Surface Hygiene
What Are the Risks?
(And a bit on ATP and Hand Hygiene)

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Objectives

- Discuss and define hygiene.
- The importance of surface hygiene and associated risks.
- Introduce ATP testing.
- ATP and surface hygiene monitoring.
- ATP and hand hygiene monitoring.
- ATP testing demo and questions.

Hygiene…An Overview

- A condition promoting sanitary practices
- The science concerned with the prevention of illness and maintenance of health
- What it practically means..CLEANING

  (Gross debris removal, detergent application, final rinse, application of disinfectant = hygienic surface)

What is hygiene monitoring?

- After cleaning, surfaces appear visibly clean but organic residue may still remain (organic residue – anything living or once living, eg, skin cells, bacteria, fungi, food residues)
- An assessment of the cleaning regime over time. Is it improving, deteriorating or staying the same?

Minnesota Food Code Chapter 4626

- What does the MN Food Code Say??
- Chapter 4626.0845, Section 4-602.11 (Equipment, Food Contact Surfaces, and Utensils)

- *Equipment, Food Contact Surfaces and Utensils shall be cleaned...*

  From raw to ready to eat, any time when contamination may have occurred.

How Often Do I Need To Clean?

- MN Food Code says: Chapter 4626.0845, Section 4-602.11 (Equipment, Food Contact Surfaces, and Utensils)

  At least once per 24 hours or as often as needed based on specific conditions (contamination occurred, specified by manufacturer, type and amount of food used, etc.)

Why is hygiene important?

- Hygiene monitoring is important to confirm that:

(1) The cleaning regime is effective and working

(2) The surface has been cleaned effectively

(3) The threat of cross contamination via surface or hand contact has been minimized

Visual Assessment

- The cheapest, easiest method of hygiene monitoring
- First level of monitoring
- Not very thorough
- Open to personal interpretation!

Rapid Methods

Assessment of ATP

(ADENOSINE TRI-PHOSPHATE)

- Easy, rapid method of assessing the hygiene level (cleanliness) of a surface
- Results available in under 1 minute allowing immediate corrective action
- No need for laboratory facilities
- All staff could perform the test

What is ATP??

- ATP is present in ALL living cells
- When we eat we are providing ‘fuel’ for our cells to function. This fuel, in a cellular form, is called ATP
- The presence of ATP indicates either:

(1) life (anything from microbes to man)

(2) nutrient source that can support life (food)

No ATP = lack of any life or food source

No ATP means the surface must be CLEAN

What is ATP?

- ADENOSINE TRI-PHOSPHATE

- Fire Flies use ATP to produce LIGHT
- The enzyme used is LUCIFERIN LUCIFERASE

LUCIFERIN LUCIFERASE

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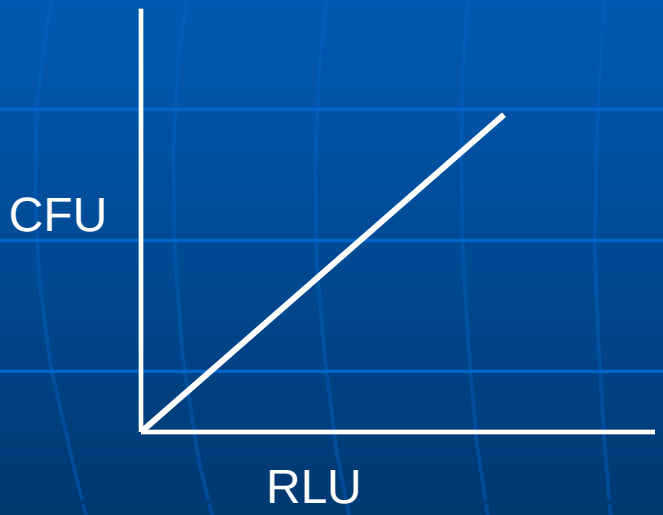
ATP

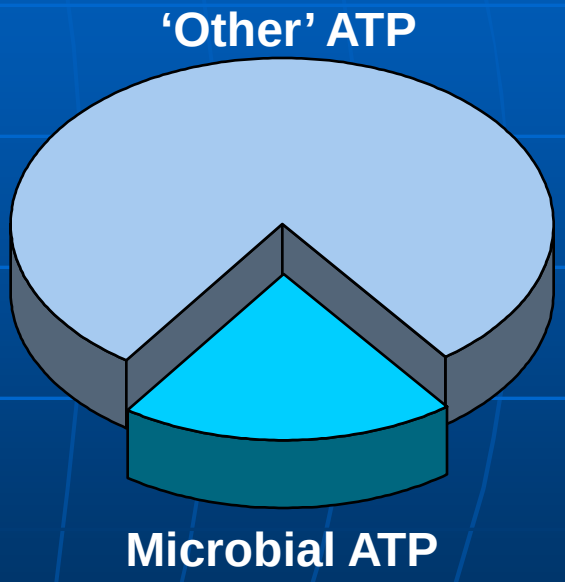
The reaction is called BIOLOUMINESCENCE and is measured in RELATIVE LIGHT UNITS (RLU)

ATP Bioluminescence Technology

CFU / ATP correlation



With pure culture of micro-organisms, without other residues, RLU correlate well with CFU

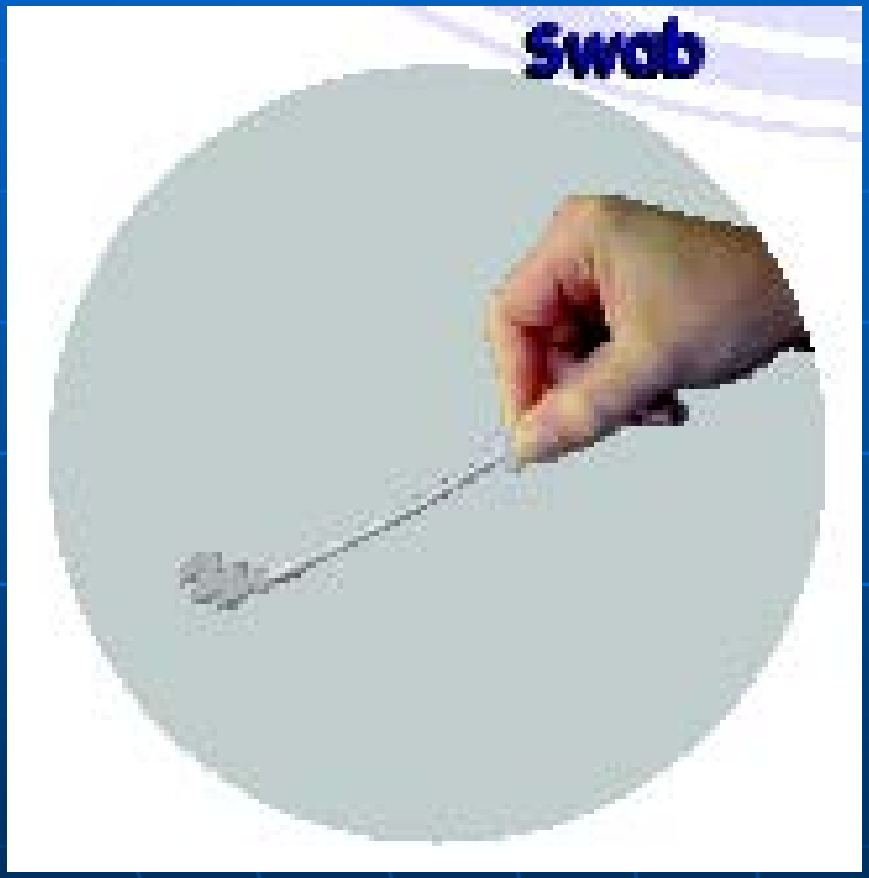


With these typical proportions of ATP on a swab RLU does not correlate with CFU but with "cleanliness"

How ATP tests work

- When sampling surfaces, ATP is picked up on the swab.
- The sample then mixes with the enzyme
- ATP present will react with the enzyme and start to produce light
- The light output Relative Light Unit (RLU) is read on an instrument called a luminometer.

Sampling for ATP



Sampling for ATP

Other applications…

- Audits – Quantifiable monitoring allows realistic and achievable values to be set throughout the facility
- Training tool – An ideal way to demonstrate ‘best practice’ cleaning
- Hand hygiene – before and after swabbing demonstrates the bio-burden reduction when hands are cleaned thoroughly

ATP and Hand Hygiene

- ATP can be used to measure the effectiveness of hand hygiene.
- Variation of ATP systems and people will provide quantifiable differences.
- Baselines would need to be established for consistency.
- Typical reduction is 80% of ATP on hands for adequate hygiene.

Conclusions

- Surface hygiene and hand hygiene are important factors in food safety compliance quality.
- Cross-contamination is easy to do.
- Visual evaluation is good but not great.
- ATP is easy, fast, accurate and inexpensive to document the level of cleaning in any facility.

Conclusions

- ATP can be used to monitor surfaces and hands for hygiene effectiveness.
- Routine ATP monitoring can reduce the risk of cross-contamination

- Goal is to provide quality products to customer by developing and implementing consistent procedures.

Questions ????

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