STANDARD TEST PROCEDURE FOR MEASUREMENT OF PORE SIZE DISTRIBUTION OF FILTER FABRICS

1.   SCOPE

This method can be used to determine the pore size distribution of the openings in a filter fabric by sieving.

2.   APPARATUS

(a)   Two 200mm diameter sieves without mesh. These sieves have been found suitable to hold most filter fabrics but for thick fabrics an alternative apparatus may be required.

(b)   Pan or appropriate receiver.

(c)   A balance readable and accurate to 0.01g.

(d)   Sieve brush.

(e)   A mechanical sieve shaker (optional) — shaker to have a shaking and a jarring action.

3.   MATERIALS

Sand fractions obtained from a rounded to surrounded river sand by sieving as set out in Table A1. Not all the fractions included in table A1 are required but each fraction used must comply with the limits given in the table. Sand fractions should be resieved regularly to eliminate any broken down particles.

4.   PROCEDURE

(a)   Place the fabric between the two sieves or suitable fixing apparatus. Ensure that the fabric is not loose fitting nor so tight that the fabric is stretched enlarging the pore sizes.

(b)   Fit the receiver and place 50 ±5gm of the finest fraction on the fabric.

(c)   Mechanically or manually agitate the system for a period of 10 ±1 minutes. The agitation of the system should ensure that the sand fraction rolls in an irregular motion by moving backwards and forwards, left to right, circular clockwise and antic-clockwise and with frequent jarring.

(d)   Record the mass passing the filter fabric (take care to ensure that no material is retained on the lower portion of the fabric holding apparatus).

(e)   Clean the filter fabric using a sieve brush. Do not use excessive force to remove sand fractions trapped within the fabric as the smaller particles will not greatly affect the percentage passing of larger fractions.

(f)   Repeat steps (b) to (e) for the range of sane fractions required.

(g)   Calculate the percentage passing of each fraction and plot the % passing against average particle size. The average particle size axis is to be expressed as the fabric pore size. Determine the average pore size O50 from the plot.

5.   REPORTING OF RESULTS

Report the following results:

(a)   The average pore size O50.

(b)   If required, the pore size distribution may be reported on a semi-logarithmic chart of the type shown in Figure A1.

(c)   State the history of the filter fabric sample; for example, unused, previously tested, pretreated or unknown.

(d)   State the time of shaking, type of shaker (mechanical or hand), and source of sand.

Table A1: Sand Fraction for Determination of Pre Size Distribution

BS Sieve No.		Average Particle Size (°m)
Retained on (°m)	Passing on (°m)	
38	53	46
53	75	64
75	90	83
90	106	98
106	125	116
125	150	138
150	180	165
180	212	196
212	250	231
250	300	275
300	355	328
355	425	390

PORE SIZE DISTRIBUTION

DRAWING NO.

FIG A1

	NAME	DATE
Test by		
Plotted by		
Check by		

JOB.

MATERIAL.

REMARKS.

Ministry of Works and Development