



ROAD SCIENCE **RLT TESTING**

WHAT IS REPEATED LOAD TRIAXIAL TESTING?

The Repeated Load Triaxial (RLT) apparatus applies repetitive loading on materials used in pavements. RLT testing is performed on materials ranging from granular to asphalt - for a range of specified loading conditions. The output from an RLT Test is deformation (shortening of the cylindrical sample) versus number of load cycles (usually 50,000) for each stage of loading stress, speed and temperature. Results are used to develop models for predicting rutting for any combination of stress, speed and temperature.

WHAT IS THE PURPOSE OF RLT TESTING?

Current pavement design methods do not consider rutting within granular and asphalt pavement materials. However, investigations on early pavement failures often show rutting seen at the surface is due to deformation within the granular and asphalt layers. RLT testing provides design criteria for rutting that pavement designers can use to predict the life of granular and asphalt layers in pavements. If this predicted life is unacceptable the design and materials can change. For pavement rehabilitation design RLT test results on insitu granular materials obtained from test pits result in design criteria to determine the overlay depth required to prevent rutting within the insitu existing granular layers.

Rutting prediction models for asphalt samples are developed by conducting tests at different combinations of loading times and temperatures. This method was used to determine the best asphalt mix to use at an intersection that had severely rutted as detailed in the RS EME Pavement Design brochure (see www.roadscience.co.nz for more information).

BENEFITS OF RLT TESTING INCLUDE:

- It's an excellent performance test for determining whether alternative materials such as recycled crushed concrete are suitable as a basecourse
- The test provides design inputs for rut depth prediction - for both granular and asphalt materials
- Assesses the effect of water on strength and allows the benefits of modified materials to be determined
- Gives design criteria for the existing pavement for designing an appropriate pavement rehabilitation treatment.



IF YOU WOULD LIKE TO TALK

Greg has over 22 years' experience in research, pavement design and project management, with a comprehensive understanding of aggregate testing methodologies. He uses an array of test methods including Repeated Load Tri-axial (RLT) and flexural beam tests to ensure his pavement designs produce best value results for customers.



greg.arnold@roadscience.co.nz



021 032 3117

OUR LOCATIONS



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Road Science

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Head Office | 9/2 Owens Place, Mount Maunganui, New Zealand
T: +64 7 575 1150 | **E:** info@roadscience.co.nz

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