



Bord Iascaigh Mhara
Irish Sea Fisheries Board

Information Note

Cleaning and Disinfecting in Seafood Processing

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Cleaning and Disinfection (referred to together as sanitation) forms one of the major day-to-day controls of the environmental routes of food product contamination.

Cleaning refers to the process of removing dirt and food particles from an object or surface, both of which support the germs that cause food poisoning, food spoilage and also attracts pests.

- Cleaning reduces contamination and helps keep products safe to eat.
- Protects and maintains equipment – clean equipment works more efficiently eg. chillers and freezers work better if they are free from ice and dust
- Provides a safe workplace-dirty equipment can be slippery and dangerous e.g. greasy or wet floors, utensils.

Numerous and costly cases of food spoilage have been traced back to the insufficiencies of these procedures.

Terminology of Cleaning Agents used in Processing

Detergents

A Detergent is a cleaning agent that helps to remove dirt and grease from porous surfaces (such as fabrics, clothes, non-treated wood) and/or non-porous surfaces (such as metals, plastics, treated wood). All detergents are made principally of soaps or surfactants. Surfactants when mixed with water, help remove dirt from surfaces by helping the water spread over the surface that is to be cleaned (this is called wetting). Detergents allow the water to get in to the dirt. This is called penetration. Keeps the dirt removed from the surface of the water rather than having it settle on another surface (called emulsification and suspension).

Detergents must

- Remove the dirt which, with fish is mostly protein and oil
- Detergents must not leave harmful residues after rinsing
- Detergents must not corrode or damage plant , surfaces and utensils
- Detergents must be safe to use
- Detergents use must not result in scaly deposits if used over and over
- Detergents should be good value for money

Using Detergents

- Use the right concentration.
- Use the right water temperature - the cleaning power of the detergent increases as the temperature of the water it mixes with is increased. Water which is too hot can bake on the dirt and make it difficult to remove.
- Have the detergent on the surface to be cleaned for the right amount of time, called contact time.
- Rinse off the detergent.

Ask the supplier of your cleaning agents if they are food grade and always keep the accompanying material safety data sheet on file.

Disinfectants

A disinfectant is a chemical agent which is capable of destroying disease causing bacteria or pathogens, but not spores and not all viruses. The main difference between a sanitizer and a disinfectant is that at a specified use dilution, the disinfectant must have a higher kill capability for pathogenic bacteria compared to that of a sanitiser.

A well prepared washing programme must include the following:

- Mechanical removal of dirt using a brush or suitable cleaning tool.
- Rinsing with tempered or cold water.
- Washing with hot water (40-70°C) with detergent.
- Rinsing with tempered/cold water.
- Disinfection of the clean surface according to the manufacturer's instructions.

Sanitisers

Sanitisers have been widely used in the food industry to decrease populations of pathogenic and spoilage organisms in food production and processing facilities.

In general, to sanitise means to reduce the number of microorganisms to a safe level. The main difference between a sanitiser and a disinfectant is that at a specified use dilution, the disinfectant must have a higher kill capability for pathogenic bacteria compared to that of a sanitizer.

Sanitisers are used following cleaning. Sanitisers reduce the number of bacteria, but they do not eliminate them completely. Different sanitisers kill bacteria in different ways. Most sanitisers belong to one of **4 Categories**.

- Chlorine sanitisers kill the microorganism by getting in to the microorganisms cells and altering its life.

- Quaternary ammonia sanitisers (QUATS) break down the microorganisms wall and they die very quickly.
- Iodophors- an antiseptic or disinfectant that combines iodine with another agent, such as a detergent
- Acid sanitisers- Acid sanitizers have a broad spectrum germicidal activity and are very cost- effective to apply e.g Peracetic acid

In addition, Ozone has been used. Ozone is effective for the treatment of both biological as well as non-biological contamination. Ozone is a well-known and proven oxidizing agent that will destroy even the hardest microbiological organisms as well as oxidising the majority of organic components. In addition to its universal application, ozone will leave no residue or chemical traces after the cleaning process is completed therefore making it a safe medium for the treatment and decontamination of cleaning in place applications used in the food industry

Using Sanitisers

Always check the label before use and do not mix sanitiser with other chemicals.

- Use the right concentration
- Use the right water temperature
- Leave it on for the correct time

Selecting a Sanitiser

Sanitiser must not leave any harmful residues.

Be safe to use.

Be able to be stored undiluted and still be effective in killing bacteria.

Not result in strains of microorganisms which are resistant to sanitisers.

Sterilisation

Sterilisation is the process of removing all living cells, micro-organisms, pathogenic

bacteria and spores from a product. This is usually done by subjecting the product to dry heat or pressure steaming.

Sterilants are specialised chemicals, such as formaldehyde, which are capable of

eliminating all forms of microbial life, including spores. The term sterilant conveys an absolute meaning; a substance can not be partially sterile.

Important Note

Never allow untrained staff to carry out cleaning for you and ensure that there is a material safety data sheet to accompany all cleaning chemicals used.

Make a list of all equipment and surfaces to be cleaned.

Ensure that staff carrying out the cleaning are provided with suitable protective clothing.

Decide on the frequency that cleaning is carried out, eg daily, weekly, monthly etc.

Discuss who is responsible for carrying out this task.

Ensure that the cleaning chemicals used, are of food grade material.

Ensure that cleaning record sheets are signed off when cleaning has been completed.

Review your cleaning schedule at regular intervals to ensure that it remains suitable for your operation.

The efficacy of your cleaning regime can be verified by swabbing the areas that you have cleaned and sending the swabs to an accredited laboratory for analysis.

Reviewing the laboratory reports as part of your overall HACCP Plan will indicate if your premises are being cleaned sufficiently.

Disclaimer

This information note does not purport to be comprehensive or to be a legal interpretation or to constitute legal or other professional advice.

Changes to the legislation may be expected that will necessitate this information note to be further updated.