Dry Cleaning:
Is Water Friend or Foe in Food Safety and Sanitation?

The webinar will begin shortly.
Thank you for your attendance!

Vikan

General Mills

Dry Cleaning:
Is Water Friend or Foe in Food Safety and Sanitation?

Deb Smith - Vikan
Global Hygiene Specialist

Karl Thorson – General Mills
Global Food Safety and Sanitation Manager

Webinar Housekeeping

- The presentation will last about 45 minutes.
- After the presentation, there will be a 10-15 minute Q&A session. You may send your questions in the chat box provided.
- This webinar is being recorded and we will send you the recording a few days after the live event.
- We will reach out after the webinar to answer any questions we do not address during the session.

Vikan®

About Vikan and Remco

Leading provider of advanced hygiene and cleaning products and solutions for key sectors, with a global presence in over 90 countries.

Supplies color-coded sanitation and material handling tools for the food industry in North America.

Remco is Vikan's dedicated presence in North America (U.S. and Canada).

For more information, visit us at:

- Remcoproducts.com/about
- Vikan.com/int/about-vikan/who-we-are

About our presenters

Deb Smith

Global Hygiene Specialist

Deb has over 35 years of food safety and research training and experience. Prior to Vikan, she worked as a microbiologist at a large poultry production site; with DEFRA as a Scientist in the Food Safety Division; & as a Food Hygiene Research Manager for CampdenBRI. Apart from being a qualified microbiologist, FSSC22000 Lead Auditor, an active committee member of EHEDG, and a Fellow of the IFST, she also Chairs the CBRI Microbiology group, and helped develop Benchmark requirements for the GFSI. Deb regularly presents her research at national and international food safety events and has authored numerous related publications. At Vikan, Deb provides food safety and hygiene advice, training, and support to colleagues and customers.

About our presenters

Karl Thorson

Global Food Safety and Sanitation Manager

Karl leads sanitation for General Mills globally. Karl received his Bachelors of Science degree in Food Science from the University of Minnesota. His experience includes 26 years with Pillsbury/General Mills in both plant and corporate roles in Quality, Operations, and Sanitation. His areas of focus include allergen and pathogen control, sanitary design, and sanitation training/education. He has worked with GMA Sanitation Working Group, BEMA, Alliance for Advanced Sanitation, and PMMI OpX Leadership Network. He has been recognized as the Baking & Snack's 2016 Operations Executive of the Year and 2016 Sanitarian of the Year by IAFP (International Association of Food Protection).

Dry Cleaning:
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- Cleaning with water is….
  - > easier
  - > faster
  - > more effective
- Cleaning without it is….
  - > Hard (more manual)
  - > tedious
  - > awkward
  - > boring
  - > takes longer
  - > loss of production time
  - > time pressure

Rationale

Why should we keep things dry?

- Food Safety/Quality
- Efficiency
- Cost saving
- Brand/business protection
- Water conservation

The Need for Global Water Conservation

According to **UNICEF***: https://www.unicef.org/wash/water-scarcity

- Two-thirds of the global population experiences severe water scarcity for at least one month / year
- Half of the world's population could be living in areas facing water scarcity as early as 2025
- 700 million people could be permanently affected by intense water scarcity by 2030

ELEMENT	Time	Action	Chemical	Temperature	Water	Individual	Soil	Surface
Wet Cleaning	Required	Required	Required	Required	Required	Required	Required	Required
Dry Cleaning	Less	Required	Don't need	Don't need	Don't need	Required	Required	Required

Cleaning Time | Chemical Use | Energy Use | Water Use

COST SAVINGS: up to 40%

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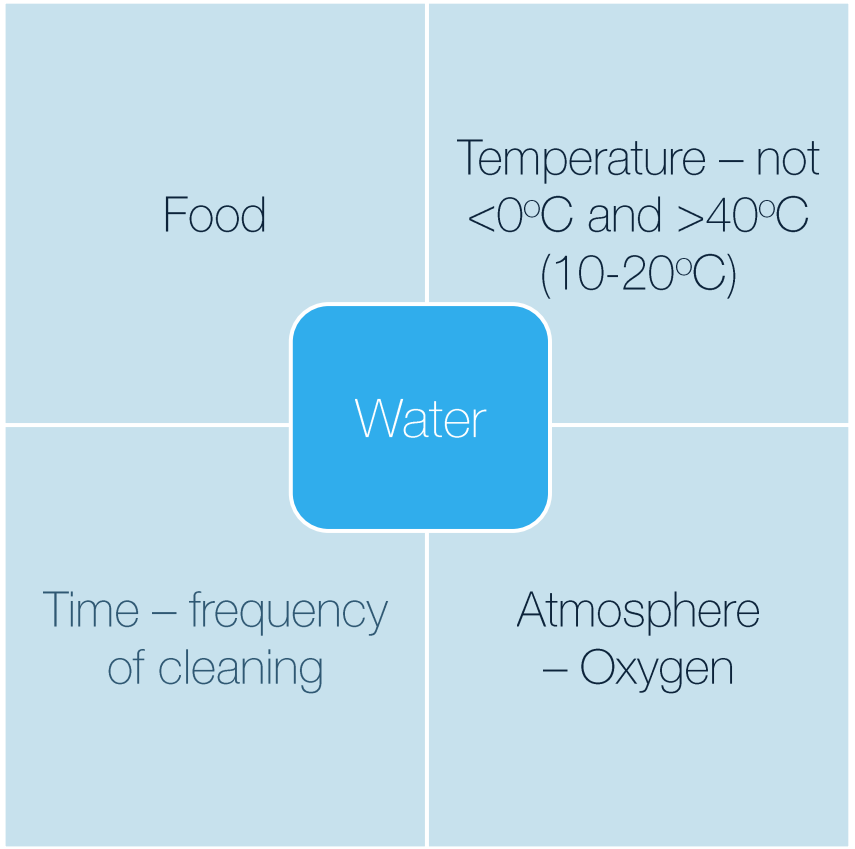
Controlled use of water is key to ensuring food safety

Water allows microorganisms to multiply

For most microbes to multiply they need,

- Food
- The right temperature
- The right respiratory gases
- Time
- Water



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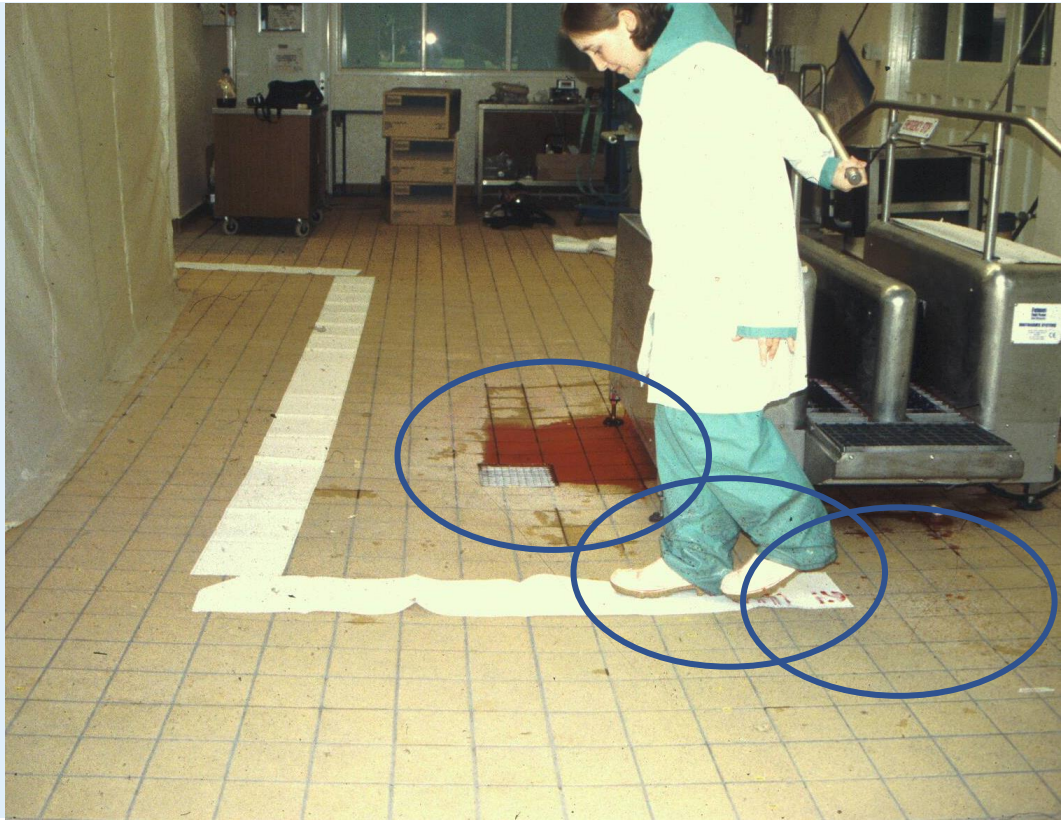
Water spreads contamination

Contamination spread by footwear

- Wet boot on dry floor 24m
- Wet boot on wet floor >35m
- Water from boot washer 1.2m



Courtesy of CampdenBRI

Water spreads contamination

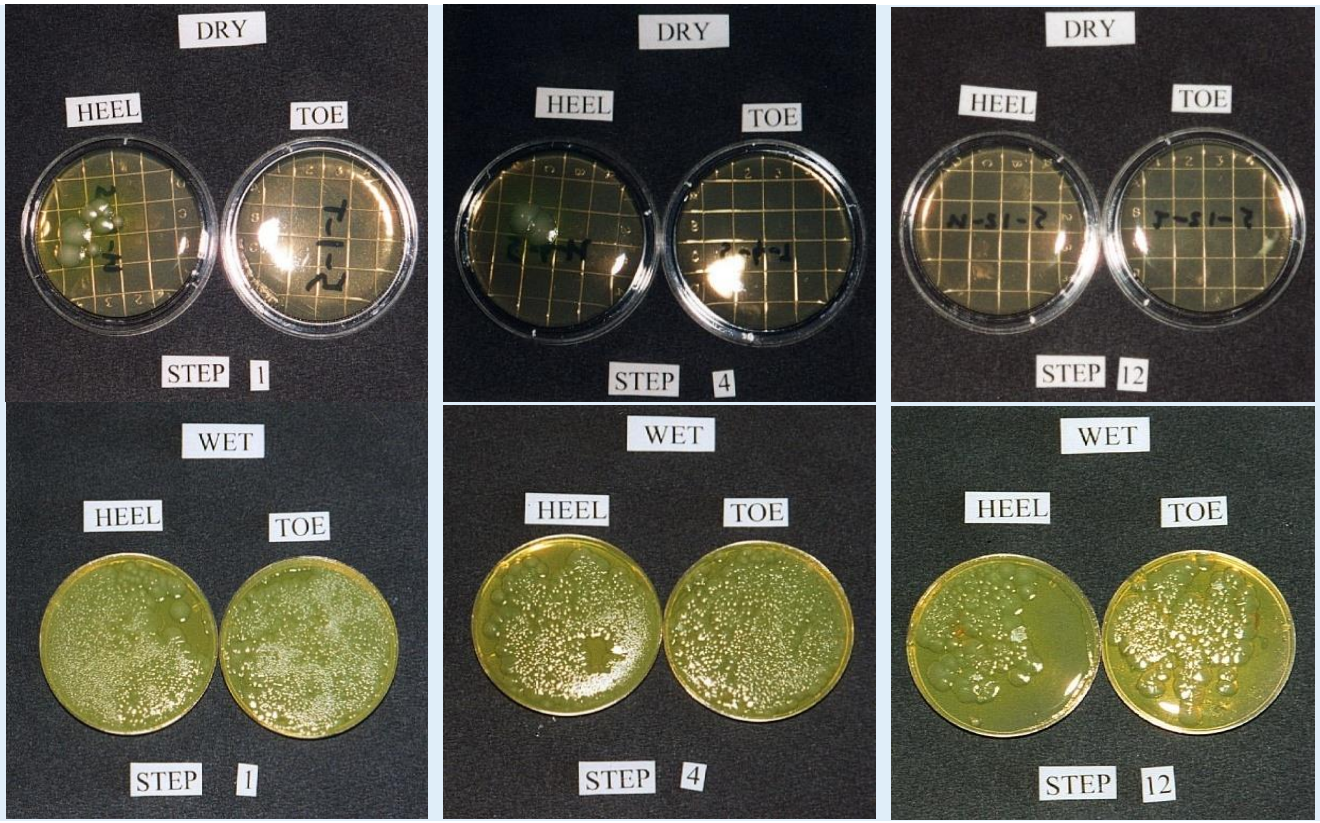
Contamination spread by footwear

Bacterial boot on dry floor

- 4 steps

Bacterial boot on wet floor

- >15 steps



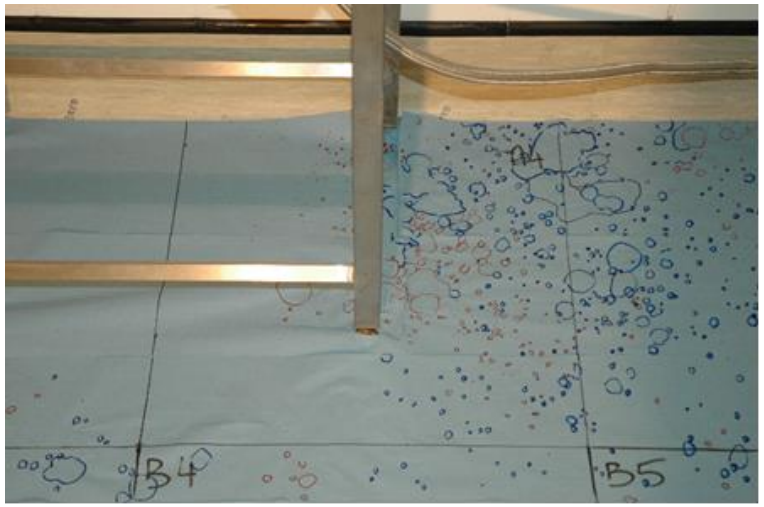
Courtesy of CampdenBRI

Vikan®

Water spreads contamination

Contamination spread from a hand wash sink

"A1 7	A2 149	A3 175	A4 73	A5 45	A6
B1 61	B2 146	B3	B4	B5	B6
C1 152	C2	C3	C4 11	C5	C6
D1	D2	D3	D4	D5	D6
E1	E2	E3	E4	E5	E6

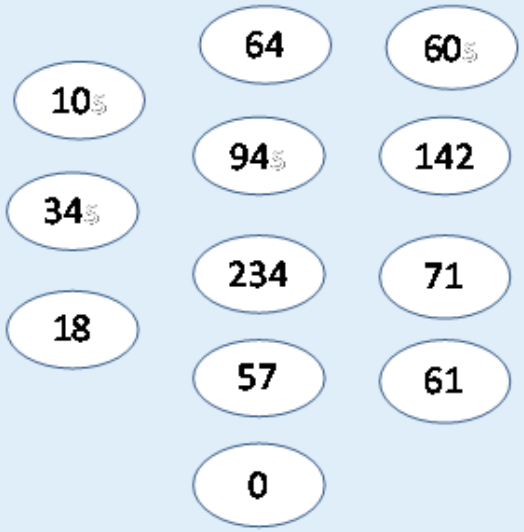


Courtesy of Campden BRI

Vikan®

Water spreads contamination

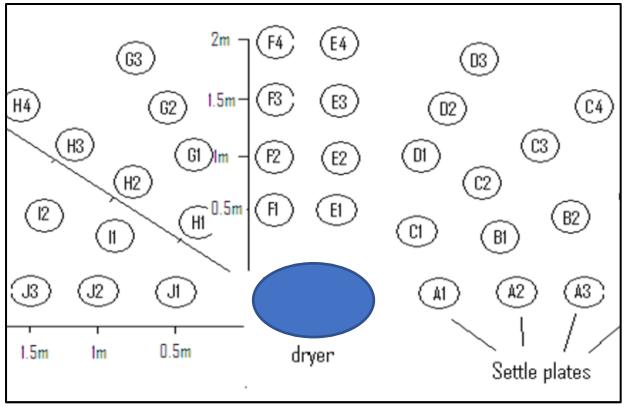
Contamination spread from a hand wash sink



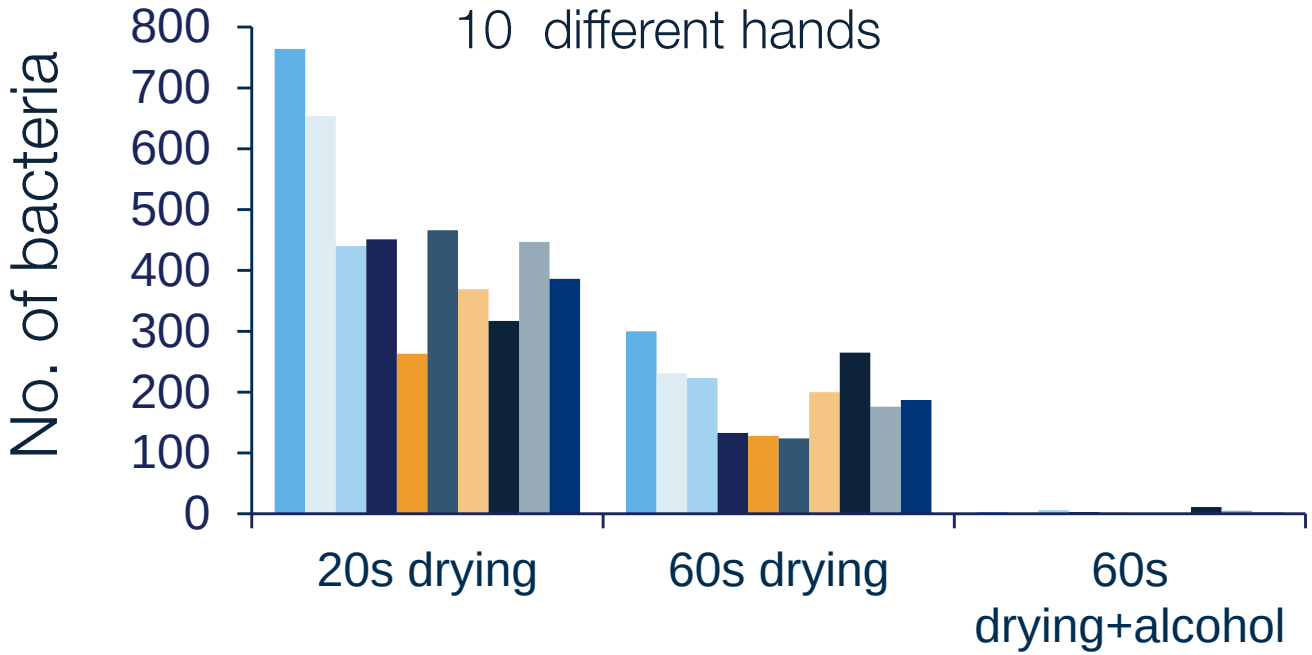
Courtesy of Campden BRI

Water allows microorganisms to spread

Contamination spread by hands – hand drying



Method	50cm left	2m behind
High velocity air hand dryer	14 colonies	4 colonies
Hot air hand dryer	2	4
Paper towels	0	0



Courtesy of Campden BRI

Solutions

The General Mills approach

Goal:

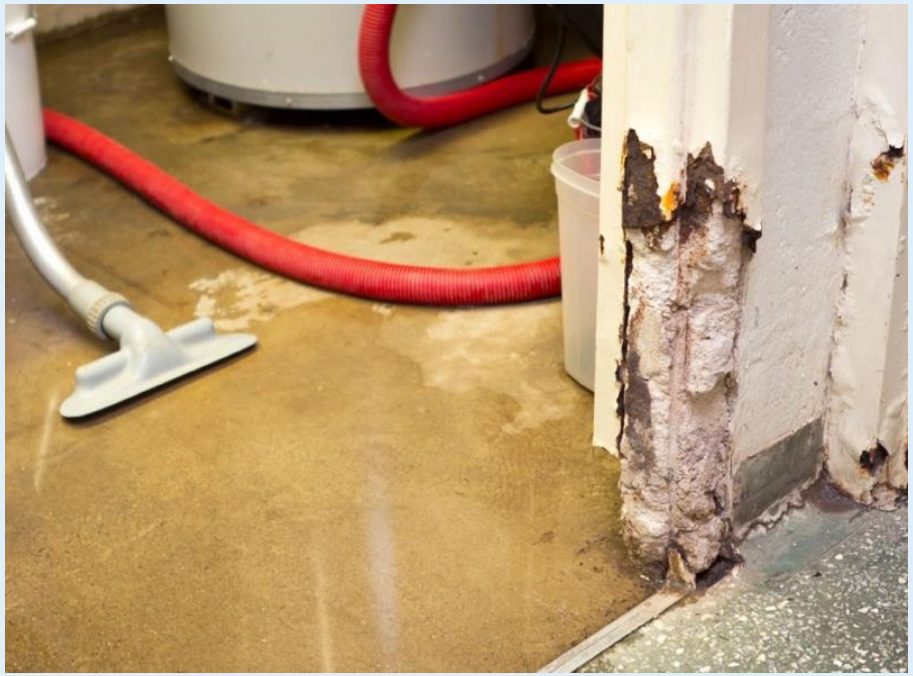
Food Safety/Quality…Efficiently

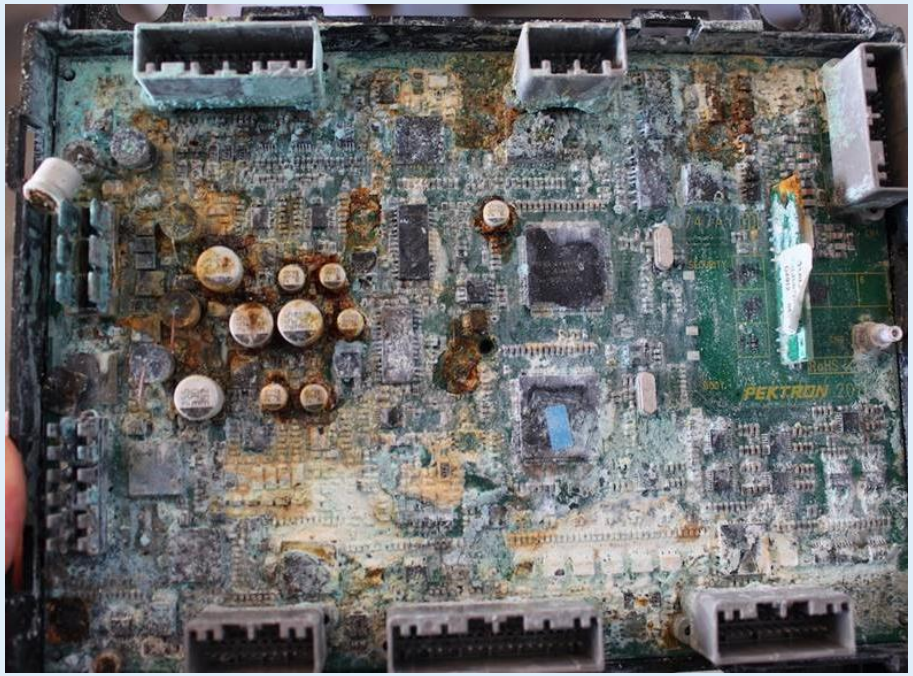
Get rid of the water!

Action plan: Sanitation KISS…

Keep It Safe and Simple

- Find it
- Fix it
- Prevent it





Common deficiencies – Microbiological control

- Poor water management
  - Uncontrolled use for cleaning
    - Use during quality changeovers
    - Use on low Aw systems
  - Control of environment
    - Poor ventilation, condensation, leaks
  - No wet/dry zoning

Find it

Water audit

- Uncontrolled water
  - Condensation
  - Wet cleaning > low Aw
  - Leaks
  - Drips
  - Pooling
  - Ice/frost
  - Steam

Fix it

Corrective action plan

- Insulate surfaces
- Heat surfaces
- Dry air
- Dry surfaces
- Seal spaces
- Ventilate
- Pressurize spaces
- Isolate
- Maintain as sanitary
- Modify cleaning method

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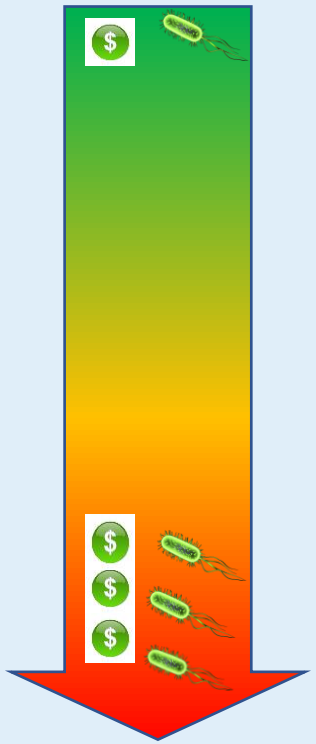
Cleaning method – Order of preference



1. No cleaning needed
    a. Redundant or dedicated equipment (isolated)
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

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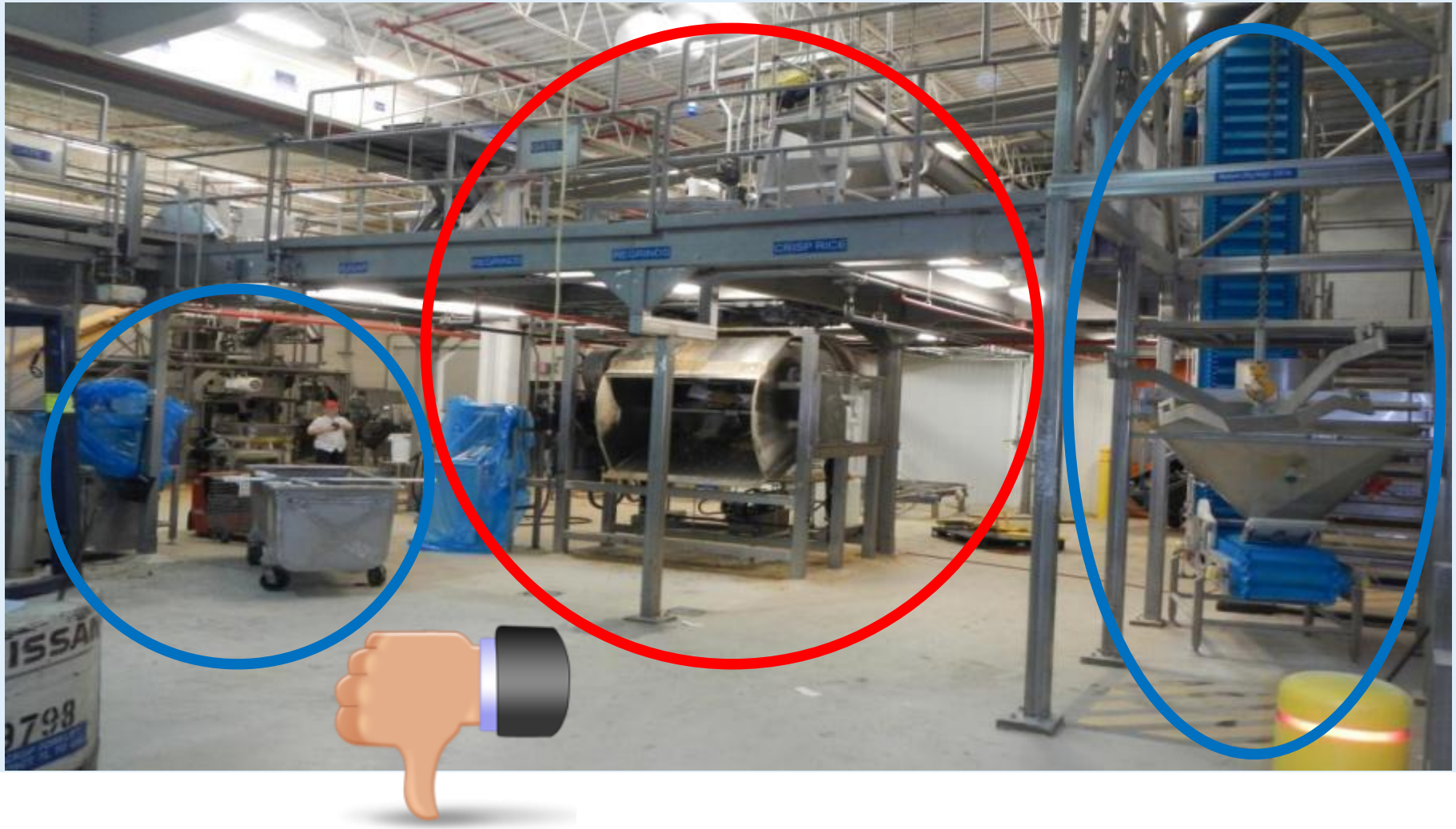
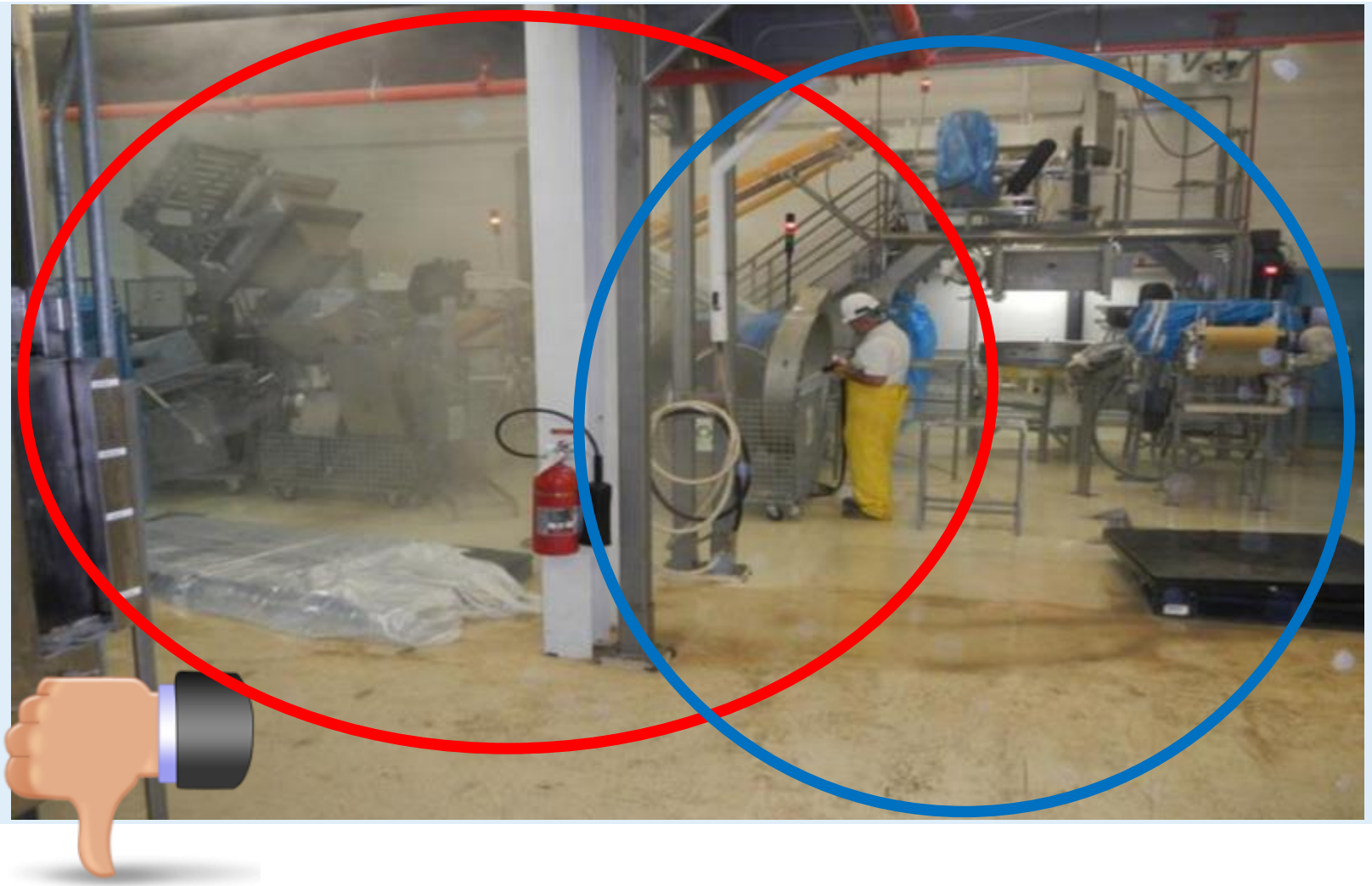
Wet/Dry zoning conflict



Wet/Dry zoning conflict

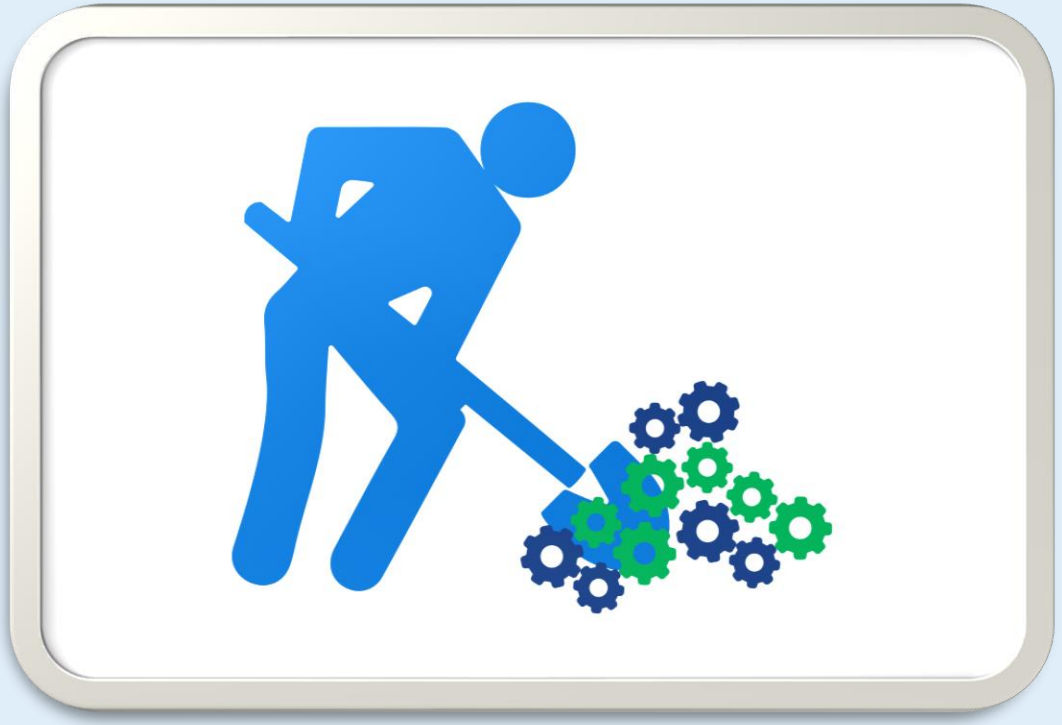


Before

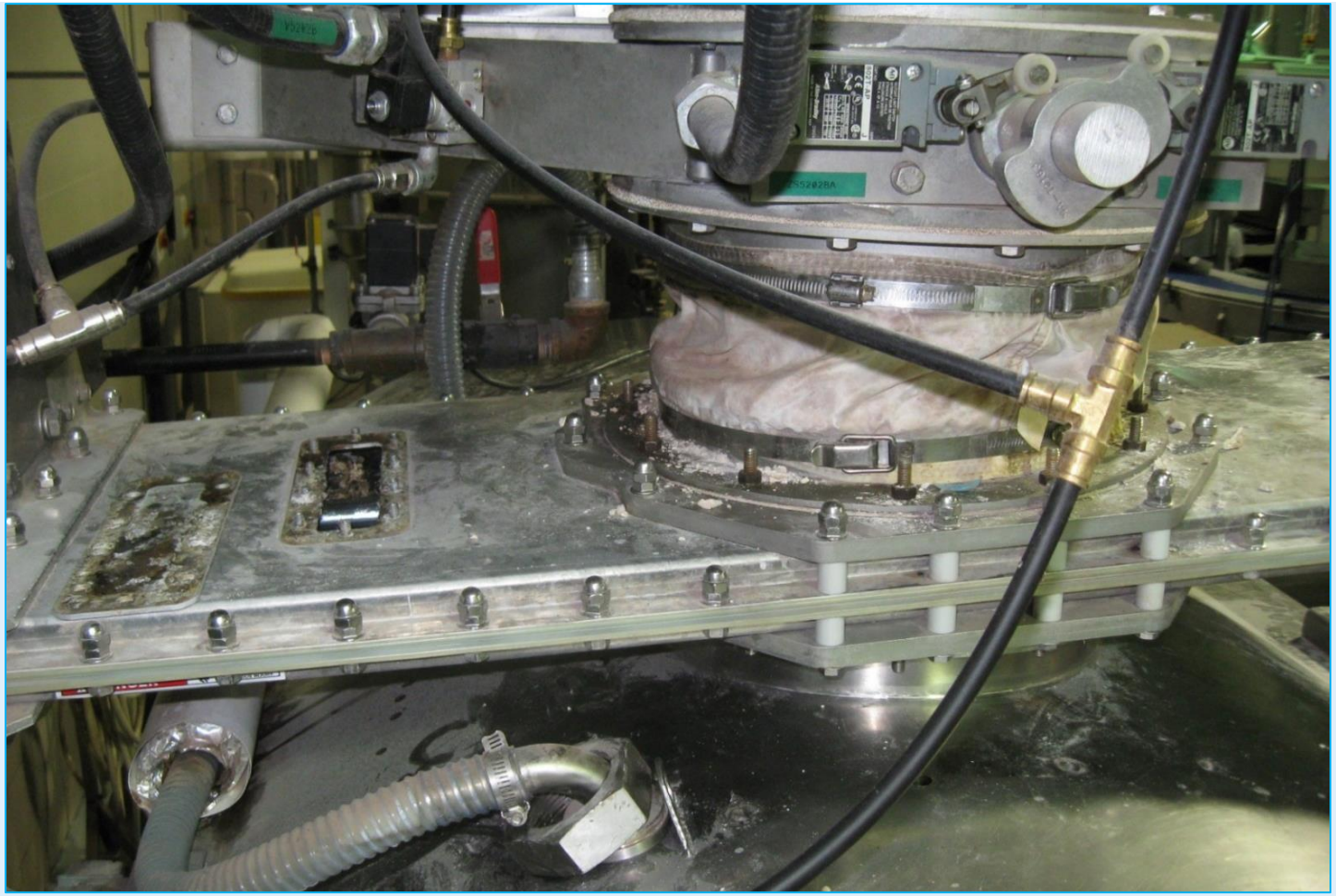
During

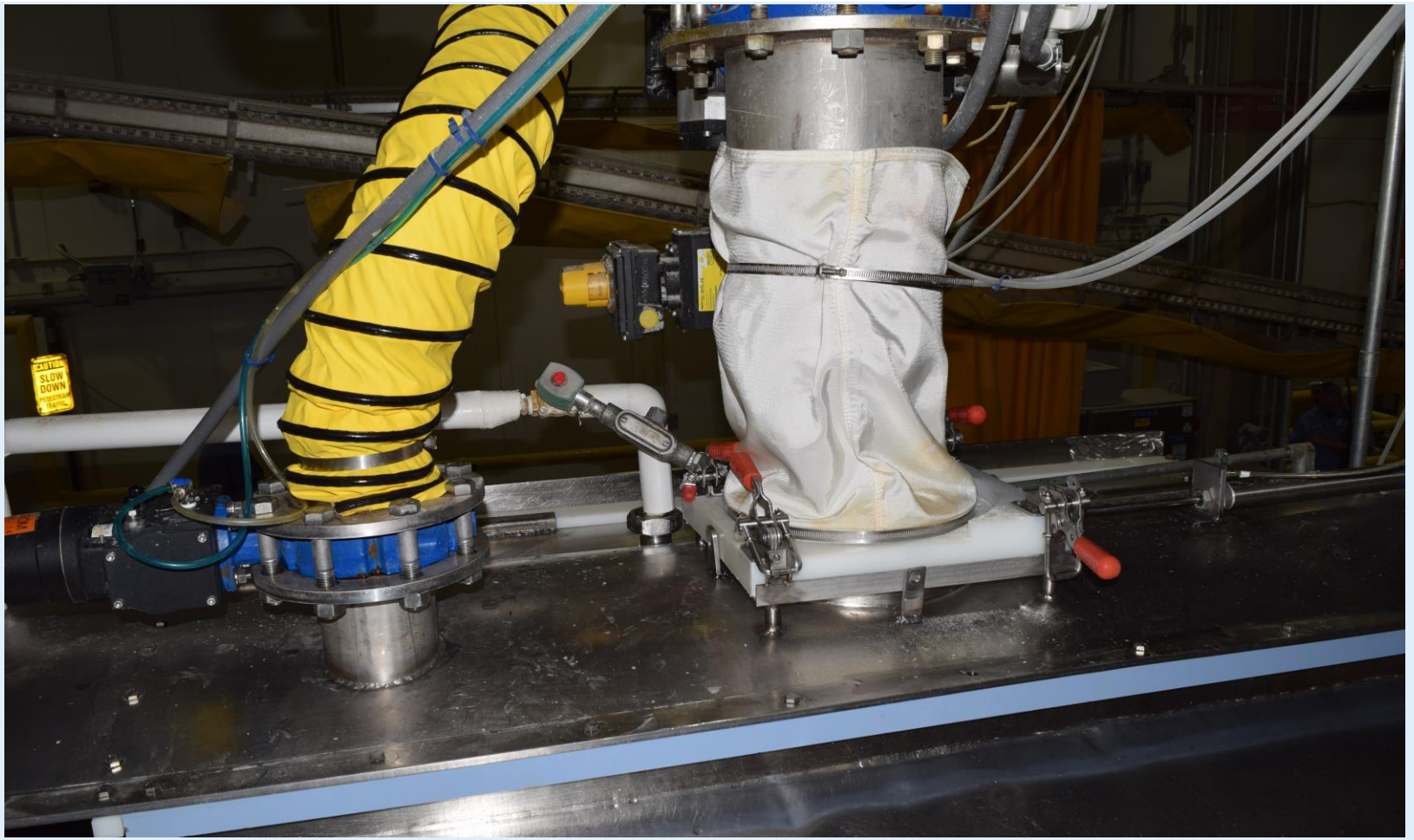
After

How to design for cleaning?



Poor sanitary design




SLOW
DOWN

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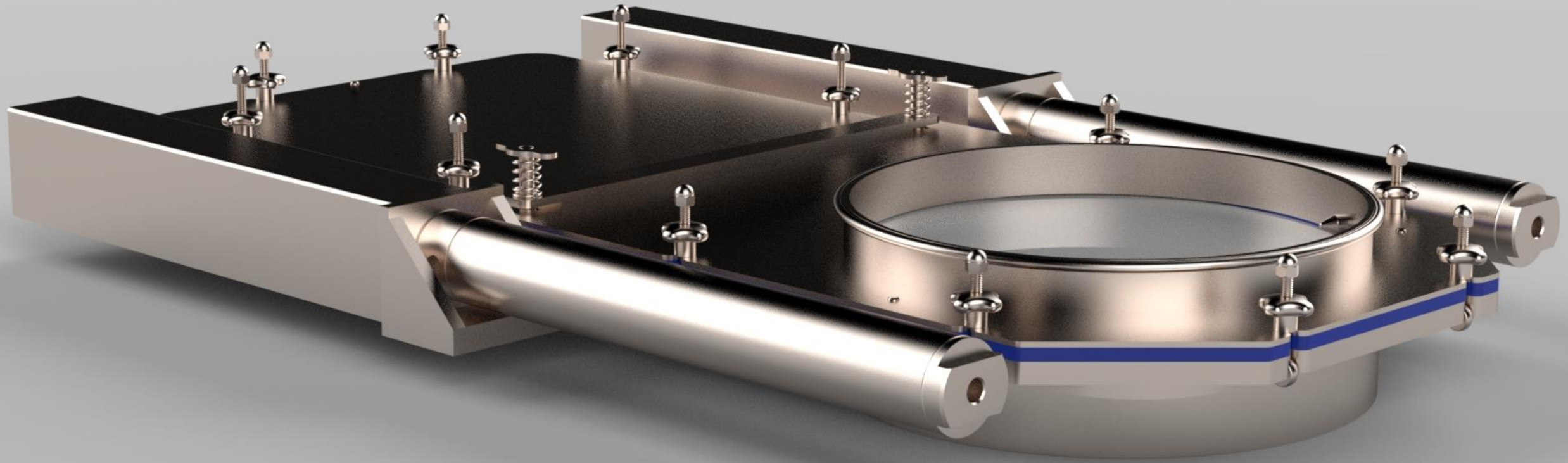
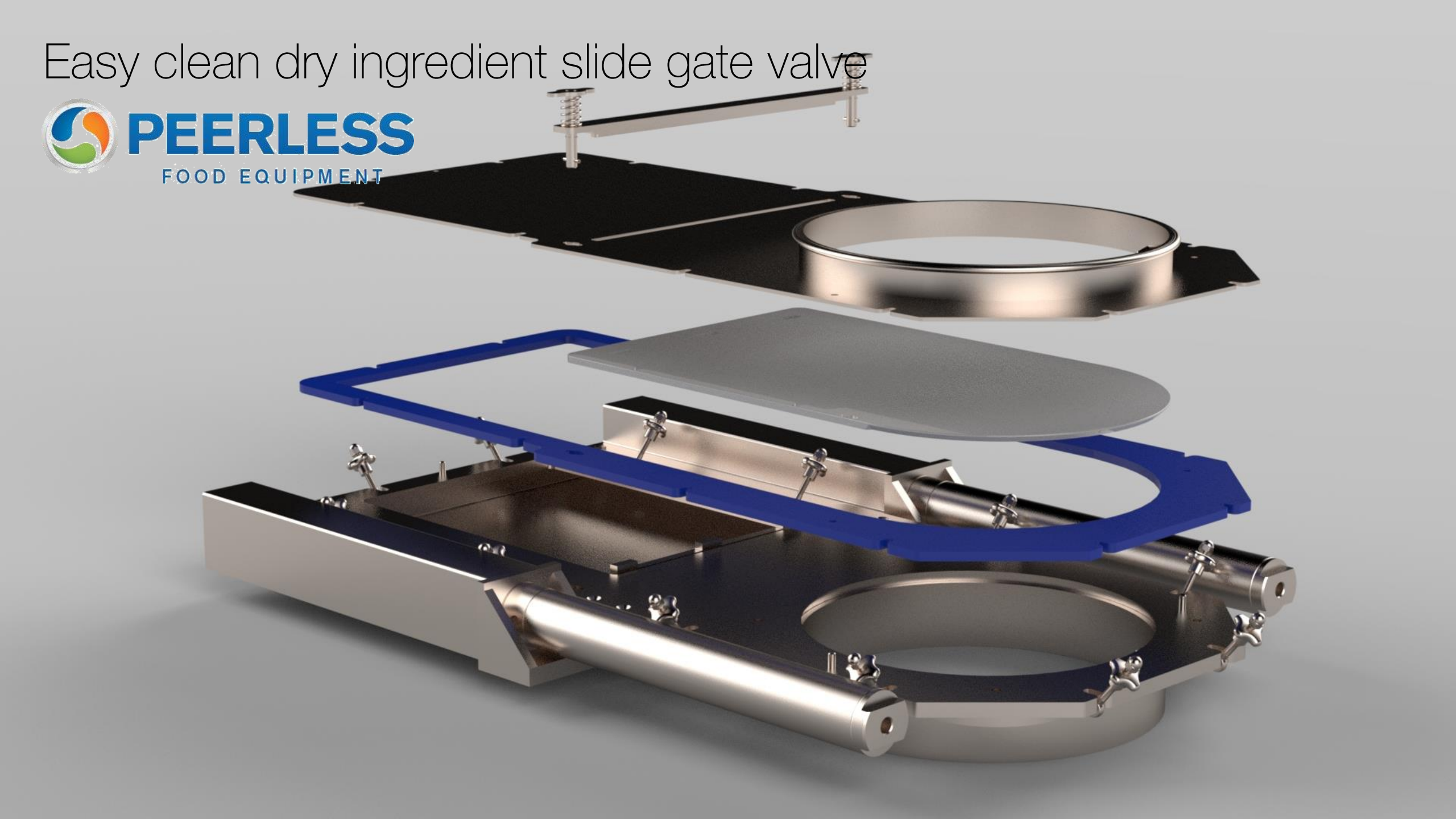
Easy clean dry ingredient slide gate valve

PEERLESS
FOOD EQUIPMENT



Easy clean dry ingredient slide gate valve

PEERLESS
FOOD EQUIPMENT



Prevent it

- Early management
  - Discuss uncontrolled water risk early and often
- Engineering focus > design it out
  - Facility and system
    - HVAC
    - Plumbing
  - Sanitary design > Sanitation by design
    - Match design with method of cleaning

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Use Your Resources

- Equipment vendors
  - Utilize the Equipment Sanitary Design checklist
- Contractors and construction management
  - Education and accountability for food safety
- Chemical, tool, pest control supplier/vendors
  - Utilize expertise

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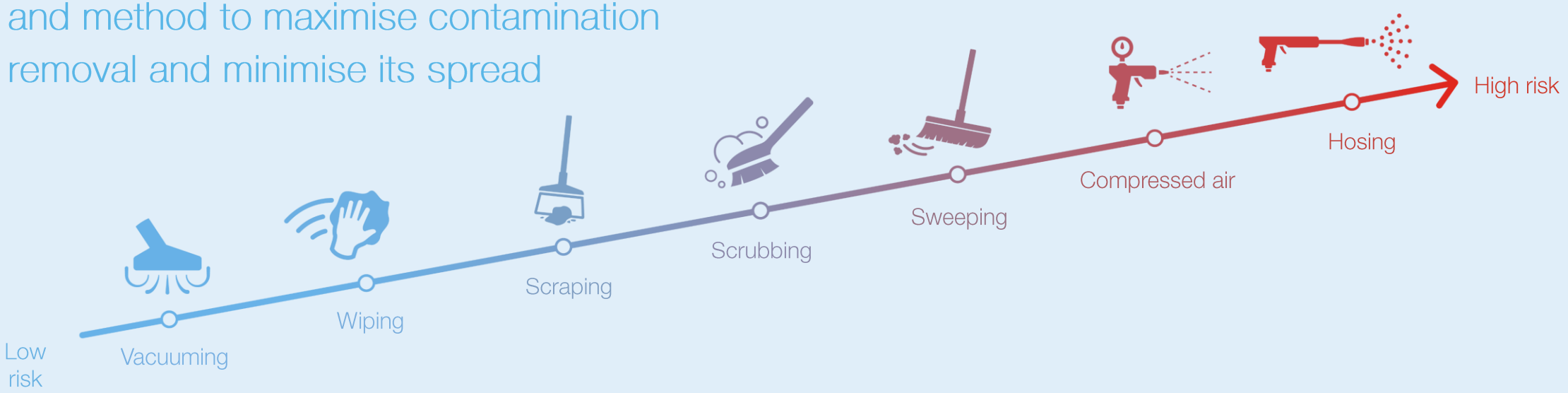
I used to be addicted to soap…
but I’m clean now.

Solutions

Dry sanitation method selection & use

All cleaning activities spread contamination

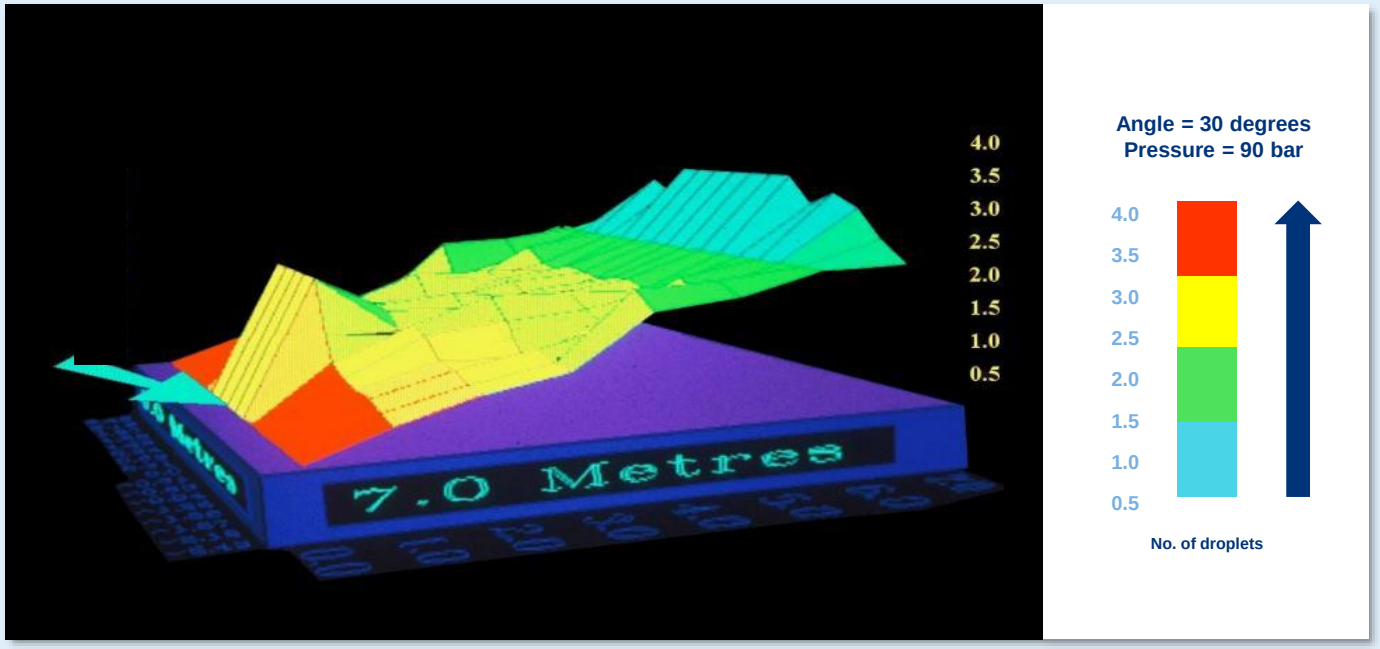
Choose the right cleaning equipment and method to maximise contamination removal and minimise its spread



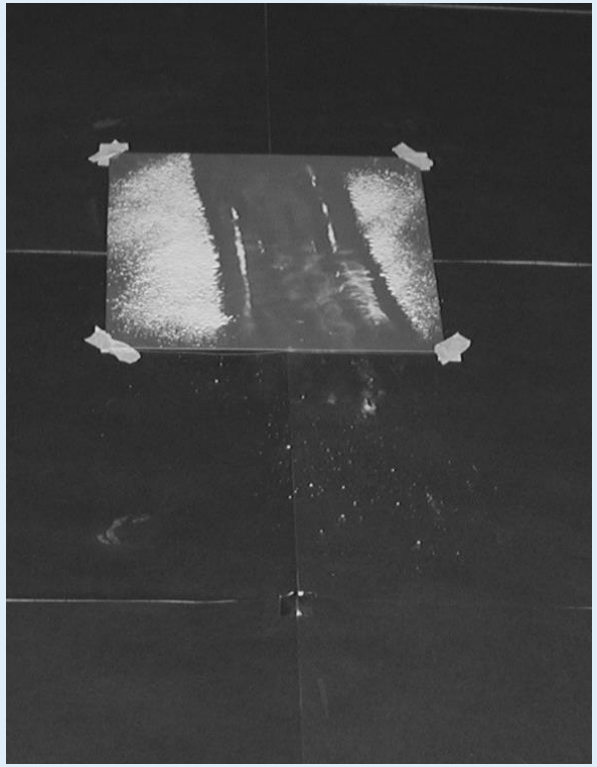
Water allows microorganisms to spread

High pressure hosing

Courtesy of CampdenBRI



Vacuuming



Courtesy of CampdenBRI

Vacuum cleaners need to be:

- ATEX certified
- ATEX 95 equipment directive 94/9/EC, Equipment and protective systems intended for use in potentially explosive atmospheres

- Fitted with appropriate bag and exhaust filters to prevent contamination from being expelled again, e.g., HEPA

Vacuuming

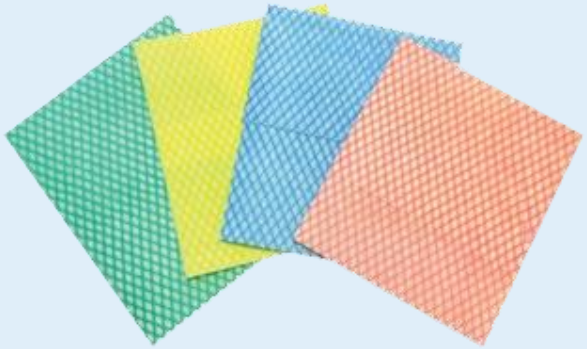
Colour-coding of vacuum attachments

- Use of coloured tape to colour-code tools used for,
  - Food contact vs. non-food contact
  - Allergens
  - Glass

- Foreign body risk
- Trap contamination
- Audit non-compliance

- Coloured silicone bands
  - Can be used to identify nozzles or brush attachments for different task

Wiping



Disposable fabric
and paper towels

Microfibre Cloths

Vikan®

Wiping

Microfibre

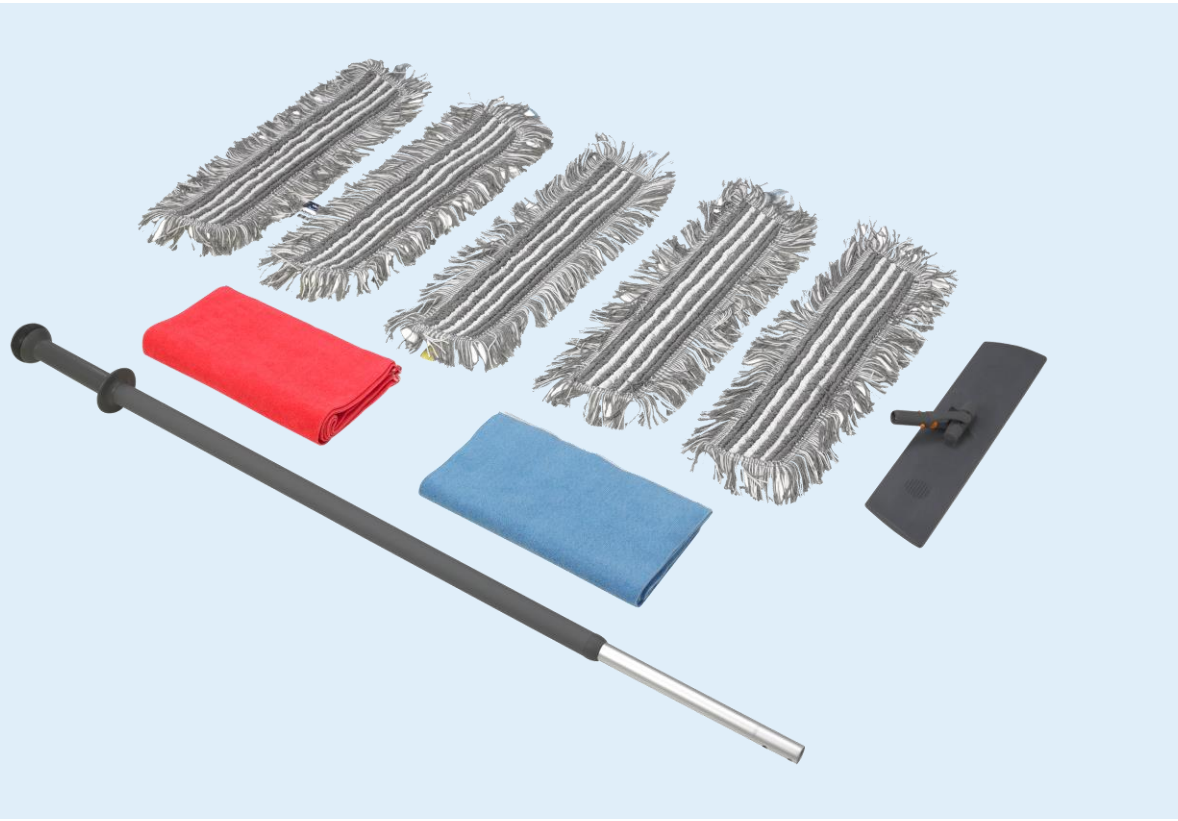
- Cleaning without chemicals
- Highly effective at removing and retaining dirt and debris
- Can be used dry or damp
  - Used dry – they will pick up dust and loose dirt
  - Used damp – they will remove stubborn dirt, including oil and grease

- Surfaces will be left clean and dry
- No need to bring large volumes of water into the production environment
- Less use of water
- Less use of chemicals

Microfibre mop used to clean greasy walls in a snacks production site

Mopping

Microfibre to clean floors



Scraping

- For the removal of stubborn debris – dried or baked on, heavy grease deposits, set or molten confectionary
- Choose: Stainless steel, polypropylene, or nylon blades, depending on the surface type to be cleaned
- Choose the blade shape, size, and thickness depending on what you are cleaning – floors, equipment
- Some scrapers can be fitted to a variety of handles to achieve the required reach

Scrubbing and sweeping

Sometimes used instead of a brush or broom

- doesn’t clog
- easier to clean

Soft bristled brush

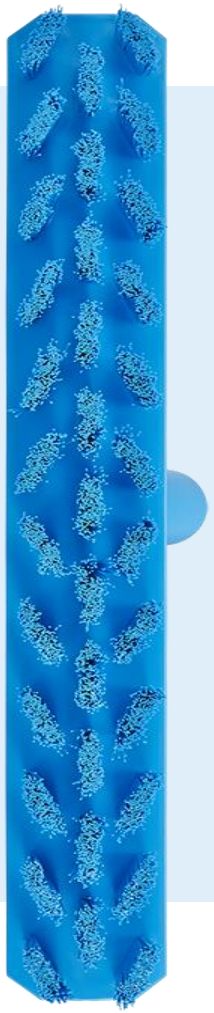
- For removal of loose dry powders

Stiff bristled brush

- For removal of dried on soils

Squeegee

Scrubbing and sweeping



Sweeping

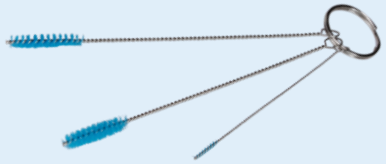
Courtesy of CampdenBRI

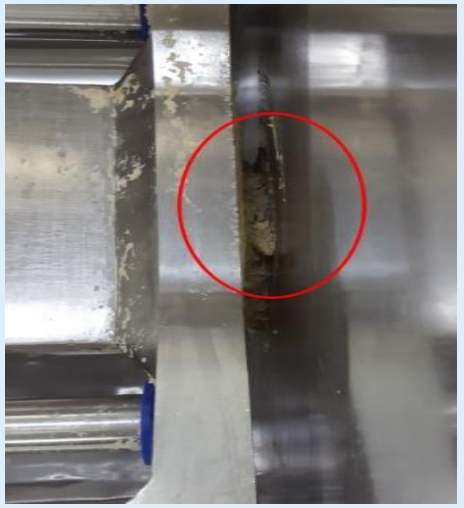
Dustpans/shovels

Dustpan sets

Shovels

Detail cleaning





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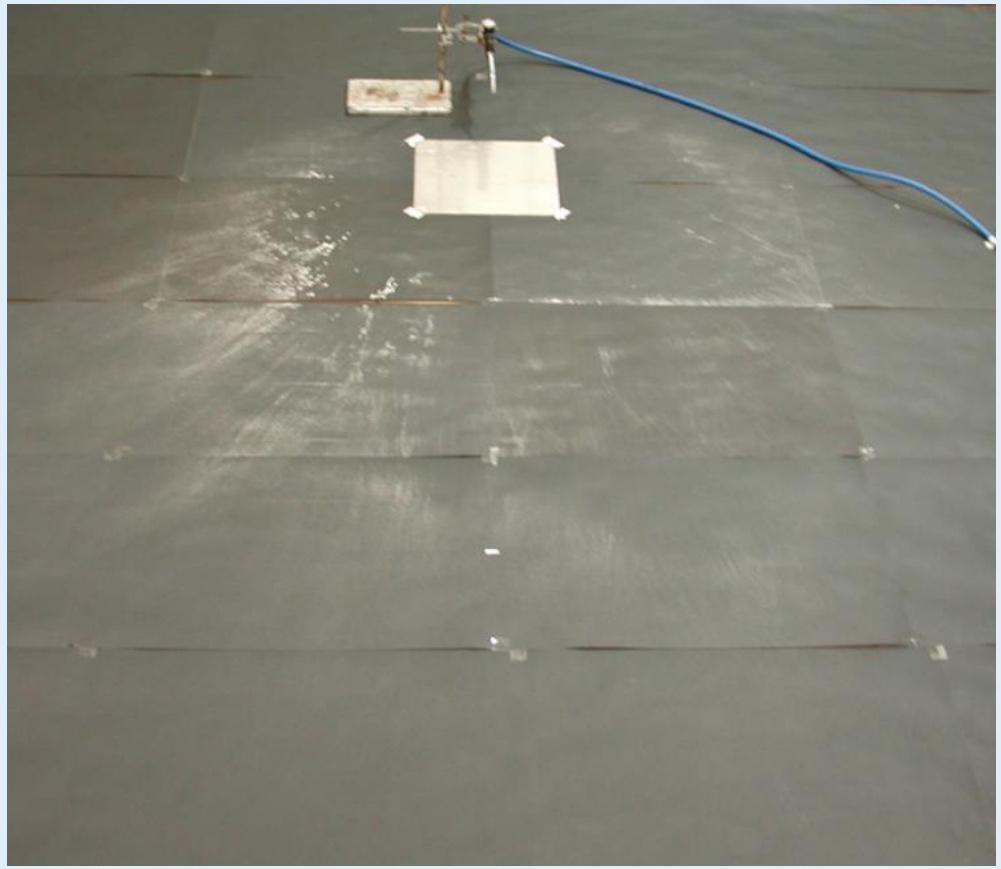
Compressed air



Courtesy of CampdenBRI

Other dry cleaning techniques

- Pigging – gross debris is pushed through pipework by a specialist projectile ‘Pig’
- Granular purging, scrubs, blasting – the use of the food product itself or inert granules to provide an abrasive cleaning force
- Dry ice – uses carbon dioxide to form dry ice crystals which are fired at high velocity on to the surface to be cleaned
- Dry steam – uses super-heated saturated steam with almost no moisture (<0.5%)

Wet cleaning

If all else fails! (and as appropriate)

- Controlled wet cleaning
  - Limited water
  - Sealed systems - CIP
- Wet cleaning out of place
- Flood cleaning

Dry sanitisation/disinfection

- Sanitizer/disinfectant wipes & spray
- Heat – dry, steam
- UV
- Vapourised Hydrogen Peroxide
- Ozone

Vikan Dry Cleaning White paper

People

The Hygiene Team and the resources they use are critical to ensuring food safety and future business

Recognise them for the hygiene heros they are!

Invest in them – Training, resources, reward

Key take home messages

Prevent it, Find it, Fix it

- Prevent it
  - Design it out – facilities & equipment; systems - zoning
  - Make it easy to clean – hygienic/sanitary design
- Find it
  - Drips, leaks, condensation, pooling, steam, frost, uncontrolled wet cleaning

Key take home messages

Prevent it, Find it, Fix it

- Fix it
  - Take action to eliminate drips, leaks etc..
  - Rationalise your cleaning
    - Does it need to be cleaned/cleaned as often? (redundant equipment removal, dedicated equipment use)
    - Why are you cleaning?
      - For food safety (pathogens, allergens)?
      - For food quality (foreign bodies, food debris)?
      - For operational reasons (product build-up, maintenance)?
    - If it can't be dry cleaned which is the next most appropriate method to use?
    - Choose sanitation methods that maximise contamination removal & minimise its spread

Vikan food safety webinar series

What's next?

Topic:

Hygiene in High-Risk Food Production

Date & Time:

10th November 2022,
3 PM CEST (9 AM EST)

Presenter:

Deb Smith, Vikan

Further information and support

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