

Materials Matter:

How to Reduce Risk in Healthcare Packaging

The packaging used for healthcare and medical devices must ensure that contents remain sterilized, and this sterility must be maintained until the item is used. All this must be done while balancing the various considerations that are part of the process used to develop effective packaging.

Some of the most common types of healthcare packaging used today include bags, pouches, overwraps, trays and clamshells—all comprised of various materials, some rigid and some flexible.

Due to the sterility issues that have arisen in the past related to medical device packaging, companies have developed methods and materials that reduce risk and ensure the packaging does its intended job. Learn more about the modern packaging options used and how they have been transformed over time to reduce unnecessary risk and issues.

Paper

The medical-grade paper used today offers all the benefits of earlier versions, with certain improvements to reduce risks related to contamination. Because paper is made from fibers, particles can be generated when the package is opened. This compromises the sterility of what is inside.

To address this problem, the paper has been infused with latex, polymer or a similar substance. This provides a clean peel, which is highly valued in lidding and pouches.

With polymer impregnation, there is no sacrifice in the porosity necessary for sterilization by ethylene-oxide or steam. Also, the impregnation process contributes against contamination later by eliminating a direct path for microorganisms.

The Use of Aluminum

No matter if it is vacuum-deposited on film or foil, aluminum is an effective barrier against moisture, oxygen and light. These are properties that are growing in demand, mainly due to the increase in medical devices that incorporate biologics and pharmaceuticals.

If aluminum is being used as the barrier layer in the lamination process, there should be a heat-seal layer, because aluminum can't seal on its own. From a different perspective, aluminum is vulnerable to chemical attack, as well as flex-cracking, which is why manufacturers of medical device packaging now sandwich it between two protective layers. Another step that has been taken to safeguard this material is to ensure adequate thickness to prevent susceptibility to pinholes, which was an issue related to the use of aluminum in the past.

Coatings and Adhesives

The use of coatings and adhesives can be critical in medical packaging. After all, if a medical device package has a poor heat seal, it won't be able to deliver the contents in a sterile manner.

Because most heat seals on packaging for medical devices and other healthcare products are the peelable kind, rather than permanent, the challenge is to find the right balance between ease of opening and bond strength.

While this has become something of a balancing act, healthcare product packaging manufacturers have successfully reduced the issue to ensure sterility.

The Bottom Line

The health and well-being of those who the medical products and devices are used for are the top priority when developing risk-free packaging for medical devices. Thanks to innovative technology and advancements, today's products arrive at medical facilities in a safe, sterile condition thanks to the packaging manufacturers.

Additional information about modern healthcare packaging and how the risk of these materials has been reduced and eliminated, talk to an Oliver expert today.