

Cleaning and Sanitizing to Meet Regulatory Requirements

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Abstract

Cleaning and sanitizing has always been an important phase of any food processing industry. Recent changes in production and distribution require that concentrated effort be put forth to meet higher standards of sanitation. Regulatory agencies establish a set of rules to help meet these requirements. It is the processor's obligation not only to regulatory agencies but also to the consuming public to meet their standards of acceptance. The added expense of good plant practices in any cleaning and sanitizing is compensated for through added product shelf life and longer equipment life.

Cleaning and sanitizing is no longer a haphazard operation. It has reached a new horizon where technical knowledge of products being processed, cleaning and sanitizing materials and their application is necessary. It is accomplished by following a prescribed set of rules or instructions. These instructions must be specific as to what, when, where and how they are to be carried out. The program must be continuous and well supervised. It must be evaluated and changed as necessary for best results and efficiency.

Cleaning and sanitizing is important work. It can show dividends if given the proper attention.

CLEANING AND SANITIZING has always been a very important phase of the food processing industry. Regulations have been passed, some mandatory—some voluntary, by different agencies setting standards of acceptance.

The average food processor has taken steps immediately to meet the mandatory standards; many have also accepted the voluntary standards. These processors are to be complimented.

Processors who do not attempt to meet these standards are operating under hazardous conditions. Contamination of product due to poor sanitation can not only cause a public health problem but also an economic loss due to deterioration of product. The added expense of good plant practices with regard to cleaning and sanitizing is compensated for through longer product shelf life and longer equipment life.

Cleaning and sanitizing has graduated to a technical operation. Knowledge of materials used and methods of application is necessary if effective and efficient programs are to be instituted and maintained. Just as regulatory agencies set up standards or rules, so must rules be established and followed for cleaning and sanitizing.

Basically a good equipment cleaning program follows a procedure of pre-rinse, clean, rinse, sanitize and final rinse. Each function has its place and if followed correctly and in order will produce results satisfactory to those con-

cerned. A detailed description of each function is necessary if it is to be understood.

Pre-rinse

This operation may sound simple and it is, if done properly. Pre-rinsing is done to remove rinsable solids. This reduces the load on the cleaning solution and many times moistens films sufficiently for easy removal. This is particularly true of the soil commonly found on fish processing equipment. It is suggested that pre-rinsing be done with a pressure hose and temperatures maintained in a range of 100° to 125°F. Higher temperatures may set up the protein soil making removal difficult.

Cleaning

There are many factors to consider in deciding on the correct cleaning program. Besides the soil, it is necessary to consider the type of metal used in processing equipment, how the cleaning solution is to be applied, who will do it and when will it be done. All of these factors have a bearing on the type of cleaning material to be used. There are varied types of cleaners on the market, each a blend of ingredients necessary to do a job. You may consider them a good example of team work. Each ingredient has a purpose. Properly blended cleaning materials penetrate the soil, releasing it from the surface. They will also place it in solution through emulsification, saponification or dissolve it and keep it in suspension or solution so it will not re-deposit on the surface.

Cleaning materials can be classified as alkaline, acidic or neutral. The alkaline materials are considered the work horse of the industry. The acid types are used for removal of mineral or protein films and the neutral types for procedures requiring little or no chemical action, only wetting out of the soil and removing it from the surface through mechanical action.

The material used in fabrication of any surface being cleaned must be considered when choosing the correct cleaner. Stainless steel is, of course, the first choice for processing equipment. It is corrosion resistant to most alkalies and acids normally used in food plant cleaning. Some chlorine sanitizers must be used exactly as directed or they will damage the surface.

Processing equipment containing aluminum is not resistant to heavy alkalies, but it is fairly resistant to acids used in food plant cleaners. In fact, some of the foods processed in aluminum are much more corrosive than cleaners properly formulated for the purpose. Cleaning materials used on aluminum must contain an inhibitor, usually a silicated material.

Tin plated and galvanized surfaces must be treated with the same care as aluminum. They are easily removed with harsh alkalies and even careful use of acid cleaners will gradually dissolve them.

Plastic materials are coming into use but are limited to certain materials and to processing at room, or slightly higher, temperatures.

Application of cleaning and sanitizing solutions

Procedures for application of cleaning-sanitizing materials may consist of soaking, hand brushing, circulation, cleaning in place or pressure spray cleaning. Any one or a combination of these methods may be chosen, depending on the process and magnitude of the operation as well as the efficiency required.

Soak operation can be considered a chemical action. It requires a container of cleaning solution into which the soiled surface is placed. After sufficient

time the soil is lifted or at least loosened from the surface requiring only pressure rinsing for removal.

Hand brushing is no longer practiced except for small parts with easily removed soil. Hand brushing requires people and people are expensive.

Circulation cleaning and cleaning in place are used for many operations. They are particularly suited for cleaning large tanks, vats, pipe lines and the like. The equipment necessary for cleaning in place or circulation cleaning would require a tank to hold the solution, a pump to provide the velocity and spray devices either of a permanent or portable type. These systems must be designed for the job, but once this is done consistent results are obtained time after time.

Pressure spray cleaning has come into prominence recently. It is adaptable to most cleaning requirements. Pressure spray cleaning consists of applying the cleaning solution to the surface at a high velocity to soften and remove the soil. There are a variety of devices on the market for this application. The entire unit would consist of a solution tank, pump, piping or hose system and an application nozzle. The heart of the system is the pump. Good cleaning practices with this method are considered to be in the range of 1½ to 2 gallons per minute at pressures of from 350 pounds per square inch (psi) to as high as 600 psi. Some recommend higher volumes and pressures, but these, in the writer's estimation, become uneconomical and can be dangerous if not properly handled. Pumps used for pressure spray cleaning can obtain their energy from electricity or air. We have found air operated pumps to be very efficient and maintenance free.

The cleaning program

The fundamentals of a good cleaning program have been discussed. They are now ready to be put into practice. It is suggested that a supplier of cleaning materials be requested to help. They are experts in their field and their service is available. They will select the proper cleaning materials and method of application. They will also help to plan the cleaning program and instruct the actual cleaning crew. They will service the account to see that their products are used correctly, to make changes if necessary and to keep the program current.

The cleaning program for the fishing industry must start at the fishing vessel, continue through the plant and transportation of the product to the market.

First, a cleaning program must be defined. This is the set of rules for the job. These rules can be written for a particular plant only by surveying the operation. This survey should describe the process, whether hot or cold, the equipment and its composition, the facilities available for cleaning, when it will be done and by whom. From the information available detailed instructions should be written.

Installation of the program should start with instruction of personnel doing the work. Considerable time should be spent on this phase; not only verbal instruction but actual demonstration of proper methods will help to get the program off to a good start. The program must be supervised from the beginning; this is the only means of obtaining desired results and efficiency. Leaving workers to their own volition and interpretation very often results in difficulties. If any phase is not being done right, action must be taken to correct it. The program must be complete and current.

Some discussion of cost of cleaning and sanitizing is in order. Naturally,

it is going to cost more to clean correctly. People must be used; equipment, cleaners and sanitizers must be purchased. However, a properly organized sanitation program will pay dividends. I want to close with this thought. Do not consider how much it costs to be clean, but think how much it costs not to be clean!