polymer Barrier – Summary

Purpose

The purpose of the study is to assess whether a barrier coated in mineral polymer could support reduction in measured nitrogen dioxide (NO₂) concentrations.

Air Quality Mitigation

This work is part of a suite of mitigation studies and given the potential for legally binding limits for some pollutants, especially NO₂, to delay the delivery of schemes across the network, it is essential that mitigation measures be identified, and their performance evaluated.

Mitigation Proposals

One of the submissions to the previous air quality innovation call led by Department for Transport (DfT) was a new mineral polymer material developed to remove NO₂ from the atmosphere. This property if proven could be a valuable mitigation aid to employ alongside Highways England's strategic road network (SRN). Laboratory testing as part of the innovation call showed very promising results with the mineral polymer capable of removing high levels (parts per million) of NO₂ over a relatively short duration (circa 10 minutes).

Given the very positive performance of the mineral polymer in the laboratory testing it was decided to progress a real-world field trial at a site alongside the M1 in Derbyshire to see if the mineral polymer was capable of removing roadside NO₂ concentrations.

The trial took place for a 12 months period, between February 2017 and to January 2018.

Summary of the Outcomes

A comparison of the monitoring data collected behind the barrier covered in the mineral polymer material showed no discernible difference to the monitoring results behind the control barrier. Overall it was concluded that the mineral polymer material was not effective at reducing ambient levels of NO₂.