food processing
sanitation program

Introduction

The food industry in Canada is large and diverse, with great variations in the sizes of plants and stores as well as in the products they produce. Some are highly specialized to a single process whereas others are multi-purpose operations. For this presentation, we will focus on the common factors rather than the differences. The most important common factor of all, being that every facility, regardless of size or product, needs to be sanitary.

General Overview of Requirements

Equipment

All equipment used for cleaning and sanitizing must itself 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.

General Overview of Requirements

Chemical

All Dustbane chemicals are of premium quality and have an outstanding shelf life. The products recommended in this program have all been thoroughly tested and are Agriculture Canada approved. Chemicals should be properly stored in a designated area and should never be poured into unlabeled containers.

Contrary to some claims, mixed sanitizing solutions should be used within one day.

- **<u>Note:</u> CAUTION!!!! Never mix chemicals together. They may be rendered inactive or even become hazardous.**

Foodborne Illnesses

Micro-organisms

- Microorganisms are living cells which are not visible to the naked eye. 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.
- Microorganisms live and breed all around us, on our hands, in our mouths and noses and on our food.

Helpful Micro-organisms

- 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.

Foodborne Illnesses

Harmful Micro-organisms

- 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 discoloring, off-flavours or changes in food texture. Others may not alter the appearance, odour or taste of food but are still capable of casing foodborne illness.
- There are many types of microorganisms including, bacteria Yeasts, viruses, parasites and molds.

Foodborne Illnesses

Bacteria

- Bacteria are the microorganisms of greatest concern because they flourish and multiply to enormous numbers at room temperature. At optimum temperature, they can 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 about 3 ½ hours.
- Bacteria may be carried in water, food, or air and as hitchhikers on the human body, insects and rodents. Most often, they are spread by human contact and on equipment and utensils.

Foodborne Illnesses

Bacteria (cont'd)

- Some ready–to-eat meat products provide an ideal medium for bacterial growth. The high moisture content, neutral pH and abundant nutrients found there make for terrific breeding grounds for several types of bacteria, including several species that cause illness in humans. Some of these organisms, like Salmonella and Staphylococcus are well known in the meat trade. Others, not previously known to cause illness, have recently raised concern. Organisms such as Listeria Monocytogenes and Escherichia Coli 0157/H7 pose a challenge for both the industry and regulators. Fortunately, they can be controlled using the same techniques as with other bacteria: effective cleaning and sanitizing.

Foodborne Illnesses

Yeasts

- Yeasts are single cell organisms, which also require food (carbohydrates) and moisture for growth. In addition to being able to grow at room temperature, they can also grow in refrigerated conditions. 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.

Foodborne Illnesses

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.

- Trichinosis is probably the best-known parasitic disease and is caused by larvae present in the muscle tissue of infected pigs. If infected pork is undercooked, it is almost certain that the larvae will develop into small roundworms in the individual's intestines. These worms cause gastro-intestinal illness resulting in fever, muscle pain and fatigue. If left untreated, they can migrate into the patient's muscles and form cysts and cause muscle spasms.

Foodborne Illnesses

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.

Foodborne Illnesses

Most Microorganisms require certain conditions to grow and produce:

- **Food:**
  - Like any living thing, microorganisms would die without food. Most thrive on proteins and organic matter found in meat and other food sources.

- **Warmth:**
  - Microorganisms thrive at temperatures between 4°C (40°F) and 60°C (140°) (called the "DANGERZONE"). 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.

Foodborne Illnesses

- **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.
- **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.

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

The personal hygiene of all employees is very important, but that of the people working directly with food products is CRITICAL.

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.

- Clean, sanitized uniforms must be worn by all personnel. These uniforms should be properly designed so as 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.

Personal Hygiene

- Washrooms must be clean, bright and well stocked with sanitary and personal hygiene products.

- The wearing of hand and arm 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 “DUSTBANE ANTISEPTIC HAND SOAP” should also be on hand. All employees must be made aware of the importance of frequent hand washing.

Cleaning & Sanitizing

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.

Cleaning & Sanitizing

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

Cleaning & Sanitizing

Typical Cleaning Program

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.

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 method.

Pre-Rinse

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

Cleaning & Sanitizing

Typical Cleaning Program

Cleaning

- Apply a solution of "DUSTBANE CLEARINSE" to all cleanable surfaces using a WorldChem dispenser. Allow solution 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

- Apply DUSTBANE QUATROMYICIDE II through the dispenser to all areas to kill microorganisms.

Specific Cleaning & Sanitizing Methods

Pressure Clean Method

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.

Procedure:

- Disconnect all electrical cords from wall sockets.
- Clean all coarse material from area to be cleaned (DO NOT WASH DOWN FLOOR DRAIN).
- Apply CLEARINSE to all surfaces with pressure washer set at 1/80 dilution (FOAM NOZZLE).
- Scrub all necessary areas with a white or blue scrub pad. Allow a dwell time of 5 minutes.

Specific Cleaning & Sanitizing Methods

Pressure Clean Method

Procedure (cont'd):

- Rinse all areas with clean water with pressure washer and squeegee solution down floor drain (If no floor drain is available, pick up solution with wet vac).
- With pressure washer set at a 1/500 dilution rate, apply a mist of QUATROMYICIDE II over the entire area/
- Wipe down equipment with a clean cloth dampened with QUATROMYICIDE II to remove any puddles or water marks. Any equipment susceptible to rust or staining should be dried using a clean towel.

Specific Cleaning & Sanitizing Methods

Triple Sink Method

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

- Ideal water temperature is 55°C (130°F).
- The water must not be allowed to become saturated with waste. Frequent changes of water will improve the efficiency of the process.

Procedure:

- Fill the first sink with a solution of CLEARINSE diluted at a rate of 1/80.
- Fill the second sink with clear rinse water.
- Fill the third sink with QUATROMYICIDE II mixed at a dilution rate of 1/500.
- 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.

Specific Cleaning & Sanitizing Methods

Triple Sink Method

Procedure (cont'd):

- Remove items from sink # 1 and place into sink # 2, Rinse away all traces of CLEARINSE.
- Remove items from sink # 2 and place them into sink # 3, Allow them to soak for a minimum of 45 seconds.
- Remove items from sink # 3 and towel dry any items that may be susceptible to rust or staining. Allow other items to air dry.

Specific Cleaning & Sanitizing Methods

Twin Pail Method

For small cleaning jobs or for hand cleaning of equipment during a shift when the product being processed is to be changed.

- Ideal water temperature is 55°C (130°F).
- Pails must be clean and labelled as to their contents.

Procedure:

- Fill the designated pail with a solution of CLEARINSE diluted at a rate of 1/80.
- Fill the second pail with a solution of QUATROMYICIDE II diluted at a rate of 1/500.
- After manually cleaning all coarse waste from the article being cleaned, apply the CLEARINSE solution with a stiff brush and scrub thoroughly.
- Rinse item well with clean water
- Wipe item with a clean towel dampened with the QUATROMYICIDE II
- Allow item to air dry

Agriculture Canada Approved Products

The following DUSTBANE products have been approved by Agriculture Canada's Agri-food Safety Division (MEAT HYGIENE)

Sanitizers and Disinfectants:

- Enol Plus
- Quatromyicide II
- Finale
- Pinosan
- Vanguard
- Vanguard 256

Cleaners and Degreasers:

- Clearinse
- Resolve
- Surface Kleen Plus
- Triple Action

Hand Cleaners:

- Antiseptic Hand Soap
- Hand & Body Shampoo
- Polypower

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