

Project title:	'Rafelingscriterium – DSR-Vliegwiél'		
Project number:	InfraQuest-2012-29		
Start date:	1 July 2012	End date:	31 March 2013
Project team:	Gang Lui (TU Delft), Martin van der Ven (TU Delft), Sandra Erkens (RWS), Jan Voskuilen (RWS), Steven Mookhoek (TNO), Cecile Giezen (TNO)		
Embedding in IQ-programme:	<p>By evaluating a (potential) DSR criteria related to laboratory aged binders ánd related to performance (ravelling) of porous asphalts in practice, suggestions for relations and correlations of material properties (DSR) between lab aged binders and practical performance will be made. The obtained knowledge will contribute to predict service life of new binders and porous asphalt constructions thereof in order to make more reliable prognosis of functional performance in practice. The project is linked to the IQ-project 'Vergelijkend AFM Onderzoek TNO-TU Delft: Microstructuur van bitumen in relatie tot healing' (IQ-2011-059), the TNO KIP-project 'FCAM' (IQ-2011-17, IQ-2012-5),</p> <p>The project is embedded in the Theme: development of an objective framework within the IQ Masterplan 2011-2014 for Roads. The aim of this theme is that design specifications must be based on knowledge rather than experience. This project concerns the investigation of such design specifications and their relation to performance in practice. This project therefore directly relates to the goals set in the IQ Masterplan 2011-2014.</p>		
Type of project:	<input checked="" type="checkbox"/> Fundamental concept	<input type="checkbox"/> Integration & development	<input type="checkbox"/> Validation of results
			<input type="checkbox"/> Product-in-context / valorisation
Graphical abstract:	<pre> graph TD WP1[WP1 - Opstellen DSR criterium] --> GNGO[Go/No Go] WP2[WP2 - Veroudering van bitumen] --> GNGO GNGO -.- WP3[WP3 - Validatie DSR criterium] </pre>		
Research questions:	<p>Currently the service life of the porous asphalt is based on the surface condition (in particular, ravelling through visual inspection); material properties are not involved. In general the durability of (porous) asphalt layers is dependent on the aging of the bitumen. The hypothesis of this research is that changing of material properties (due to aging) is related to the durability of 2L PA. Change of material properties can be measured by using DSR. The aim of this research is to:</p> <ol style="list-style-type: none"> 1. Determine if DSR is suitable to predict the durability (initiation of ravelling) of PA in laboratory scale test 2. Defining a (DSR) aging criteria for durability prediction <p>Research questions are:</p> <ul style="list-style-type: none"> • Which potential DSR durability criteria exist? • How may a potential criteria relate to failure (ravelling) in practise? • Which aging protocol (in laboratory) can age new binders, to obtain a certain aging in practise? • Is it possible to predict ravelling in practise by laboratory aged binders using a DSR criteria? 		
Conclusions:	The project will result in a literature review of potential DSR durability criteria and a potential DSR criteria that might predict ravelling of porous asphalt by aging new binders in laboratory.		
Other results:	<ul style="list-style-type: none"> • A literature review of potential DSR durability criteria. • DSR measurement related to field aged and failure in practise. • DSR measurements of laboratory aged binders and (loose) mixtures. • Aging protocols in laboratory related to field aging. 		
Dissemination:	The research will lead to a report of the results, (a conference presentation and professional publication).		
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