Cleaning Techniques in Dry Environment

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DEFINITION OF CLEANING

- Removal of any soil such as dirt, dust, and food debris
- "Clean" means the facility is safe to produce food.

PRIMARY CATEGORIES OF CLEANING

- Dry cleaning

- Wet cleaning

Limiting the introduction and use of water is one of the primary means of controlling pathogens in low moisture food establishments.

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EFFECTIVE CLEANING:

Driven by the appropriate target level of clean:

- different zones in a plant have different levels of risk
- different foods also have different levels of risk

→ different areas of facilities require different "target levels of clean":

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target level of clean will determine the method of cleaning required.

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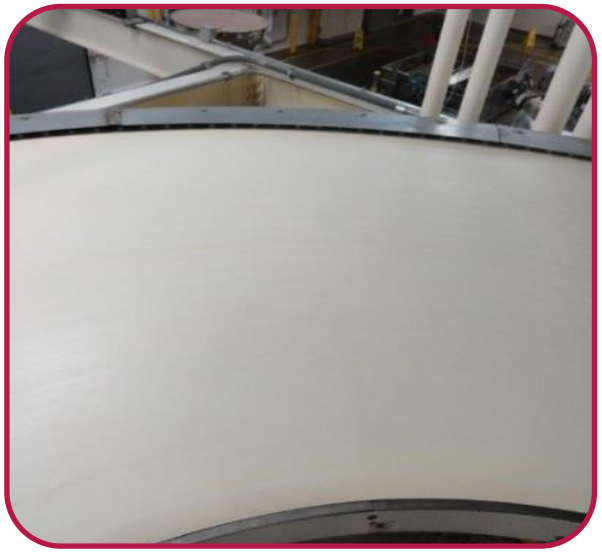
TARGET LEVEL OF CLEAN

- Complete removal of allergens
- Clean to a microbiological level
- Visually or functionally clean
- Organic-labeling requirements
- Kosher or halal requirements
- Label claims such as sugar-free, fat-free, or gluten-free

TARGET LEVEL OF CLEAN



- The target level of clean will always be determined by a risk assessment
- The cleaning technique chosen *MUST* deliver the desired results while minimizing food safety risks
- General rule, dry cleaning is less risky from a food safety perspective than wet cleaning.
- If wet cleaning is chosen, water must be controlled and the area returned to a dry state.

WHAT METHOD SHOULD BE CHOSEN

Aw Considerations

Product	Process Step	Typical Aw	Typical Cleaning Method
Cereals	Mix - Extrusion	> 0.91	Wet cleaning / Combined wet & dry procedures
	Finished Product	0.60 - 0.70	Dry cleaning post thermal process
Baked & Fried Snacks	Mix - Extrusion	> 0.91	Wet cleaning / Combined wet & dry procedures
	Finished Product	0.30	Dry cleaning post thermal process

Process Specific Considerations

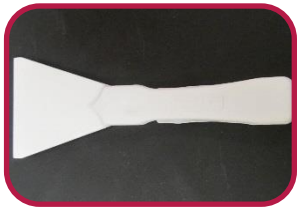
Seasoning / Flavoring / Coating	Very hygroscopic conditions	Wet cleaning
Oiling / Frying	Polymerized oil and food soil build up	Wet cleaning

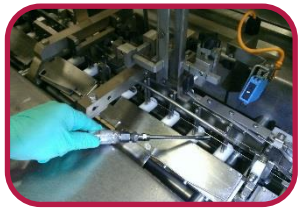
DRY SANITATION PROCESS

- A cleaning process to remove soil to a safe, acceptable and functional level with little or no water application.
- Detail cleaning is a step often employed in the dry sanitation process after the initial dry cleaning to remove additional food residues from processing equipment surfaces with moist disposable wipes or clean moist towels.
- Cleaning solutions or chemicals used to aid the cleaning process **must** be used in accordance with label directions.

DRY CLEANING METHODS & TOOLS

- manual cleaning with hand tools,
- vacuum,
- limited compressed air,
- product flushes,
- sanitiser wipe downs,
- sanitiser applications (with minimal water),
- steam cleaning,
- dry ice cleaning, specialized application cleaning tools e.g. belt scrapers, rotary brushes, air knives





Air hose and nozzle

Pre-moistened sanitizer wipes (non-shed)

Atomized sanitizer units

Dry ice (CO_2) cleaner

Steam cleaner

7 STEPS OF EFFECTIVE DRY CLEANING

- Pre-sanitation preparation
- Securing and disassembling
- Dry cleaning
- Detail cleaning
- Self-inspection
- Final inspection
- Final sanitising and assembling

WET SANITATION PROCESS

- A cleaning method that employs the use of water systems for removing soil or residues.
- Wet cleaning will utilize a series of rinses (pre-detergent rinse and post detergent rinse).
- A sanitising treatment is applied after the detergent application, and post detergent rinse to reduce, or eliminate any remaining microorganisms after cleaning.

Wet sanitation is an appropriate cleaning method when equipment and infrastructure are of a suitable "wash down" grade.

WET CLEANING METHODS & TOOLS

- ❑ Portable foamer
- ❑ Portable flood sanitiser
- ❑ Water hose and nozzle
- ❑ Steam cleaner
- ❑ COP tank
- ❑ Drain foamer
- ❑ Dedicated floor scrubber
- ❑ Air hose and nozzle
- ❑ Mop and bucket

7 STEPS OF EFFECTIVE WET CLEANING

- Secure, disassemble, and dry clean
- Pre-rinse
- Soap and scrub
- Conduct final post-rinse
- Conduct self-inspection
- Conduct final inspection
- Assemble and sanitize

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STEPS OF EFFECTIVE CLEANING

7 Steps of Wet Sanitation

Step 1: Secure, Disassemble, Dry Clean

Step 2: Pre-Rinse

Step 3: Soap & Scrub

Step 4: Final Rinse

Step 5: Self Inspect & Pre-Op Preparation

Step 6: Final Inspection

Step 7: Final Sanitizing

7 Steps of Dry Sanitation

Step 1: Prepare the area

Step 2: Secure, Disassemble

Step 3: Dry Clean

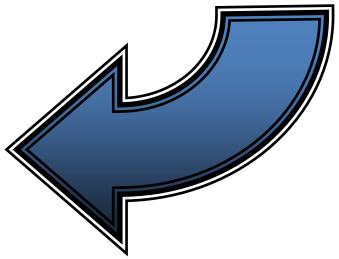
Step 4: Detail Clean

Step 5: Self Inspect & Pre-Op Preparation

Step 6: Final Inspection

Step 7: Final Sanitising

STANDARD WORK



CLEANING VS SANITISING

"Cleaning" refers to the removal of soil from a surface or equipment to give it a visibly clean appearance

"Sanitising" refers to the reduction of microbiological organisms on a cleaned surface to a level that is generally regarded as safe

COMMONLY USED SANITISING METHODS

- Flood or fog sanitisation
- Hand-wiping with sanitiser wipes
- Spray (manual or automatic system)
- Foam
- Heat application of steam or hot water

OTHER TYPES OF CLEANING

- Dry Ice Blasting
- Steam
- Assisted cleaning devices
- Ultrasonic Cleaning
- CIP
- COP

DRY STREAM

- produced by jet of superheated, vaporized water, immediately evaporates, leaving behind little to no wastewater production.
- portable and can be used to rapidly eliminate any difficult-to-remove animal and plant materials from surfaces and equipment.

- **No residue and nontoxic**

DRY ICE

- Non-abrasive, non-conductive, environmentally responsible cleaning method
- Cleans without the need for scrubbing, water clean-up or chemicals
- Dry ice sublimates on impact - no secondary waste created,
- Most equipment can be cleaned in place without time-consuming disassembly.

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DRY ICE

Time saver:

- Can clean in situ – no/minimal disassembly required
- Equipment cool down is unnecessary before clean
- No residue after dry ice cleaning, production can begin ASAP

Costly: Capital investment required

Ongoing cost of supplies

Ultrasonic Bath Technology

- Used for small pieces like cooker pipe nozzles, extruder dies and packaging machine jaws.
- Faster, more effective method for cleaning these hard to clean pieces of equipment.

Before

After

SEQUENCING SANITATION

Effective sequencing must co-ordinate

- Sanitation Activities
- Preventive Maintenance & Repairs
- Master Sanitation Tasks
- Any other downtime activities

to prevent recontamination

In addition ……..
HYGIENE & HOUSEKEEPING CONSIDERATIONS

Ongoing removal of dry soils

Hand care including cleaners, alcohol sanitizers, and wipes

Uniforms program

Hair and beard nets

Pest Control – break the life cycle of bugs

- Food soil is attractive
- Seasonal environments

Hygienic footwear program:

- Footwear cleaning equipment
- Footwear sanitizing equipment

THANK YOU FOR YOUR ATTENTION