

**TNZ P/5P: 1985**

## **SPECIFICATION FOR USE OF NATURAL RUBBER LATEX IN RESEAL BINDERS**

### **1. SCOPE**

This specification is to be appended to TNZ P/4 and shall apply where natural rubber latex is to be added to the asphaltic binder for resealing purposes. The requirements of this specification extend and modify TNZ P/4 and shall take precedence over the requirements of TNZ P/4 where there is conflict.

### **2. PLANT**

In addition to the requirements in clause 6 of TNZ P/4, the Contractor shall provide the following additional facilities for the use of natural rubber latex in asphaltic binders.

#### **2.1 Blending Tank**

The capacity of the tank used for blending the natural rubber latex into the binder shall be at least 50 percent greater than the maximum size of batch to be blended. The tank shall be equipped so that the entire batch can be violently agitated by mechanically operated paddles or equivalent. The tank shall be lagged or heated when mixing with asphaltic binder so that the temperature of the binder does not fall below 155°C during or after the blending operation.

#### **2.2 Transport Tanks**

Where the blending of natural rubber latex is not carried out on the site of the seal coat construction, and the blended binder is transported to that site by transport tanker, then that tanker shall be capable of maintaining the intimate mix of the binder components and the temperature of the binder within the temperature range of 155°C-180°C at all times.

#### **2.3 On-Site Heating Facilities**

A method of raising the temperature of the blended binder at the site of the sealing work in the event of it falling below the spraying temperature specified in clause 8 of this specification shall be available at that site throughout the spraying operations.

**3. ASPHALT CEMENT**

The asphalt cement shall be 180/200 penetration grade as specified in schedule A conforming with TNZ M/1: Specification for Asphaltic Bitumens.

**4. NATURAL RUBBER LATEX**

The natural rubber latex may be centrifuged or evaporation concentrated. The containers shall be thoroughly agitated before any material is transferred to the blending tank. The quantity of latex added shall be adjusted so that the proportion of rubber solids in the binder is equal to one part per 100 parts of asphalt cement.

The Contractor shall submit full technical details of the latex he proposes to use and obtain the Engineer's approval of the material prior to the commencement of works.

**5. BLENDING**

The asphalt cement shall be added to the blending tank and the temperature adjusted to  $165^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . (An anti-foaming agent may be added at the Contractor's discretion and at his expense.)

The latex shall be sprayed lightly onto the continuously agitated binder surface. (A watering can with rose or a finely perforated can may be used to disperse the flow of latex over the surface.)

The latex shall be added carefully to prevent excessive foaming or any build-up of the latex on the surface. The rate of agitation should allow the latex to remain on the surface approximately 20 seconds before being drawn under.

The addition of latex shall be continuous until the full amount of rubber has been added.

Agitation shall be continued at full intensity for at least 20 minutes after the last addition of latex. Other binder components may be added during this period.

Blending of lighting kerosene, AGO and adhesion agent shall be performed subsequent to the addition of latex.

All components of the binder shall be added and blended in the presence of the Engineer or his representative and at times, locations approved by the Engineer.

**6. OTHER BINDER COMPONENTS**

An adhesion agent shall be added to the asphaltic binder as specified in clause 9.1 of TNZ Pt 4.

The quantity of automotive gas oil (AGO) shall be as specified in schedule A.

The total diluents, including the adhesion agent, shall be not less than 10 parts per 100

parts of asphalt cement for shade air temperatures of 15°C or more and shall be adjusted upwards in accordance with table II of TNZ P/4 when the shade air temperature is below 15°C.

Kerosene shall be used to produce the total diluent together with the specified quantities of adhesion agent and AGO.

## 7. STORAGE AND TRANSPORT

The rubberised blend of asphaltic binder shall be agitated until used to prevent separation of the rubber.

The maximum time of storage and transport shall not exceed that listed in table I.

**Table I : Maximum Storage Times for Rubberised Binders**

<b>Binder Temperature</b>	<b>Maximum Time from First Addition of Rubber until Binder Sprayed</b>
180°C	3 hours
170°C	4 hours
160°C	12 hours
150°C	18 hours

In the event that the binder is stored for longer than these periods, the binder may be used, at the discretion of the Engineer, subject to the reduction in payment for the binder as shown in table II.

**Table II : Reduction in Payment for Storage Times in Excess of that Specified**

<b>Storage Time as % of Maximum Specified</b>	<b>Payment Procedure</b>
Less than 101	Full payment
101-125	Payment reduced by 20%
126-150	Payment reduced by 40%
Greater than 150	No payment, reject binder

**8. SPRAYING TEMPERATURES**

The spraying temperature shall be within the range of 10°C and 15°C above the temperature specified in table III of TNZ P/4. Notes 2 and 3 appended to that table do not apply.

**9. BASIS OF PAYMENT FOR NATURAL RUBBER LATEX**

Payment for the natural rubber latex will be made at the appropriate unit scheduled rate on the total equivalent volume in litres of asphalt cement approved for payment (in accordance with clause 26.2.2 of TNZ P/4) and to which the natural rubber latex has been added as specified herein.