

COMMENTARY TO AG:PT/T537 - FIELD SPREAD RATE OF COVER AGGREGATE

PREFACE

This test method was prepared by the Bituminous Surfacing Research Review Group on behalf of Austroads Group. Representatives of Austroads, ARRB Group, AAPA and Industry have been involved in the development and review of this test method.

SCOPE

This method sets out the procedure for determining the spread rate of cover aggregate delivered from a mechanical aggregate spreader. It is based, in part, on Test Method Q711A-1996.

Further Development

There are no further plans for the development of this test method.

FIELD SPREAD RATE OF COVER AGGREGATE

1 REFERENCED DOCUMENTS

The following documents are referred to in this method:

AS /NZS

1141.3	Sampling of aggregate and rock.
1141.4	Bulk density of aggregate
141.20.2	Average least dimension – Direct measurement (nominal sizes 5mm and 7mm)
1141.20.1	Average least dimension – Direct measurement (nominal sizes 10mm and Greater)

2 APPARATUS

The following apparatus is required:

- a. A supply of canvas mats with reinforced lips about 75 mm high and an internal surface area of 1m². Large eyelets are to be positioned at each corner. Refer to figure 1.
- b. A balance of at least 20 kg capacity, readable and accurate to 100 g. It shall be capable of weighing a sample suspended beneath the balance. A spring balance with an attached hook has been found to be suitable.
- c. Tape measure readable to 1 mm.

3 PROCEDURE

- a. Obtain an aggregate sample from the stockpile designated for the work in accordance with AS1141.3
- b. Determine and record the Uncompacted Bulk Density (B_d) of the sample in accordance with AS 1141.4 part 7.1 – Uncompacted Bulk Density.
- c. Determine and record the Average Least Dimension (ALD) of the sample in accordance with either AS 1141.20.1 or AS 1141.20.2 as appropriate.

Note: This test is optional and is for record purposes only.

- d. Paint mark (spot/number) locations on the test site for the positioning of the mats in readiness for testing. This will ensure that the mats are always placed on the same mark. See Fig. 2 for suggested layout of test site.

Note: Position sufficient mats on the test site to determine both the transverse and longitudinal distribution of aggregate during testing.

- e. Determine the area of each mat and record the areas individually as A_1 , A_2 , etc, to the nearest 0.002 m².

- f. Determine the mass of each mat before placing the mat on the respective mark within the test site. Record the mass of the mats individually as M_1 , M_2 , etc, to the nearest 0.1 kg
- g. Adjust the spreading unit to the desired settings and apply the aggregate to the mats at the normal operational speed.
- h. Collect the mats individually from the test site and determine the mass of the aggregate and mat to the nearest 0.1 kg. Record as S_1 , S_2 , etc, to the nearest 0.1 kg.

Ensure that the aggregate on the shoulders of the test mat is brushed away from the test area before removing the mat from the test site and not added to the aggregate to be weighed.

Records should be such that they identify the exact location of the mat within the test run.

- i. If the aggregate distribution rate is found to be variable, with measurements outside the range of ± 0.25 kg of the mean, readjust the spreader and repeat the work until the distribution is uniform. Also, repeat the work if the application is considered too light or too heavy, even though it may be uniformly distributed.
- j. When the desired application is reached repeat the application two more times to confirm the settings.

4 CALCULATIONS

The calculations may be done for individual measurements or as the average of the separate test runs.

$$\text{Aggregate Spread Rate } (S_r) = \frac{S_1 \times M_1}{A_1} \text{ (kg / m}^2\text{)}$$

(Repeat calculations for S_2 , M_2 , A_2 , etc.)

Note: The purpose for calculating each test point is to establish the variation in aggregate distribution. It is not necessary to determine m^2/m^3 spread rate for each test point. If the calculated rates are within the limits specified at point 4.1 (j), then average the results and determine the m^2/m^3 spread rate.

$$\text{Aggregate Spread Rate} = \frac{B_d \times 1000}{S_r} \text{ (m}^2 \text{ / m}^3\text{)}$$

5 INFORMATION TO BE REPORTED

When reporting results, state whether the result is for an individual test measurement or the average of a test run.

Report the aggregate spread rate as follows:

- a. Aggregate Spread Rate (S_r) kg/m^2 to the nearest 0.1 kg/m^2 .
- b. Aggregate Spread Rate m^2/m^3 to the nearest 1 m^2/m^3 .
- c. Report ALD if determined.

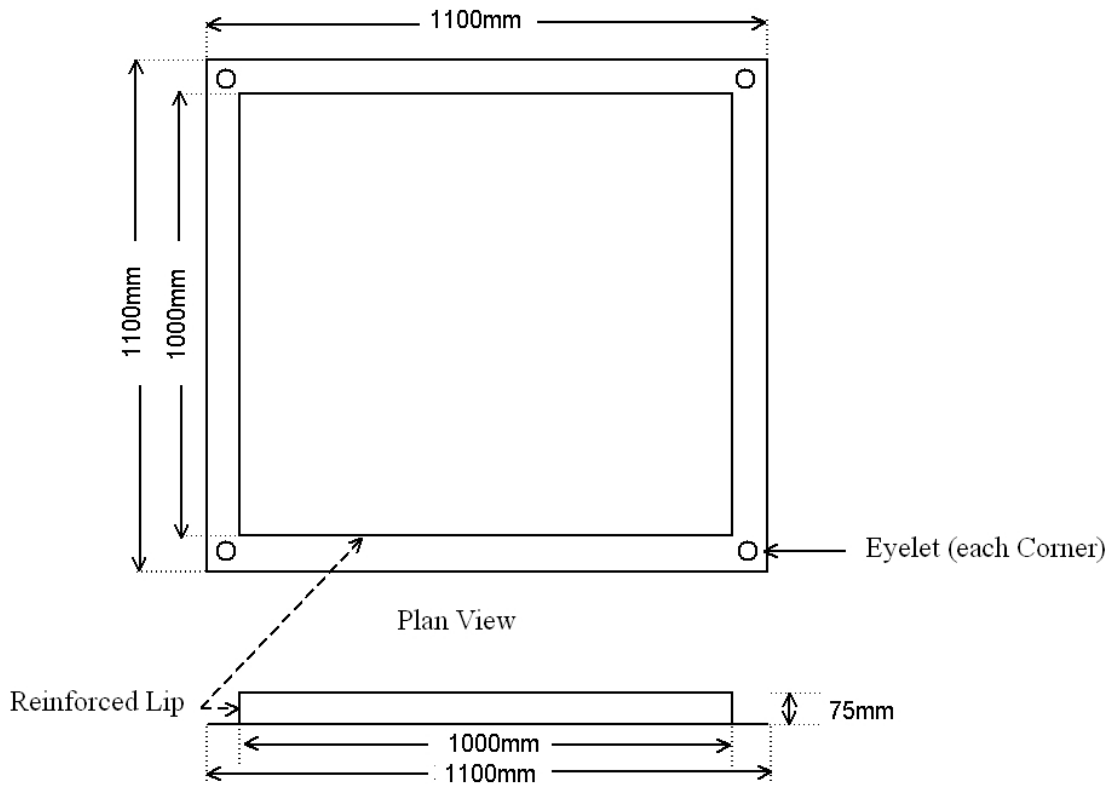


Fig. 1 Canvas Mat – (not to scale)

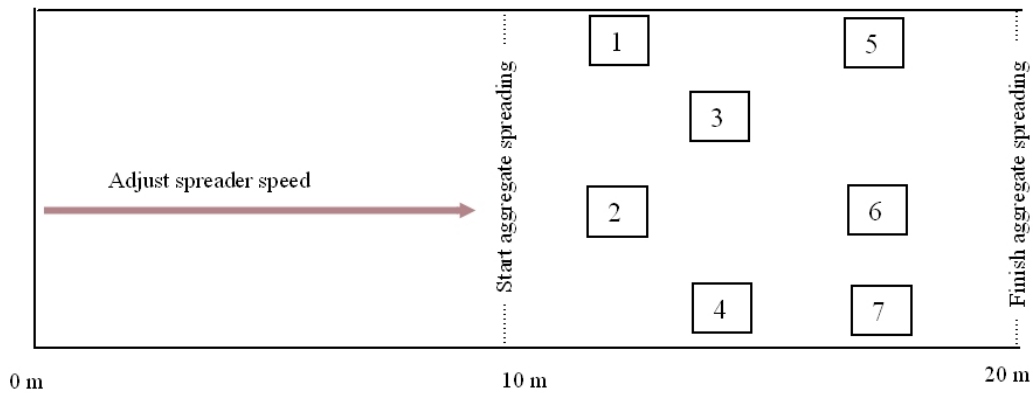


Fig. 2 Calibration site (suggested layout) – (not to scale)

Note: The number and location of mats will depend on the width of the spreader. After calculating results, compare results on same longitudinal and transverse plane.

AMENDMENT RECORD

Amendment No.	Clauses amended	Action	Date
1	Commentary Page	New	June 2005
	Footer and header	Format	
	Applied revised test method number	Format	
	Applied new styles	Format	

Key

Format	Change in format
Substitution	Old clause removed and replaced with new clause
New	Insertion of new clause
Removed	Old clauses removed