

Neoprene joint seals for concrete pavements

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ABSTRACT

Australian concrete pavements are relatively unique in the world with the majority consisting of unreinforced jointed plain concrete. Joints are sealed to prevent ingress of incompressible particles that can cause premature failure.

Over the past decade, one of the most substantial short-term maintenance costs for plain concrete pavements has been the replacement of failed silicone joint seals. In order to assess and understand the causes of these failures, there has been significant investigation and analysis by ASCP. NSW Roads and Maritime Services have attempted to address the silicone joint seal failures by issuing new specifications for cleaning of joints and checking adhesion and cohesion of silicone. Notwithstanding the progress made, failed joint seals remain one of the most substantial maintenance costs for plain jointed concrete pavements.

Neoprene joint seals are used on heavy duty approaches to bridges, are also used in pavement joint seals in some parts of Europe and USA, and were also used in Australia on some major road projects in the 1980's. Two of these projects are sections of the M1 Motorway which have now had close to 40 years traffic loading and are currently being rehabilitated and upgraded.

This paper provides an in-field comparative assessment of the condition of neoprene joint seals versus silicone joint seals on the M1 Motorway between Kariong and Somersby Interchanges and also between Tuggerah and Doyalson Interchanges; an assessment on some current neoprene joint seals in use; and sets out some recommendations for establishing a trial of the use of neoprene joint seals on the M1 Motorway.