



TECHNICAL BULLETIN #28

SAMlcoat Premium

Precoat For Difficult Aggregates

SAMI Bitumen Technologies

2, 3-5 Gibbon Road
Winston Hills, NSW 2153
PO Box 164
Winston Hills, NSW 2153
Australia
Telephone: 61 2 9624 0101
Facsimile: 61 2 9624 0191

Introduction

The life of many seals is significantly reduced through the loss of aggregate in the first 12 months.

The use of a precoat, whose performance has been tested with the particular sealing aggregate will help eliminate this problem where the stripping is not caused by lack of binder volume.

SAMlcoat Premium provides optimum performance with all aggregates by varying the combination of surface active agents used to meet the special requirements of a particular aggregate.

The Mechanism of Stripping

There are three primary causes for stripping, other than the lack of binder volume. These are:

- 1 water penetrating between the bitumen film and the aggregate surface and preferentially wetting the aggregate surface;
- 2 the binder failing to "wet" the aggregate surface due to surface contamination, primarily dust particles;
- 3 the binder failing to provide ACTIVE ADHESION with the aggregate surface due to incorrect polarity of this surface

How SAMlcoat Premium Reduces Stripping

SAMlcoat Premium is designed to effectively correct these primary causes for stripping.

- a) most aggregates used in road construction are to some degree hydrophilic. The residual in SAMlcoat Premium which is resistant to spontaneous emulsification, provides a surface layer on the aggregate, protecting the adhering bitumen from attack by water;
- b) the solvent carrier in SAMlcoat Premium is designed to penetrate and wet the surface dust layer, binding this to the aggregate and allowing the bitumen to fully wet the aggregate surface;
- c) with exception of calcareous aggregates, the remaining rock types used in surface sealing, whether igneous or sedimentary, contain some silica. Silica in the presence of water, provides the aggregate with a negative surface charge. Bitumen, depending on its constituents, will have a negative or neutral surface charge, so it will be readily seen that ACTIVE ADHESION cannot take place without modification of the surface polarity of at least one of the components. SAMlcoat Premium with its particular combination of surface active agents used for a given aggregate, provide in the residual coating deposited on the aggregate, a strongly positive surface charge, which, when in contact with the bitumen, induces ACTIVE ADHESION or chemical wetting to take place

SAMlcoat Premium's Performance

SAMlcoat Premium with the effective surface-active agent combination, by laboratory test has been shown to be effective with more than 80% of aggregates tested. However, should your aggregate not fall within this category, the SAMI Laboratory will test and provide a compatible surface-active agent and binder additive combination to provide optimum (normally nil) strip characteristics with your particular aggregate.

- SAMlcoat Premium provides long stockpile life, three months or more
- Equally effective on wet, dry dusty or clean aggregates
- An application rate of 6 - 8 litres/m³ has been found to be effective on most aggregates tested
- Long storage life in sealed containers, in excess of 12 months
- Precoated aggregates are not affected by rain, even within 3 or 4 hours of precoating

Directions for Use

SAMlcoat Premium can be applied through the spray system of an aggregate loader or by spray as the aggregate leaves a screening plant or aggregate silo. Satisfactory field stockpile precoating can be carried out with a drum pump and front-end loader, if care is used.

The normal application rate is 6 - 8 litres/m³ with the smaller aggregate sizes requiring the heavier application rate.

Handling Precautions

- SAMIcoat Premium has a flammable solvent carrier and the care normally used in handling this class of material should be observed;
- In line with the Austroads Bituminous Materials Safety Guide 2015 Table 9.1, SAMI recommends that prior to picking up SAMIcoat Premium from our facilities, that trailers are drained completely of any residual products especially bitumen emulsions (e.g. CRS60).
- SAMI have introduced the policy that will require drivers to demonstrate that the compartments are clean of any residual product prior to loading (this would not be required for repeat loading of solvent based precoat products). Should the compartment be not fully drained (draining's reaches 5 litres across the whole trailer), the trailer will not be loaded and will be required to leave the site to be drained elsewhere
- Excessive skin contact - wash with soap and water;
- Eye contact - wash with glycerine;
- Avoid excessive inhalation;
- Spillage - soak up with sand or sawdust.

Availability

SAMIcoat Premium is available in 200 litre drums and in bulk.

NOTE: *Whilst every care is taken in the preparation of this bulletin, no responsibility is accepted for the interpretation of the information contained herein, nor is any warranty expressed or implied for the suitability of the material for a particular application.*