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The Do's and Don'ts of Food Plant Personal Hygiene Practices

By Tammi Frederick

Good personal hygiene policies and practices are the foundation for successful food safety and quality assurance in all food manufacturing facilities. Plant personnel are among the most significant reservoirs and vectors of microorganisms, chemical residues and foreign materials in the food facility, and as such, can be a source of unwanted contamination to products. Comprehensive personal hygiene programs, coupled with a top-down philosophy supporting sound sanitary practices as part of the corporate structure, are key to implementing best practices for compliance with Good Manufacturing Practices (GMPs), Sanitation Standard Operating Procedures (SSOPs) and related sanitation and food safety audits. The top-down approach ensures that personal hygiene policies and procedures are implemented by all personnel—management, visitors, production, sanitation and maintenance staff—at each company and in each facility, reducing the risk of product contamination and the likelihood that such product will reach the consumer.

Addressing all the potential personal hygiene trouble spots can be challenging, however, because the routes, or vectors, of contamination are varied and complex. In any given food plant there is a wide range of activities and movement that can result in the transfer of microorganisms, chemical adulterants or foreign objects from plant personnel to the food product. The transfer of contaminants can occur through a direct route, such as bacteria transferred from the body, skin, mouth, hands or hair to the product, or indirectly via their personal equipment, such as clothing, footwear, utensils and other tools used in their daily tasks. Everyone in the food production environment must understand that anything that travels through or is mobile in the facility is a potential source of contamination and must be tracked and controlled. Certainly, people are the biggest "movers" in the plant and therefore a source of cross-contamination when moving from one processing area to another, followed by the tools and equipment they carry and use, which includes everything from sanitation foamer carts and hoses, to

forklifts and pallet jacks, to pens and tape.

From a food safety and quality assurance view, improving our ability to identify and control these vectors of contamination, however wide-ranging, is critical to our efforts to produce safe and wholesome foods for our customers. The good news is that many best practices in personal hygiene are well-established in the food industry. Staying on top of some of the more common personal hygiene practice "do's and don'ts" is also a good idea, especially in preparation for an audit or inspection of your facility.

Getting Personal with People

There is little debate that people are a primary source of potential contamination in the plant, especially with regard to microorganisms and foreign materials. A good way to reduce the incidence of people-related contamination is to institute a system of designated and dedicated personnel: those who are non-product handlers and those who are product handlers. In this system, people who are designated as food handlers never, under any circumstance, pick up items from the floor or from other non-product contact surfaces. Designated non-product handlers are dedicated to tasks such as picking up items from the floor and other surfaces, and can handle squeegees, hoses, pallets and other production tools, but can never, under any circumstances, touch or handle food product. Providing employees with different colored hats or aprons to distinguish product handlers from non-product handlers makes this policy easier to implement and enforce than trying to track and monitor each individual to ensure that they go and wash their hands after they pick something up off the floor. Color-coded clothing makes it very obvious to all employees who is and isn't allowed to touch product, and leaves no grey area for interpretation if one witnesses a designated product handler picking up something off the floor. It is simply a huge violation.

Three important areas of focus when setting personal hygiene policies to prevent contamination by people of food product are protective outer clothing, footwear and hand washing.

Protective outer clothing. Food processors must provide employees with the ability to create a barrier between themselves and the product. These items typically include company-provided coats/smocks, plastic aprons or plastic sleeves, hairnets and snoods, and gloves, when appropriate. Essentially, protective clothing provided by the company should never be worn outside of the plant premises, should always be worn in the plant production areas and should be regularly changed.

• **DO** provide appropriate clothing to prevent product contamination. Factory clothing should be hygienically designed to prevent foreign bodies from shedding directly (i.e., lint, buttons) or indirectly (i.e., outside pockets from which objects can fall out into product). Whenever possible, smocks should not have outside pockets. Many aprons, gloves and smocks used in food production are constructed and designed to prevent microbial cross-contamination of the product from the employee.

• **DO** control the laundering of protective clothing to ensure the sanitary condition of the material. Laundering has to be controlled by the company in order to achieve a greater level of confidence that these items have been cleaned and sanitized adequately before being worn in an area where it may come into contact with your finished product.

• **DON'T** allow jewelry in the production area, period. In the era of tongue rings and body piercings, it is good to have a completely restrictive policy to prevent foreign material inclusions from personnel to the line. In addition, a pre-shift check of the condition of clothing or footwear for frayed edges or loose items, such as buttons or snaps, can help control inadvertent foreign material contamination of product during the shift.

Footwear. Again, the goal is to have an effective barrier against microbial contamination from humans and/or equipment that travels through food-contact areas. Footwear can be a vehicle for the transfer of pathogens from production areas deemed as high risk to low-risk areas, a fact that requires either that footwear is dedicated exclusively to either low risk or high risk areas, or that these items are decontaminated between areas to prevent cross-contamination. Foamers are the most commonly used footwear decontamination method in the industry because they offer the advantage of sanitizing other vectors like pallet jacks, forklifts and carts at the same time. Foot dips/baths and bootwashers also are common.

• **DON'T** create a bacteria bath. In facilities or areas in which foot dips are utilized, it is essential that they are monitored to make sure that a "bacteria bath" has not been created. Foot dips need to be monitored not only for adequate concentration but also for appropriate volume of sanitizing solution. Often, by the end of the first break in a given shift, there is so much organic material built up in the container that there is no longer any sanitizer effectiveness. In fact, the foot dip is a pool of bacteria that everyone walks through. Thus, routine monitoring of the volume and concentration and regularly changing the dip solution is best.

• **DO** require that nonporous footwear is worn, especially in the production areas. Footwear should be constructed of material that is cleanable. It should not be made of leather or cloth that will get and stay wet, which is uncomfortable for the wearer and may result in the employee avoiding the necessary foamers and foot dips so they don't have to be wet all day.

• **DO** require that footwear remain and be cleaned at the facility. Ideally, you should have a policy that employees leave their footwear at the facility in order to mitigate contaminants carried into the plant from home. Also, it is important to provide appropriate cleaning resources such as cleaners and brushes for all employees at end of the production shift, as well as appropriate storage conditions.

Hand hygiene. The bottom line is that all personnel in the food manufacturing environment must regularly and adequately wash their hands to prevent microbial contamination of foods and food-contact surfaces. It needs to be stressed that this applies to everyone that enters the production facility. At bare minimum, everyone prior to going to work or coming into a production environment should have to stop and wash with soap and water, and when appropriate sanitize, their hands. Hand washing policies should require employees to wash after any type of activity that could contaminate the hands with pathogens, including using the restroom, blowing the nose or touching body parts, handling raw food, waste or nonfood-contact surfaces such as light switches or pipes, and working a shift. Employees also should wash before entering food handling areas, changing clothing and putting on gloves.

• **DO** provide appropriate hand washing resources for the number and placement of your employees. If 200 employees are going back to the line at the same time after break, there has to be enough hand washing stations to accommodate that flux of employees. If hand washing stations are not placed in convenient locations, employees may skip washing. In some operations and in some production areas, employees need access to hand washing stations more frequently than just at start-up and at break, so the key is keeping the units accessible and well-stocked so that employees will use them. If personnel have to travel to find a sink, it isn't going to happen.

• **DO** institute some type of hand washing verification method. Random use of hand swabs or plates are very effective to verify hand cleanliness. It doesn't require a large number of employees to get the word out that random checks are going to be conducted, and pulling random personnel and doing a hand swab helps keep everybody honest. Training is an important part of instilling good hand washing practices. Hand swab and

plate verification are effective training tools because people often are amazed when they see what is still growing on their hands after a rudimentary wash.

Getting Personal: Equipment

Plant personnel use a variety of tools and equipment throughout the production environment that also should be addressed in the company's personal hygiene policies. These include tools and equipment used in production, maintenance and sanitation activities.

Production Tools and Equipment. From a GMP standpoint, we have to make sure that hand tools and utensils such as knives and scissors that are used by personnel in food production activities do not become a source of product contamination. Examples include microbiological cross-contamination (i.e., the employee uses a knife in a raw materials area but before cleaning and sanitizing the utensil, sets the knife on a surface on the finished product side); chemical residue contamination (i.e., the employee uses scissors to open a plastic bag of allergen-containing ingredient and then uses the same scissors to open a container of non-allergen-containing ingredient); and foreign material contamination (i.e., the employee's thermometer falls out of ill-designed smock pocket into product). Again, anything that moves within the plant has to be controlled, including tool carts, scale carts, ladders, pallet jacks, forklifts, foamer carts, cleaning chemical and sanitizer containers, and hoses.

• **DO** ensure that employees have the appropriate resources to do their job—and that the company maintains control of those resources. The ideal situation is that all tools are company-owned, are all turned in at the end of every production shift and then are distributed back to employees clean and inspected prior to resuming their work shift. You do not want 2,000 employees bringing tools from home to accomplish their jobs and thereby raise the possibility of outside contaminants entering the plant.

• **DO** make sure that production tools are cleanable and maintained in good condition. For example, scratches or cracks in the handle of a food-contact knife creates a great niche for microbial growth and contamination. Eventually, the microorganisms are going to slough out onto your product. Tools should be constructed from materials that are rugged and as "microbe" free as possible. It is a good idea to put one person in charge of making sure that tools are well-maintained so that they can be replaced when they are worn or are in poor condition. A system should be in place for how tools are cleaned, at what frequency, and how they are stored and where. This is more easily accomplished if the tools are owned by the company and not by the employees.

• **DO** control the number of tools and supplies that are taken out to production areas. This is a good idea for everything from ink pens and tape rolls, to sample bags, safety goggles and thermometers. For example, it is recommended that employees use one-piece ink pens made of metal, rather than plastic cap-and-pen types, both to reduce the chance that a pen cap falls into product and to ensure that the metal detector will let us know that there is a problem if the entire pen falls in. If we can control and minimize the amount of supplies and the number of people who are taking those types of supplies into the production areas, we are better able to achieve accountability if a tool or supply item gets dropped or lost and can put corrective action wheels in motion quickly.

Maintenance tools and equipment. In general, maintenance staff is one of the most critical groups to the success of overall control in any GMP or personal hygiene plan. These personnel are highly mobile within the plant, moving from clean to dirty and/or raw to ready-to-eat areas of the plant as maintenance tasks dictate. Therefore, segregation of maintenance personnel and their tools and equipment is recommended to prevent contamination. Ideally, mechanics are dedicated by department, their tools and equipment are dedicated by department, and they have a cleaner and sanitizer available to them for use prior to working on any food-contact surface.

• **DO** provide good cleaning and sanitizing resources to maintenance personnel. Cleaning and sanitizing of tools is critical. The biggest challenge is that, nine times out of 10, maintenance personnel own their own tools and do not want to dip those tools in quaternary ammonia or chlorine for fear that these treatments will corrode them. Try to find cleaners and sanitizers that are less harsh on these tools but that still provide an adequate barrier and cleaning mechanism.

• **DO** ensure that maintenance personnel are knowledgeable about sanitation and personal hygiene practices. Look at the maintenance crew's practices and procedures during preoperational activities, from what outer garment they wear to the sanitary condition of their tools, as well as equipment tear-down and set-up activities following third shift. We must ensure all personnel are taking the appropriate precautions so when handling the cleaned and sanitized equipment, we are not being a source of contamination to that area and/or equipment.

Maintenance also should be held accountable for equipment parts and tools following any work they perform in production areas, primarily from a foreign material prevention standpoint.

Sanitation tools and equipment. The company must give its core group of sanitarians the resources to do their job properly. This means ensuring that their equipment is being maintained in a condition that can be cleaned and in sanitary condition. This includes rain suits, hoses, brushes and foamer carts, for example, all of which can be vectors for microbial contamination. Typical plant flows start on the raw side and then move to the ready-to-eat side. Sanitarians follow that flow, and as such, any of that critical sanitation equipment should be designated and dedicated by side or department to avoid potential cross-contamination.

• **DO** designate or dedicate sanitation personnel, tools and equipment. Color-coding of sanitation tools is a tremendous tool because it works in all languages and makes these tools easily distinguishable from other production tools for better accountability. Sanitation tools and equipment should be designated and dedicated by three categories: food contact, non-food contact and drain. In other words, the facility should have a minimum of three different types of sanitation activity brushes so designated and dedicated to each of the three described functions for each area of the facility.

• **DON'T** allow food-contact surface equipment to be placed on the floor during sanitation disassembly/ reassembly operations. During disassembly and prior to reassembly, many plants will place equipment parts on the floor, essentially "storing them until they are needed for reassembly. Even if a sanitizer spray is used at some point during the equipment cleaning and sanitizing process and before reassembly, food-contact surface equipment that makes contact with the floor is very risky. Facilities should provide saniitarians and maintenance staff with dedicated racks or carts on which to store parts as equipment is being disassembled, cleaned and sanitized, and readied for reassembly prior to the start of production.

• **DO** provide a control plan for cleaning and storage of sanitation department rain suits, footwear and tools. Again, we have to give our sanitarians the resources for proper cleaning and storage of their equipment so that they can be maintained, cleaned and stored in a sanitary environment.

Training for Success

Training is essential to educate employees and reinforce good personal hygiene practices. There are many training aids available to food processors in the form of on-line or print manuals, posters and signage, and videos for use in new hire orientations and employee refresher courses. Also, many food companies today are using digital

cameras to take “do’s and don’ts” pictures in their facilities and incorporating these images into multimedia presentations and training manuals. This is a very effective and inexpensive training tool that captures visually the actual environment in which employees work, creating high recognition and retention of what constitutes “good” versus “bad” practices. Regardless of what training tools or formats you opt to use, it is essential that the top-down approach apply to personal hygiene education activities—and that these efforts are ongoing—in order to ensure a high level of contamination prevention and control in the food processing environment.

• **DO** plan an immediate refresher on personal hygiene policies and practices following new hire orientation. When new hires attend their first orientation, they are typically bombarded with a lot of important information in a relatively short period of time. These new employees might be introduced to a slew of important company policies and protocols ranging from Occupational Safety and Health Agency (OSHA) requirements, to insurance and benefits information, to food safety and personal hygiene rules, all within a six-hour orientation and their total comprehension is likely not great. Providing a follow-up refresher session on personal hygiene policies two weeks after the orientation—even just 30 or 40 minutes to refresh and reiterate policies and protocols on hand washing, outer clothing, sources of cross-contamination, etc.—helps raise employee comprehension. At this point, employees have been in the plant for two weeks and have some experience to better understand how these practices have an impact on food safety.

• **DO** incorporate personal hygiene practices as a topic of discussion in other venues. For example, most facilities that comply with OSHA requirements conduct monthly safety meetings for all employees. Using five or 10 minutes of that meeting to cover a hot button GMP or personal hygiene topic is very effective in keeping everyone focused and aware. Similarly, an annual refresher that covers the company’s entire policy and protocols for product protection is a good idea.

• **DO** employ visual aids to create continual employee awareness of personal hygiene best practices. The best way to accomplish this is to place signs on bulletin boards in hallways, break rooms and other high-traffic areas that reiterate personal hygiene messages such as showing the sequence steps of good hand washing procedures or images that show how easily jewelry, tape and pens can get into the finished product. Posters that feature drawings, simple “yes/no” symbols and pictures help to overcome language barriers.

Ultimately, all employees want to be part of the food safety team; they want to do the right thing. If we give them the resources to do the job properly in terms of personal hygiene practices and sanitation best practices, they will practice what is preached and potential sources of contamination will be significantly reduced.

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