



REMCO
P R O D U C T S

10 THINGS TO KNOW ABOUT COLOR-CODING

SERIES INTRODUCTION

Color-coding is an important part of any food safety program. Not only does it help prevent cross-contamination due to pathogens, allergens, and foreign contaminants, color-coding has a variety of other uses. With the number of governmental regulations growing, it is essential that food processing facilities stay on top of the current trends and best practices to be market leaders. Implementing a color-coding program is a great way to help accomplish that.

Here are the ten things that you should know about color-coding:

- 1. All types of food processing facilities can benefit from color-coding**
- 2. Color-coding helps prevent cross-contamination in food processing facilities**
- 3. It helps to distinguish critical zones and control points**
- 4. There is currently no standard set of rules for color-coding, just best practices**
- 5. Color-coding programs are looked upon favorably by auditors and customers**
- 6. It simplifies the traceability of tools**
- 7. Color-coding breaks through language barriers**
- 8. Simplicity is essential for an effective program**
- 9. Communication is key**
- 10. Complete implementation improves internal adoption**

1. Benefits All Food Processing Facilities

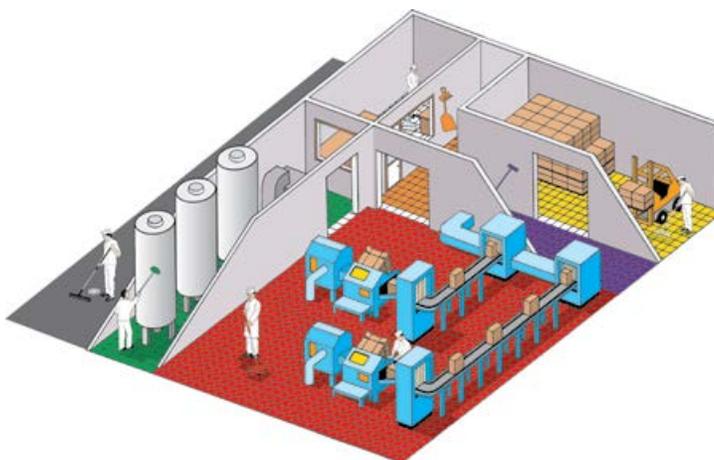
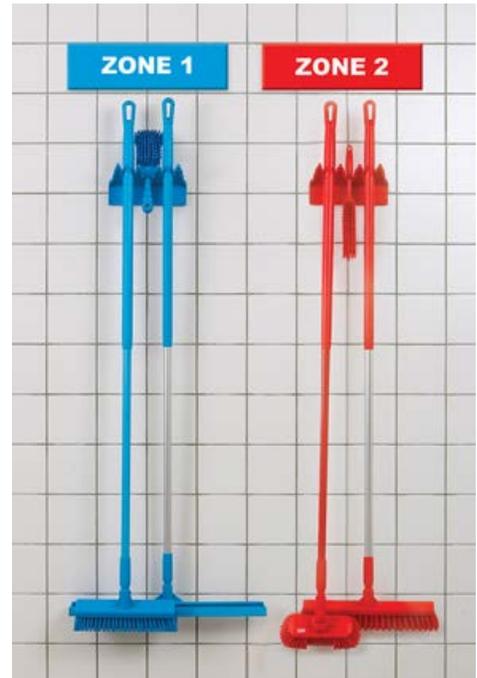
Any food processing center can benefit from color-coding. Color-coding helps keep work areas sanitary and organized. There are some industries that can especially benefit from color-coding. Not surprisingly, these industries tend to carry higher risks and take more precautions.

Some of the industries that can benefit the most from color-coding are:

- Meat/poultry
- Seafood
- Dairy
- Produce/raw ingredients
- Baking/snack
- Confectionery
- Beverage
- Vineyard/winery

These industries are most concerned with preventing cross-contamination and cross-contact, especially when dealing with pathogens, allergens, and other foreign contaminants, and complying with strict FDA and USDA regulations. In the light of the recent increase in food recalls, it is more important than ever to be vigilant in food processing facilities.

Color-coding can do more than just help prevent cross-contamination, such as aiding organizational efforts. When everything has a place, and everyone knows where that place is based on an object's color, it's easy to keep tools put away. For a large facility, color-coding can separate tools by shift or by area. For smaller operations, a single color could be used per employee or employee role.



Color-coding goes beyond cleaning and material-handling tools. All kinds of accessories can be color-coded to help ensure complete understanding. Hair nets, footwear, clothing, gloves, mats, bins, and even tape can be color-coded to make distinguishing between different zones easy.

Color-coding has a number of benefits to offer any food processing facility, especially when it is implemented effectively.

2. Prevents Cross-Contamination

Color coding is an easy way to visually separate work areas and prevent cross-contamination. Facilities with cross-contact concerns with allergens should particularly consider color-coding to lower that risk. The threat of recalls is always present, especially with facilities that contain allergens.

Color-coding can help decrease the risk of contamination that leads to recalls. Color-coding developed using the guidelines of Hazard Analysis and Critical Control Points (HACCP), a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material product, procurement, and handling, to manufacturing, distribution, and consumption of the finished product. Control measures are used to “prevent, eliminate or reduce a significant hazard” in this system. Color-coding is an excellent example of a control measure.

Cross-contamination is prevented by keeping foods that transfer bacteria separate, or by keeping allergens separate. For example, we all know raw meat should never come into contact with processed meat, so you keep them separate. The simplest way to do this is to color-code the food processing facility. When a facility has a color-coded program in place, it becomes much easier to distinguish between sections. For example, raw meat zones can be color-coded red, and the processed area green.



Sample Color-Coding Systems:

Preventing Functional Cross-Contamination:

Red: Raw Meat

Green: Processed or Cooked Meat

Preventing Departmental Cross-Contamination:

Blue: Seafood

Yellow: Chicken

Preventing Allergen Cross-Contamination:

White: Milk

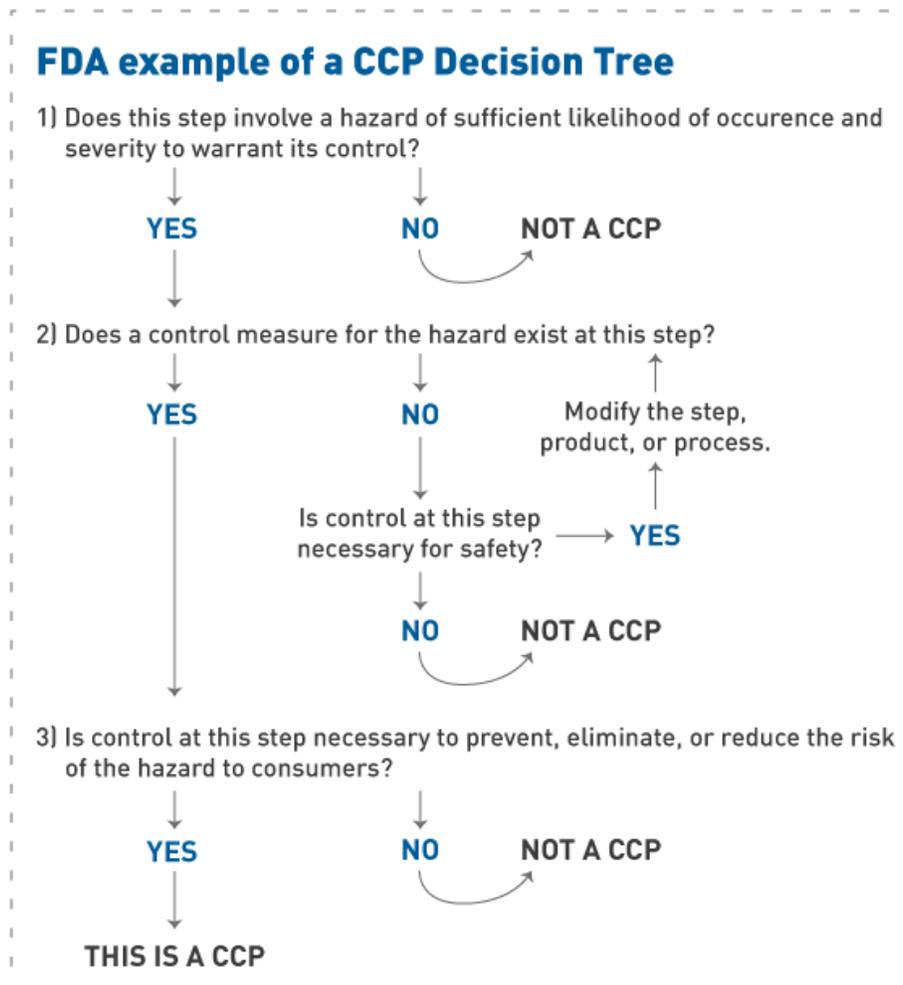
Green: Soy

Yellow: Wheat

3. Marks Zones and Critical Control Points

Just about every food processor knows that complying with food safety regulations from the FDA and other regulatory bodies is a vital aspect to the success of their overall operation. Without achieving this compliance, it would be fairly difficult to run an effective food processing program. The list of recalled food products seems to grow every day—many the result of some sort of cross-contamination—and those recalls can cost millions of dollars. The old adage, “better safe than sorry,” comes into play when talking about protecting against recalls. Color-coding is one simple method to help keep your food processing operation as safe as possible.

One of the most important measures to come out of recent FDA regulations is HACCP. Hazard Analysis and Critical Control Points is a preventative approach to the identification, evaluation, and control of food safety hazards that may cause illness or injury when not properly controlled. Put simply, HACCP is a measure designed to help control the threat of cross-contamination from biological, chemical, and physical agents. According to the FDA, “any action or activity that can be used to prevent, eliminate or reduce a significant hazard” is considered a control measure. Color-coding is an excellent example of a control measure.



Once potential food safety hazards are identified, critical control points can be documented. The FDA defines a critical control point in a food manufacturing process as “a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level.” Knowing where the critical control points exist in a food production process is essential to designing an effective HACCP plan.



Included in the many HACCP compliance resources available from the FDA is an example of a decision tree to help a food processing operation identify critical control points, seen below. Using a decision tree like this is not a mandatory part of the process, but it is valuable as a tool to facilitate the development of a thorough food safety program.

Since color-coding is a control measure, color-coding zones often coincide with critical control points or groups of critical control points. For instance, a color zone may be assigned to an area where raw meat exists in a facility, since raw meat poses increased risks of bacterial contamination. There may be several critical control points that require other control measures within that one color zone, such as testing for contaminants or refrigeration of the raw meat prior to processing. Once the meat has been cooked, a different color may be assigned to the zone following the raw meat area to prevent bacterial cross-contamination into the finished product. For this purpose, color-coding is an excellent and simple way to visually confirm that equipment is in the appropriate critical zone in a food processing facility.

When color-coding is implemented, it is easily apparent which zones are which, and what they represent. Because of this instant recognition, separating contaminated food before it goes out to the public becomes easier. And we all know that internal recalls (and no recalls at all!) are less costly than public recalls.

4. Has Established Best Practices

While the FDA does not currently have any standard set rules to follow when it comes to implementing a color-coding program, there are some common best practices that can optimize the process.

Here are some ideas to help you design an effective color-coding program:

Keep your color-coding system simple– Limiting the number of colors you use will go a long way towards simplifying the process. Too many times, people get bogged down with the idea that every line and every single process has to have a different color. This is not the case. Try to have a different color only when cross-contamination is a concern at a critical control point in the process. Those points where control is not needed could potentially use the same color, since cross-contamination is not a threat. If too many colors are used, the process becomes confusing and less effective.

Pick logical colors for each area– Making the transition to a color-coding system should be as seamless as possible. In order to keep confusion low when stepping into this system, try to pick colors that make the most sense in each area. For example, certain colors might make sense for certain areas in your food processing facility, such as red for raw meat, or yellow for wheat. Do what is most logical for your facility. Also, make sure that it makes sense to both managers and employees. If everyone is on the same page, the transition should run smoothly.



Avoid complicated color assignments– Having customized tools, like a different colored handle than the broom, might seem like a great idea to help differentiate zones. However, it could also lead to confusion. If you mix and match handles and brushes, the end result might be chaos. Say you have a red broom with a green handle. Now, you have the problem of trying to figure out if it goes in the green zone or the red zone. Save everyone the confusion, and stick to one color per zone. Instant recognition is the key to keeping confusion to a minimum. You should be able to look quickly and determine which zone is which. Remember, color-coding is supposed to solve confusion, not add to it.



Roll out the color-coding program at one time– This goes back to avoiding confusion. If you try to incorporate the new system in with the old one, people are just going to be confused. It's best to start the program all at once. It might be more difficult in the beginning, but it will be worth it in the end. Also, having a definite end date to the old program and a definite start date for the new system will make the transition even smoother.



Good communication is key– Having everyone on the same page will help with starting your color-coding program. A good place to start is by discussing changes with shift managers, then rolling it out to employees. The managers should have a good understand of the new system so they can address any questions or concerns employees might have. Offer a cheat sheet to employees that explains the color zones so they'll have the information with them at all times.

Reinforce color-coding with good signage– When you're starting a color-coding program, you don't want any ambiguity in how it's perceived. Make it absolutely clear what the program is, and when it is starting. The best thing to do is label every point in the process, in multiple languages if necessary.

Be sure your tools and storage areas match– Be sure the tools are stored in the same area where they are used to avoid confusion, cross-contamination, and equipment loss. If the red tools are stored on a red bracket or red shelf, it is easy to see exactly where that tool should go when it isn't in use. Having an organized storage area will be very helpful in maintaining the integrity of the color-coding system.

Follow through– Utilize the same documentation at point of use, with the purchasing department and with the quality manager so everyone is on the same page. Make sure all loose ends are tied up to further the success of the color-coding program. If the program is successful, your facility will be much safer.

5. Regulators and Auditors Love It

If your business is food processing, you're no stranger to government rules, regulations, and auditors. Complying with federal food safety regulations is crucial to the success—and even the existence—of your operation. Keeping the auditor happy sometimes becomes a top priority (such as the day before the audit), because no one wants to deal with the time, money, and marred reputation of a production delay or facility shutdown. If you're looking for ways to strengthen the food safety efforts at your operation, you need to know about color-coding—because we guarantee that your auditor does.



Even though color-coding is not a standard rule or even a requirement, it is a practice that regulating authorities commonly favor. Regulatory agencies, like the Food & Drug Administration (FDA) and the U.S. Department of Agriculture (USDA), exist to provide guidance for food safety procedures and ensure compliance with laws relating to the safety of the nation's food supply. One such law is the Food Safety Modernization Act (FSMA) that is intended to transform the U.S. food safety framework from a reactive damage control approach to more of a proactive prevention of foodborne illness crises. FSMA Section 103 requires food facilities to prepare written plans to evaluate hazards and implement effective preventive controls. It mandates several steps to ensure a true preventive approach to food safety.

Regulating authorities look favorably upon the practice of color-coding because it is a method that can easily be documented and followed by employees. A color-coding program that is written into a HACCP plan essentially becomes part of the facility's SOPs (standard operating procedures). A HACCP plan is a written outline

that identifies potential food safety threats and critical control points. Color-coding adds an extra layer of preventive protection in addition to other food safety efforts such as hygienic building layouts and hygienic equipment. Programs that are easily documented are also more easily communicated to employees, and the employees' adoption of food safety procedures is imperative to a program's effectiveness.

Visiting authorities and customers will readily notice color-coding programs upon entering a processing facility, which is precisely why the approach is so effective. Segregating zones by colors offers quick visual confirmation that equipment is where it belongs and is not contributing to the unintentional transport of contaminants throughout the facility. When color-coding is utilized as part of a multi-faceted approach to food safety, it adds credibility to the effectiveness of the operation for regulators and customers alike.

With the new laws and proposed guidelines surrounding food safety, prevention is the preferred approach by regulatory authorities. And in the long run, prevention is a better business practice than reactive damage control. The old saying about closing the barn door after the horse is out comes to mind when thinking about recalls; it's better if a recall is prevented from happening in the first place.

News of recalls travels in the blink of an eye since the rise of social media. In that short time, your facility's reputation can be irreparably damaged. To safeguard your operation from the negative publicity of a food safety crisis, it is imperative to prevent recalls before they happen. Monitoring any sort of cross-contamination threat inside the facility is fundamental, and color-coding is a simple way to keep those risks in check.



6. Traceability

Recalls are serious business. No one wants to see a recall happen to their company, but it still happens all too often. It goes without saying that food safety is important for more than just preventing costly recalls, though. From the field all the way to the table, keeping our food safe has to be top priority. Knowing where food is coming from, and what happens to it on its way through your facility, can potentially prevent a catastrophic recall. The concept of knowing and keeping track of food products is known as traceability. Traceability means being able to verify where food has been every step of the way – from the field it came from, to the line it's processed on, and what truck carried it. It's a complex chain of custody, but necessary to monitor in order to protect consumers.



Tracing the overall process is challenging, and maintaining that same control over your own facility isn't much easier. Many food processing facilities are large outfits with numerous people working different shifts, and some are small, localized businesses with few staff members. Trying to keep track of food's movements can prove difficult for big processors and mom-and-pop shops alike, though traceability is important in every single production facility.

Having color-coding in processing facilities enhances the level of traceability. Having a color-coding system helps track tools within the facility, making food that much safer. If you use red for the raw meat zone, then you know that a red tool in the yellow zone, which is for processed food, is a contamination threat. You can then take steps to remove the potentially contaminated food from that area. This is much easier than trying to remove contaminated food after it has left the facility, which could cost millions of dollars.

The benefit of having tools that are completely color-coded is that they provide instant recognition. To immediately know the origination of a tool is vital to preventing lost time, production shutdown, and delays. Having tight traceability in food processing facilities can not only diminish the chance of a recall, it also helps keep your facility on time with deadlines, helps the bottom line, and looks good in the public's and regulators' eyes.

In order to effectively trace food through the system, though, there must be consistency between all levels of movement. From the farm to the table, everything should be documented for the highest level of traceability. With the technology we have at our disposal, there is no reason not to be able to considerably reduce the number of recalls we see. Food processors should urge their suppliers to practice the same level of consistency with food safety. You may not be able to control what happens outside your facility, but you can choose to use suppliers that follow best practices.

7. Breaks Down Language Barriers

The environment in a food processing facility can be chaotic. This is compounded when you bring multiple languages into the mix. Trying to keep everything organized and streamlined can at times be a daunting task. Having a color-coding program in place can help eliminate some of the confusion that can arise from a language barrier.

Whether you have just one employee that speaks another language, or 500, color-coding can help to keep efficiency high and mistakes low. Because colors are universal, no matter what language someone speaks, they are going to be able to tell one color from another. Red is red, even if the word itself is different.



If red is for the raw zone, and someone who speaks a different language sees a red tool in the blue zone, they know immediately that something is not right and can then take appropriate actions. However, if no color-coding program is in place, and say, for instance, the method of communication is to have labels on the tools stating what zone they belong in, that employee might not know for sure if that tool is supposed to be there or not. With this kind of system, any time spent confused is loss of work, or worse yet, a cross-contamination hazard. Better to have a proper system in place to begin with so any problems can be fixed as soon as possible.

But, before you assign colors, remember there must be good documentation and communication of zones. This goes for all people, no matter the language. There must be signage and internal communication that clearly states what these different colors mean, and what the appropriate steps are when something goes wrong, in all languages spoken in your facility. Once everyone is on the same page, your color-coding system will work easier.

What about those who can't see colors, you might ask? Color blindness can affect about 8% of men and .05% of women. Depending on what kind of color blindness your employee has, choosing colors that have a high contrast might be a solution. Every situation is different, and the most important thing is to know your employees' needs and how to best meet them.

Having a color-coding program in place can help to limit the language confusion found in food processing facilities. Less confusion means safer practices, and this means better food safety. This can add up to fewer recalls, which saves money.

8. Keep It Simple

The core piece of advice Remco communicates to food facilities implementing a color-coding program is to keep it simple. A common paraphrase of Occam's Razor is "All things being equal, the simplest solution tends to be the best one." A color-coding program that is overly complex could become problematic for your facility and end up requiring more time and effort than it should, as well as involving more risk for cross-contamination. Determining what works and what doesn't is easier with a simple color-coding plan.



Food safety is a challenging endeavor in an industry with complex regulations, and color-coding is intended to simplify an element of it. Completely simplifying food safety is impossible, but color-coding can help, along with supporting the overall goal of meeting food safety regulations. Color-coding offers a method to intuitively keep tools organized and clearly communicate which tools belong in certain areas. Visual identification of equipment is quick when tools are color-coded.

The foremost principle to remember regarding the simplicity of a color-coding system is to limit the number of colors used to what is absolutely

necessary. For example, many food production operations have determined that only two colors are needed: one for "food contact" and another for "non-food contact." A plan like this would ensure that tools used on the floor are easily identified as being different than those intended to be used on food and food contact surfaces. This type of simplistic plan is very easy to explain to employees and communicate throughout the facility.

In cases when more than two colors are necessary, it is advisable to choose colors based on functionality. For example, some food production facilities employ processes that involve cooking raw meat. The potential for cross-contamination between raw and processed zones is a hazard that absolutely must be managed. Typically, two different colors are designated for raw and processed zones, and a third color is chosen to identify equipment designated for non-food contact areas. This type of a plan integrates more colors, but remains intuitive and should only require basic training for employee adoption.

Color-coding can become a method to standardize processes within a plant or a group of plants. Some businesses choose to standardize processes in order to reduce waste and variation in the end product result. This type of standardization can be applied to cleaning tools and sanitation processes, and color-coding is a suitable fit for this type of model. For example, you could apply the same color-coding model across all production lines that run the same process within a plant. It can be taken a step further and applied across all plants that run the same processes so that only one training program needs to be developed and administered.

Using a color-coding model that is not straightforward can create more of a need for specialized training. For example, a total color-coded red broom and handle is easier to identify than a specialized broom that mixes a green broom head with a red handle. A plan with combination color equipment will require more time and resources to train staff, especially if either color is used elsewhere in the plant. The whole premise of color-coding is to make tools easy to visually identify without the need for in-depth training. Using combo color tools robs a color-coding program of that intuitive simplicity, and in turn requires more resources than necessary for your operation to implement and adopt. It also increases the risk of cross-contamination if employees do not understand the program.

When designing a color-coding program for your operation, remember that the ultimate end goal is to ensure the safety of the food produced in the facility. For each color that you integrate into your plan, ask yourself if it is a necessary step in the process in order to effectively mitigate risk. If a color designation does not serve the purpose of managing a significant food safety risk, it is always the best practice to opt for simplicity. A plan that is overly complex is difficult to communicate and understand. A simple plan is easily adopted and becomes an intuitive method for managing food safety risks.



9. Communication Is Key



A solid communication plan is essential to an effective color-coding system. With the proper communication channels in place, your color-coding system has the best chance for successful adoption—in turn helping you mitigate the risk of cross-contamination. Communication should start at the top of the company, and go down to each and every employee. When all employees are knowledgeable about the new or changed program, the chances of success are higher.

The initial employee training communications must be clear and concise to ensure everyone is on the same page. When starting, or even revising, a color-coding system, employees must understand the reason for the change. Dealing with the threat of cross-contamination is serious, and the need to establish barriers to those threats is critical. The better every employee understands this, the more effective the color-coding system will be when put into practice.

Communicating with employees on how color-coding can help with tool storage is also very important. Establishing procedures for storage can help with tool inventory management. If employees are taught the proper procedures for tool storage right out of the gate, this will go a long way in preventing any loss of tools or time. One particular way to help encourage proper storage is to use custom shadow boards that integrate outlines of the tools so that there is no question where tools belong.

Many food processing plants use the 5S system to maximize organization. The use of color-coding is a natural fit for the 5S philosophy. 5S is a Japanese-designed workplace organizational system which uses five phases: sort, set in order, systematic cleaning (or shine), standardize, and sustain. Along with using shadow boards, 5S helps encourage employees to properly store tools, maximizing their usable life.

Daily communication to employees is essential to the longevity of the program. This starts with good signage. Clearly written instructions, multilingual if necessary, are essential to providing employees with instructions on the color-coding program. It may even help to include visual or graphic representations on the signage for each zone; for example, a picture of a peanut on the sign designating the color of tools intended for use with peanuts. In addition to written instructions, daily verbal communication is also vital. Any changes or revisions to the color-coding plan must be clearly communicated to all employees, from the top down.

It is a best practice to include your color-coding program in your official regulatory documentation. Many regulatory bodies require documentation of certain procedures, and color-coding can become a great advantage for your operation. While color-coding is not required for compliance with any food safety regulations, it is looked upon with favor by auditors. Including your color-coding plan in the facility's Preventive Control or Prerequisite Procedures, which includes GMPs, SOPs, CCPs, and Non-CCPs, will go a long way in ensuring company-wide adoption, consistency, and compliance of the program. For facilities that must comply with HACCP or HARPC regulations, including color-coding on those plans, is again not required, but is a best practice. HACCP, or Hazard Analysis & Critical Control Points, is a food safety management system which helps to identify and control cross-contamination threats. Similarly, HARPC, also known as Hazard Analysis and Risk-Based Preventive Controls, also requires identification and control of risks in food processing facilities.



Here are some important things to remember:

- Start at the top and go down
- Communicate with all levels of employees to ensure complete implementation
- Have good signage
- Signs should have written and visual cues to identify the zone and where the tools are approved for use
- Include a printout that gives details for reordering of tools, such as vendor, item number, manufacturer, etc.
- Keep up with regular training
- Include color-coding on regulatory plans

10. Use Complete Implementation

The final key to the success of a color-coding program is ensuring that it is completely integrated into the facility. If you have decided to take the plunge and start a color-coding program, or if you think yours needs some tweaking, remember that even a good color-coding program can be problematic if it is not uniformly applied. Ensuring complete implementation will improve internal adoption.

Doing something halfway is never a good idea, and the same holds true for color-coding. When a color-coding program is implemented in pieces, the chances of success start to diminish. On the surface, it might seem easier to slowly bring in color-coding into your facility; but in the long run, it will be better for everyone to roll the program out all at once. Incomplete implementation might seem desirable due to a limited budget, time constraints, or lack of manpower. However, having months of color slowly being added can prove confusing to employees. Once it is a part of everyday life at the facility, a color-coding program will be one more asset that you have at your disposal.



If you read our last post, you know that communication plays an integral part of starting a color-coding program. Communication and complete implementation of the color-coding program go hand-in-hand. By communicating with every employee and team member, complete execution of the color-coding system will be that much more successful.

One issue that might prevent a complete roll-out of a color-coding program is budget concerns. This is a valid issue, and one likely to be shared by many operations. However, because a successfully applied color-coding program can help decrease the chance of cross-contamination, and therefore recalls, it could save money in the long-term. Color-coding a food processing facility is an investment. Just like any investment, there are start-up costs—but the end result will be well worth the money put into it.

In addition to budget concerns, lack of time and manpower can also be issues standing in the way of fully introducing a color-coding system into your facility. Every food processing facility, from the smallest to the largest outfits, can benefit from a color-coding program. If time is an issue for you, ask Remco for help. Remco and Vikan have tools that can help you quickly identify zones and plan the entire program for your facility. We're here to assist you with the process and have many training programs that can smooth the transition for your employees.