Second Meeting : European Asphalt Technology Association (EATA)

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Introduction

EATA was established in 2004 by the Nottingham Centre for Pavement Engineering (NCPE) as part of its 50th anniversary celebrations. The concept, which had been in gestation for some while, was to create a regular forum for the presentation, discussion and publication of high quality research on asphalt technology. The aim was to emulate the Association of Asphalt Paving Technologists in the USA, which is widely regarded as the leading learned society in its field internationally and was founded in 1924.

Before arranging the first meeting, discussions were held with Eurobitume, RILEM asphalt committees, and with IAT in order to make clear that EATA was to provide a complimentary forum and one which fulfils an important need in Europe.

The 2004 EATA meeting in Nottingham was attended by 99 people, 11 papers were presented and discussion was lively. On all counts the meeting met its organisers' aspirations. The NCPE team of Stephen Brown, Andrew Collop and Gordon Airey took responsibility for arranging the meeting and a Steering Group with representatives from several EU countries and types of organisations provided advice. The International Journal of Road Materials and Pavement Design (RMPD) under its senior Editor in Chief, Hervé Di Benedetto, agreed to publish a special issue for the EATA papers and this was edited by Andrew Collop.

The 2006 Meeting

Following the success of the 2004 inaugural meeting, the NCPE team again took the lead in arranging the second meeting which was held at Meridan, Warwickshire on 3rd and 4th May and attended by 67 delegates from 17 countries. Nine papers were presented and fully discussed, having already been peer reviewed and published in the Second Special EATA issue of RMPD, edited by Gordon Airey.

Key Technical Issues

The four technical sessions covered Bitumen Rheology, Rheological Testing and Modelling, Bitumen Chemistry and Fatigue and Fracture of Asphalt. Interesting new developments or clarification of concepts were presented in all sessions.

Gilles Gauthier applied fracture mechanics principles to binders including some PMB's. His experiments involved notched tensile specimens and he used various theoretical concepts to interpret the data. He concluded that fracture mechanics only applied below the glass transition temperature but gives different rankings for low temperature performance from the US PG grading system.

Shin-Che Huang from Western Research Institute in the US reported on the long term ageing characteristics of two contrasting crumb rubber modified bitumens. His results showed that the chemical composition of the rubber and of the bitumen have an important influence on the behaviour of the modified binder so that particular combinations should always be properly tested.

Research at the University of Minnesota, reported by Adam Zofka, compared the ageing of asphalt in the MnRoad full scale experiment with simulations in the laboratory in the same virgin materials. The penetration of ageing into a surfacing was one of the key issues. The results showed differences in the degrees of ageing in the field and the laboratory but questions were raised in discussion about the binder recovery techniques which had been used.

Theoretical work aimed at improving the way in which complex modulus master curves are generated was described by Emmanuel Chailleux from LCPC in France. The theory was validated by tests on binders and on mixtures.

Andrew Collop described research into the permanent deformation dilation characteristics of various asphalt mixtures based on research at Nottingham and Cambridge. Amongst the parameters investigated, volumetric composition and aggregate angularity were shown to be most significant in a range of triaxial and uniaxial creep tests.

Klaus Stangl from Vienna University of Technology presented an interesting fundamental study into the microstructure of bitumen. He used a range of sophisticated standard and novel tests on a modified and unmodified bitumen. New insights into bitumen durability were reported on the basis of both chemical and mechanical tests.

Per Redelius from the Nynas laboratory in Sweden gave an excellent lecture on bitumen chemistry, destroying various myths about the role of asphaltenes . He provided a good basis for asphalt engineers to improve their understanding of the complex chemistry of the material with which they work.

Fracture tests using 3-point and semi circular bending tests were described by Ignacio Artamendi from the University of Liverpool. He studied mode I and mode II fracture characteristics of typical SMA and DBM mixtures. Fracture Toughness and Fracture Energy parameters were reported with differences between the two test methods noted.

Didier Bodin from LCPC presented detailed work from his asphalt fatigue experiments and theoretical interpretation of results. He demonstrated a significant specimen size effect from tests on trapezoidal specimens and a material temperature rise during testing. Small specimens last longer than larger ones and the rise in temperature decreases stiffness and, hence, fatigue life. His theoretical work provided a basis for correcting results to allow for the size effect.

Further Details

The special issue of RMPD contains all papers and is available for £30 by contacting Sheila Provost at NCPE on Sheila.provost@nottingham.ac.uk (0115 846 6046).

The Future

While EATA aims to establish the same ethos at AAPT in the US, it has been agreed by delegates at the first two meetings that the formal organisation should be kept to a minimum. Consequently, anyone who attends a meeting or is supportive of the concept becomes a member and receives e-mail notification of future plans. The informal steering group continues and organisation of the meetings will be undertaken locally at the selected venue. The next meeting will be in 2008-2009 in France under the leadership of Hervé Di Benedetto. A provisional web site (www.eata.nottingham.ac.uk) provides information as it becomes available.