

# Proper procedures are critical for performance testing of floor-cleaning equipment

## Recent Cleaning Efficiency Testing by Nilfisk-Advance adheres to scientific protocols to ensure valid results

Manufacturers of everything from liquid detergents to floor scrubbers test their products. They test for product performance, environmental impact, product comparisons and much, much more.

Cleaning products are often tested in labs and in the field, and manufacturers may make claims based on those test results. But buyers need to beware. Claims that come from testing in anything other than controlled environments using scientific protocols are questionable at best—and quite possibly misleading.

### Claims are only as good as the tests themselves

Nilfisk-Advance's Cleaning Efficiency Testing was performed by two separate, independent laboratories, adhering to the same strict scientific guidelines:

- **ASTM D 4488-95: Standard Guide for Testing Cleaning Performance of Products Intended for Use on Resilient Flooring**
- **ASTM D 4488, Section 5** for test soil composition and application

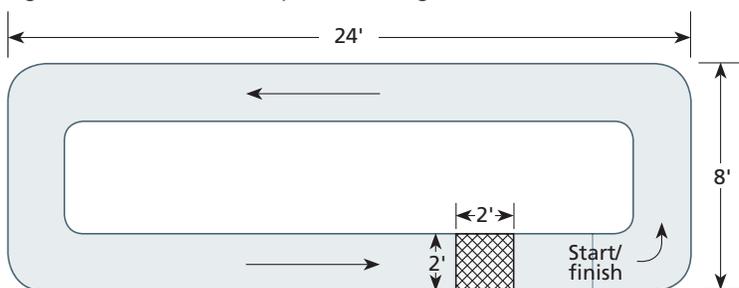
Other testing protocols adhered to included:

- Machines were purchased as new equipment by the testing laboratories directly from the manufacturers.
- Floor tiles for all tests were new and identical.
- Machine preparation was per manufacturer specifications. Machines were operated with defined cleaning solutions and new scrub pads at each machine's lowest (economy) solution flow and down pressure setting.
- Batteries were fully charged and voltages recorded before each test.
- Machines were run for approximately 20 seconds before testing to ensure solution flow to scrub heads.
- Tests were performed identically for each machine, at the same travel speed and via each machine's automated controls, to eliminate operator variations. (See Figure 1.)
- Tests consisted of six sample areas, each cleaned by a single pass of the scrubber.

Beyond configuring the Cleaning Efficiency Testing according to accepted scientific standards, Nilfisk-Advance collected data based upon principles of measurement appropriate to the surface\* being tested:

- Color (grayscale)
- Gloss (reflection)

Figure 1. Test floor and sample area configuration.

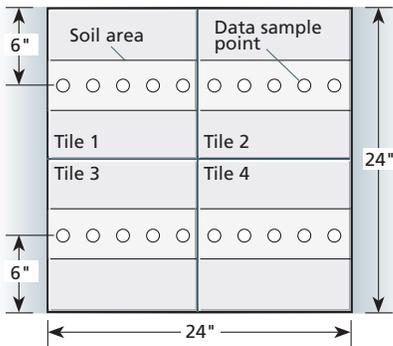


## Six questions to ask about a manufacturer’s product performance tests:

1. *Were the tests conducted by an independent laboratory or testing facility?*
2. *Were the machines tested new and purchased independently by the testing facility?*
3. *What industry-accepted testing standards were used? (e.g., ASTM)*
4. *How were the tests conducted? (e.g., How were the product and test surface prepared? How were variables controlled?)*
5. *What performance metrics were used? (e.g., color, gloss, ATP)*
6. *Were results verified in at least a second test?*

Using a spectrophotometer and gloss meter, the labs took readings on each of these metrics at 20 points per sample area, before soiling, with soil applied and after cleaning. This process results in a total of 720 recorded data points for each test. (See Figure 2.)

Figure 2. Soil application and data sampling areas.



Tests performed under these conditions—using scientifically accepted and documented procedures and controls—are valid because they are verifiable and repeatable. The same test, performed with the same controls and protocols, will yield the same results each time. This was the case with the two independent laboratories that performed the Cleaning Efficiency Testing.

\* Since ATP (adenosine triphosphate) measurements are generally used in situations where sanitization is the objective (such as on surfaces where there will be skin contact), ATP was not included in these floor-cleaning tests.



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### Scientific versus “real world” testing

Side-by-side comparisons of hard-floor scrubbers in the field have been touted by some as “real world” tests. While a demonstration in a customer’s own facility may help to influence a buying decision, buyers should be wary of claims based upon “field” tests that have been performed elsewhere and provide anecdotal, unverifiable results.

Nilfisk-Advance’s Cleaning Efficiency Testing calculated results using the scientifically accepted formula from ASTM D 4488, Section A5:

$$\text{Percent Cleaning Efficiency} = \frac{(\text{data value of cleaned tile}) - (\text{data value of soiled tile})}{(\text{data value of tile before soiling}) - (\text{data value of soiled tile})}$$

This recognized formula provides irrefutable evidence of cleaning efficiency. Product claims made against such testing can be relied upon as fact.

As the commercial floor-cleaning industry continues to move toward environmentally preferable products, industry members need to perform and demand valid scientific product testing to ensure health and environmental safety—as well as cleaning efficacy.