



An Intralox Company

# Best Practices in Food Safety and Sanitation

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Sanitation Standards | Hygienic Design | Sanitation Expertise | Sanitation Business Optimization

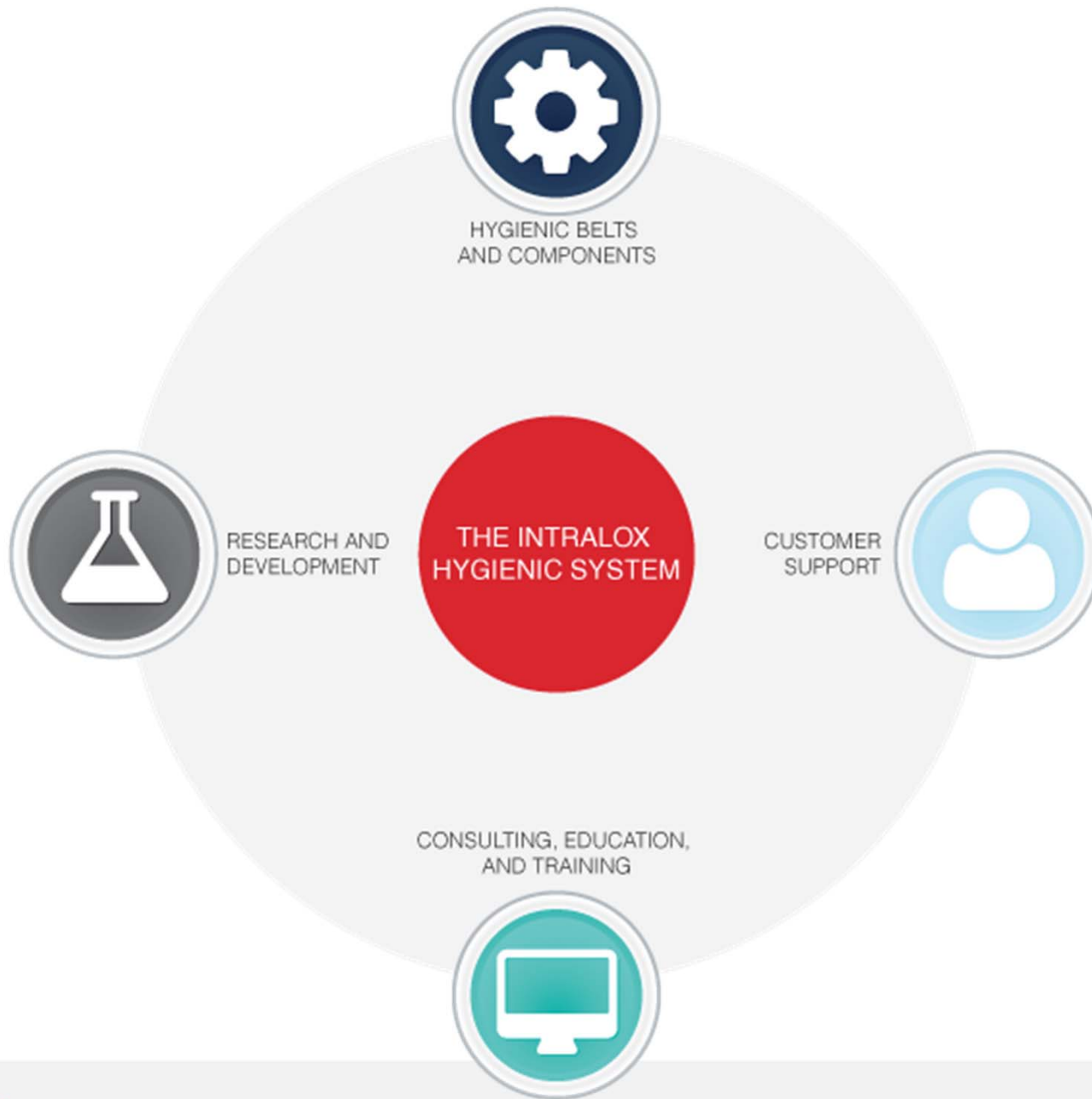


- Who are we?
- Learning from other Industries
- Understanding the enemy
- Sanitation challenges in the Tortilla Industry
- Sanitation methods & technologies



An Intralox Company

Commercial Food Sanitation, **an Intralox company**, integrates strategic **consulting**, expertise and **training** to provide durable solutions to food safety and sanitation challenges for food processing plants.



› Operational Excellence. Safe Food. Every Day.

# My consumer experience



cut

## Fried tortillas- nachos

### Ingrediënten

Ingrediënten: volkorenarwemeel, water, tarwe gluten, bakkergist, moutmeel (gerst, tarwe), gejodeerd zout, acerolapoeder.

### Allergie-informatie

Bevat: gerst, tarwe, glutenbevattende granen. Kan bevatten: lactose, lupine, amandel, hazelnoot, pistache-noot, melk, sesamzaad, soja, noten.



# The Car Industry

# Volkswagen Golf 1970s



- No airbags
- No air-conditioning
- Manual wind-down windows
- No power-steering
- No cruise control
- No parking assist
- No ABS
- No child-locks
- AM radio
- ...

# VW Golf 2018



- Airbags SRS Front (Driver & passenger); Side (front); Curtain (Front & rear)
- Anti-lock Braking System (ABS) Standard
- Blind Spot Monitoring (BSM) Standard<sup>18</sup>
- Child restraint anchor points ISOFIX x2, top tether x5
- Childproof rear door locks Standard
- Driver Attention Alert (DAA) Standard<sup>18</sup>
- Dynamic Stability Control (DSC) Standard
- Electronic Brake-force Distribution (EBD) Standard
- Emergency Brake Assist (EBA) & Emergency Stop Signal (ESS) - Standard
- Parking sensors Rear<sup>17</sup>
- Rear Cross Traffic Alert (RCTA) Standard<sup>18</sup>
- Remote central locking Standard, 2 transmitters
- Reverse camera Standard
- Roll Stability Control (RSC) Standard
- Seat-belt warning Driver & all passengers
- Seat-belts (front) 3-point lap-sash with pretensioners, load limiters and height adjustable shoulder anchorages
- Seat-belts (second row) 3x 3-point lap-sash with pretensioners and load limiters
- Seat-belts (third row) 2x 3-point lap-sash
- Traction Control System (TCS) Standard
- Trailer Stability Assist (TSA) Standard
- Whiplash-minimising front seats Standard
- Satellite Navigation
- etc



# What is the difference?



**The focus in the car industry has been on customer safety and convenience.**

# How does this tie to Food Safety?

# Food Safety

What are the hazards?

# Biological Hazards

- Vegetative pathogens (*Salmonella*, pathogenic *E. coli*)
  - Normally controlled via baking (*kill step*)
  - *Still will require zoning concept/separation between raw and RTE*
- Toxin formation (pre-bake)
  - *S. aureus*
  - *B. cereus*
- Post cook addition
  - Seasoning for tortilla chips: dairy, herbs, spices, etc...

# Chemical Hazards – Allergens

- Gluten
- Seasoning: soy, milk, etc.

product category	date	notification type	notification basis	notified by	subject
cereals and bakery products	06/01/2011	alert	official control on the market	Ireland	<b>undeclared soya</b> in flour tortillas from the United Kingdom
cereals and bakery products	18/02/2011	alert	official control on the market	Ireland	<b>presence of soya</b> in corn tortillas from the United Kingdom
confectionery	12/10/2006	information	consumer complaint	United Kingdom	<b>allergic reaction</b> (presence of whey protein and oats) caused by <b>incorrect labelling</b> of tortilla chips from the United States
nuts, nut products and seeds	20/10/2006	alert	official control on the market	Spain	undeclared milk ingredient in chilli tortilla chips from Spain
prepared dishes and snacks	18/01/2012	alert	consumer complaint	Finland	<b>undeclared wheat in and incorrect</b> use of packaging (tortilla chips cheese have been packed into bags destined for tortilla chips original) for tortilla chips cheese from the United Kingdom
prepared dishes and snacks	15/02/2018	alert	company's own check	Sweden	<b>presence of wheat</b> in tortilla chips from Belgium

# Physical Hazards - Foreign Materials

cereals and bakery products	04/01/2018	Sweden	plastic fragments in frozen bread from Sweden
cereals and bakery products	24/01/2018	Denmark	jasmin rice from Thailand, via Germany infested with larvae of insects
cereals and bakery products	09/02/2018	Netherlands	plastic fragments (polymethyl methacrylate) in biscuits from the Netherlands
cereals and bakery products	14/02/2018	Austria	metal strips in chilled puff pastry from Austria, with raw material from Italy
cereals and bakery products	23/02/2018	France	glass fragments in rusks from Spain
cereals and bakery products	12/03/2018	Sweden	plastic fragments in bulgur from Sweden
cereals and bakery products	16/03/2018	United Kingdom	live insects (weevil) in rice from Portugal
cereals and bakery products	20/03/2018	Denmark	glass fragments in sweet berry muesli from Belgium
cereals and bakery products	22/03/2018	Spain	breakfast cereal from the Netherlands infested with larvae of insects
cereals and bakery products	12/04/2018	United Kingdom	organic gluten free porridge flakes packaged in the Netherlands infested with insects
cereals and bakery products	30/04/2018	Germany	sharp fragments in garlic bread and pestobread from Germany
cereals and bakery products	09/05/2018	Belgium	foreign bodies (white plastic/rubber texture: 0.5 x 0.5 cm) in breakfast cereals from France
cereals and bakery products	04/06/2018	Poland	altered organoleptic characteristics (foreign smell of mold) and dead insects in white rice from Myanmar
cereals and bakery products	29/06/2018	Denmark	organic whole wheat flour and organic whole wheat spelt flour from Germany infested with larvae of insects
cereals and bakery products	18/07/2018	United Kingdom	small piece of nylon in mini bread rolls from the United Kingdom
cereals and bakery products	20/07/2018	Netherlands	metal fragments (2-5 mm) in organic coconut flour from Sri Lanka

- Main materials; Metal, Plastic and Glass
- Ex. Mars 2016 recall due to plastic – covering 55 countries



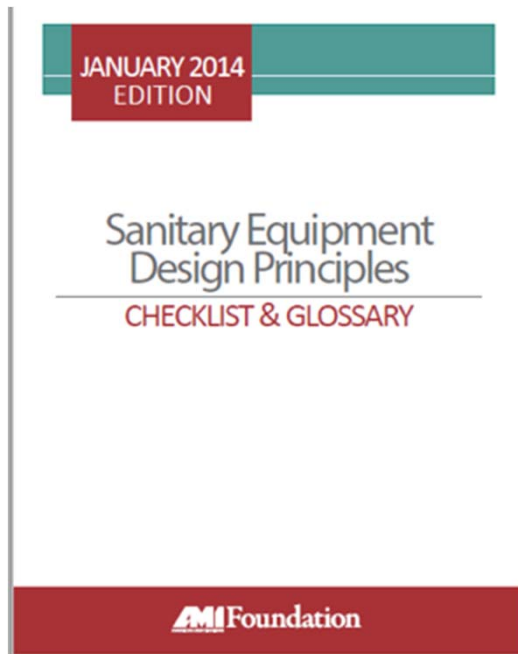
Protect your  
consumer

Protect your  
Brand

# Sanitation challenges



# 10 Principles of Hygienic Design



1. Cleanable
2. Made of compatible materials
3. Accessible for inspection, maintenance, sanitation
4. No liquid collection
5. Hollow areas hermetically sealed
6. No niches
7. Sanitary operational performance
8. Hygienic design of maintenance enclosures
9. Hygienic compatibility with other systems
10. Validated cleaning and sanitizing protocols

# Complex / Simple

**Complex**



**Simple**



# Open / Close

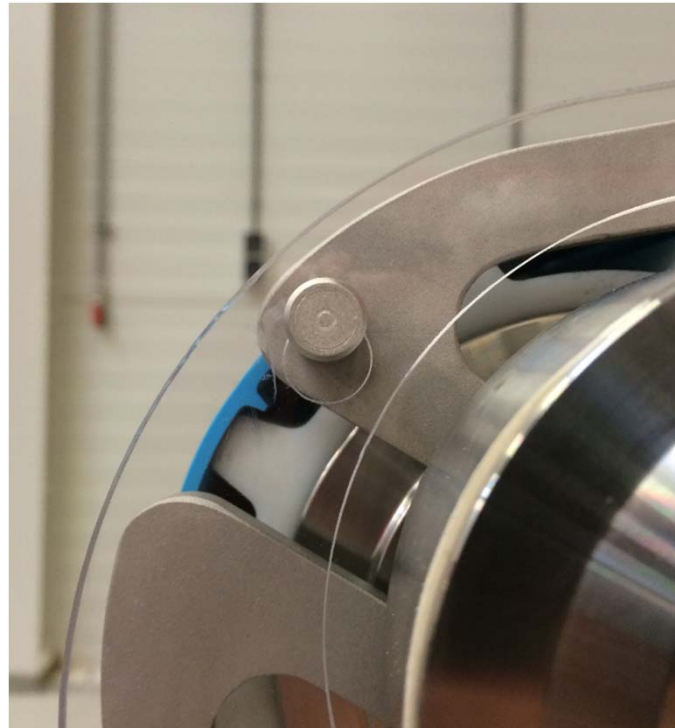
Open



Close



# Employee Safety: What is required?

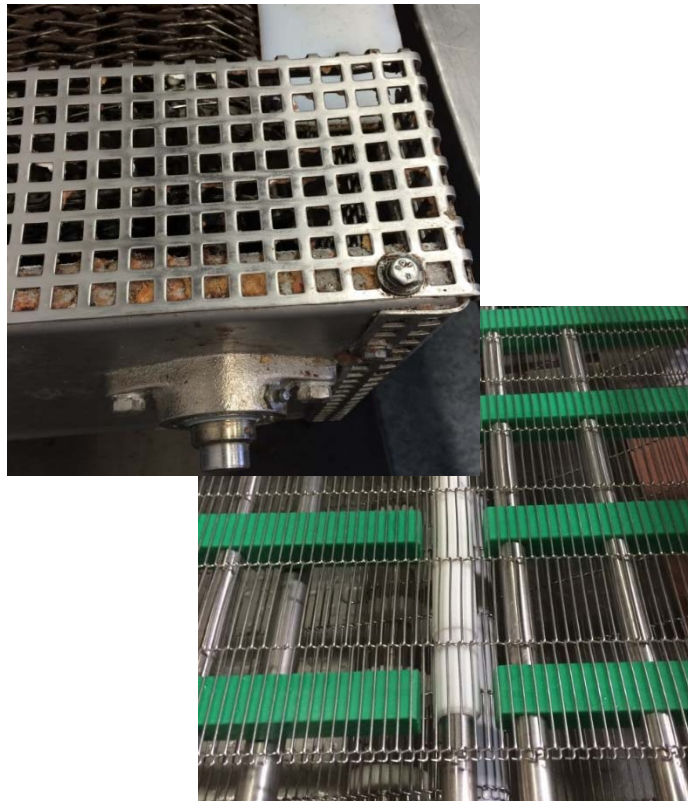


# Hygienic Facility Design



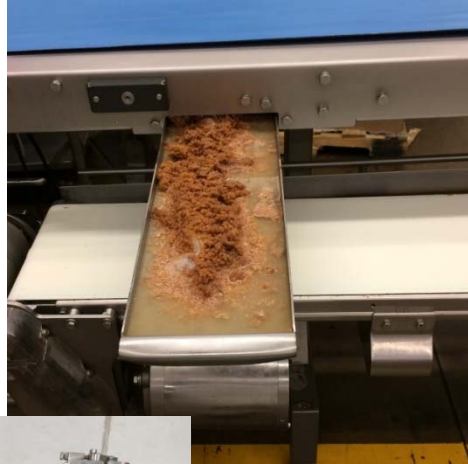
- Presence of drains
- Flooring
  - Type
  - Maintenance
- Equipment placement
- Newly integrated lines
- Utilities

# Hygienic Equipment Design



- Accessibility for cleaning
  - Inaccessible parts: rollers, sprockets, inside conveyors
- Not designed for cleaning
  - Not easily dismantled equipment for cleaning and inspection

# Cleaning Techniques



- Employees not knowing the equipment
  - Employee Retention
  - Employee Training
- Sequencing and cleaning techniques
- CIP system knowledge

# Maintenance



- Belt not replaced in a timely manner
- Equipment modifications creating harbourage



# Other Challenges

- Time
- Cleaning Procedures
- Cost effectiveness
  - Down-time
  - Chemicals
  - Tools
- New regulations

# Increased Productivity



- Reduced changeover time
- Reduced cleaning time
- Reduced maintenance time
- Added production time

# Sanitation Methods & Technologies

In dry- environments

# Dry-Wipe Cleaning



- Good dry-cleaning method
- Alcohol introduces a small amount of moisture
- Good for flat surfaces like frames, tables, mixers, etc.
- Not functional with small crack & crevices
- Can be used on soft metals (e.g., aluminum)
- Versatile tools

# Vacuum Cleaning



- True dry cleaning method
- Industrial vacuum systems
- Brush & wiper extensions
  - Always be critical on hygienic design
- Recommended for dusty applications
- Can be automated

# Dry-Steam Cleaning



- Chemical free
- Gives that little, controllable moisture
- Brush & wiper extensions
  - Always be critical on hygienic design
- Can get into cracks & crevices
- Consider soil type & level of build up
- Can be automated

# Dry-Ice Cleaning



- Chemical free
- Truly dry method
- Lifts the soil from surface
- Great for detailed periodic cleaning
- Great for heavy/baked on soils
- Not always great for very moist soil
- Not easy to get into cracks & crevices
- Noisy

# Validation





# Disinfection



- Spray
  - Quat or Quat alcohol blend
  - Alcohol
- Fogging
  - Per-acetic Acid
  - Consider material compatibility
- Gas - Chlorine Dioxide
  - Generator (expensive)
  - Tablets (cheaper)
    - Gas
    - Liquid (corrosive to soft metals)
  - Contractor
- Always consider material compatibility

# Summary

- Industry is changing
  - Consumer
  - Increased number of recalls
- Need to be vigilant
- Hygienic design
- Sanitation

# Thank you!