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IS : 11275 - 1985

*Indian Standard*

METHOD OF TEST FOR  
DETERMINATION OF CRUDINESS  
AND GRIT CONTENT OF ASBESTOS FIBRE

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**INDIAN STANDARDS INSTITUTION**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

# Indian Standard

## METHOD OF TEST FOR DETERMINATION OF CRUDINESS AND GRIT CONTENT OF ASBESTOS FIBRE

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# *Indian Standard*

## METHOD OF TEST FOR DETERMINATION OF CRUDINESS AND GRIT CONTENT OF ASBESTOS FIBRE

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 12 April 1985, after the draft finalized by the Cement and Concrete Sectional Committee had been approved by the Civil Engineering Division Council.

**0.2** A series of standards on testing procedures of asbestos fibre is being formulated so as to provide standard methods for obtaining physical and chemical properties of asbestos fibre which is used for manufacturing various asbestos cement products like asbestos cement roofing products, asbestos cement pipes, etc. These testing procedures will be useful for mine owners and manufacturers of asbestos cement products.

**0.3** This standard covers the method of test to measure by water elutriation a residue of material that indicates the crudiness and grit content in milled asbestos fibre.

**0.4** In the formulation of this standard, due weightage has been given to international coordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. This has been met by basing this standard on "Chrysotile Asbestos Test Manual" 1974 (*revised* 1978) of Asbestos Textile Institute and Quebec Asbestos Mining Association.

**0.5** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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\*Rules for rounding of numerical values (*revised*).

## 1. SCOPE

**1.1** This standard covers the method of test for the determination of crudiness and grit content of milled asbestos fibre by water elutriation. This standard is restricted to fibre grades 4 D to 7 F inclusive.

NOTE — The fibre grade classification is based on Quebec Standard (Q.S.) designation of chrysotile asbestos grades.

## 2. APPARATUS

**2.1** The apparatus shall consist essentially of the parts described in 2.1.1 to 2.1.7.

**2.1.1** Crudy content apparatus has been described in Fig. 1 and 2.

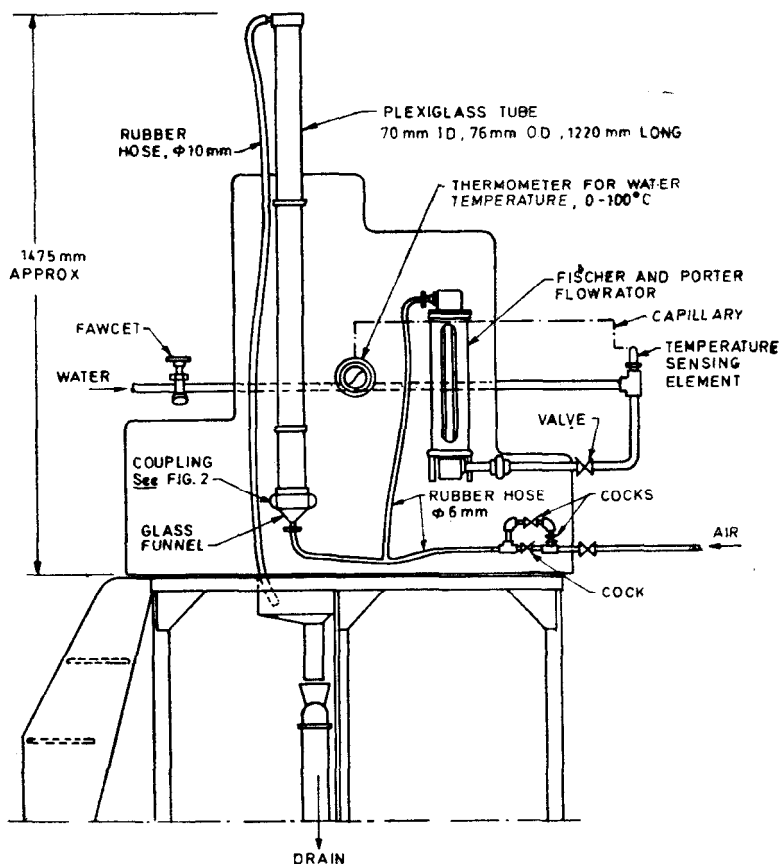
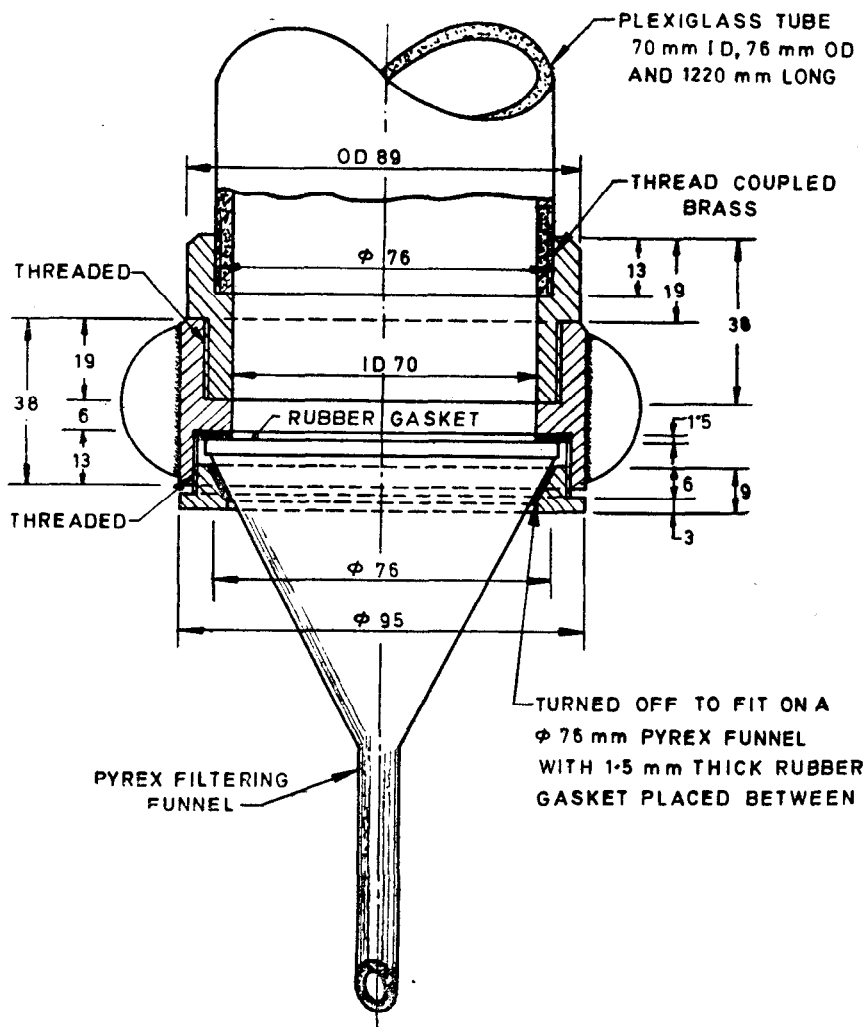


FIG. 1 CRUDY CONTENT APPARATUS





All dimensions in millimetres.

FIG. 2 CRUDY CONTENT APPARATUS — COUPLING

**2.1.2** Stop watch.

**2.1.3** One 1 000-ml beaker.

**2.1.4** Waring blender Model No. 702 CR-W or any other suitable blender/mixer.

**2.1.5** A balance to weigh 10 g with a sensitivity of 0.01 g.

**2.1.6** A 75  $\mu$ m IS Sieve.

**2.1.7** One drying oven or infra-red lamp units.

### **3. SAMPLING**

**3.1** Sampling shall be done in accordance with IS : 4844-1968\*.

### **4. PREPARATION OF TEST SAMPLE**

**4.1** Sampling done in accordance with **3.1** shall be laid on a smooth working surface by layers to form a flat pile approximately 13 mm thick.

**4.2** The flat pile prepared in **4.1** shall be quartered.

**4.3** The reduced sample shall again be spread and  $10 \pm 0.1$  g of test specimen shall be taken by pinches from different sections in the pile.

NOTE — Care shall be taken so that each pinch of fibre picks up the full cross-section of the pile, including any grit or fines which may have segregated to the bottom.

### **5. PROCEDURE**

**5.1** Fill the tube in the crudy content apparatus with water to half its height.

**5.2** Add the sample to this from the top as a slurry in 200-400 ml of water.

**5.3** Bubble air through the sample for one minute for thorough mixing, ensuring that no loss of sample takes place.

**5.4** Reduce the air flow rate to approximately 50 ml/min and turn on the water to flow at the rate of 3 500 ml/min.

**5.5** After nine minutes turn off the air flow completely and increase the water rate to 5 400 ml/min.

**5.6** After five minutes shut off the flow of water.

**5.7** Pinch the inlet tubing, remove from the water air-line and drain the collected crude into a beaker. The first two litres of water usually contain all the crude and the remainder of the water may be discarded.

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\*Method of sampling and preparation of asbestos fibre for laboratory test purposes.

**5.8** Wash down the lower end of the tube by squirting water into the inlet tube for a moment and add this to the beaker.

**5.9** Filter, dry in the drying oven and weigh the crude and grit.

**5.10** Place the weighed material in a waring blender with approximately 250 ml of water and beat for one minute until the crude is pulpy and well fiberized.

**5.11** Wash the material into a large beaker of warm water, stir well and then decant the fibre away from the grit.

**5.12** Filter the grit, dry in the drying oven and weigh the grit.

**NOTE** — It may be necessary to handpick and discard some unfiberized crude before weighing the grit.

**5.13** Subtract the mass of grit obtained in **5.12** from the total mass of crude and grit obtained in **5.9** to obtain crude content.

## **6. REPORTING OF RESULTS**

**6.1** Report the crude and grit contents as percentages. Two tests shall be made and the two results shall be averaged.

**6.2** If the difference between any individual readings and the average is more than 3 percent, the test shall be repeated.

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# INTERNATIONAL SYSTEM OF UNITS ( SI UNITS )

## Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

## Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

## Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s <sup>2</sup>
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m <sup>2</sup>
Frequency	hertz	Hz	1 Hz = 1 c/s (s <sup>-1</sup> )
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m <sup>2</sup>