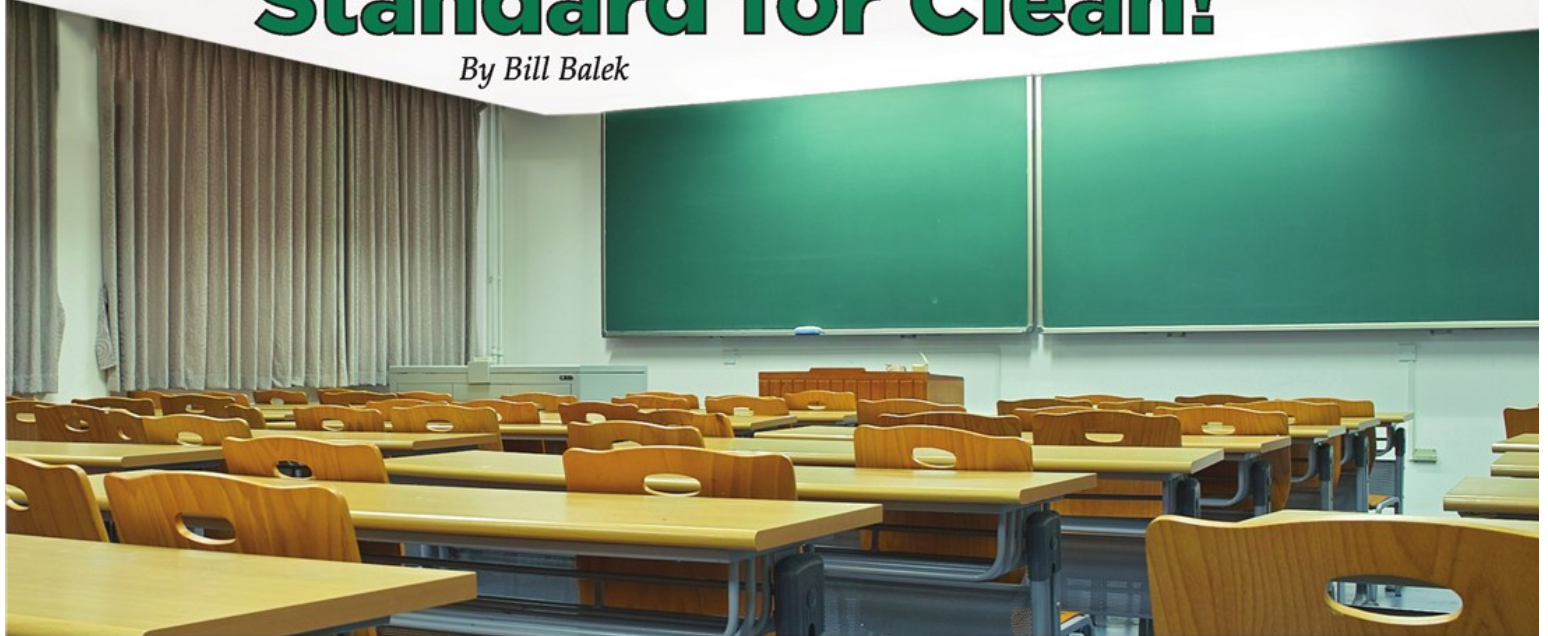


Finally! A Science-Based Standard for Clean!

By Bill Balek



As school boards continue to reduce cleaning efforts in light of mounting budget cuts, elementary and high school facilities across the United States pose increasing health risks for children, staff and visitors to these facilities. Meanwhile, with reduced staffing and cleaning frequencies, there also is no standardized approach to assessing the effectiveness of cleaning regimens. The vast majority of staff and visitors to these schools generally judge cleaning effectiveness by the senses—sight, smell, and even touch. But this approach to assessing the effectiveness of cleaning is woefully inadequate in this age of MRSA, norovirus, and other infectious agents that defy detection by the senses alone.

ISSA and the Cleaning Industry Research Institute (CIRI) chose to jointly face this issue head-on by commissioning an independent body of scientists—led by Dr. Richard Shaughnessy from the University of Oklahoma-Tulsa and Dr. Gene Cole of Brigham Young University—to provide a solution for educational facilities to better measure cleanliness. The hope was to provide tools to meet the demands of protecting occupant health in a world where decision-makers increasingly want to see hard numbers to justify a need. ISSA and CIRI initiated their effort to establish this Clean Standard: K-12 Schools (Clean Standard) by setting three goals:

Identify an objective, quantitative method of measuring cleanliness. After thoroughly reviewing various devices, the researchers concluded that adenosine triphosphate (ATP) meters

are a valid, relatively simple, rapid, and affordable means of measuring the level of cleanliness of critical interior surfaces in schools. Just as important, these devices were found to be reliable and consistent in their measurements across geographic and climatic zones.

Produce reasonable range values representing a standardized and quantitative approach to measuring clean. The team of researchers has done just that for each of the three ATP meters tested and for each critical interior surface that was studied. In effect, the researchers have defined “cleanliness” (or the lack thereof) based on ATP- relative light units (RLU) values.

Deploy this information in the form of a practical standard and protocol. The intent is that this protocol will empower schools to validate their cleaning regimen as well as to help them more efficiently allocate their limited resources for cleaning and maintenance—. This Clean Standard is currently under development and expected to be finalized by June.

Overview & Background

The goal of the Clean Standard is to provide schools with a useful tool that will help them objectively measure and monitor the level of cleanliness in their facilities thereby contributing to the quality of the indoor environment for the benefit of students and staff alike. The Clean Standard is a performance-oriented standard focused on:

- The levels of cleanliness that can be reasonably achieved
- Recommended monitoring and inspection procedures

designed to measure how “clean” a facility is using quantitative measures (i.e., ATP Meters) and traditional methods (i.e., sight, smell, touch)

- How to use the results of monitoring and inspection to evaluate and improve the cleaning processes and products that are critical to maintaining a safe and healthy learning environment for students and staff.

The standard is nonprescriptive, i.e., it does not specify or favor any particular cleaning process or products. Instead, the standard is focused on achieving the desired level of cleanliness and provides a systematic approach to monitoring and inspection to ensure it is achieved and maintained. In this regard, the Clean Standard parallels the Hazard Analysis and Critical Control Point—or HACCP—system that has ensured the safety of food processing environments for decades.

Development Process

In developing the Clean Standard, ISSA and CIRI have followed a broad multi-stakeholder process designed to garner the input of all major stakeholders in an open and transparent manner. The Clean Standard development process allowed for stakeholder involvement by participation on either the Development Committee or the Stakeholder Committee, with decisions based on consensus. These committees are comprised of industry (manufacturers, distributors, and cleaning service providers) along with major school districts; unions, such as the American Federation of Teachers; and nongovernmental organizations and nonprofits, such as the Healthy Schools Campaign, the National Education Association, APPA, and the National Association of State Boards of Education. Information on the development process can be found at www.issa.com/cleanstd.

The Clean Standard development process also has been guided and informed by independent research that included extensive scientific measurements from a multiyear review of cleaning procedures in numerous schools representing various geographic locations and climatic zones across the United States. This data clearly indicates that a standardized approach to the measurement of cleaning effectiveness across critical surfaces (recognized as presenting health risks in schools) could be used to improve the hygiene of interior school surfaces and thereby help improve the school’s overall indoor environmental quality.

in schools. (It should be noted, that ATP meters have also recently been validated for use in health care settings under a separate research initiative.) In addition, the research has produced reasonable range values for measuring levels of cleanliness in school facilities and with three different ATP meters, representing a standardized and quantitative approach to measuring clean.

As such, the Clean Standard provides K-12 schools with a framework and a standardized protocol for using ATP meters to measure and assess cleaning effectiveness, or lack thereof, on a consistent and periodic basis. Perhaps more importantly, the Clean Standard provides a structured approach to addressing situations where the school facility has fallen below the desired level of cleanliness.

ATP—Adenosine triphosphate—is recognized as an excellent marker for monitoring biologically-derived surface soiling and cleanliness. Most surfaces collect and retain soils, dusts, and various deposits containing a myriad of particles, residues, and fragments of some biological origin. These residues may derive from plants (such as pollens, fibers, dusts, fungi, etc) and animals (skin cells, dander, insect parts, secretions, exudates, etc) as well as other envi-

ronmentally ubiquitous microorganisms.

By basing the metric of “clean” interior school surfaces on ATP levels, one is basically covering the gamut of surface residual contamination of biological origin ATP disclose. For example, ATP monitoring is not appropriate for the identification of specific, nonbiological and other pollutants that are recognized and regulated as human health hazards, such as lead, asbestos, pesticides, other chemical residues, etc.

In addition, it should be noted that ATP cannot identify specific bacteria, virus, or fungi—which may serve to be human pathogens (e-coli, MRSA, norovirus, influenza virus, VRE and many others). On the other hand, over the years of research, RODAC measurements (i.e., a recognized means of detecting and measuring the presence of microorganisms on surfaces) compared to ATP measurements and the research clearly established that a reduction in culturable bacteria as measured by RODAC was consistent with the reduction in ATP values after cleaning.



Measuring Clean using an ATP meter with Alan Bigger.

Why ATP Meters?

Specifically, as stated earlier, the research has validated ATP meters as a relatively simple, rapid, and affordable means of measuring the level of cleanliness of critical interior surfaces

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quantitative measurements based on ATP meters to determine what is biologically soiled. The assessment is designed to provide information that shows the initial extent of contamination and the level of biological contaminant removal when cleaned. This assessment should be used for the ultimate purpose of improving the quality of the indoor environment for the benefit of students, staff, and all other occupants in K-12 facilities.

A Four-Step Process

The Clean Standard provides a systematic approach based on multiple elements that are used to measure and monitor the level of cleanliness at K-12 facilities related to residual surface contamination of biological origin.

Specifically, the Clean Standard includes the following:

1. A site survey or building audit
2. Evaluation of the presence of visual dust and soils
3. Precleaning and post-cleaning evaluations and measurements based on ATP measurement
4. Periodic measurement of bio-contamination or bio-soil loads using ATP.

These elements are intended to be used in a systematic pro-

Scope & Purpose

The Clean Standard establishes a framework for assessing the cleanliness of a school's interior high-touch surfaces. The primary method used for this assessment is a site survey and

cess to determine the background condition and pre-existing soiling in any school and the level of cleanliness achieved after cleaning, as well as provide for periodic measurement of cleanliness at the school facility. Of course, training will be a key component in implementing the Clean Standard at any school facility to ensure that ATP measurements are conducted in a correct, consistent manner to ensure accuracy of the results.

The collective elements of the Clean Standard will make it possible to assess the effectiveness of any commercial cleaning regimen, equipment, products, and procedures. As such, the Clean Standard empowers schools to select a cleaning regimen that is the most effective and economical and fits their specific needs. ¶



ISSA Environmental Services & Legislative Affairs Director Bill Balek monitors and reports on a wide variety of laws, regulations, and environmental topics that are of concern to the cleaning industry. He may be contacted at bill@issa.com; phone, 800-225-4772 (North America) or 847-982-0800.

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