

ROADS PAVEMENT FORUM
Stabilisation Workshop
8 July 2009
Knowledge Commons, CSIR

IDENTIFIED ISSUES

1 Laboratory testing

a. Test methods

- ICL/ICC testing (extended testing).
- ITS testing and limits vis-à-vis UCS.
- Lab design must use a number of products/stabilisers that will be available for the project in the initial selection.
- New test methods (are they adequate) - to be released shortly by SANS for public comment.
- Testing processes, timing & temperatures.
- Protocol for selection of cement type/material type need attention in terms of when to add water.
- Implications of accelerated curing vis-à-vis related to 7 day curing.
- Limits to blended stabilizing agents.
- Durability testing.

b. Quality Control

- Effect of construction time and temperature on density and UCS (seems to take more than 6 hours irrespective of prior knowledge - use smaller lots?)
- Time between placing cement and carrying out testing (OK on paper - not so good in reality).
- Testing processes and timing.
- Confirmation of stabiliser content (EDTA test etc).

c. Stabilisation Design/Material Selection

- Upper limit of 3MPa for UCS on C3 layers (and 1,5 for C4 layers).
- Upper limit of ITS required.

- Estimation of stabiliser requirements at project design stage and associated documentation. Trial sections essential and protocol required.
- Stabilisation of recycled materials.
- Selection of most appropriate stabilising agent and availability.
- Effect of cement type and availability in various parts of the country (lab design must use what will be available for the project).
- Need a better understanding of the cementation process.
- Assessment of relevant support layers and selection of representative samples.

ACTIONS

- PPG or BP will ensure that the various SANS test methods will be circulated to all present, for comment, as appropriate.
- Guidelines to include strong guidelines on the interpretation on the UCS and ITS.
- Steering Committee to draft a letter to Gautrans requesting use of the guideline.
- Steering Committee also to consider relevant practice in the Australian Stabilisation manual.

2 Construction

- Observed problems (rough surfaces (poor curing), lamination/weak upper layers (late rolling?), excessive surface loss during brooming.
- Poor curing:
 - Prevention of traffic on layers.
 - Effect of water spraying.
 - Effects of primes and the development of new primes.
 - Time for priming after stabilization.
 - Logistics of priming in remote areas.
- Impact of working times and temperatures on reaction rate:
 - Processing time - late rolling causing disintegration of the top of the layer.
 - Beware of high field temperatures.
- Effects of carbonation and the prevention of.
- Timing and logistics.
- Good cement spreading and mixing for consistency.
- Limitations to mixing with recyclers:
 - Difficult to obtain acceptable surface for a seal on a recycled stabilised base.
- Selection of appropriate construction methods and plant.
- Construction trial sections, also construction of two thick layers.
- Reworking of previously stabilised layers.

ACTIONS

- Practical assessment techniques to be included in the guideline.
- Working group to propose a work plan to the November RPF.

3 Supply

- Transport and logistics from the cement factories.
- Availability of cement types in different areas and at different times.
- Variations in branding.
- Variations in cement composition within the specification limits, and its effects on behaviour.

ACTIONS

- BP to circulate contact list for product availability and supply.
- BP to update regularly and place on website and relevant stakeholders to be informed on where to find the information.
- BP to circulate notes from the workshop to all present.

4 Specifications and Guidelines

- Lack of understanding of the specifications, what they mean and the impact of the variable supply by the industry on the specifications.
- Guidance on setting time/rate required for stabilised materials.
- **Lack of data for performance of the different cement types related to different material types and construction requirements. (Protocols available for collecting information).**
- Tremti paper to refute the water driven reaction theory.
- TRH 13 is outdated and needs updating.
- Current specifications limit the construction window in certain regions (ambient temperatures).
- Clarification between modification and cementation.

ACTIONS

- Industry to develop a preliminary guideline for the use of current cements for soils stabilisation.
- Forms and protocol to be circulated (PPG) to commercial labs for data capture.
- Stabilisation committee to develop strategy for data collection to road authorities.
- Queries, issues, comments and contributions to be sent to ppaige@csir.co.za.
- Revised Stabilisation Manual based on the Gautrans Stabilisation Guide.