



A Riddle

What rhymes with “Treasure”
and Starts with “M”?



Combining Cleaning and Measurement

**INTEGRATED CLEANING
AND MEASUREMENT™
(ICM)**

What is Quality?

**QUALITY IS PRIDE OF
WORKMANSHIP
(DEMING).**

Why measure?

**YOU ARE ALWAYS FREE TO
CHOOSE WHAT YOU DO MORE
OF, WHAT YOU DO LESS OF, AND
WHAT YOU DO NOT AT ALL.**

(BRIAN TRACY)

Defining "Integration"

- ⦿ Think of "wholes" not parts.
 - ⦿ What are the parts?

Cleaning and Measurement

Integration of Cleaning and Measurement



- ▣ Cleaning
- ▣ Measurement

To What End?

- ① Understand when clean is clean.
- ② Understand when clean is healthy.

Why Clean for Health?

“...service is knowing what the customer wants. In the hierarchy of ...wants, the demand for health and safety ranks very high.”

Michael Berry, PhD

Protecting the Built Environment: Cleaning for Health

Why Clean for Health?

“The value of the health benefit
increases the value of the service.”

Michael Berry, PhD

Protecting the Built Environment: Cleaning for Health

Integrated Cleaning and Measurement™ (ICM)

- Will Help Your Professionalism and Profits

- How?

Professionals Measure



Amateurs Guess

“I mopped, so
I *guess* it’s
clean.”



Professionals Use Tools to Measure

Think:

⦿ Doctors



⦿ Electricians



Cleaning Professionals Do Too



Why Measure?

- ⦿ What's measured gets done (and properly paid for).
- ⦿ What's measured gets improved.
- ⦿ What's measured gets specified.

ATP – Basis for the ISSA Clean Standard

Helps Us:

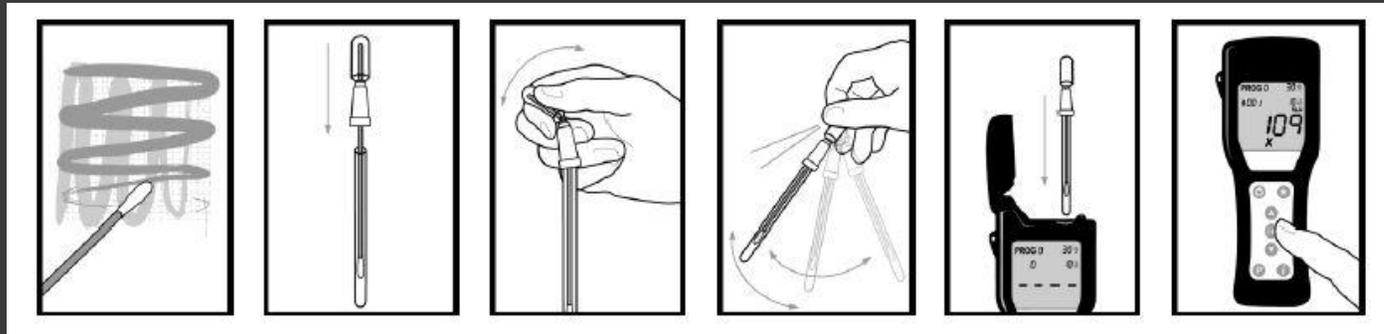
- Understand when clean is clean (now).
- Understand when clean is healthy (future).



ATP Detects Organic Matter

- ◉ Germ Food
 - ◉ Microbes themselves
- ◉ Less ATP = Less Microbial Potential

ATP—Adenosine TriPhosphate



- ✓ Swab a 2"x2" or 4"x4" area (be consistent).
- ✓ Put the swab back into its tube and release the reagent.
- ✓ Shake well, then insert into the device.
- ✓ Press button and wait 15 seconds.

Use the Form

- Compare results and improve

Inspected by: _____
 Title: _____

ATP Test Results						
Method	Area	Surface Material	Good	Moderate	ATP Reading Before	ATP Reading After
Restroom	Toilet Seat		< 15	< 30		
	Toilet Floor (avoid grout)		< 20	< 60		
	Soap Dispenser		< 20	< 60		
	Sink Handle		< 15	< 30		
Office/School	Desktop		< 15	< 30		
	Cafeteria Table		< 15	< 30		
	Countertop		< 15	< 30		
	Lab Table		< 15	< 30		
	Front Desk		< 15	< 30		
	Wrestling Mat		< 50	< 100		
Other						

Correlations – How Clean?

Meet the target ranges
of the Clean Standard and:

- ✓ Know when clean is *clean*.
- ✓ Know when clean is *healthier*
(e.g., less potential for microbial growth).

The Clean Standard is Not...

- ⦿ A disinfection standard. Why not?
(audience)
- ⦿ A health standard. Why not?
(audience)

The Clean Standard Is...

- ⦿ A dirt-removal standard that directly relates to hygiene.
 - ⦿ Why? (audience)

Why Disinfect?

Blind Study by Dr. C. Gerba

“Cleaning Desktops and
Other Classroom Surfaces Reduces Absenteeism”

Process, Tool, Surface

Daily use of “quat” disinfecting wipes in classrooms

Measured Outcome

50% less student absenteeism from illness

Why Disinfect?

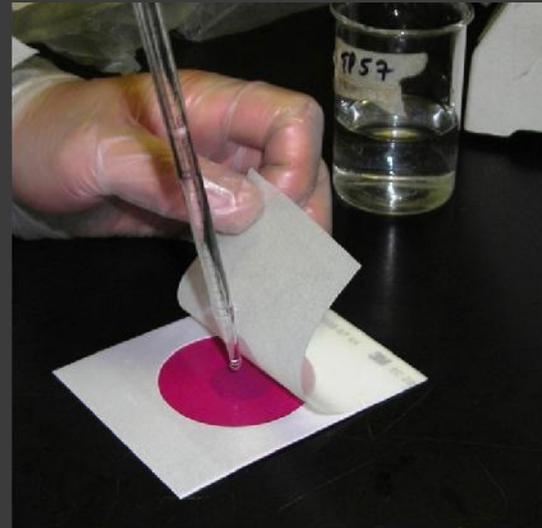
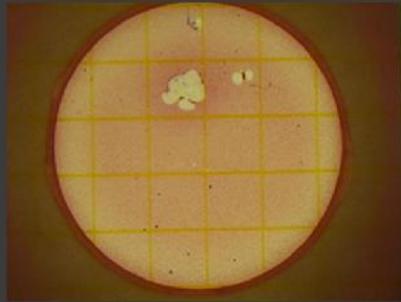
Study by Dr. Krilov

Health implications associated
with improved cleaning / disinfection
in daycare

Good
cleaning =

- ✓ 24% fewer illnesses
- ✓ 34% fewer doctor visits
- ✓ 24% less use of antibiotics
- ✓ 46% fewer days absent from school

Other Hygiene Measurement



RODAC ®

RODAC (Replicate Organism Detection and Counting)

A sterile agar plate with the agar forming a convex surface – the plate is opened and pressed on a surface to be sampled.



What is Indoor Air Quality?

“Indoor Air Quality refers to the effects, good or bad, of the contents of the air inside a structure on its occupants.”

Jim Akey, Lighthouse Worldwide

IAQ Facts – Jim Akey

- We inhale 1 Billion particles per day.
- A home collects 2 pounds of dust per week.
- 9' x 12' carpet collects about 10 pounds of dust per year.

Health Effects - IAQ

“Health effects from indoor air pollutants may be experienced soon after exposure (Immediate) or years later (Long-Term).”

Jim Akey, Lighthouse Worldwide

Indoor Air Quality



ActiveCount
60. 90e. 60 / 90e

**MicroBiological
Air Sampler**



**HANDHELD
PARTICLE COUNTERS**

Allergen Measurement



DUSTREAM™ collector
+ adaptor



DUSTREAM™ collector
+ adaptor

Particulate Matter Sizes

- ⦿ (PM-10) particles 10 microns or less.
- ⦿ (PM-7) particles 7 microns or less.
- ⦿ (PM-2.5) particles 2.5 microns or less.
- ⦿ (PM-1) particles 1 micron or less.

Eastern WA School District

- A MetOne laser particle counter was used to measure classroom particulate counts for particle sizes of 10, 7, 2.5 and 1 microns using different wet carpet cleaning methods.



Eastern WA School District

Both the ambient (undisturbed) state and the aggressive (disturbed) state were measured for 3 minutes.



Measured Improvement

Classroom Improvements from using a soap-free process:

- **Greatest** - L4; **PM10**=69.9 ug/l before, 3.2 ug/l after, a **2184%** improvement.
- **Least** - P4; **PM10**=81 ug/l before, 8.4 ug/l after, a **964%** improvement.

Measured Improvement

Classroom Improvements from using a soap-free process

Average improvements by particle size were:

- PM10=1582%
- PM7=1620%
- PM2.5=1737%
- PM1=326%

A Riddle

What rhymes with

“Treasure”



and Starts with “M”?

Measure!

Measure for Treasure

- Respect
- Education
- Marketable Skills
- Upward Mobility
- Skilled Workers
- Job Retention
- Higher Pay



Professionals Measure



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Resources

- ICM Website
<http://www.integratedcleaningandmeasurement.org/about.php>
- ATP Form (Download)
<http://www.integratedcleaningandmeasurement.org>
- ISSA Clean Standard K-12
http://www.issa.com/?id=clean_standard
- ICM Tips Booklet (“Take Away” for you)
www.integratedcleaningandmeasurement.org/documents/ICM-Tips-ATP-Edition-Booklet-FINALClientVersion.pdf

What is Foldscope?

- Inexpensive (.50 to make) paper microscope

to view the microbial world
using a rugged origami microscope
that fits in a shirt pocket

For viewing microbes easily in field.

HFI Applies as Foldscope Tester

- Beta testing the Stanford Foldscope or “paper” microscope.
- HFI aims to be among 10,000 organizations to evaluate the Foldscope
 - What is It?

What is Foldscope?

- This could become part of ICM (Integrated Cleaning and Measurement)

About Foldscope:

http://www.ted.com/talks/manu_prakash_a_50_cent_microscope_that_folds

- [Watch Video](#)

Questions?

