

TNZ M/13: 1989

SPECIFICATION FOR ADHESION AGENTS

1. SCOPE

This specification describes the procedure by which the Contractor shall obtain approval for the nominated adhesion agent and dosage rate with each source of sealing chips that is intended for use on sealing work, except where emulsified asphalt binder is to be used.

2. APPROVAL

The Contractor shall arrange for the particular adhesion agent and its proposed dosage rate to be tested with each aggregate source to be used on first coat, second coat and resealing work.

The adhesion agent and dosage rate for a particular chip source will be approved by the Engineer when the adhesion agent gives a Binder Aggregate Adhesion Test result not less than 80%, with the proviso that at least a 0.5 pph dosage rate (by mass) of adhesion agent be used.

The Contractor shall provide the Engineer with results from the Testing Agency of satisfactory binder aggregate adhesion tests, whereupon the Engineer will issue a written notice to the Contractor enclosing the form shown in Figure 1, completed and giving the conditions for adhesion agent approval.

Figure 1: Adhesion Agent Approval Form

Sealing Chip Quarry Source		Approved Adhesion Agent			Blending Details (On-site or Specify)
Name	Type	Name	Dosage Rate		
			Liquid at 15°C pph by volume	Solid at 15°C pph by weight	

Special Conditions:

Approval shall be withdrawn if change of chip source or adhesion agent quality produces a Binder Aggregate Adhesion Test result of less than 80%.

3. TEST METHOD

The test method to be used to evaluate the suitability of the nominated adhesion agent and dosage rate shall be Works Consultancy Services, Central Laboratories Binder Aggregate Adhesion Test, test number B301-89T.

4. TESTING AGENCY

The testing agency shall be a laboratory approved by the Engineer.

5. REQUIREMENTS FOR TESTING

5.1 Chip Sampling

The Contractor shall arrange with each aggregate supplier for the testing agency to take a sample of sealing chips from each source. The sample shall be 15 kg of grade 3 sealing chips or sufficient quantity of other aggregate of sealing chip quality to produce a 10 kg sample which passes a 13.2 mm sieve and is retained by a 9.5 mm sieve.

The sieved sample shall comply with the requirements of ALD/AGD ratio and ALD for grade 3 chip specified in TNZ M/6.

5.2 Adhesion Agent

The Contractor shall supply the following material and information.

5.2.1 Trade name of adhesion agent.

5.2.2 At least 100 grams of each adhesion agent to be tested.

5.2.3 The specific gravity at 15°C for adhesion agents that are liquid at 15°C.

5.2.4 The proposed dosage rate for each test. The dosage rate shall be expressed as parts per hundred parts of asphaltic cement at 15°C by mass for solid adhesion agents and by volume for liquid adhesion agents (at 15°C).

5.2.5 The proportion and type of diluent used if the active ingredient of the adhesion agent is mixed with turpentine, kerosene or any other diluent by the manufacturer.

5.2.6 Safety precautions required when handling the adhesion agent.

5.2.7 Geological name of the parent stone for each nominated chip source.

5.3 Test Results

The Contractor shall allow not less than five working days for each adhesion agent and chip source required to be tested from the time the testing agency receives all the material and information specified in clauses 5.1 and 5.2.

The testing agency shall report the following information for each Binder Aggregate Adhesion test :

- The sealing chip source location.
- The geological name of the parent stone.
- The average adhesion value expressed as percentage from four test plates.
- The name of the adhesion agent and nominated additive rate tested.
- Specific test conditions for adhesion agents containing diluents as supplied by the manufacturer.

5.4 Testing Charge

The Contractor shall bear all costs of testing, including costs of chip sampling, transportation and materials used in the binder aggregate adhesion test. The cost of testing will be based on laboratory charge-out rates for the technician's time involved and actual cost for transport and materials.

The client will arrange and pay for chip sampling when the client supplies sealing chips. In this case the sealing contractor shall supply the adhesion agent, nominate the additive rate and shall bear all other costs associated with the binder aggregate adhesion test.

6. HEAT STABILITY AND STORAGE

The effectiveness of the agent deteriorates if kept in storage in the binder at high temperature.

All agents except mineral turpentine shall be added to the binder on site before spraying, unless otherwise agreed by the Engineer.

7. BLENDING AND METHOD OF MIXING

The adhesion agent shall be added to the sealing binder and intimately mixed in the presence of the Engineer or the Engineers representative at times and location previously approved by the Engineer.

The adhesion agent shall be incorporated in the binder and mixed thoroughly for at least 20 minutes by circulating through the pumping system. Where the pump takes longer than 20 minutes to circulate two-thirds of the volume of binder in the tank, the mixing time shall be calculated as follows:

$$\text{Mixing time} = \frac{2/3 \times V}{O_r \times S}$$

Where V = Tank Volume (litres)

O_r = Pump Output per revolution (litres per revolution)

S = Pump speed while circulating (revolutions per minute)

The quantity of agent specified shall be weighed or metered within an accuracy of 1% before mixing with the binder. The weight or volume measuring device shall be certified by the weights and measures section of the Department of Labour.