

Quasi-Static Characterisation of Asphalt Mixtures

S.T. Dunhill, G.D. Airey, A.C. Collop

Project Details

This is the 1st NARC-sponsored studentship undertaken at the University of Nottingham between Oct. 1998 and Sept. 2001.

Project Description

The aim of this project is to use/further develop the ACRE constitutive model, developed at Delft University of Technology, for characterisation of two standard UK asphalt mixtures.

The ACRE model is based on dynamic plasticity and utilises a flow surface, decomposition of strains and hardening/softening to produce a unified modelling approach for materials such as asphalts, that exhibit rate dependent inelastic deformations.

Work Involved

- Uniaxial quasi-static testing in tension and compression over a wide range of strain rates and temperatures.
- Extract model parameters from the test data and determine parametric relationships.
- Simulate tests not used for determination of model parameters to evaluate goodness-of-fit in the pre and post-peak regions of behaviour..
- Verify the model by simulating data not used for determination of model parameters.

Tel: +44 (0) 115 951 3913
gordon.airey@nottingham.ac.uk
www.nottingham.ac.uk/narc

