

Application

The Buchholz Hardness Indentation Test provides a method for carrying out an indentation test on coatings complying with the ISO 2815-2003 standard.

The Buchholz Hardness Indentation Test consists of a calibrated slip-on weight with a sharp-edged metal wheel, an illuminated microscope, a level gauge, a digital dual timer, and two markers with template.



Standard

ISO NF 2815-2003, BS 3900 E9, ECCA TI 2 - 1985, NF T 30-052

Business

Automotive, Coating Industry, Galvanize, Laboratory, Paint

Features

- Buchholz indenter is equipped with functional grips allowing gentle placing and lifting of the instrument.
- Pins and cutting part of indenter are made of hardened steel preventing wear.
- High quality microscope with precision glass optical lenses and strong illuminator allows a clear visibility of the, often hard to see, indentation mark.
- Dual timer can be pre-set for both "in-position" time and "recovering" time.
- Separate level gauge allows checking the correct level of the test panel before the test is performed.

Scope of Supply

- Buchholz Indentation Test.
- Calibrated slip-on weight with a special cutter.
- Illuminated microscope with 20x magnification.
- Level gauge.
- Digital dual timer.
- Two markers with template.
- 3 x AAA batteries.
- Calibration certificate included.

Order

Ref. TQC-SP1900 Buchholz Hardness Tester.

Accessories

- SP1935 - Template
- P1930 - Black marker
- P1931 - White marker
- LD6170 - Surface Microscope 20X
- 010085 - Digital Dual Clock Timer

Testing Principle

In the Buchholz indentation hardness test a test body of specified geometry acts for a prescribed time on the specimen using a defined test load. After a specified recovery time the length (l) of the resulting indentation is measured using the microscope. Based on this length of impression (l) in mm, it is possible to calculate:

Buchholz indentation hardness = $100/l$ (1)

Depth of impression (μm , approx.) = $8 \times l^2$ (2)

Both variables are rounded up to whole numbers.

Application Range

The Buchholz impression hardness test is applicable whenever the following marginal conditions are fulfilled:

The coating to be tested must be even and smooth with a clean surface and applied to a level substrate which will resist the test force.

There must be an adequate coating thickness (i.e. to exceed the depth of impression acc. to (1) above by at least $10 \mu\text{m}$).

For comparison testing the specimens should have the same coating thickness; and the conditioning and testing of the specimens should be conducted under identical ambient conditions.

Since the impression test causes only insignificant damage to the coating, testing is also possible on finished products.

The Buchholz Hardness Indentation Test is a mandatory test in Qualicoat, QIB and GSB accredited laboratories.

Use

The test shall be carried out at a temperature of $23 \pm 2^\circ$ and a relative humidity of $50 \pm 5\%$.

1. Measure the coating thickness minimal $3-45 \mu\text{m}$ (according to the Buchholz Table).
2. The coating to be tested shall be smooth and clean.
3. Use the level gauge to ensure the test panel is at level on the testing surface.
4. Use the template to mark the spot to be measured and the feet positions on the test object. The indentation will be visible at the gap in the middle.
5. Check the indentation body (weight, wheel and fixing points) and make sure they are free from dust.
6. Gentle and without tilting or lateral movements place the indentation body on the test panel, feet first exactly on the marked positions, then lower the indenter carefully until it touches the panel. and start T1 on the timer.
7. After 30 seconds remove the TQC Buchholz Indentation Tester from the surface and start T2 on the timer. While removing be careful with applying any pressure to the indenter.
8. After the recovery period of 35 seconds measure the length of the indentation (L) with the measuring microscope.
9. Look up the indentation length (L) in the Buchholz table and find the corresponding Buchholz Indentation resistance (BH) value, or use the formula $BH = 100/L$

Special Care

- Though robust in design, this instrument is precision machined. Never drop it or knock it over.
- Always clean the instrument after use.
- Clean the instrument using a soft dry cloth. Never clean the instrument by any mechanical means such as a wire brush or abrasive paper. This may cause, just like the use of aggressive cleaning agents, permanent damage.
- Always keep the instrument in its case when not in use.
- We recommend annual calibration.

Safety Precautions

- A knife is a sharp object. Be careful when using it.

Disclaimer

The right of technical modifications is reserved.

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