Sterigenics
A Sotera Health company

A Sterigenics **eBook**

# Get the Facts on Bioburden Control and Sterilization for Food & Beverage Packaging

# Introduction

Food and beverages are susceptible to mold, yeast, spores, and other natural bioburdens. Microbial bioburdens can result in product spoilage. One way to ensure freshness and protect shelf life is to package and transport sauces and liquids in packaging processed with Gamma irradiation.

In this eBook, we answer the most common questions that food and beverage manufacturers ask us about the use of Gamma irradiation to keep microorganisms out of packaging.

# Microorganisms

## An ever-present safety risk to food and beverage manufacturers

**Micro**organisms are a **macro** problem for the food and beverage industry.

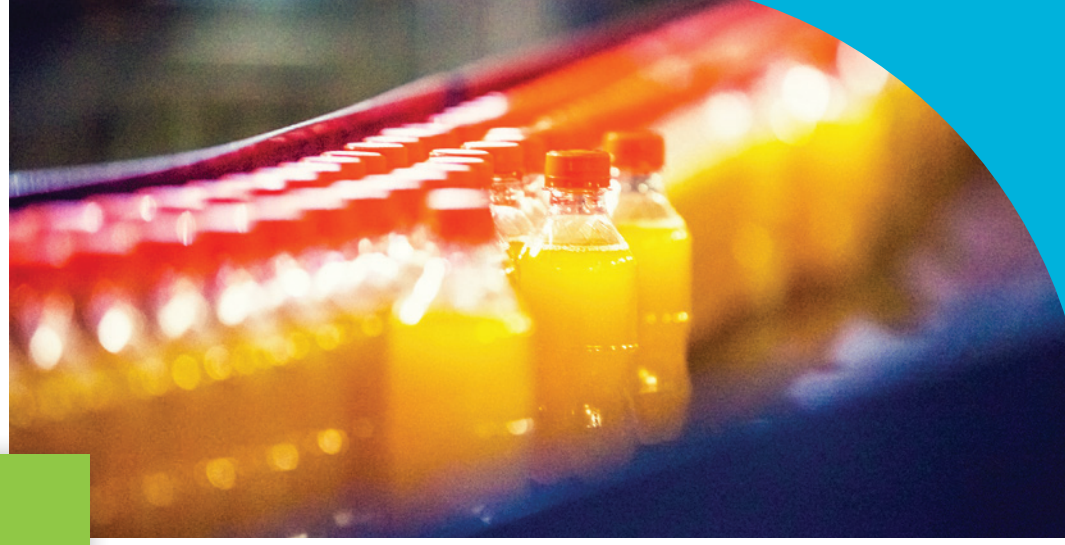
**Molds, fungi, yeast, spores and other microorganisms are so pervasive** in the air and on human and indoor surfaces, that they are hard to avoid. Food and beverage packaging materials are often contaminated by the time they reach the filling process. This becomes a problem because materials like caps, lids or poly liners have direct contact with the food and beverage products.

The resulting contamination can lead to product loss and shortages due to destruction of the product and negatively impact corporate and brand reputations.

# Sophisticated packaging designs compound the problem

As brands in the food and beverage industry jockey for consumer share-of-wallet, it's only natural to leverage strategies that give your products higher visibility on crowded shelves. The result is ever-evolving more sophisticated packaging designs. While these product features help your product stand out, they may lead to an increase in microbial counts.

Complicated designs of bottle closures and packaging can increase the risk of contamination. The more intricate designs can result in "blind" spots such as overlapping parts or difficult to reach areas. The result is an increase in contamination risk, which can put consumer safety at risk.



# Is there a solution?

It's vital to have a reliable, quality-controlled process to reduce microorganisms on and in packaging prior to use. Consider Gamma irradiation.

Irradiation reaches all microorganisms (regardless of the intricacies of the package) and can be scaled to your microbial reduction goals. Gamma processing is safe, non-invasive and cost-effective. Furthermore, radiation-based Gamma processing is approved by the Food and Drug Administration (FDA) for microbial reduction and sterilization for packaging.

If you're like most food and beverage manufacturers, you want to better understand Gamma irradiation. We have therefore collected the questions most frequently asked by food and beverage customers and packaged them in this eBook along with the answers.


Q&As

# #1 Question

## Does Gamma irradiation reduce the microbial count on and in the packaging?

A form of electromagnetic energy characterized by its deep penetration and low-dose rates, Gamma irradiators are powered by Cobalt-60, which effectively kills microorganisms throughout the packaging with very little temperature effect and no residues. The amount (or dose) of radiation received is scalable based on the type of product and its dose requirements to achieve sterility or a reduced microbial count. Once the absorbed dose is verified to meet the required specification, your product is immediately released to you for shipment.

**Irradiation can be scaled** to meet the goals of each packaging. The closer the need for near-sterility, the more radiation dose can be applied.

# #2 Question

## How effective is Gamma irradiation on food and beverage packaging?

Intricate packaging designs can result in “blind” spots such as overlapping parts or difficult to reach areas. The Gamma energy source penetrates the entire packaging.

Gamma irradiation leaves no place for microorganisms to hide. Irradiation can therefore be a solution for sophisticated packaging that has intricate or hard to reach spaces.

# Question #3

## Does Gamma irradiation leave a residue on the food and beverage packaging?

One of the benefits of Gamma irradiation is that post-irradiation, there are no residuals left on the packages.

# Question #4


## What types of packaging can be irradiated with Gamma?

Here are some types of packaging that Sterigenics irradiates for the food and beverage industry:

- Juice pouches
- Dairy | milk cartons | boxes
- Bulk liquid liners
- Plastic beverage containers
- Bottles, lids, closures, and caps
- Packaging for liquid products
- Take out | take away containers (plastic-foam containers)

# Question #5

## Do we have to label packaging that's been irradiated?

There are no FDA guidelines for packages that have been irradiated. There are guidelines for pre-packaged foods. In other words, if pre-packaged foods undergo Gamma irradiation, the food requires labelling. But irradiated packaging into which drinks are poured does not require labelling.

**SOURCE:** Overview of Irradiation of Food and Packaging U.S. Food & Drug Administration (US FDA), Section 3 Labelling

# Conclusion

Food and beverage manufacturers who neither sterilize nor reduce the microbial load on and in their packaging run the risk of product spoilage or potentially causing consumers to become sick.

One way to ensure freshness and protect shelf life is to package and transport food and beverages in packaging processed with Gamma irradiation, which is safe, non-invasive, cost-effective and an FDA-approved method for packaging sterilization and microbial reduction.

## Summary of Benefits

- Compatible with a wide variety of polymers
- Treated at ambient room temperature
- Reliable and traceable process; known date and time of processing
- Economically viable for small and large production volumes
- Increases shelf life of food and beverages that go into packaging; reduces spoilage

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# How can we help you?

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From product conception to commercialization, the food and beverage industry can be extremely challenging. Since there are many considerations, it's best to collaborate with a **Sterigenics Industry Subject Matter Expert** to ensure your unique product goal is achieved.

## Here's how we can help you:

- Customized solutions to help ensure secure, safe, and effective processing
- A global integrated network of facilities located near your manufacturing or distribution hubs
- High-quality and consistent processes that exceed safety standards
- Expedited product processing services
- Industry Subject Matter Experts to assist in solution development

# Safeguarding Global Health®
## with every product we sterilize

Sterigenics is a leading global provider of outsourced terminal sterilization services for the medical device, pharmaceutical, food safety and advanced applications markets. With our industry recognized expertise we help to ensure the safety of millions of patients around the world every year.

Across our 48 global facilities, we offer our customers a complete range of sterilization services, primarily using the three major technologies: Gamma irradiation, Ethylene Oxide processing and Electron Beam irradiation. We are committed to addressing the growing need for sterilization across the world and partnering with our customers to eliminate threats to human health.

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