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DESIGN  
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Equipment & Plant Design

For Allergen/Pathogen Control in Low Moisture Foods

# Sanitation Processes

Presented by:  
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Sanitary design is integral to food safety.

# Presentation Objectives

- Understand the importance of sanitation in food manufacturing
- Determine sanitation success criteria
- Understand the steps of wet sanitation
- Understand the keys to *effective, efficient, and consistent* sanitation

# Definitions

- **Sanitation:** the methods, procedures, and chemicals used to clean food processing equipment, as well as hygienic design of facilities and equipment and food worker hygiene
- **Cleaning:** physical removal of unwanted soil from objects and surfaces
- **Sanitizing:** reducing the microorganisms on a clean surface
  - You cannot sanitize a dirty surface!

# Why do we clean?

# We Clean to Control Risks

- Allergens
- Microbiological control
- Physical hazards
- Regulatory
- Personal safety
- Product quality
- Equipment reliability
- Pest Control
- Housekeeping
- Foreign material
- Human safety
- Product claims



# What If We Don't Clean?

- Regulatory
  - FDA 483, NR, etc.
  - Withdrawal or Recall
- Consumer injury or death
- Dissatisfied consumers
- Unhappy customers
- Equipment failure
- Increased Employee safety risk



# Success Criteria

- What are we trying to achieve?
  - Maintain
  - Reduce
  - Eliminate
- **Visual:** Free of unwanted soil
- **Analytical:** Meets testing limits
- Success Criteria must be:
  1. Well-defined
  2. Clearly communicated
  3. Uncompromised

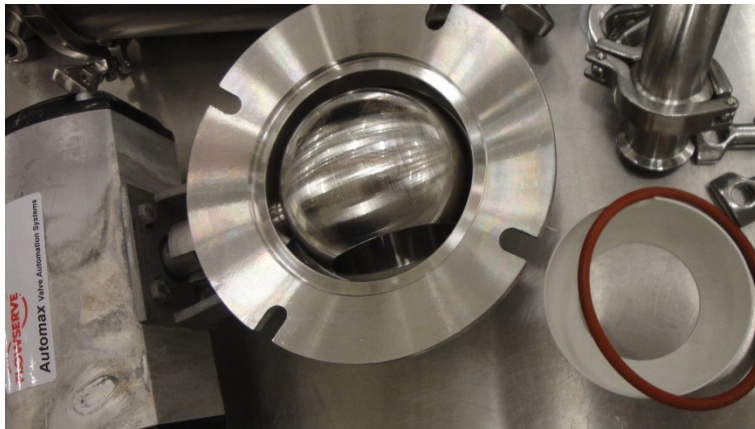
# Validating Success Criteria



## Allergens

### Visibly Clean & Analytical Testing

Direct food contact and adjacent surfaces



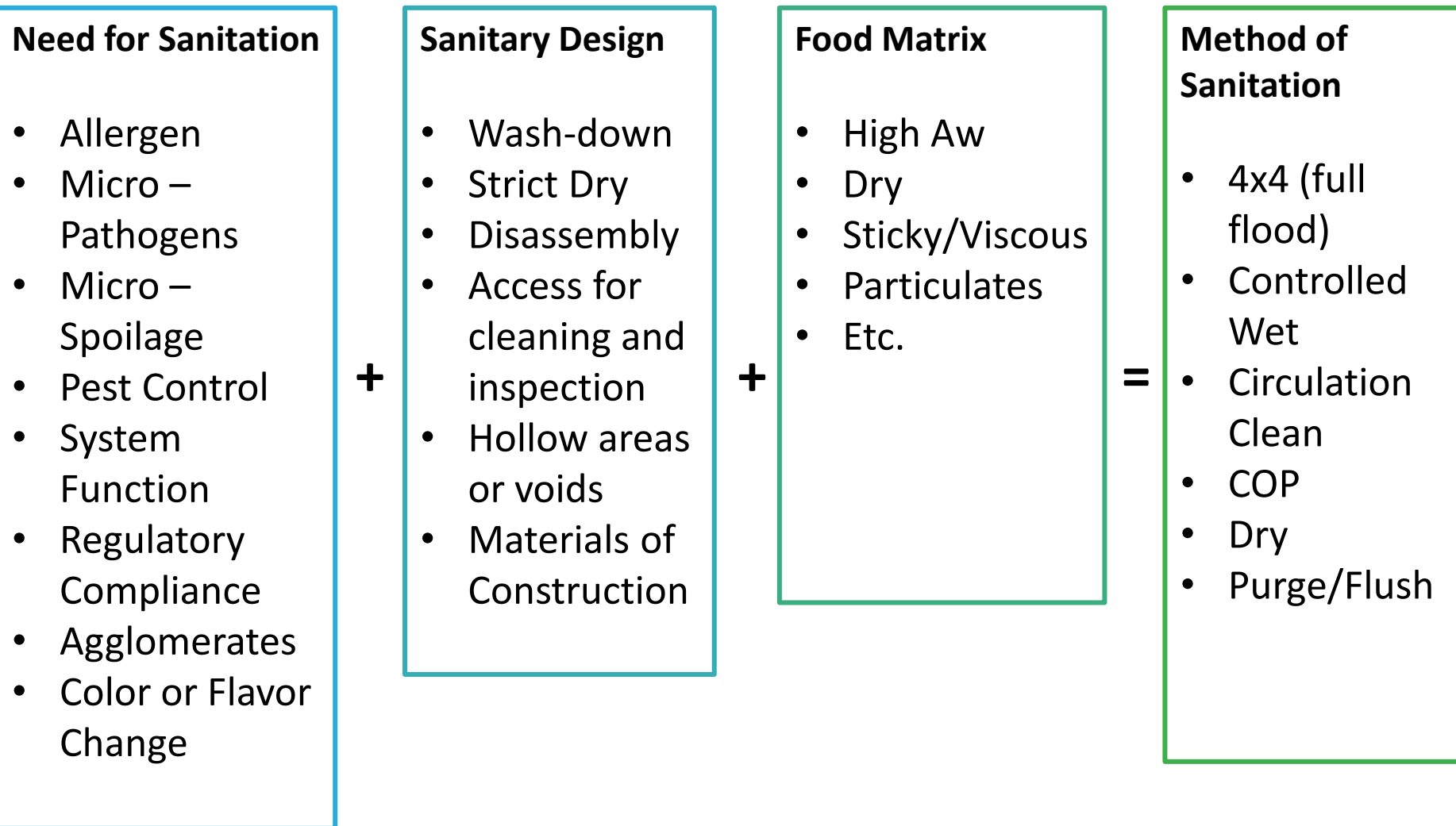
## Micro

### Beyond Visibly Clean

Indicator Organisms  
Pathogens

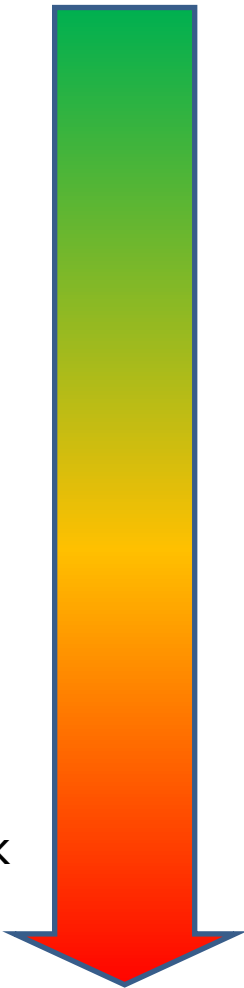


# Determine Sanitation Method



# Cleaning Method Order of Preference

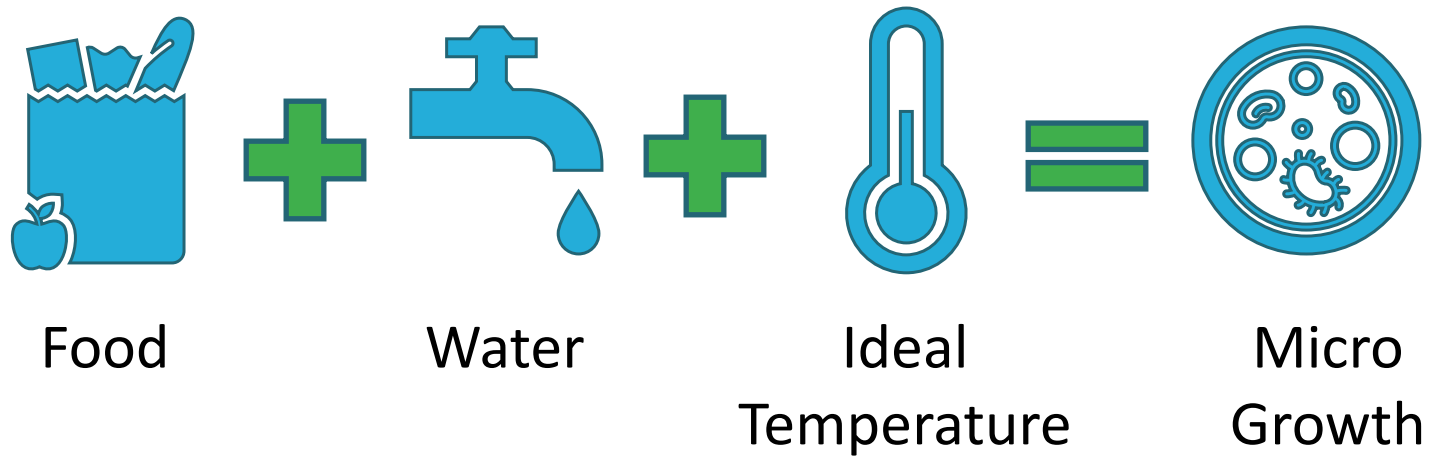
Low Micro Risk  
Low Cost

- 
1. No cleaning needed
    - a. Redundant or dedicated equipment
  2. Purge (next product or inert material)
  3. Dry clean
  4. Dry clean w/chemicals
  5. CIP (Clean in Place)
  6. Controlled wet clean – out of place
    - a. Automated washer
  7. ACS (Assisted Cleaning System)
  8. Controlled wet clean – in place
  9. Flood cleaning

High Micro Risk  
High Cost

# War on Water

- Treat water like glass



# Sanitation Program Pre-Requisites

- Master Sanitation Schedule (MSS) and Preventative Maintenance (PM) Program
- Hazard Control Plan (HACCP)
- Sanitation Standard Operating Procedures (SSOPs)
- Training
- Personal Protective Equipment (PPE)
- Cleaning tools and equipment
- Post-Sanitation Inspection

# Sanitation Procedures (SSOPs)

- Accurate and used by employees
- 8 Critical Components
  - Safety
  - Chemicals
  - Equipment and Tools
  - Staffing
  - Inspection
  - Documentation
  - Responsibility breakdown
  - Procedure and frequency

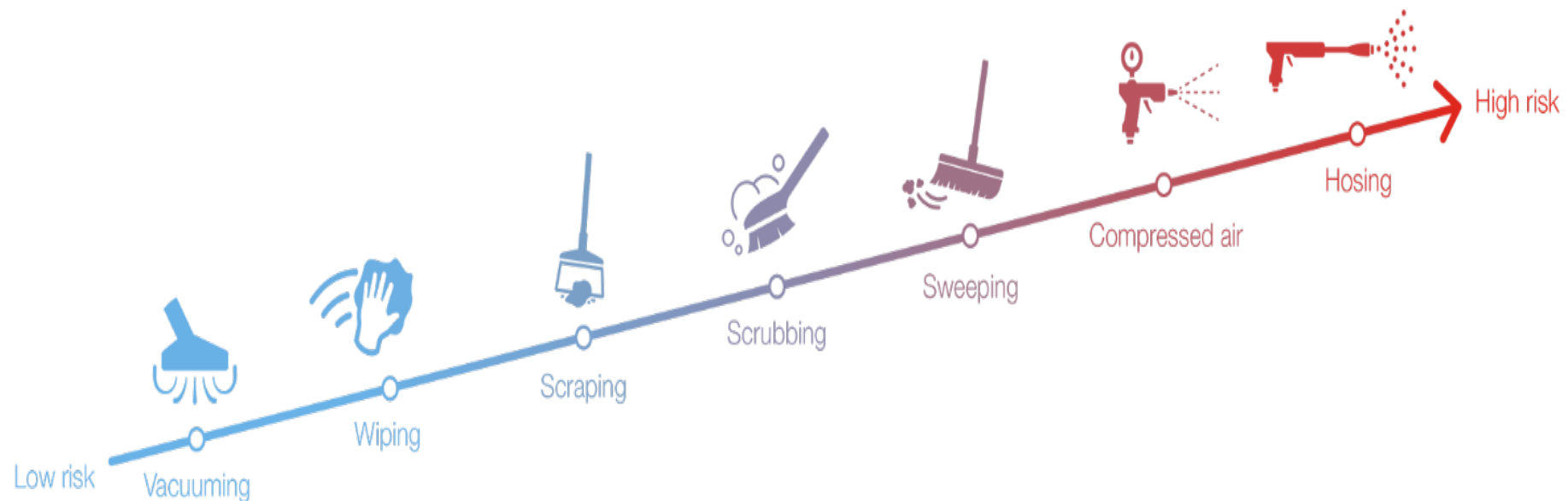


# Seven Steps of Sanitation

1. Dry Clean
2. Pre-Rinse
3. Wash and Scrub
4. Rinse
5. Assemble
6. Pre-op Inspection
7. Sanitize

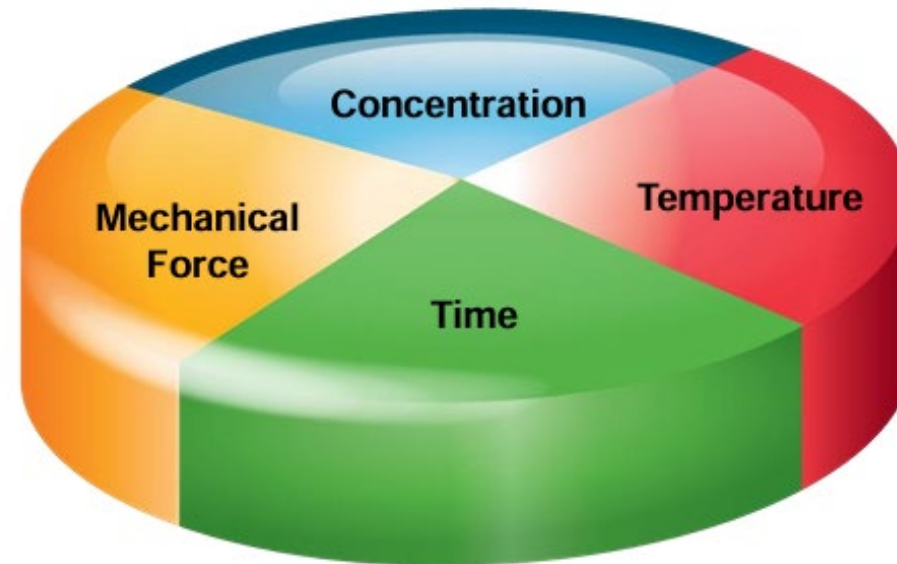
# Keys to Successful Sanitation

- Disassembly and a good dry pick up:
  - Prevents drain back ups
  - Allows for targeting stuck-on soils
  - Prevents contamination of ingredients and packaging
  - Access to hard-to-reach surfaces



# Keys to Successful Sanitation

- 4x4 Sanitation
  - 4 Steps
    - Pre-Rinse
    - Wash
    - Rinse
    - Sanitize
  - 4 Parameters



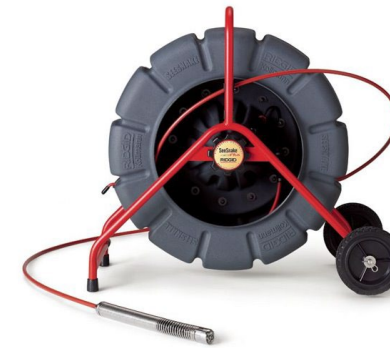
# Keys to Successful Sanitation

- Avoid Recontamination
  - Good Manufacturing Practices (GMPs)
  - Avoid compressed air/water usage
  - Remove standing water and overhead condensation
  - Clean and dry



# Keys to Successful Sanitation

- Monitoring and Inspection Program
  - Calibration
  - Hot Spot Checklists
  - Inspection tools
  - Run equipment
- Inspect, Detect, Correct



# Keys to *Efficient* Sanitation

- Appropriate, skilled staffing and leadership
- Automated sanitation
- Utilities – amount and location
- Sanitation Culture – “Sanitation is the first step of production”
- Adequate sanitation tools



# Key Takeaways

- Sanitation processes should be *effective, efficient, and consistent*
- You can't sanitize a dirty surface!
- Success criteria must be clearly defined, communicated, and uncompromised
- Treat water like glass – eliminate wherever possible
- 4 Parameters: Time, Temperature, Concentration, and Mechanical Action
- Design with sanitation processes in mind

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