

Abrasion Scrub Tester

Coated surfaces need to be tested for resistance to abrasion caused by a brush, sponge, or other means. The Wet Abrasion Tester produces a repeatable, controlled condition to simulate everyday use or wear patterns.

The abrasion tester can examine washability and related properties that affect the stain resistance of coatings. Detergent performance testing can also be determined in a reproducible manner.

- Features two brush holders for side by side testing
- Air cooled electric motor for maximum reliability
- Peristaltic fluid pump – no reagent contamination (except for PB-5002, PB-5007)
- Five digit preset counter – activates the machine for preset number of strokes, then switches off
- Can be modified to meet DIN, ISO, or ASTM test methods

Liquid solutions are pumped to the brush heads from the detachable container mounted to the side of the tester. The pump may be switched on or off during the course of testing, and the flow can be adjusted for precise dosing.

DIN ISO Methods

The Standards EN ISO 11998 and DIN EN 13330 (replaced DIN 53778) describe procedures to evaluate the resistance of coatings against abrasion by cleaning or scrubbing the surface. The coating is applied on a foil and dried under standard conditions. In order to describe the cleanability, defined pollutions are applied onto the surface before starting the test.

DIN 53 778 (*withdrawn 08/2007): Dispersion Paints
Cleanability: Test area should be free of pollutions
Wash resistance: Evaluation after 1000 scrub cycles
Scrub resistance: Evaluation after 5000 scrub cycles
The test is performed wet using a hog bristle brush and a pump to apply the washing liquid. The evaluation is done visually.

ISO 11998

The ISO test method describes a short version of the scrub abrasion test. This test uses “3M Scotch Brite 7448” pads and the washing liquid is manually applied before starting the test. The test is finished for evaluation after 200 scrub-cycles. The evaluation of the wash/scrub resistance is done by calculating the loss of mass.

DIN EN 13300

This standard describes the various testing methods for waterborne coating materials and coating systems for interior walls and ceilings. One quality criterion mentioned is the wet-abrasion resistance tested in accordance to EN ISO 11998. Additionally, a rating scale dependent on the amount of abrasion is used for final classification.



Standards

ASTM	D 2486, D 3450, D 4213, D 4828
DIN EN	53778*, 13 300
ISO	11998

ASTM Methods

The Wet Abrasion Scrub Tester is designed to comply with four ASTM methods.

ASTM D 2486

The scrub resistance of interior wall paint is the primary purpose of this method. The paint is applied to a black plastic panel and allowed to cure. The panel is scrubbed with a nylon bristle brush until failure occurs. An abrasive scrub media is used to accelerate the test.

ASTM D 3450

This test method determines the ease of removing soilent discoloration from interior coatings. The coating is drawdown on a black plastic panel and allowed to dry for seven days. A specified soilent medium is applied. The coating is scrubbed with an abrasive or non-abrasive media using a cellulosic type sponge for 100 cycles. The soilent removal is assessed by measuring the CIE Y reflectance before and after the test.

ASTM D 4213

The purpose of this method is to measure scrub resistance. The primary differences from ASTM D 2486 method are: The scrub resistance is determined by weight loss of the paint film relative to a standard calibration panel. The test panel and calibration panel are scrubbed simultaneously. The scrubbing device is a Scotch-Brite™7448 abrasive pad.

ASTM D 4828

This test method determines the relative ease of removing soil and stains from interior coatings. The coating is applied to a black plastic panel and dried for seven days. The soilent can be user defined or the soilent described in ASTM D 3450 can also be used. A user defined liquid or powder cleaner is applied. The panel is scrubbed 100 cycles with a sponge. The soilent removal is assessed using gloss or color measurement.

Abrasion Scrub Tester

Ordering Information

Cat. No.	Description
PB-5000	Wet Abrasion Scrub Tester, DIN
PB-5004	Wet Abrasion Scrub Tester, DIN
PB-5002	Wet Abrasion Scrub Tester, ISO
PB-5007	Wet Abrasion Scrub Tester, ISO
PB-5005	Wet Abrasion Scrub Tester, ASTM
PB-5008	Wet Abrasion Scrub Tester, ASTM
PB-5047	Wet Abrasion Scrub Tester, ASTM
PB-5046	Wet Abrasion Scrub Tester, ASTM
PB-5051	Wet Abrasion Scrub Tester, ASTM
PB-5050	Wet Abrasion Scrub Tester, ASTM
PB-5055	Wet Abrasion Scrub Tester, ASTM
PB-5054	Wet Abrasion Scrub Tester, ASTM

Comes complete with:

Abrasion Tester, 2 abrasive holders and 2 method specific abrasives, 100 scrub test panels, peristaltic fluid pump (excluded for PB-5002, PB-5007 models)

Technical Specifications

Standard	Scrub Rate (cycles/minute)	Stroke Length	Power Supply
DIN 53778	38 - 40	adjustable: 100 to 300 mm	220V, 50 Hz
DIN 53778	38 - 40	adjustable: 100 to 300 mm	115V, 60 Hz
ISO 11998, DIN EN 13300	38 - 40	adjustable: 100 to 300 mm	220V, 50 Hz
ISO 11998, DIN EN 13300	38 - 40	adjustable: 100 to 300 mm	115V, 60 Hz
ASTM D 2486	38 - 40	adjustable: 100 to 300 mm	220V, 50 Hz
ASTM D 2486	38 - 40	adjustable: 100 to 300 mm	115V, 60 Hz
ASTM D 3450	38 - 40	adjustable: 100 to 300 mm	220V, 50 Hz
ASTM D 3450	38 - 40	adjustable: 100 to 300 mm	115V, 60 Hz
ASTM D 4213	38 - 40	adjustable: 100 to 300 mm	220V, 50 Hz
ASTM D 4213	38 - 40	adjustable: 100 to 300 mm	115V, 60 Hz
ASTM D 4828	38 - 40	adjustable: 100 to 300 mm	220V, 50 Hz
ASTM D 4828	38 - 40	adjustable: 100 to 300 mm	115V, 60 Hz

Dimensions

660 x 480 x 420 mm (26 x 19 x 16.5 in)

Shipping Weight

32 kg (70.5 lbs)

Ordering Information

Cat. No.	Description
PB-5001	Modification Kit, ASTM D 2485
PB-5003	Modification Kit, ISO 11998
PB-5006	Modification Kit, DIN 53778
PB-5048	Modification Kit, ASTM D 3450
PB-5052	Modification Kit, ASTM D 4213
PB-5056	Modification Kit, ASTM D 4828
PB-5010	Hog Bristle Brush
PB-5011	Nylon Brush
PB-5012	Pad
PB-5017	Brass Shims
PB-5016	byko-chart White Scrub Test Panels P122-10N
PB-5015	byko-chart Black Scrub Test Panels P121-10N
PB-8129	Scrub Medium, Abrasive, 474 ml (1 pint)
PB-8130	Scrub Medium, Non-abrasive, 474 ml (1 pint)
PB-5049	Sponges, ASTM D 3450
PB-5053	Sponges, ASTM D 4213
PB-5057	Sponges, ASTM D 4828

Accessories

Carriage assembly for ASTM D 2485, includes 2 brushes

Carriage assembly for ISO 11998, includes 2 abrasive pads

Carriage assembly for DIN 53778, includes 2 brushes

Carriage assembly for ASTM D 3450, includes 2 sponges

Carriage assembly for ASTM D 4213, includes 2 sponges

Carriage Assembly for ASTM D 4828, includes 2 sponges

Meets DIN 53778; Dimensions: 38 x 89 mm (1.5 x 3.5 in)

Meets ASTM D 2486; Dimensions: 38 x 89 mm (1.5 x 3.5 in)

Meets ISO 11998

2 pieces – required for ASTM D 2486.

For ISO and ASTM Methods; Pack of 100 plastic white scrub test panels; Dimensions: 165 x 432 x 0.25 mm (6.5 in x 17 in x 10 mils)

For ISO and ASTM Methods; Pack of 100 plastic black scrub test panels; Dimensions: 165 x 432 x 0.25 mm (6.5 in x 17 in x 10 mils)

For ASTM D 2486

For ASTM D 3450

Pack of 12, for ASTM method D 3450

Pack of 12, for ASTM method D 4213

Pack of 12, for ASTM method D 4828