VINCI
TECHNOLOGIES

ROTATING DRUM

ATTRITION AND ABRASION TESTER

Vinci – Technologies offers two different types of equipment geared towards the evaluation of the **attrition** and **abrasion resistance** of **granular catalysts** & **adsorbents.** These different machines allow for the **customization of test conditions** as well as the variation of the size of the fines collected at the end of the procedure.

SPENCE METHOD - ROTATING TUBE

Procedure

Catalyst samples (up to four), weighing 25 grams each, are loaded into cylindrical metal tubes implemented on a disc-shaped frame. The frame rotates at a speed of 25 rpm for one hour. The contents of each tube are subsequently recovered and sieved. The aperture of the sieve must be 2/3 of the size of the smallest granules. This implies that the size range of fines thus obtained is larger than for the ASTM test. The initial sample, residue and "fines" are all weighed and this allows for the determination of the attrition.

Description

The equipment is made up of a frame supporting four stainless steel tubes each containing a sample of catalyst and rotating around an axis perpendicular to the tubes' axes

A control box is situated on the stand with a power switch, a timer set up to control the duration of the test (1-999min) and a motor speed set up (0-60rpm).

The power requirements are 100-240 VAC, single phase, 50/60 Hz, 100W.

Calculation

Attrition is calculated as follows:

Loss on attrition % = 100 x (P_3 / P_1)

Resistance to attrition % = 100 x (P_2 / P_1)

P_1 : initial weight of the sample after sieving

P_2 : weight of sample after sieving

P_3 : weight of fines

Miscellaneous

Dimensions (cm): 35 x 30 x 50

Weight (kg) : 20

ASTM METHOD D 4058-96 - ROTATING DRUM

Procedure

A sample of granular catalyst (or catalyst carrier, or adsorbent) is loaded in a cylindrical drum which is rotated around its axis for 30 min at a speed of 60 +/- 5 rpm. The fines produced by attrition and abrasion during the process are recovered by sieving the content of the drum with an ASTM N°20 sieve (aperture: 0.85 mm). The weighing of the residue and of the initial sample allows for the calculation of the loss on attrition.

Description

Cylindrical stainless-steel drum with a single baffle (all dimensions compliant with ASTM standard) spanning the full length of the cylinder

Lid to prevent fines escaping during the test

Stand supporting the drum-motor with three possible and lockable positions: one for easy sample loading, one for the test, one being for easy "product" collection in view of sieving

Asynchronous motor, single phase, 100-240 VAC, 50/60 Hz with a reduction gear-box. Power: 100 W

Control box integrated in the stand with power switch, a timer set up to control the duration of the test (1-999min) and a motor speed set up (0-60rpm)

Calculation

Loss on attrition is calculated as follows:

Percentage of loss on attrition = 100 x (P_1 - P_2) / P_1

P_1 : weight of the fresh sample, after sieving

P_2 : weight of tested sample after sieving

Miscellaneous

Dimensions (cm): 36 x 30 x 48

Weight (kg) : 23

ASTM D4058-96 & SPENCE - VERSATILE ATTRITION TESTER (VAT)

Vinci Technologies is pleased to introduce its **new generation, Versatile Attrition Tester (VAT)** which can be used as an ASTM 4058 tester (Rotating Drum) or as a SPENCE method tester (Rotating Tube).

Vinci-Technologies – Parc de l'Ile - 27B rue du Port - 92022 NANTERRE cedex - France
tel.: +33 1 41 37 92 20 – fax: +33 1 41 37 04 76 – e-mail: vincinet@vinci-technologies.com
Visit our website http://www.vinci-technologies.com