



# Test method T730

## Sieve analysis of scrap rubber

NOVEMBER 2012



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## Revision Summary

Ed/Rev Number	Clause Number	Description of Revision	Authorisation	Date
		Reformatted and Revision Summary Added	D.Dash	Jan 2000
Ed 2/ Rev 0	All	Reformatted RMS template	J. Friedrich	November 2012

Note that Roads and Maritime Services is hereafter referred to as 'RMS'.

The most recent revision to Test method T730 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

# Test method T730

## Sieve analysis of scrap rubber

### 1. Scope

This method sets out the procedure for the determination of the particle size distribution in samples of scrap rubber. It also sets out the means of preparing representative samples of scrap rubber, of specified size range in some cases, to be followed in carrying out the following tests: T731, T732, T733, T734, T735 and T738. It is applicable to all types of scrap rubber. The method is a modification of that described in Australian Standard 1141.11.

### 2. Apparatus

- (a) Sieves with the following apertures as required:
- (b) 2.36 mm, 1.18 mm, 600 $\mu$ m, 300 $\mu$ m and conforming to the requirements of AS1152-test sieves.
- (c) Sieve brush, approx. 25 mm size.
- (d) Mechanical sieve shaker.
- (e) A metal mixing and quartering tray.
- (f) Mixing apparatus such as a trowel and quartering apparatus such as metal plates 400 mm by 125 mm and 200 mm by 125 mm.
- (g) Sample dividers (riffle boxes) of appropriate sizes.
- (h) Balance accurate to 0.1 g.
- (i) Metal dishes.

### 3. Preparation of Sample

The whole sample (i.e. the whole bag or tin as delivered) shall be emptied onto a clean quartering tray and a trowel shall be used to heap material at the edges into a cone which is then flattened while pushing outward and continuing to heap and flatten until the whole amount has been turned over. The contents of the tray are quartered and the mass of one quarter determined.

For sieving, two sub-samples in the range 40 - 60 g are required. This shall be obtained by riffling only - No attempt shall be made to secure an exact pre-determined mass.

Example - If the quarter had a mass of 520 g, the rifflings would be approximately: 260, 130, 65, 32, 16 g etc. It is not permissible to remove 5 g from the 65 g riffling, rather one must combine the 32 g and the 16 g rifflings to get 48 g.

During the mixing, quartering and riffling process, any foreign bodies should be noted and reported.

For sample preparation details of other methods see Notes 1 - 5.

### 4. Procedure

- (a) Nest the sieves in order (largest opening on top, dish on bottom). Determine the mass of one of the sub-samples to 0.1 g and place all of it in the upper sieve.
- (b) Lid the stack and agitate in sieve shaker for 20 minutes.
- (c) Dismantle sieves and gently brush collected fractions into preweighed metal dishes. Do not force material through sieve openings. Brushes with stiff or worn-down bristles shall not be used. Sieves may be lightly brushed on the underside to clean away uncollected material from the apertures, but care must be taken not to apply pressure to the surface of the sieve. Weigh the material retained on each sieve and record the masses.
- (d) Repeat steps (a), (b) and (c) for the other sub-sample.
- (e) For each sub sample, express the mass of each fraction as a percentage of the total. Compare the results of the two runs. All fraction percentages greater than 10% should agree within 20%. If this is so calculate the mean of the % passing on each sieve. If not repeat steps (a) - (e) with freshly riffled sub-samples.

- (f) If the total amount of material retained on both 300  $\mu\text{m}$  sieves is greater than 6 g keep this for bulk density T733; if it is less than 6 g use the material retained on the 600 $\mu\text{m}$  sieves; see note 4.

## 5. Reporting

Report the % passing each specified sieve as the cumulative total mass retained in the sieves and collector dish below it to the nearest 0.1%. If any foreign matter has been found give an estimate of the total amount or number and of the total sample size.

## 6. Notes

- (i) Sub-samples required for the other tests are:
- Moisture Content (T731) - two sample of 40 - 60 g, - see Note 2.
  - Metallic iron Content (T732) - one sample 80 - 120 g.
  - Bulk Density (T733) - see Note 4, obtained from sieve analysis.
  - Foaming (T734) - one sample of  $40 \pm 0.5$  g.
  - Rubber Bitumen Properties (T735) - for instance 45 g for 300 mL of 15% mix, Note 3.
  - Particle Shape (T738) - one sample 2.5 to 4 kg. Note 5.
- (ii) Moisture content to be done on the same day or next day as sample preparations.
- (iii) The whole of the scrap rubber sub-sample as prepared by riffing and if necessary combining whole riffings must be used and the amount of bitumen must be adjusted accordingly.
- (iv) If the sieved sample is in the range 6 - 8.5 g it may be used directly in the bulk density method. If it is above 8.5 g it must be riffled down to get a sample in the range 6 - 8.5 g.
- (v) The 2.5 - 4 g sub sample is sieved on a 300 $\mu\text{m}$  sieve only as in steps Procedure (a) and (b) above. Retain the material on the 300 $\mu\text{m}$  sieve for test T738.