



Gloving 101

Dive deeper into the importance of gloving, one of the most important aspects of hand hygiene that is often overlooked.



Purpose

Partnering to advance hygiene and food safety, Eagle Protect and Meritech contributed their particular expertise to create this eBook intended to share and strengthen hand hygiene practices and disposable glove selection and management.



Meritech creates innovative automated technologies that overcome human variability and ensure hygiene. Meritech educates business and individuals alike, leveraging its rich history and deep understanding of the importance of hand hygiene and its many nuances.

By redefining hygiene through fully automated hygiene technology and educational content, Meritech aims to make the world a healthier and safer place.

www.meritech.com
info@meritech.com
800.932.7707
720 Corporate Circle
Golden, CO 80401



Eagle Protect supplies ethically sourced disposable gloves and protective clothing, with a focus on improving their customer's food safety and sustainability practices. Eagle is revolutionizing the disposable glove industry with their proprietary Fingerprint Check that third-party tests and verifies multiple food safety factors.

A certified B Corporation since 2012, Eagle Protect is the world's first and only disposable glove and clothing specialists to earn this distinction.

www.eagleprotect.com
info@eagleprotect.com
800.384.3905
3079 Harrison Avenue
South Lake Tahoe, CA 96150

Introduction

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SECTION 1 Glove Selection

Glove Material Comparison



Nitrile:

Nitrile butadiene rubber is a synthetic, latex-free rubber. [Nitrile gloves have characteristics](#) similar to latex such as their elasticity and strength, but do not contain the latex proteins people can be highly sensitive or even allergic to. We recommend using nitrile gloves for [multiple safety reasons](#).



Vinyl:

Made of polyvinyl chloride (PVC), vinyl gloves are currently the most commonly used gloves for food handling in the US. Suppliers like Eagle Protect, are leading change in the industry and have [stopped sourcing vinyl gloves](#) due to food safety and environmental risks as well as [adverse health effects](#) to the glove wearer.



Latex:

Very durable due to their high elasticity and resistance to punctures, latex gloves provide the wearer good fit and dexterity, but improvements in nitrile have drastically closed the performance gap. Latex gloves are no longer used for food handling in the US due to potential allergic reactions to a protein on the glove, and are being replaced by nitrile in the medical industries.



Polyethylene:

Commonly called PE gloves, they are an inexpensive food safety solution to handling food for one to two minutes maximum when frequent glove changes are required (i.e. making sandwiches, serving deli food, etc.). Newer and improved variations of PE gloves have enhanced food safety and durability characteristics, and are manufactured for use in non-medical industries.



Disposable gloves can be a great safety tool that provide a barrier of protection. Having said that, gloves can also provide a false sense of security. The protection disposable gloves provide is directly related to glove type and quality, specific features and how the glove is used.

The quality of protection of disposable gloves can be drastically reduced when cheap raw materials and lower quality manufacturing processes are used. Gloves can also contain chemicals considered harmful to the glove wearer and can migrate to food.

Click the link below to find out the top six hazards of using cheap disposable gloves.

[Link to Download](#)

Glove Fit



Gloves should fit comfortably on the hand without excess material or sagging around the palm and fingertips (too large) and they should not constrict movement (too small).

Depending on what they are being used for, gloves with a poor fit can contribute to the likelihood of cross-contamination. An ill-fitting glove can allow for substances to get between the wearer's skin and the glove material, or can increase the likelihood of materials getting caught in the folds of the glove. Increased tension (where gloves are smaller than the wearer's hands) can limit mobility, or increase the likelihood of material tearing or other failures.

A thicker material isn't always the best choice, either, due to its impact on efficiency. For example, heavier gloves worn in cold environments can be difficult to grasp with, resulting in hand fatigue.

Glove Quality & Cleanliness



? Did You Know

Glove thickness does not necessarily indicate it's strength or durability. The opposite is actually true if they are manufactured from cheap raw materials. Glove strength is highly proportional to the quality of raw materials used to make the gloves.

[See More Glove Myths](#)

What Determines It?

The quality of food safety disposable gloves is determined by glove type and the quality of raw materials, manufacturing processes and quality procedures in place. A higher quality glove will be more durable, be less likely to rip/tear and reduce skin irritation.

How clean the surface of a disposable glove is when you remove it from the box is directly related to the cleanliness of the factory and the manufacturing standards that are used to produce them.

As a consumer, the quality and cleanliness of a glove is difficult to determine. It is best to source disposable gloves from a supplier with systems in place to verify the quality of ingredients, factory conditions and processes used to manufacture the glove. An example of this would be Eagle Protect's [Fingerprint Check](#) which analyzes critical control points such as factory audits, ingredient analysis, microbial testing and more.

Glove Specifications: Performance Qualities

Product specification sheets can be daunting to look through. These definitions will help simplify the technical terminology and assist in selecting the right glove.

AQL:

- The acceptable quality level refers to a quality standard for measuring pinhole defects. It is a way to quantify the level of safety barrier between a glove wearer's hands and what is being handled. The lower the AQL, the less defects and higher quality the gloves are. The only gloves requiring specific AQL levels are medical (or examination) grade and sterile gloves. So-called "food grade" and "industrial grade" gloves do not require AQL levels, therefore potentially having unknown amounts of glove defects per box.

Tensile Strength:

- The amount of force needed to stretch a glove to its breaking point. A higher number reflects a higher quality glove material.

Ultimate Elongation:

- This is the length the glove stretches before it breaks. Higher numbers represent better elasticity and a higher quality glove.



Glove Specifications: Physical Qualities

Thickness:

This measurement is straightforward and tells you how thick the glove material is. A thicker glove **does not necessarily indicate a stronger** or more durable glove, the opposite is true if they're manufactured from cheap raw materials. Glove strength is highly proportional to the quality of the raw materials used to manufacture the gloves.

Weight:

The weight of a glove indicates the amount of material in the entire glove.

Cuff Length:

The cuff measurement is the distance from the tip of the middle finger to the end of the cuff. Depending on the task different cuff lengths are preferable, for example if more protection is needed a longer cuff would be the better choice.

Ambidextrous:

Gloves formed to fit either hand reduce waste and simplify ordering when compared to gloves specifically formed for right or left hands.

Textured:

Gloves generally have textured fingertips, and some are fully textured including the palm area. The texture is a roughened part of the glove which improves their handling of smooth or slippery surfaces.

Diamond Textured:

This is a pronounced texture to provide enhanced grip, especially in wet conditions.



SECTION 2 Glove Use

Glove Use

Disposable gloves are a great way to provide a barrier of protection between the wearer and whatever they are handling. They are essential for food safety and must be worn and used properly in commercial food production. Despite this, gloves can give a false sense of security if they are not used properly. The following guidelines will help you get the best protection from your gloves.



Did You Know

Studies have shown up to 61% of vinyl gloves develop microtears, which drastically decrease the gloves level of protection, during use.

[Learn More](#)

How to Don & Doff Disposable Gloves

Donning and doffing disposable gloves properly is a basic, but important safety step.



Did You Know

To properly use gloves and reduce contamination risks, it is important to put on (don) and take off (doff) gloves correctly.

Video: Learn How to Don & Doff Disposable Gloves

Donning Gloves

To properly put on disposable gloves remove your hand and wrist jewelry, have nail length below the fingertip and in a clean area follow these steps:

6 Steps to Don Disposable Gloves

Thoroughly wash hands

Select the appropriate sized gloves

Hold glove with one hand and insert the other. When the base of your thumb reaches the cuff of the glove begin to spread fingers and insert hand into glove.

Pull glove cuff towards wrist to cover as much skin as possible and secure glove

Check to make sure there are no holes or tears

Repeat steps to put on other glove

How to Don & Doff Disposable Gloves



Did You Know

Some people are allergic to a protein on latex gloves. This is why they aren't used to handle food and are being replaced by nitrile gloves in the medical industry.

Learn if Nitrile Gloves are Latex Free

Doffing Gloves

When removing a pair of disposable gloves, in order to prevent cross-contamination, do not touch the outside of the glove with bare skin, and do not remove gloves near or over food or any clean surface. One should follow these steps to properly doff disposable gloves:

5 Steps to Doff Disposable Gloves

Pinch one glove at the wrist

Remove glove by pulling away from your body

Continue holding the glove you just removed in your gloved hand. Slide a few fingers of your bare hand inside the cuff of the glove you are still wearing.

Pulling away from your body, peel off the second glove, turning it inside out and leaving the first glove wrapped inside as you remove it

Dispose the gloves safely and wash your hands before touching any other surfaces

When to Change Gloves



General Use:

- As soon as they become soiled or torn
- Before beginning a different task
- At least every 4 hours during continual use
- After handling raw meat, fish or poultry and before handling cooked or ready-to-eat food

Food Handling:

- When the gloved hand has touched anything other than food or associated equipment - e.g. clothes, face, phone, co-workers
- Every 10 minutes in a busy foodservice situation to reduce the risk of cross-contamination
- If there are any rips or tears in the gloves
- If you change food handling stations
- If your food product is sticking or accumulating on the gloves

Glove Dispensing Methods

When handling food and cross-contamination is a concern, gloves may not be stored outside of the dispenser box (e.g. in pockets). Any gloves that spill onto surfaces or the floor must be discarded.

Gloves Can Be Dispensed:

- Directly out of the box
- Boxes of gloves can be placed in dispensers (i.e. single or multiple box holders)
- Gloves can be stored and dispensed out of bulk dispensers if cross-contamination risk is not an issue





SECTION 3 Glove Disposal

Glove Disposal

With an estimated 300 billion disposable gloves used in the US each year across various industries, it is important to be conscientious of the environmental impact of glove use.

Of the “Reduce, Reuse & Recycle” philosophy, it is important to first focus on reducing usage before considering recycling options.



Did You Know

Disposable glove waste can be reduced up to 30% by using better quality, thinner gloves.

[Learn More](#)

Glove Disposal Options



Reduce, Reuse or Recycle

Reduce: The Effective Solution

With increasing consumer demand for better transparency, companies can easily reduce their own environmental impact by considering their glove type, weight and most importantly quality; instantly reducing their overall environmental footprint.

By supplying new technology manufactured gloves of superior quality with improved durability, we can reduce our customers' usage by up to 30%. New technology gloves are also thinner yet stronger, and provide significant waste savings in terms of glove weight waste and associated packaging.

Did You Know

Japan has banned the use of vinyl gloves to handle food. Despite this, it is the most used glove in the US food industry.

[Learn More](#)

Glove Disposal Options



Reuse: Post-Consumer Items

Companies are working to develop methods to reuse disposable gloves in projects such as a bitumen additive for road resurfacing. There are challenges to reusing disposable gloves as each brand or type of glove can be made with a different chemical makeup. This leads to challenges in requiring different melting points to break down the glove. Also, the physical properties of nitrile polymers used in the glove manufacturing require a melting point of 284°C, an unsustainable & costly temperature to maintain.

Recycle

Currently, the recycling of disposable gloves is mainly conducted by TerraCycle. This works by purchasing and collecting gloves in a Zero Waste Box, which is then shipped to New Jersey for recycling. The waste is separated into the various forms of plastic and then undergoes extrusion and pelletization to be molded into new recycled plastic products.

The additional collection bin and shipping is estimated to approximately double the cost of gloves, potentially making it less feasible for some.

Glove Disposal Options

Compostable

Compostable gloves are made from polylactic acid (PLA), a plastic substitute made from fermented plant starch. These gloves must be disposed of in commercial composting facilities to be of environmental benefit, and currently only a few hundred industrial-grade composting facilities can be found across the US. Compostable gloves do not have any FDA compliance testing or known AQL, therefore are not a recommended food safe option or for use with chemicals.

Biodegradable

Latex gloves are made from natural rubber using a tree tapping process from the Hevea Brasiliensis tree, and are understood to biodegrade at a faster rate than other glove types.

Nitrile gloves are composed of non-biodegradable raw materials. Recently there has been some development in creating a 'biodegradable' nitrile glove that breaks down. However, this only occurs when placed in biologically-active landfills with microbial activity. At the present the degradation of this biodegradable glove is only slightly faster than normal gloves, and their increased cost compared to standard gloves must be factored into budgets.

Vinyl gloves are non-biodegradable and made from polyvinyl chloride (PVC) and plasticizers. The human health impacts of PVC across its lifecycle, including disposal and occupational exposure, find PVC leads to the release of dangerous quantities of dioxin and other carcinogens, putting PVC consistently among the worst materials for human health impacts.

Did You Know

Some disposable gloves can contain chemicals on the Prop. 65 list that are known to the state of California to cause cancer.

[Learn More](#)



SECTION 4 Hand Hygiene

Manual Hand Hygiene

The most well-known and commonly-used handwashing method involves manually washing hands in a traditional sink where the faucet is manually turned on and off and soap is manually dispensed.

Benefits:

- Low cost
- Familiar system to all

Potential Concerns:

- Highly dependent on user
- Unreliable and inconsistent level of pathogen removal
- No compliance tracking
- May be wasteful of water as water used may never come in contact with hands
- Cross contamination touch points on faucet handles
- May be wasteful of water as water used may never come in contact with hands
- Unreliable and inconsistent level of pathogen removal



Did You Know

Temperature does not change the effectiveness of a hand wash. Scientists found that varying water temperature had no effect on pathogen reduction. [🐦](#)

[See More Handwashing Myths](#)

Semi-Automated Hand Hygiene

Another well known and commonly-used method is referred to as semi-automated handwashing, in which the water and/or soap is automatically dispensed once a user's hands are detected by a photo-eye sensor.

Benefits:

- Low cost
- Familiar system to most
- Fewer touch points reduce cross-contamination risk

Potential Concerns:

- Highly dependent on user
- Unreliable and inconsistent level of pathogen removal
- Increased time for onboarding or retraining on proper handwashing steps
- No compliance tracking
- May be wasteful of water or have low water flow
- No way to enforce proper handwashing duration
- Can be used as a dump sink
- Inconsistent operation due to photo-eye hand detection
- No indication if soap solution is empty



Did You Know

Soap and water does not kill germs. Instead, they work by mechanically removing them from your hands. Running water alone removes some pathogens, but soap allows you to tackle the hard-to-remove germs by acting like a crowbar and prying unwanted pathogens from hands. [🐦](#)

[Learn More](#)

Hand Dip Pans and Buckets

While this archaic method of hand sanitation does not meet best practices for hand hygiene and is not recommended, hand dip pans and buckets remain in use at some organizations.

Benefits:

- Low cost
- Does not require a water source

Potential Concerns:

- Does not remove visible soils or debris
- Soils and debris can build up inside bucket
- Sanitation PPM can deplete over time
- Frequent use can be detrimental to skin health
- Not as effective as soap and water against some pathogens
- Requires frequent maintenance to maintain efficacy



Instant Hand Sanitizers

A common alternative when water is not available, instant hand sanitizers are used in many facilities. Quick and easy-to-use, but there are a few significant factors that make handwashing with soap and water superior to alcohol-based sanitizers.

Benefits:

- Low cost
- Does not require water source
- Quick / high throughput
- Easy to use and train new users
- Mobile / portable

Potential Concerns:

- Does not remove soils and debris
- Large volume required to be effective
- Frequent use can be detrimental to skin health
- Emollients can build up overtime leaving hands feeling uncomfortable
- Doesn't remove all pathogens and only kills some pathogens
- Can degrade vinyl (PVC) glove material if dispensed onto gloved hand



Automated Hand Hygiene

The previous handwashing methods rely heavily on team members to follow proper handwashing steps to ensure the removal of pathogens. Thus, consumer safety may be compromised by human behaviors, as stressed, bored or hurried staff members rush through handwashing protocols. Automation removes the variability of human behavior from the equation altogether and quality-controls the handwashing process to ensure consistently effective hand hygiene events.



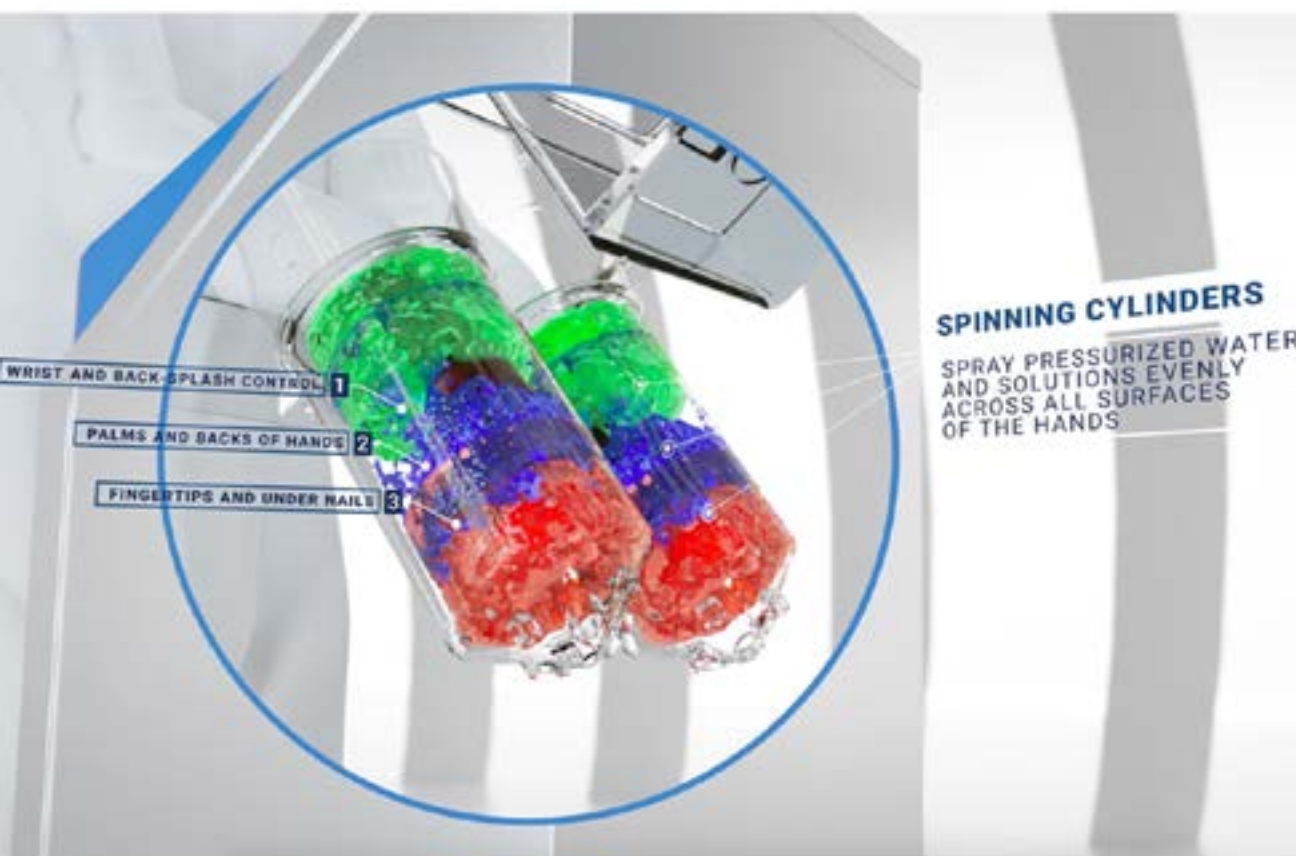
Benefits:

- 12-second wash time for high-throughput
- Easy compliance monitoring
- Automation ensures reliable and consistent results
- Clinically-validated to remove more than 99.9% of pathogens for each and every handwash
- Up to 75% water savings compared to traditional handwashing - only 0.6 gallons per hand wash
- Quick and easy to use for training
- Solution empty indication

Potential Concerns:

- Higher price
- New technology can be unfamiliar to some individuals

Automated Hand Hygiene



Automated hand hygiene technology takes the responsibility of performing and timing each step of the handwashing process off the shoulders of employees. Instead, employees simply insert their hands into the station and the photo-eye sensor begins the handwashing event.

Water and solution moves in a cylindrical pattern for 12 seconds to ensure that all parts of the hand, including the backs, palms and fingertips, are evenly cleansed. During this time, 99.9% or greater of pathogens are removed, ensuring employees always have clean hands that are free of dangerous pathogens.

← Watch the video to see Meritech automated handwashing stations in action!

Hand Drying Methods

An effective hand hygiene event doesn't stop at handwashing. The final step of the handwashing process, hand drying, is just as important for skin health and can even help prevent pathogen spread.

Paper Towels

The most effective and sanitary hand drying method. The quality and cost of these towels can vary widely, but using a "cheaper" paper towel may actually end up costing you much more in the long run due to low absorbency requiring excess paper use.



Air Dryers

Facilities may choose to avoid the use of paper towels entirely and instead install air dryers. While notorious for being Eco-friendly, dryers circulate air (and pathogens!) from the room which can actually spread pathogens on to workers' clean hands.

Air dryers also require significant time to use and do not create a smooth workflow through hygiene zones. Instead of waiting, frustrated or hurried workers may give up on drying completely or dry their hands on clothing which can squander the results of an otherwise well-performed hand wash.



5 Skin Health

SECTION

Skin Health

While handwashing and gloving are critical components of hand hygiene, **skin health is equally as important** and often goes overlooked. Our skin is the largest organ and is the body's first line of defense against the environment and infection so it's crucial we take good care of it. Resident pathogens naturally occur on our skin and help fight infection while transient pathogens are foreign and are harmful. When we wash our hands the goal is to remove the transient pathogens, but resident pathogens are removed during the process as well. The removal of these helpful pathogens and oils from your hands can result in dry, cracked skin that is more susceptible to pathogen spread. By moisturizing regularly you can help protect the helpful resident pathogens that keep you safe.



Skin and Hand Health



Soap and Sanitizer Cautions

Soaps and sanitizers have been described as the most damaging of all substances routinely applied to skin. Heavy use deteriorates skin health, resulting in dried skin with cracks and crevices that serve as ideal breeding grounds for bacteria. Instant hand sanitizers are extremely high in alcohol content that dehydrates hands at an alarming rate.

Glove Cautions

The hand is the most common site affected by occupational skin disease, with protective gloves found to be the most common primary cause. Chemicals and toxic components, often found in cheap disposable gloves, can cause allergic contact and irritant dermatitis and chemical toxicity to the skin. To reduce the risk of skin disease, good quality gloves with improved standards for low chemical and toxins should be used.

If gloves are manufactured using poor quality raw materials, they can rip easily and must be produced thicker to combat this. This increased glove resistance, bulkiness and reduced flexibility can cause repetitive fatigue and contact trauma to the hand and arms as the glove wearer needs to use stronger muscle forces.

Skin Health

Moisturizing

It is critical to protect hands from the dehydrating effects of excessive washing. Moisturize frequently throughout the day, particularly after washing or sanitizing. A moisturizer or skin softener will replenish the oils that are necessary to protect resident pathogens. It will also prevent the skin from drying out and becoming cracked, creating a place to hide for harmful pathogens.

Providing moisturizers in break areas not only will bring comfort to employee hands and promote health skin practices. A good frequency to moisturize is using the 4x4 method.

4x4 Method

Moisturize once every 4 hours, at least 4 times a day. For example: 8AM, 12PM, 4PM, 8PM)



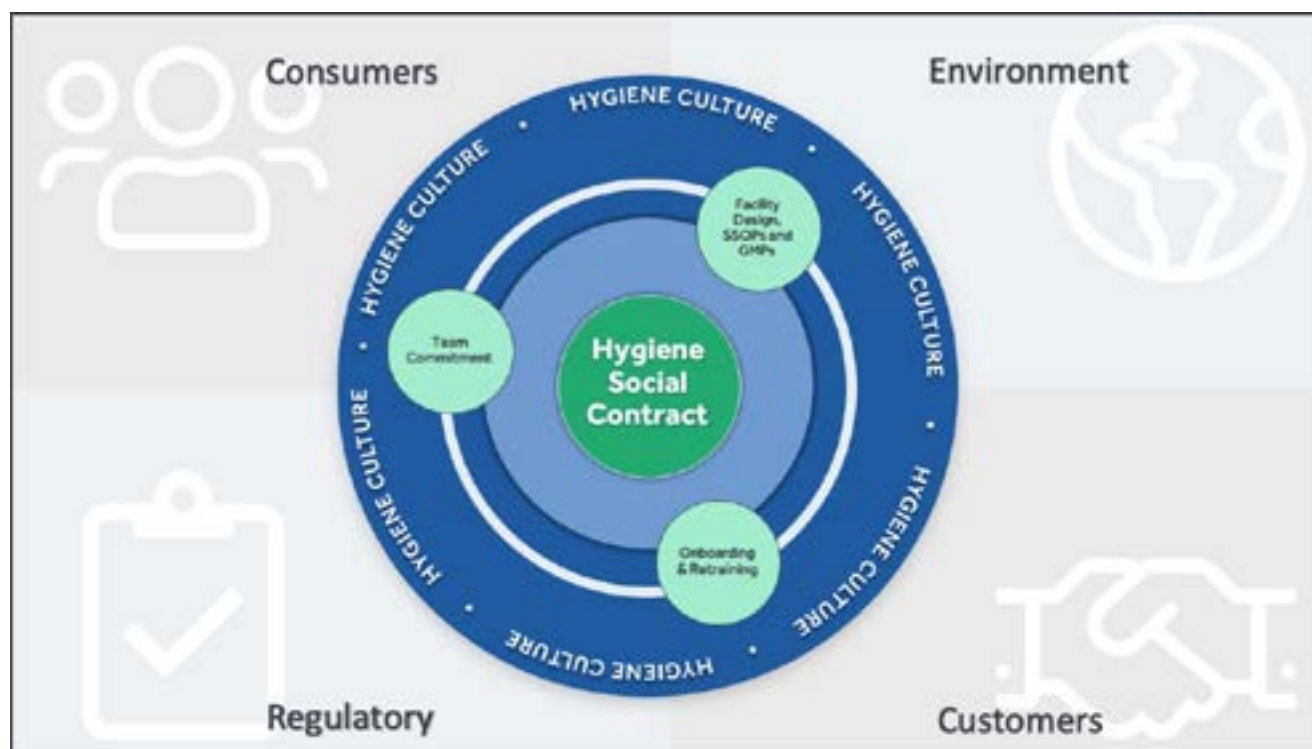


SECTION

6 Hygiene Culture

What is a Hygiene Culture?

A hand hygiene culture is a unified mindset across the organization that puts health and safety at the forefront of everything done within the business, both physically and mentally. If an effective hygiene culture is in place, everything from the layout and design of a facility to how an employee thinks about their own personal hygiene, should all be considered through the lens of your hygiene goals. By having a culture of hygiene you can expect to reduce the risk of human error because there is a true understanding of the importance of the processes. The diagram below displays the various aspects of effective hygiene culture and how they must all work together.



Creating a Culture of Hand Hygiene

It is important to create a culture of hygiene excellence at your organization. To further develop this culture and promote good hand hygiene practices, it is key to:

Uphold Personal Hand Hygiene Standards

Hand hygiene doesn't begin at the workplace door. Every employee has a responsibility to uphold their own personal hand hygiene standards to ensure consumer safety and should be prepared before entering the workplace. To guarantee maximum pathogen removal during the handwashing processes, employees should ensure:

- Fingernails are trimmed to an acceptable level and free of nail polish that can chip off into products

- Fingers are free of rings and other jewelry that should be left at home or in a locker

- No soils are on the hands or impacted under fingernails. If present, extra steps should be taken to remove these soils during handwashing



Creating a Culture of Hand Hygiene



Stay Aware on the Job

There's a lot to remember when it comes to hand hygiene. To maintain your facility's employee hygiene culture, it's key to continually reinforce good PPE behaviors, remind employees to avoid potential contamination touch points, and be aware of the state of the hygiene zone. Ensure employees:

- Put PPE on the right way and following proper donning order in hygiene zones to ensure hands are clean before entering production areas

- Don gloves properly, check gloves for damage or deterioration before starting a shift, and replace gloves when necessary throughout the day

- Are aware of possible contamination points like adjusting PPE such as hairnets and smocks, scratching your nose or eyes, re-tying shoelaces, and various common touch points

- Pay attention to station conditions even if they are not responsible for their maintenance. Hygiene zones should always contain adequate supplies, including soap, paper towels, and PPE to meet shift demands. If the station is dirty or in need of supplies team members should quickly advise management to fix the situation

Creating a Culture of Hand Hygiene

Keep Hand Hygiene Part of the Conversation

Training someone only one time on complex hygiene SSOPs designed to ensure consumer safety is almost as bad as not training them at all. Proper hygiene practices must be constantly reinforced so that team members can memorize the SSOPs, embrace a mindset of hygiene excellence, and take an active role in upholding the hygiene culture at your facility. It is important to regularly make hand hygiene part of the conversation by leveraging:

Hygiene Safety Days

To eliminate risks that may develop from misunderstanding hand hygiene SSOPs, falling out of good hygiene habits or deliberately taking shortcuts, we recommend employing “Safety Days.” These are training events that occur at regular intervals throughout the year to remind everyone of hygiene best practices and their importance for consumer safety. A company can integrate a Hygiene Safety Day with normal operations, or it can be a training event where team members take a break from their usual tasks and engage in unique educational activities.

Huddle Talks

Huddle talks, or pre-shift meetings, are great opportunities for team leaders to highlight good hand hygiene behaviors with their teams. Reminding everyone of the basics or calling out good or bad behaviors seen that week helps reinforce handwashing and gloving best practices.

Hygiene Safety Committees

A dedicated Hygiene Safety Committee that is open to individuals from all departments and all levels of your organization should be created to support good hand hygiene practices at your facility. This committee should bring attention to any issues in the facility that can affect consumer safety as well as find new ways to communicate the importance of proper handwashing to team members throughout the year.



www.meritech.com



info@meritech.com



(800) 932-7707



www.eagleprotect.com



info@eagleprotect.com



(800) 384-3905