DUSTBANE

Food Processing

Training Guide

Food Processing

The Basics

Proper sanitation in the food processing industry is crucial. The steps you take to keep food safe will usually lead to better food quality as well.

General Overview of Requirements

Foodborne illnesses are a serious public health concern. For a food establishment, it is imperative that they maintain a strict sanitizing procedure. Production delays, plant shut-downs, food spoilage, brand protection and product recalls cost money as well as a company's reputation.

Equipment

All equipment used for cleaning and sanitizing must be maintained in a clean and safe operating condition and should be stored in a designated storage area. Any materials or equipment using wood construction should be avoided as wood has been proven to be a good transmission device for bacteria and cannot be properly sanitized.

Note: *All equipment should be scrubbed and sanitized weekly.*

Chemicals

Dustbane offers a large array of products to prevent the contamination of food from the hazards that can be present on equipment, food contact surfaces, and in the general premises. Chemicals should be properly stored in a designated area and should never be poured into unlabeled containers. Always follow the strict instructions on the labels to ensure proper sanitizing or disinfection. Cleaning is a prerequisite at all times for effective sanitization.

The products recommended in this program have all been thoroughly tested and CFIA approved. Outside this program, we offer a large array of products that can be also used safely and are suitable for Canadian food establishment. These products are regulated, just as a food processing facility, by the **Canadian Food Inspection Agency (CFIA)**. The Canadian Food Inspection Agency is the body who enforces federal food safety regulations for both domestic and imported food. They have undergone multiple changes over the course of the past few years. Products that have been around for more than 3 years boast the CFIA approval seal, while our latest products either have a **Letter of No Objection (LONO)** or a **Letter of Guarantee (LOG)**. You can obtain the appropriate letter by clicking on the active link beside each approved product.

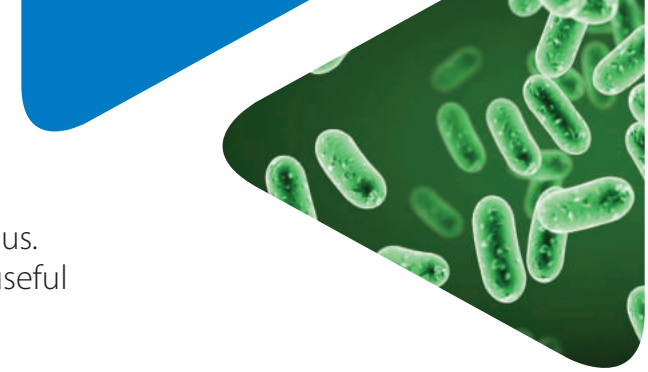
Use and wear protective equipment or clothing required by the employer. The use of protective gloves and safety glasses is highly recommended.

Refer to product label and safety data sheet (SDS) before use. For complete product information, please consult **www.dustbane.ca**.

Foodborne Illnesses

Understanding Microorganisms

Microorganisms, also known as microbes, are found all around us. Although they are a necessary part of our world and perform useful functions, some can really be harmful to our health.



The Good and the Bad of Microorganisms

Microorganisms

Microorganisms are living things that are too small to be seen with the naked eye. They can be bacteria, archaea, algae, protozoa, and microscopic animals such as the dust mite. They live and breed all around us, on our hands, in our mouths and noses and on our food.

Microorganisms come in all shapes and sizes but the average size is 1/25,000th of an inch. The different shapes help us to determine their identity.

Helpful Microorganisms

Most microorganisms are in fact, helpful to mankind and to nature. They are part of the life cycle in that they assist in the decaying process and help in returning nutrients to the soil.

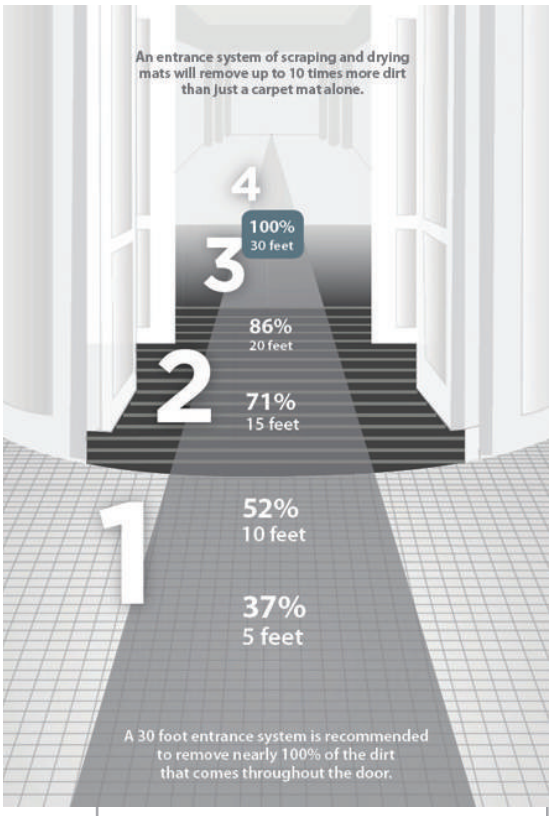
Microorganisms also play an essential role in the production of many food products.

Harmful Microorganisms

Some microorganisms, on the other hand, are quite harmful to plants and animals. These are called pathogens because they are disease producing.

Certain microorganisms cause food spoilage resulting in discolouring, off-flavours or changes in food texture. Others may not alter the appearance, odour or taste of food but are still capable of causing foodborne illnesses.

There are many types of microorganisms including, bacteria, yeasts, viruses, parasites and molds.



mumps, rabies, malaria etc.

- ✘ Can cause infections and illnesses
- ✘ Spoil food and can cause food poisoning

Foodborne Illnesses

The Most Common Microorganisms

Proper food handling and storage can prevent most foodborne illnesses. In order for pathogens to grow in food, certain conditions must be present. By controlling the environment and conditions, even if potentially harmful bacteria are present in unprepared or raw food, they will not be able to survive, grow, multiply, or causing illness.

Common Microorganisms

Bacteria

Bacteria are the most troublesome foodborne hazard as they flourish and multiply quickly at room temperature. At optimum temperature, they easily double in population every 10 to 20 minutes. This could result in 100 bacteria growing to a population of more than 1,000,000 in only 3 ½ hours.

Bacteria may be found in water, air, or food and as hitchhikers on the human body, insects and rodents. Most often, they are spread by human contact and on equipment and utensils.

Some ready-to-eat meat products provide an ideal medium for bacterial growth. The high moisture content, neutral pH, and abundance of nutrients make for terrific breeding grounds for several types of bacteria, including *Salmonella* and *Staphylococcus*. Other microorganisms such as *Listeria Monocytogenes* and *Escherichia Coli 0157/H7* also pose a challenge for both the industry and regulators. Fortunately, they can be controlled using the same techniques; effective cleaning and sanitizing.

Yeasts

Yeasts are single cell organisms, which also require food, especially sugar and acids, as well as moisture for growth. Yeasts are more tolerant to cold than to heat. They can usually be identified by a slimy or powdery film, cloudy sediments in liquids or by the presence of gas bubbles.

Viruses

Viruses, the smallest type of microorganism, can only grow and reproduce inside a living cell. Some viruses cause foodborne infections such as *Hepatitis.* Again, these too can be controlled by proper cleaning and sanitizing.

Parasites

Parasites are microorganisms that are dependent on a living host for growth and reproduction. They can be in the form of a single-celled animal i.e.: *Protozoa,* or multi-celled animals i.e.: tapeworms.

Molds

Molds are multi-celled microorganisms that are often visible to the naked eye as fuzzy or powdery patches. They can exist at almost any storage temperature under almost any condition. Foods most susceptible to molds include meats, fruit, bread, and cheese. Some molds produce harmful toxins.

Fact!

Parasites are microscopic, animal-like organisms that can live on or in it's host and have the ability to obtain nutrients while harming the host.

Foodborne Illnesses

Growth Factors

There are six factors that affect bacterial growth, which can be referred to by the acronym **FATTOM**: **F**ood, **A**cid, **T**emperature, **T**ime, **O**xygen, and **M**oisture. Each of these factors contributes to microorganism growth in different ways. It is important to monitor these conditions in order to maintain food safety.

Conditions for Microorganisms Growth

Food

Like any living thing, microorganisms need food to survive. Most thrive on proteins and organic matter found in meat and other food sources.

Acid

Microorganisms do not grow in acidic environments, which makes lemon juice and vinegar ideal preservatives.

Temperature

Microorganisms thrive at temperatures between 4°C (40°F) and 60°C (140°) (called the "**danger zone**"). Most are killed if exposed to temperatures above 60°C (140°F) for several minutes but are not killed when they are refrigerated or frozen, they merely become dormant.

Time

Microorganisms require time to grow to a stage where they can do us harm. As they grow, they start to thin out in the mid-section and then divide. Under the right conditions, they need 10 to 20 minutes to double.

Oxygen

Some microorganisms require oxygen to grow, so will not multiply in an oxygen-free environment such as a vacuum-packaged container, while others will only grow in oxygen-free environments.

Moisture

Microorganisms need moisture and most foods are moist enough to allow this growth. This is why dehydration is used as a method of preserving some foods.

Myth:

Mold has no effect on your health.

No, exposure to mold could result in a number of different health effects including nasal irritation, throat irritation, and respiratory infections.

In severe cases, black mold symptoms can be even more dangerous to the human body.

Caution!

Since all food is a potential source of microorganisms and other contamination which may cause disease or food poisoning in people, extreme care must be taken in the preparation, serving, purchasing, distribution, and storage.

Personal Hygiene Essentials

An Essential Part of the Program

Humans shed microorganisms and can contaminate food through unhygienic behavior. Food handlers need to be aware of indirect paths of contamination. Washing hands is the most effective way to stop the spread of microorganisms as well as following simple personal hygiene guidelines.

Personal Hygiene Guidelines

- Clean, sanitized uniforms must be worn by all personnel. These uniforms should be properly designed to eliminate the need for sweaters or jackets that have not been sanitized.
- Hair restraints for both men and women as well as safety head gear where necessary must be worn.
- Washrooms must be clean, bright and well stocked with sanitary and personal hygiene products.
- The wearing of jewelry is prohibited. Not only can it harbour bacteria, but it also poses a potential safety risk.
- Perfumes and colognes should not be worn as the fragrance could be transferred to the food. Nail polish should not be worn and nails must be kept short and clean.
- Properly designed and well-fitted liquid hand soap dispensers should be mounted at all wash stations and in washrooms. A supply of fingernail brushes and **ANTISEPTIC HAND SOAP** should also be on hand. All employees must be made aware of the importance of frequent hand washing.

Dos:

- ✓ Wear the appropriate uniform
- ✓ Wear hair restraints/head gear
- ✓ Wash your hands frequently
- ✓ Keep your nails short and clean

Don'ts:

- ✗ Wear jewelry
- ✗ Wear perfume or cologne
- ✗ Cough, sneeze or touch your mouth and nose

Tip!

Remember: the use of gloves is not a substitute for hand washing. Promote good hygiene by having easily accessible soap. This is the perfect way to remind people to wash their hands.

Duration of the entire procedure: 40-60 seconds

Did You Know?

We are all carriers of bacteria; on our bodies, clothing and possessions. As such, we must in the interest of everybody's well being, take special precautions before entering a food handling or processing area.

Cleaning & Sanitizing

It's in the Details

Every food handling or processing establishment must have a comprehensive cleaning and sanitizing program in place. This program must ensure that all food-handling areas are cleaned, sanitized and inspected.

Cleaning programs must be designed to meet specific building requirements and the details of the program will vary according to circumstances. In order to obtain the best possible results, each of these 5 steps must be adjusted to suit variable factors.

Recommended Product: **CLEARINSE**

The following elements must be considered prior to developing such programs:

- The nature of the products and the soils resulting from their preparation.
- The method and the type of material used to prepare the product.
- The type of material from which the equipment is made of.
- The structure and the layout of the establishment; the sources of energy, water and vapor.
- The quality and the nature of the water.

Pre-Cleaning

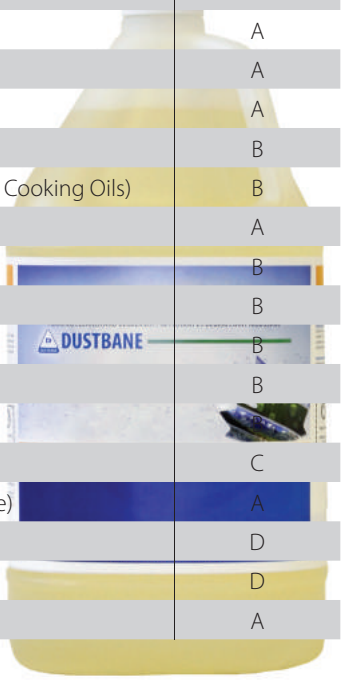
Preparation of area and equipment for cleaning involves steps such as removal of all products from the area, protection of sensitive components and materials from the cleaning solution and removal of meat or food scraps by hand, spray, squeegee or other methods.

Pre-Rinse

A water rinse to remove any remaining large pieces of loose soil.

TYPE OF SPOT	CATEGORY
Alcoholic Beverage	A
Beer	A
Bleach	A
Blood	D
Butter	B
Calcium Chloride (Ice Melt)	A
Candle Wax	B
Candy	A
Carbon	B
Chewing Gum	A
Chocolate	A
Coffee	C
Cola and Soft Drinks	A
Cosmetics	B
Egg	A
Fruit Juice	A
Glue	B
Grass	A
Gravy and Sauces	B
Ink (Ball Point / Permanent)	B
Ketchup	A
Lipstick	B
Mildew / Mold	A
Milk	A
Mustard	A
Nail Polish	B
Oil, Grease (Including Cooking Oils)	B
Paint (Latex)	A
Paint (Oil)	B
Rust	B
Salad Dressing	B
Shoe Polish	B
Soot	B
Tea	C
Tomato (Sauce / Paste)	A
Urine	D
Vomit	D
Wine	A

Squeegee or Sponge



Cleaning & Sanitizing

Typical Cleaning Program

An effective cleaning and sanitation program prevents contamination of food from the hazards that can be present on equipment, food contact surfaces, and in the general premises.

An effective cleaning and sanitizing plan is made of 3 different components: a cleaning agent, a potable water rinse and a sanitizing agent. A cleaning agent is a product used to remove food, dirt, grease and/or soil from a surface. Detergents and degreasers are examples of cleaning agents. A sanitizing agent is a product or process used to kill microorganisms or reduce their number to safe levels.

Cleaning

Spray a solution of **CLEARINSE** to all cleanable surfaces using the foaming mode of the **WORLDCHEM** dispenser. Allow solution/foam to remain in contact with soil and keep wet until soil is broken down and starts to run.

Rinse

Using the **WORLDCHEM** dispenser again with the water valve open, rinse away all solution and soil.

Sanitize

Spray **QUATROMYICIDE II** in the spray mode using the **WOLDCHEM** dispenser to all areas to kill microorganisms.

Tools/Equipment You Need:

- ☐ Plain White Towel
- ☐ Water
- ☐ Brush
- ☐ Spray Bottle
- ☐ Spotter Cleaner
- ☐ Mini Spotter
- ☐ Wet Floor Signs
- ☐ Gloves
- ☐ Safety Glasses

Cleaning is an important first step because it physically removes dirt, organic matter and most germs from surfaces, but does not destroy the harmful microorganisms. Surfaces must be thoroughly cleaned before sanitizing to ensures that nothing is hidden from the sanitizer when it is applied.

Don't Scrub!

Carpet cleaners are getting better and better, but there is still an important step that most follow on their label. Blot, don't scrub. Scrubbing too vigorously can untwist and damage carpet fibers, causing a deterioration of the quality of the carpet itself.

Why we Love the WorldChem!

The **WORLDCHEM** is a sanitation dispensing system that is the ideal solution for heavy-duty cleaning applications in the food processing industry. It not only automatically dilutes and dispenses concentrated cleaning products but the multifunction gun offers 2 sprays or 2 foaming patterns and one rinse function.

**Hoses and gun sold separately from the system.*

Cleaning & Sanitizing Methods

Foam Cleaning

This method is useful for large surfaces such as walls, floors, large equipment, and tables. This method creates a sort of foam blanket, by the use of a nozzle and allows the cleaning/sanitizing solution to act on the soils.

For walls, ceilings, tables, floors, cutting boards, trays, carts, waste containers, coolers, showcases, and all waterproofed electrical equipment.

- Ideal water temperature is 55°C (130°F).
- Pressure washer should be equipped with a foaming nozzle and an adjustable pressure nozzle.

How To

1. Disconnect all electrical cords from wall sockets.
2. Clean all coarse material from area to be cleaned *(do not wash down floor drain)*.
3. Apply **CLEARINSE** to all surfaces with pressure washer set at 1:80 dilution *(foam nozzle)*.
4. Rinse all areas with clean water with a pressure washer and squeegee solution down floor drain *(if no floor drain is available, pick up solution with wet vac)*.
5. With pressure washer set at a 1:500 dilution rate, apply a mist of **QUATROMYICIDE II** over the entire area.
6. Wipe down the equipment with a clean cloth dampened with **QUATROMYICIDE II** to remove any puddles or watermarks. Any equipment susceptible to rust or staining should be dried using a clean towel.

Tools/Equipment

- ☐ Rubber Gloves & Footwear
- ☐ Pressure Washer
- ☐ Wet Floor Signs
- ☐ Wiping Cloths
- ☐ Foam Nozzle
- ☐ Squeegee
- ☐ Wet Vac *(Optional)*
- ☐ Adjustable Pressure Nozzle
- ☐ 2 Mop Buckets
- ☐ Cleaning Products

Cleaning & Sanitizing

Three-Compartment Sink Method

The 3 sink basin dishwashing system is a well-known clean, rinse, sanitize, and dry method in the food industry. It ensures that dishes are properly cleaned, sanitized, and ready to re-use.

For hand tools, trays, power equipment components, baskets, pots and utensils.

- Ideal water temperature is 43°C (110°F).
- The water must not be allowed to become saturated with waste. Sanitizing solution must be at 200 ppm at the beginning of the cycle. If necessary, add additional **QUATROMYICIDE II** until a concentration of 200 ppm is reached. Fresh sanitizing solution should be prepared at least daily or when visibly soiled or diluted.

How To

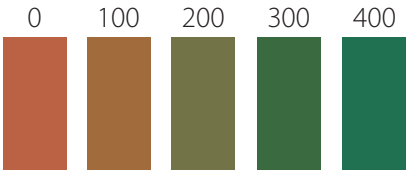
1. Fill the sink #1 with a solution of **CLEARINSE** diluted at a rate of 1:80.
2. Fill the sink #2 with clear potable rinse water.
3. The 3rd sink is for sanitizing. This step is mandatory to comply with the health code. Fill the 3rd basin with water at 75°F and add **QUATROMYICIDE II** until you obtain one solution of 200 ppm (approximate dilution rate of 1:500).
4. Quat test papers should be used to ensure solution is at 200 ppm. Test solution throughout the cleaning process in order to maintain 200 ppm.
5. Wearing rubber gloves, place all soiled equipment into sink # 1 and allow them to soak for 5 minutes. Scrub all pieces with a plastic handled bristle brush.
6. Remove items from sink # 1 and place into sink # 2. Rinse away all traces of **CLEARINSE.**
7. Remove items from sink # 2 and place them into sink # 3. Allow them to soak for a minimum of 45 seconds.
8. Remove items from sink # 3 and allow items to air dry.

Tools/Equipment

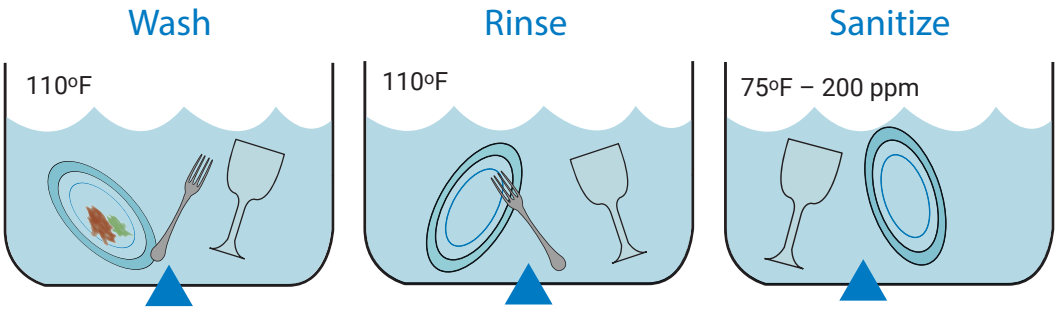
- ☐ Rubber Gloves and Footwear
- ☐ Bristle Brush
- ☐ Quat Test Papers
- ☐ Wiping Cloths
- ☐ Cleaning Products

Quat Test Strips:

Dip the strip into the sanitizing solution for 10 seconds, then remove and compare to the color chart.



0-100 ppm: Not strong enough
200 ppm: Solution is OK
300-400 ppm: Too strong



Alternative Ways To Clean
UniTab & Sanitizing Wipes

UniTab

UNITAB is an effective sanitizer and disinfectant that is a safer alternative to bleach. It's effective against a number of foodborne microorganisms including *Salmonella Enterica*. This long-lasting tablet can be used on almost any hard surface in the kitchen.

Food Premises And Food Processing Facilities

UNITAB is recommended for sanitizing all types of hard, non-porous equipment and utensils used in food processing establishments. Use a 100 ppm available chlorine solution to sanitize previously cleaned processing and packaging equipment.

Sanitizer for Food and Beverage Processing/ Food Handling Operations

Prepare a 100 ppm solution. Prepare a fresh solution weekly when using closed containers (spray bottles). Prepare a fresh solution daily when using open containers (buckets) or if solution becomes diluted. Avoid contact with Food. Allow surfaces to remain wet for 1 minute before draining. Allow adequate draining before contact with beverages. All treated equipment that will contact food or drinking water must be rinsed with potable water before reuse.

Sanitizing Wipes

SANITIZING WIPES are a time-saving, effective cleaning method that is specifically designed to sanitize food contact surfaces in 60 seconds. Ideal for use on most hard surfaces where sanitizing is required without a potable water rinse. This ready-to-use product kills 99.999% of *Staphylococcus Aureus*, *Salmonella Typhi*, and *Escherichia Coli*.

Prior to application, remove all gross food particles and soil from surfaces that are to be sanitized. Thoroughly wash or flush the surfaces with a good detergent, followed by a potable water rinse before applying this sanitizing wipe. Use a fresh wipe for each new surface to be sanitized. Refer to product label for proper application methods.

Vision

To be a growth company focused on continuously improving customer experience through people, products and processes.

Customer Intimate
Meet customer's expectations.

Execute
Deliver results.

Growth
Be a high growth company where staff also grow professionally.

Respectful & Inclusive
Show all stakeholders respect.
Communicate effectively and listen to learn from others.

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