

Technical Data Sheet TDS 004 — Guidelines for Sealed Road Bases

GUIDELINES FOR SEALED ROAD BASES

Description

SOILBOND A01 stabiliser / binder is a naturally derived water-based organic emulsion characterized as a slow-setting binder for pavement materials.

Key properties include:

- Extended workable time;
- Increased cohesion;
- Reduced water sensitivity;
- Improved wet strength; and
- Retained pavement flexibility.

Product Safety

SOILBOND A01 stabiliser / binder is classified Non-Hazardous and Non Dangerous Goods. This means it is safe for handling, storage and transportation. As with all products, please refer to the Material Safety Data Sheet before use.

Applications

Treated bases provide advantages in the following situations:

- Moderately trafficked roads on low strength subgrades;
- Improving the load carrying capacity of a pavement;
- Areas subject to flooding; and
- Where the life cycle costs can be minimised.

Subgrade

Subgrade stabilisation with the SOILBOND A01 stabiliser / binder can be used to:

- Improve subgrade strength;
- Provide a working platform for construction equipment;
- Reduce construction problems associated with variable subgrade strengths; and
- Provide a water resistance.

Subbase

Subbase stabilisation with the SOILBOND A01 stabiliser / binder can be used to:

- Upgrade the quality of existing materials to permit their use as a modified subbase;
- Improve the quality of a subbase as a working platform;
- Reduce the total pavement thickness and optimize the pavement design; and
- Provide a material that has reduced moisture susceptibility.

Base Course

SOILBOND A01 stabiliser /binder treated materials can be used in base courses as either modified or lightly bound materials.

Modification can be used to:

- Upgrade a slightly deficient material;
- Improve low cohesion base materials that deform and shove when subjected to traffic; and
- Reduce moisture sensitivity.

Technical Data Sheet TDS 004 — Guidelines for Sealed Road Bases

GUIDELINES FOR SEALED ROAD BASES

Mix Design

The table below indicates the range of application rates and treatment depths to calculate the mix design. Individual mix design will be dependent on the site conditions, material properties and traffic volume, and will be based on the minimum rate of application to achieve acceptable pavement design specifications.

Treatment Depth in mm	SOILBOND A01 Rate % of Dry Weight of Material*		
	1%	1.5%	2%
	Usage Rate in kg/m ²		
75	1.5	2.25	3
100	2	3	4
125	2.5	3.75	5
150	3	4.5	6

Based on a compacted density of 2 tonnes per m³.

Construction

In situ Stabilisation

The following description is for a two pass process. Two passes ensure good uniformity of mixing and that the quality attained in the laboratory is replicated in the field. The general construction process is:

- 1) Adjust levels prior to stabilisation.
- 2) Apply and mix the binder into the prepared pavement using either a conventional stabiliser or a reclaimer/stabiliser.
- 3) A second pass is carried out ensuring optimum moisture contents are achieved. This stage enhances the uniformity of the mixed material and adjusts the optimum moisture content to requirements.

- 4) Commence grading when all material is mixed, in conjunction with compaction until a smoothly graded finish is obtained.
- 5) The stabilised pavement undergoes conditioning and curing process.
- 6) Final surface layers are constructed, and this may consist of a sprayed-seal or thin layer of asphalt.

Stationary Stabilisation

Usually performed at the quarry, the crushed rock is loaded into storage bins. The material is then conveyed to a pug-mill mixer, where the binder is added and mixed uniformly in the same stage. Correct moisture content levels are also adjusted at this stage. When mixing is complete, the mixed material is transported in trucks to the site for installation.

Quality Management

Quality management is essential to produce a material that will provide the desired performance in the field. To control quality the following factors should be considered:

- Uniformity of the material to be stabilised;
- Quantity and uniformity of distribution of the SOILBOND A01 stabiliser / binder;
- Thickness (and uniformity of thickness) of the stabilised layer;
- Quality of mixing;
- Compacted density; and
- Surface finish.