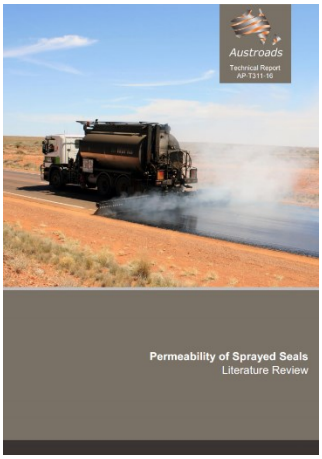
Permeability of Sprayed Seals: Literature Review



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This report describes a literature review on the permeability of sprayed seal surfacings. This review work was conducted to explore the permeability limits of sprayed seal surfacings, and to determine the influencing factors which allow seals to remain sufficiently waterproof. The testing methods and related equipment that may be used to determine permeability were also investigated.

The findings indicate that water ingress is possible through a sprayed seal under atmospheric conditions, and is exacerbated by the presence of higher pressures and dynamic loading, like that caused by passing vehicle tyres. A number of factors (e.g. treatment types, quality of work/maintenance) greatly influence the waterproofing capabilities of sprayed seals.

Conducting permeability testing on sprayed seals is complicated by their typically coarse texture, which makes generating a watertight seal between the equipment and the surface very difficult. These interface problems and lack of proper sample collection and/or preparation techniques appear to be the main barriers to conducting routine assessment of the permeability of sprayed seals.

Large scale accelerated loading facilities may be utilised for testing permeability of sprayed seal surfacings as these provide realistic pavements and sprayed seals. These also enable intensive monitoring and data collection that would not be readily possible on an in-service road.

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