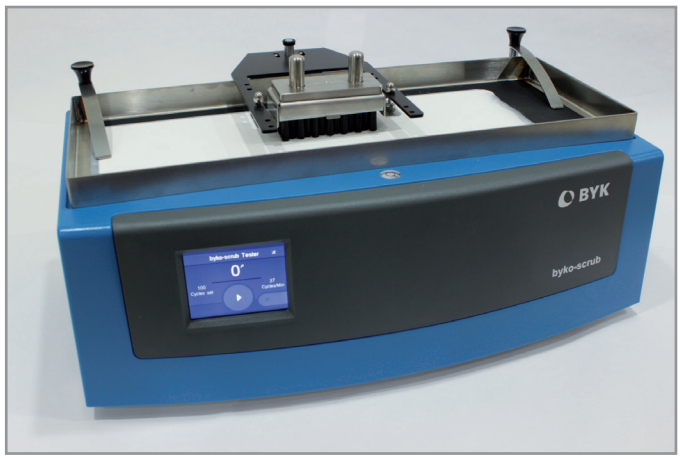
Gardner-scrub

Abrasion Scrub and Washability Tester

Coated and uncoated surfaces need to be tested for resistance to abrasion caused by a brush, sponge, scouring pad, sand paper, and other means. Abrasion resistance can be tested by wet abrasion methods using scrub media or cleaning solutions. The most common applications are testing the scrub resistance of interior wall paints, floor tiles, shower stalls, and furniture surfaces. The abrasion tester can examine the washability of a coated surface for the removal of stains. Detergents and cleaning solutions can be tested and evaluated in a reproducible manner.

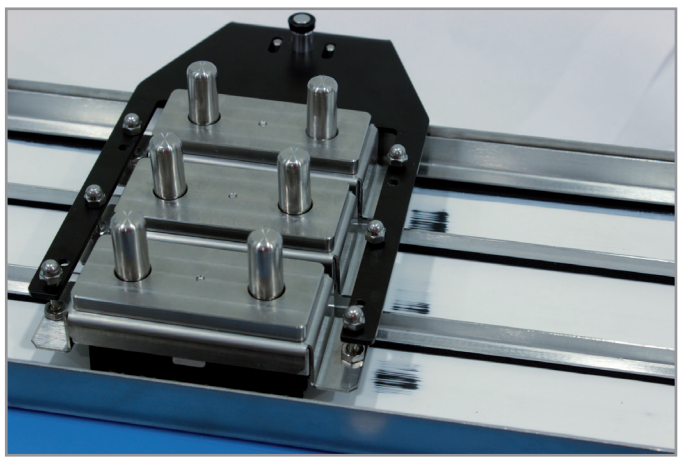


Ease of operation

An intuitive touch screen operation makes it easy to change test parameters. The scrub rate in cycles/min. and the number of cycles can be defined by the user dependent on agreed upon specifications.

Versatile configuration - Ready for international standards

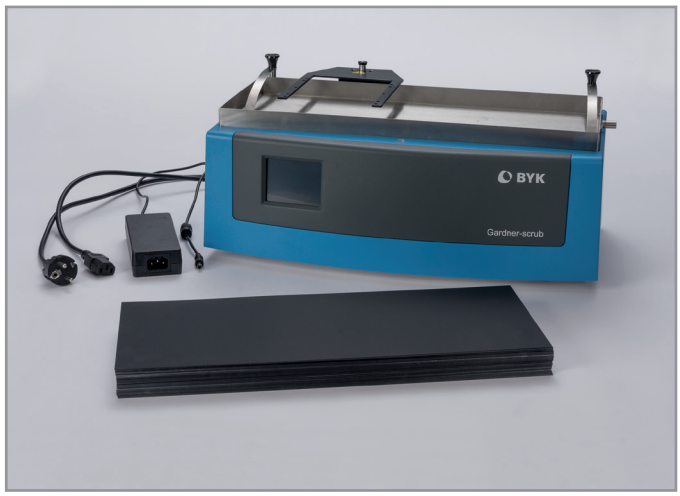
Accessory kits for various ASTM and ISO standard methods are already preconfigured available with all parts needed to perform testing according to the international procedure. The instrument arm is designed to hold from 1 - 3 brush holders or ISO pad holders. Even optional weights for custom applications can be used.



Key features and benefits

Durable chain drive mechanism for long-term reliable operation

- Reciprocating linear motion with a constant speed over the travel distance for repeatable results
- Compact design saves on counter space
- Easy to use touch screen display
- Instrument arm holds up to 3 brush or pad holders to increase output
- User selectable scrub rate from 6 - 60 cycle/minute
- Compliant with ASTM, DIN, and ISO methods with appropriate accessories
- Up to 4 kg (8.8 lbs) can be applied to the instrument arm
- Stroke length 10 inch (25.4 cm), adjustable upon request to 9 or 11 inch (22.9 or 27.9 cm)
- Optional weights for custom applications



Wet Abrasion Scrub Testing according to ASTM Methods

The Wet Abrasion Scrub Tester is designed to comply with several 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

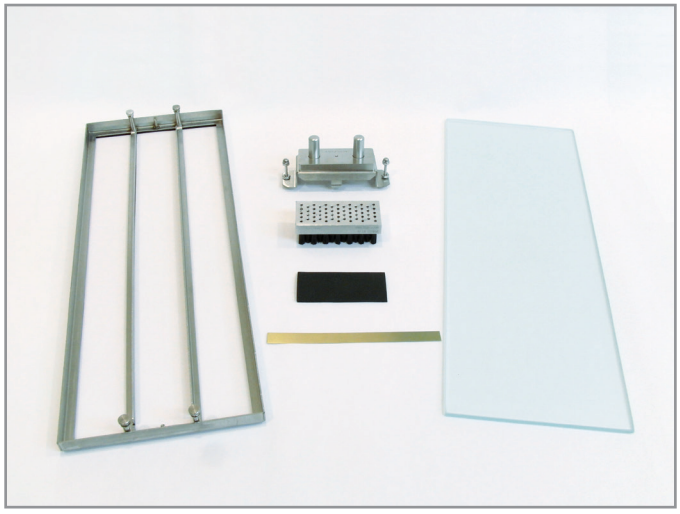
This test method determines the ease of removing soilant discoloration from interior coatings. The coating is drawndown on a black plastic panel and allowed to dry for seven days. A specified soilant medium is applied. The coating is scrubbed with an abrasive or non-abrasive media using a cellulosic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

ASTM D 4213

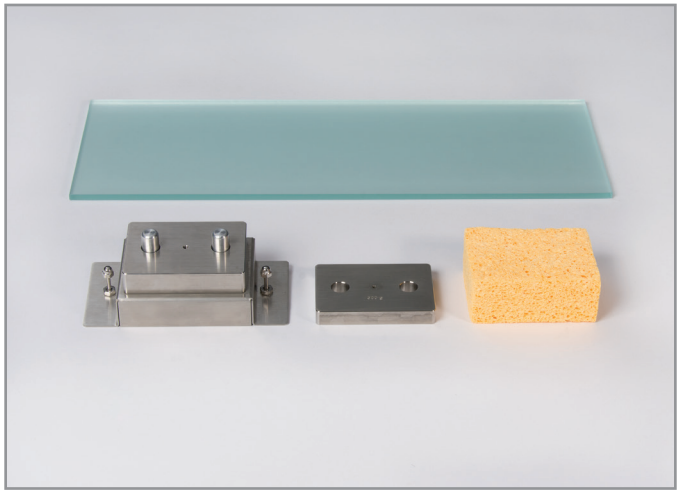
The purpose of this method is to measure scrub resistance. The primary differences from ASTM D 2486 method are: The scrub resistance is determined by weight loss of the paint film relative to a standard calibration panel. The test panel and calibration panel are scrubbed simultaneously. The scrubbing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

ASTM D 4828

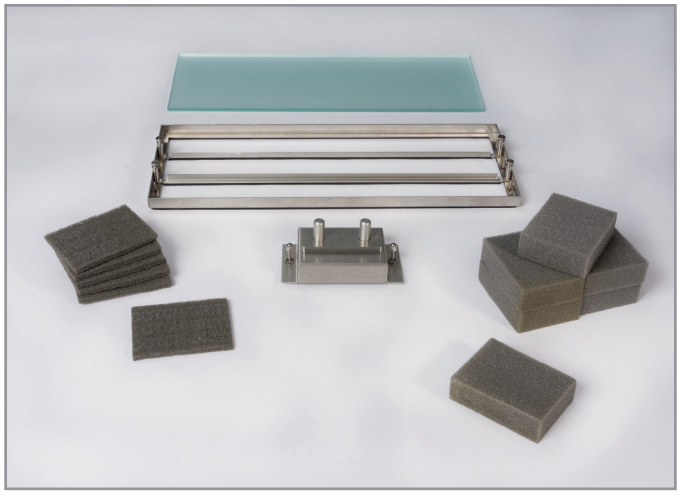
This test method determines the relative ease of removing soil and stains from interior coatings. The coating is applied to a black plastic panel and dried for seven days. The soilant can be user defined or the soilant described in ASTM D 3450 can also be used. A user defined liquid or powder cleaner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



Accessory Kit, ASTM D2486



Accessory Kit, ASTM D3450



Accessory Kit, ASTM D4213

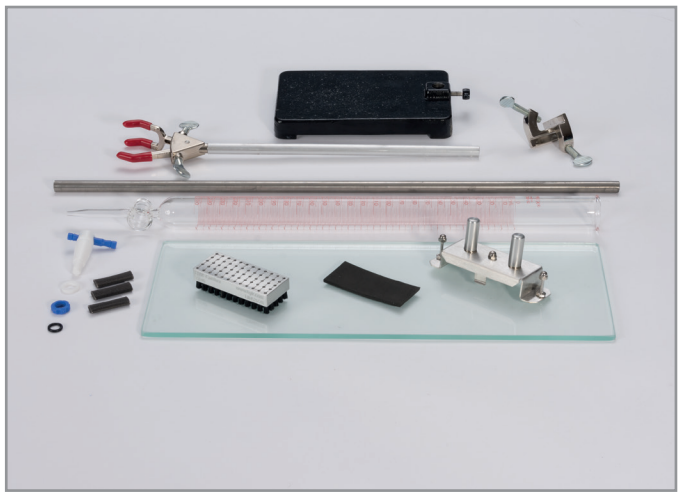
Wet Abrasion Scrub Testing according to DIN/ ISO Methods

The Standards EN ISO 11998 and DIN EN 13300 (replaced DIN 53778) describe procedures to evaluate the resistance of coatings against wet 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.

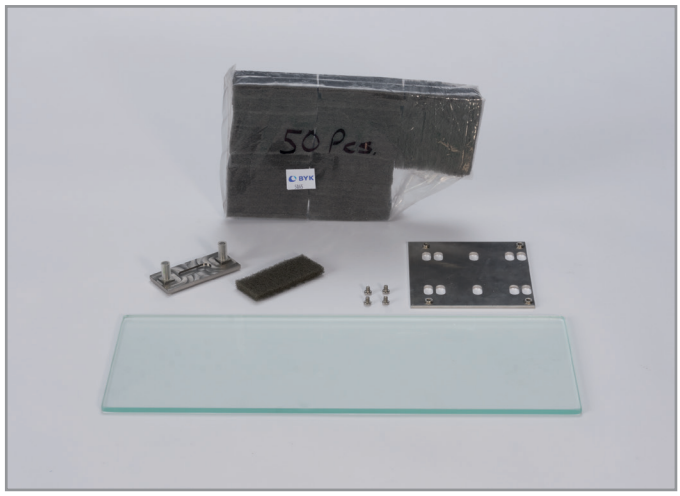
DIN 53 778 (*withdrawn 08/2007):
Dispersion Paints Cleanability: Test area should be free of pollutions. Wash resistance: Evaluation after 1000 scrub cycles Scrub resistance: Evaluation after 5000 scrub cycles. The test is performed wet using a hog bristle brush and a pump to apply the washing liquid.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

ISO 11998
The ISO test method describes a short version of the wet 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 classification 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.



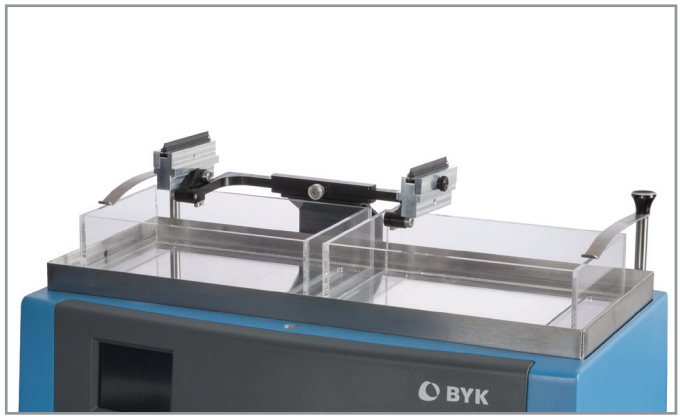
Accessory Kit, DIN 53778



Accessory Kit, ISO 11998

Wiper Resistance Test according to ECE 43

In specific applications is necessary to adapt a test method to the typical stresses during it real-world use. The wiper resistance test was developed to simulate accelerated abrasion by automotive windshield wipers under controlled laboratory conditions. Instead of rotating abrasive wheels, a linear back and forth motion of a wiper blade is applied to the sample under test. The test specimen is placed in a box filled with a defined suspension according to ISO 12-103-1 A4 at ambient temperature.



Catalog Number	5060	5061	5062	5063	5097
Short Description	**Gardner-scrub, base**	**Gardner-scrub, ASTM D2486**	**Gardner-scrub, DIN 53778**	**Gardner-scrub, ISO 11998**	**Gardner-scrub, ECE 43**
Delivery Content	Instrument Sample pan (5041) Bubble level byko-chart Black Scrub Panel P121-10N (5015) Power supply Manual	Base model (5060) Brush Holder and Mat, ASTM (5074) Nylon brush (5011) Lilly frame (5038) Brass shim (6979) Bubble level Glass plate (6980) byko-chart Black Scrub Panel P121-10N (5015) Manual	Base model (5060) Brush Holder and Mat, DIN (5075) Hog Bristle Brush, DIN (5010) Liquid metering system (5037) Bubble level Glass plate (6980) byko-chart Black Scrub Panel P121-10N (5015) Manual	Base model (5060) ISO Pad holder (5076) Scotch Brite Pad, ISO (5012) ISO Arm Adapter (5059) Bubble level Glass plate (6980) byko-chart Black Scrub Panel P121-10N (5015) Manual	2-Acrylic boxes 2-Wiper holders 2-Space plates 2 mm 2-Space plates 4 mm 4-precut wiper blades 200 g scale Sample pan (5041) Bubble level Manual
Scrub Rate	6 -60 cycles/minute				
Stroke Length	25.4 cm, standard setting Optional stroke length of 22.9 or 27.9 cm to be specified when ordering			25.4 cm standard setting Optional stroke length of 22.9 or 27.9 cm to be specified when ordering	13 cm for ECE model (5097)
	10 in, standard setting Optional stroke length of 9 in or 11 in to be specified when ordering			10 in standard setting Optional stroke length of 9 in or 11 in to be specified when ordering	5.1 in for ECE model (5097)
Power supply	100 - 240 V, 50/60 Hz				
Dimensions: L x W x H	48.3 x 19.1 x 27.9 cm				
	19 x 7.5 x 11 in				
Weight	14.5 kg				
	32 lb				

Delivery Content

Instrument, Sample pan (5041), byko-chart Black Scrub Panel P121-10N (5015), Power supply, Manual,
plus: Accessory Kit for specific standard method if ordered as set.

Catalog Number	Short Description	Delivery Content
5064	**Accessory Kit, ASTM D2486**	Brush Holder and Mat, ASTM (5074) Nylon brush (5011) Lilly frame (5038) Brass shim (6979) Glass plate (6980)
5074	**Brush Holder and Mat, ASTM**	
5011	**Nylon Brush**	
5038	**Lilly frame**	
6979	**Brass Shim**	
6980	**Glass Plate**	
8129	**Scrub Media, Abrasive (1 pint)**	
5065	**Accessory Kit, ISO 11998**	ISO Pad holder (5076) ISO Arm Adapter (5059) Scotch Brite Pad, ISO (5012) Glass plate (6980)
5076	**ISO Pad holder**	
5059	**ISO Arm Adapter**	
5012	**Scotch Brite Pad, ISO (pack of 50)**	

Catalog Number	Short Description	Delivery Content
5066	Accessory Kit, DIN 53778	Brush Holder and Mat, DIN (5075) Hog Bristle Brush, DIN (5010) Liquid metering system (5037) Glass plate (6980)
5075	Brush Holder and Mat, DIN	
5010	Hog Bristle Brush, DIN	
5037	Liquid Metering System	
5067	Accessory Kit, ASTM D4213	Sponge Holder, 450 g (5072) Sponge, polyurethane (5071) Scotch Brite Pad, ASTM (5070) Lilly frame (5038) Glass plate (6980)
2230	Dow Latex Applicator	
5070	Scotch Brite Pad, ASTM	
5071	Sponge, polyurethane (pack of 6)	
5072	Sponge Holder, 450g	
5068	Accessory Kit, ASTM D4828	Sponge Holder, 1000 g (5073) Sponge, cellulosic (8116) Glass plate (6980)
5073	Sponge Holder, 1000g	
8116	Sponge, cellulosic	
5069	Accessory Kit, ASTM D3450	Sponge Holder, 1000 g (5073) Weight, 500 g (5078) Sponge, cellulosic (8116) Glass plate (6980)
5553	Single Bar 3", 1.5 mils	
5078	Weight, 500 g	
5079	Weight, 1000 g	
8130	Scrub Media, Non-Abrasive (1 pint)	
8117	Sandpaper Attachment Kit	Sandpaper holder (5058) Stainless Steel Plate (2.5"x17") 63,5mm x 432mm Rubber Mat (6.5"x17") 165mm x 432mm Emery Cloth 120 Grit (2"x10YD) 50,8mm x 9.14m Emery Cloth 80 Grit (2"x10YD) 50,8mm x 9.14m
5058	Sandpaper holder	
8118	Weight for Sandpaper Holder	
5015	byko-chart Black Scrub Panel P121-10N	100 pieces / box
5016	byko-chart White Scrub Panel P122-10N	100 pieces / box
5098	ISO Standard Dirt, ECE 43	
5099	Wiper Blades, 25 pcs, 650mm length	