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मानक

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IS 5421 (1981): Glossary of terms relating to test sieves and test sieving [CED 55: Sieves, Sieving and other Sizing Methods]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
परीक्षण छलनी और परीक्षण छनाई से संबंधित
पारिभाषिक शब्दावली
(दूसरा पुनरीक्षण)

Indian Standard
GLOSSARY OF TERMS RELATING TO TEST
SIEVES AND TEST SIEVING
(*Second Revision*)

ICS 01.040.19; 19.120

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NEW DELHI 110002

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Sieves, Sieving and Other Sizing Methods Sectional Committee had been approved by the Civil Engineering Division Council.

This standard was first published in 1969 and revised in 1981. In this revision the definitions have been aligned with ISO 2395 : 1990 'Test sieves and test sieving — Vocabulary'.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the results of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

GLOSSARY OF TERMS RELATING TO TEST SIEVES AND TEST SIEVING

(*Second Revision*)

1 SCOPE

This standard defines terms to facilitate understanding of the terminology relating to test sieves and test sieving.

2 DEFINITIONS

2.1 Material to be Sieved

2.1.1 Particle — Discrete element of the material regardless of its size.

2.1.2 Agglomerate — Several particles adhering together.

2.1.3 Sample — Representative part taken from a quantity of material.

2.1.4 Test Sample — Sample which is used in the test.

2.1.5 Charge — Test sample, or part of a test sample, placed on a test sieve or on a nest of test sieves.

2.1.6 Apparent Bulk Density — The mass of a charge divided by its volume at the moment when it is placed on the sieving medium.

2.1.7 Particle Density — The mass of a particle divided by the volume of the particle excluding open pores but including closed pores.

2.2 Test Sieves

2.2.1 Sieve — Apparatus for the purpose of sieving, consisting of a sieving medium mounted in a frame.

2.2.2 Test Sieve — Sieve which conform to a test sieve standard specification for use in particle size analysis by sieving.

2.2.3 Certified Test Sieve — Test sieve that has been certified by an accredited authority as complying with standard specification.

2.2.4 Matched Test Sieve — Test sieve that reproduces the results of a master test sieve within defined limits for a given material.

2.2.5 Full Set of Test Sieves — All the test sieves of a given type of sieving medium in accordance with a standard specification.

2.2.6 Nest of Test Sieves — Set of two or more test sieves assembled according to increasing aperture size from bottom to top and with a lid and a receiver.

2.2.7 Sieve Depth, H_1 — Distance between the top rim of the sieve and the sieving medium (*see* Fig. 1).

2.2.8 Sieve Height, H_2 — Distance between the top and bottom rims of the sieve (*see* Fig. 1).

2.2.9 Lid, Cover — Device which fits snugly over a sieve to prevent the escape of material to be sieved.

2.2.10 Receiver, Pan — Device which fits snugly beneath a sieve to receive the whole of the passing fraction.

2.2.11 Frame — Device, which supports the sieving medium at its perimeter and limits the spread of material to be sieved.

2.2.12 Sieving Medium — A surface containing regularly arranged apertures of uniform shape and size.

2.2.13 Woven Wire Cloth — Sieving medium, produced by a wire weaving process. The wires form square apertures of uniform size.

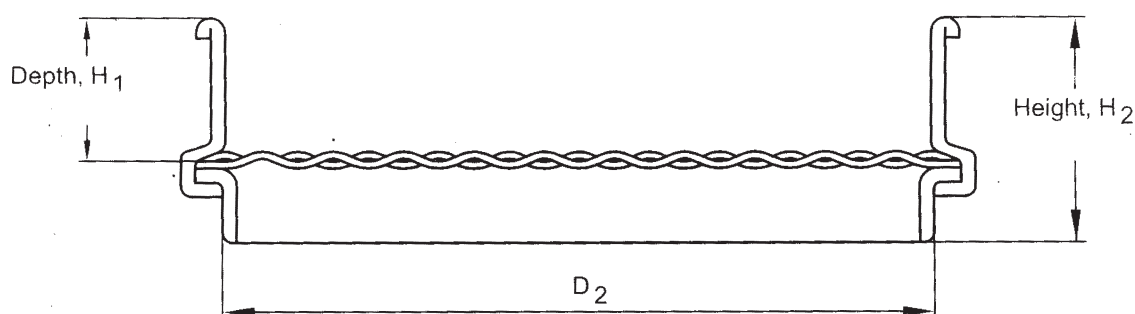


FIG. 1 SIEVE CROSS-SECTION

2.2.14 Perforated Plate — Sieving medium consisting of a plate with uniform holes in a regular arrangement. The holes may be round or square.

2.2.15 Electroformed Sheet — Sieving medium made of metal sheet with round or square apertures, produced by electrochemical methods.

2.2.16 Aperture Size — Dimension defining an opening in a sieving medium.

2.2.17 Pitch

- a) For woven wire cloth, the distance between the axes of two adjacent wires in the weft or the warp; and
- b) For perforated plate and electroformed sheet, the distance between corresponding points of two adjacent holes.

2.2.18 Percentage Open Area

- a) For woven wire cloth and electroformed sheet, the ratio of the total area of the apertures to the total area of the cloth or sheet; and
- b) For perforated plate, the ratio of the total area of the holes to the total area of the perforated part of the plate (excluding any non-perforated parts).

2.2.19 Wire Diameter — Diameter of the wire in a woven wire cloth, as measured before weaving.

2.2.20 Type of Weave — The way in which warp and weft wires cross each other.

2.2.21 Warp — All wires running lengthwise of the cloth as woven.

2.2.22 Weft (Shoot) — All wires running crosswise of the cloth as woven.

2.2.23 Plain Weave — Type of weave in which every warp wire crosses alternately above and below every weft wire and *vice-versa* (see Fig. 2).

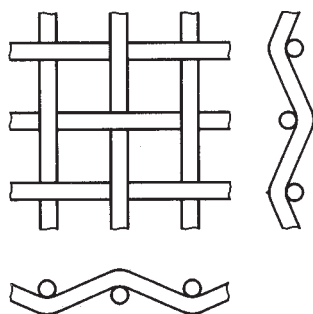


FIG. 2 PLAIN WEAVES

2.2.24 Twilled Weave — Type of weave in which every warp wire crosses alternately above and below two weft wires and *vice-versa* (see Fig. 3).

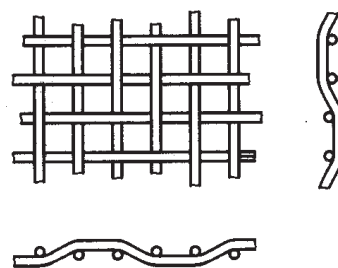


FIG. 3 TWILLED WEAVES

2.2.25 Plate Thickness — Thickness of a plate before perforation.

2.2.26 Bridge Width, Bar — Distance between the nearest edges of two adjacent holes in a perforated plate or an electroformed sheet.

2.2.27 Margin — A non-perforated strip at the edge of a perforated plate or an electroformed sheet.

NOTE — The width of the margin is measured between the edge of the plate or sheet and the line of the outermost points of the row of holes next to this edge.

2.2.28 Punch Side — Surface of a perforated plate which the punch entered.

2.3 Test Sieving

2.3.1 Sieving — Process of separating a mixture of particles according to their size by means of one or more sieves.

NOTE — The process of separating particles for industrial purpose is designated as screening.

2.3.2 Test Sieving — Sieving with one or more test sieves.

2.3.3 Particle Size Analysis by Sieving — The separation of a sample of particulate material by test sieving, and the reporting of the results.

2.3.4 Hand Sieving — Sieving with one sieve or a nest of sieves, which is supported and agitated manually.

2.3.5 Machine Sieving — Sieving with one sieve or a nest of sieves, in which either the sieve(s) or the charge is agitated mechanically.

2.3.6 Dry Sieving — Sieving in the absence of a liquid.

2.3.7 Wet Sieving — Sieving with the help of a liquid.

2.3.8 Sieving Rate — The quantity of material passing through a sieve in a specified interval of time.

2.3.9 End Point — The point in time after which further sieving fails to pass an amount of material sufficient to change the result significantly.

NOTE — The end point is specified in particular standards for each material, in terms of sieving rate, clarity of liquid in wet sieving, or other measurable criteria.

2.3.10 Pegging — The condition where particles wedge in the sieve apertures.

2.3.11 Blinding; Clogging — The condition where very fine particles adhere to a screening surface and reduce the apertures or close them completely.

2.3.12 Size Fraction — The interval between two quoted limiting sizes of the material with particle sizes between those limits.

2.4 Expression of Results

2.4.1 Particle Size, Sieve Size of a Particle — Smallest aperture size through which a particle will pass if presented in the most favourable attitude.

2.4.2 Near Size Particle — Particle of size approximately equal to the aperture size of the sieve.

2.4.3 Undersize, Fines — That portion of the charge

which has passed through the apertures of a stated sieve.

2.4.4 Oversize, Residue — That portion of the charge which has not passed through the apertures of a stated sieve.

2.4.5 Size Distribution Curve — Graphical representation of the results of a particle size analysis.

2.4.6 Cumulative Oversize Distribution Curve — Curve obtained by plotting the total (cumulative) percentage by mass retained on each of a set of sieves against the corresponding aperture size.

2.4.7 Cumulative Undersize Distribution Curve — Curve obtained by plotting the total (cumulative) percentage by mass passing each of a set of sieves against the corresponding aperture size.

ANNEX A

(Foreword)

COMMITTEE COMPOSITION

Sieves, Sieving and Other Sizing Methods Sectional Committee, CED 55

<i>Organization</i>	<i>Representative(s)</i>
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