

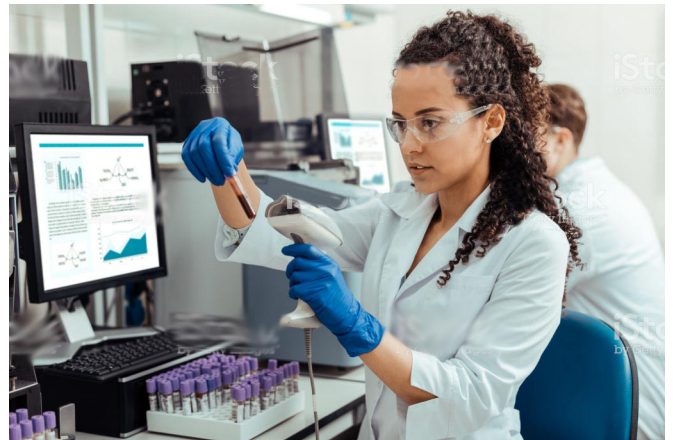
Labeling Applications For Life Sciences

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Life science is a very wide vertical market, and because of the many branches that make up this industry, we have come up with some helpful solutions focusing on labeling applications for the following areas:

- Consumer Healthcare
- Syringe and Injectable Medicine
- Critical Cold-Storage and Cryogenic
- Blood & IV Bag
- RFID Smart Labels

First up, let's talk about Consumer Healthcare. Prescription drugs continue to be the fastest growing healthcare category as the general population continues to age. But while an aging population is a key driver in the growing demand for health care products, additional consumer trends are contributing to the rapid growth and health-care market evolution.



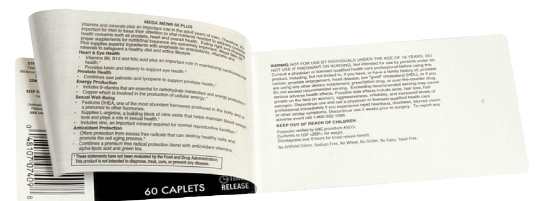
All age groups are more health conscious and spending more time and money on health-related activities and products, along with prescription drugs. As consumers are living longer, many want to remain active while having an ageless attitude towards life. Companies are rapidly developing Nutraceutical Products that can help meet the consumer's needs.

When it comes to packaging of these items, you'll find plastic packaging like jars, canisters, and bottles for supplements, while glass bottles are preferred for capsules, liquids, tablets and powders.

Whether your products are available on the shelf, online, or both – when it comes to labels, they need to be produced to your unique requirements and specifications. These labels need to grab the consumer's attention, deliver reliable performance throughout the life of the product, and protect your brand.

There is also a need for anti-counterfeiting solutions to provide integrity and most importantly – consumer safety and protection.

When more information is required on a label, booklet labels that open up to multiple pages of text or diagrams allow you to add additional product information that ordinarily would not fit on regular label.



For multi-part labels, you can die-cut a single label to allow for multiple sets or parts to improve traceability.

No matter the trend or application, Weber provides labels that communicate important information and guarantee high-quality standards are met through inspection and quality control.

Weber's extensive knowledge of label materials helps us get the right adhesive and facestock to maximize label performance in any environment.

Syringe and Injectable Medicine Labeling

Let's talk about Syringe and Injectable Medicine Labeling solutions next. When it comes to these specialized medicines, you may find that more and more packaging is steadily shifting away from the standard pill bottle in favor of more innovative solutions. Driven by syringe and injectable medicine market growth – think about that lifesaving EpiPen or perhaps critical insulin – prefilled syringes, auto-injectors, vials, and ampoules are reaching new heights of popularity for more and more healthcare applications.

And there's a good reason for it. Compared to other drug delivery methods, prefilled syringes provide improved accuracy to reduce drug waste and fewer dosing errors. Also, the ability for patients to self-administer drugs outside of the hospital setting, especially these days, is a huge plus.

Of course, this means that label performance is of critical importance, too. A bad label can result in common performance failures including edge lift. When that occurs on valuable pharmaceutical applications the results can be catastrophic.

Choosing the right label also helps avoid other costly failures. Syringe and tight mandrel pharmaceutical applications require a range of product offerings that include:

- Robust, low migration compliance.
- Superior adhesion properties on a variety of small diameter substrates.
- Sterilization-friendly products that withstand heat, steam, and chemicals.
- Manufacturing quality control and production efficiency.
- Functionality and performance to ensure labels remain intact and in place on the device.

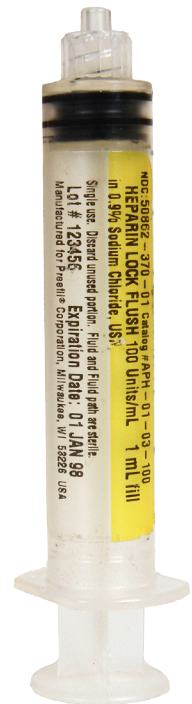
To wrap it all up, packaging materials, product specifications and production demands for injectable applications have continued to adapt to changing market demand and patient needs. Prefilled syringes and injector devices are now widely accepted as safe, reliable and convenient methods of drug delivery. You can count on label solutions from Weber to meet your application needs.

Critical Cold-Storage and Cryogenic Labeling

Now, did it suddenly get cold in here, or is it just me? No, we're just talking about cold-storage and cryogenic labeling next. In pharma, did you know that nearly half of new drug approvals issued by the FDA require special refrigeration during storage and transportation? These extreme temperatures require specialized labels and adhesives that can endure long term cryo conditions. When it comes to cold-storage and cryogenic labeling, Weber Packaging has the expertise to provide durable label solutions designed for applications that include biological and pharmaceutical products, like vaccines, biologic drugs, stem cells, and whole tissues.

Performance across a wide range of conditions, from room temperature to storage in deep-freeze environments and all throughout the supply chain is essential to preservation – as low as -196°C / -320°F .

Common temperature control and preservation techniques we encounter include:



Cryo Preservation: Refers to liquid nitrogen conditions (down to -196°C / -320°F) necessary for storage of biological constructions, like cells or tissues.

Dry Ice: This refers to frozen carbon dioxide (down to -78°C / -109°F) used for freezing and keeping things frozen, commonly required for clinical trials.

Freezing: Straight forward, it refers to negative temperatures, up to dry ice conditions needed for products that must be kept stable in very cold conditions, like plasma or various lab samples.

Aside from the temperature requirements, labels also work with a variety of plastic and glass containers; including tubes and vials, delivering reliable tight mandrel performance. Count on our labeling solutions to deliver clear identification of biological drugs, bio-banking products, and blood components and reduce the risk of potentially catastrophic mix-ups due to label displacement during transportation. Clear films are also available to provide an unobstructed view of products in transparent packaging.

No matter the application or preservation need, we provide the ultimate product protection throughout the supply chain, from manufacturer to retailer, medical facility, and patient.

Furthermore, with demand for these products continuing to grow at a rapid pace during the current COVID-19 pandemic, Weber supports the timely production and shipping of vital labeling solutions. Our goal is to work together proactively to support you and your business needs during this challenging and rapidly changing time.

Blood & IV Bag Labeling Solutions

In North America, 250 million blood bag labels are used on average every year, and demand is expected to continue to grow significantly. Growth is due to a rise in the need for blood (a side effect of an aging population) and an increase in awareness of blood donations.

Public Service Announcement: Giving blood is a simple, straightforward process and donating a pint of blood typically takes less than 12 minutes.

Now, transporting blood and components from donor to end user is a much more complex process. Blood processing and transportation require the use of specialized labels that can withstand both the rigorous lifecycle of a blood bag and communicate critical information about its origin and contents.

The majority of blood bags contain one or two labels, and some may have three or four labels. These labels ensure that these blood products are correctly identified and reach their destination safely and securely.

With that said, there are two types of labels that must be applied to the blood bag at different stages of the supply chain. These labels are:

1. **Primary Labels:** The primary label, or also referred to as the base label, is applied to the blood bag by the manufacturer during production. Primary labels provide identifying information such as the manufacturer's name and address, reference and batch numbers, and codes for traceability. After label application, the bags are filled with anticoagulant and sterilized with steam heat at high temperatures before they are shipped to hospitals and blood centers.



2. *Secondary Labels*: Once blood is collected from donors, the processing facility will typically centrifuge the blood to separate the plasma, platelets, and red blood cells. The plasma and red blood cells are placed in separate bags or containers, and a secondary label is applied to each of those. Secondary labels provide donor information such as donor identification number, blood type, product code, expiration information and the matrix tracking bar code.

Once labeled, filled blood bags will be temporarily stored in a refrigerator and filled plasma bags are stored in a freezer while lab tests are conducted to determine their suitability for transfusion. Additional secondary labels may need to be applied to the filled blood bags, including the donor's lab results.

We mentioned that blood bags are in high-demand, and they contain high-value products that move through a very fast-paced supply chain. Did you know that just one blood donation can help save the lives of as many as three people?

To minimize the risk of mis-transfusion or inventory loss, it's critical to utilize labels that withstand the rigorous lifecycle of a blood bag and take the following into consideration:

Compliance: First, compliance Regulations Governing Blood Bag Packaging, Labels must be DIN ISO 3826 compliant. The Food and Drug Administration and the ISEGA also have criteria to ensure label materials such as adhesives don't migrate through the plastic blood bags and bottles and contaminate blood components.



Primary blood and IV labels must undergo rigorous evaluation for acceptability, including testing in accordance with the FDA's guidelines for the Uniform Labeling of Blood and Blood Components. In addition, products must undergo biological reactivity and hemolytic testing to further establish suitability for use in blood bag and IV bag labeling.

Security: From a security standpoint, labels are also the source of traceability and include tracking components. With printed bar codes, companies and healthcare personnel use the label to monitor the blood bag as it travels from one site to another, ensuring that it finally reaches the right facility and patient.

Survival: Additionally, blood bag labels must be able to survive extreme storage environments and the demanding protocols used in blood processing. From collection to processing to storage, primary and secondary labels may endure a wide range of conditions, demanding performance properties such as:

- Hot and cold temperature resistance
- High adhesion to multiple types of plastics
- Low adhesive migration
- Conformability (blood bags tend to not be rigid)
- Durable, long-lasting print

RFID Smart Labels and Pharma

The final topic is RFID and Smart Labels in Pharma. RFID (Radio Frequency Identification) technology has been around for many years. It first caught on in retail and logistics as a natural fit. Items with RFID labels (also referred to as Smart Labels or Intelligent Labels), can be tracked and identified efficiently through every stage of the supply chain, from purchasing to shipping and delivery.

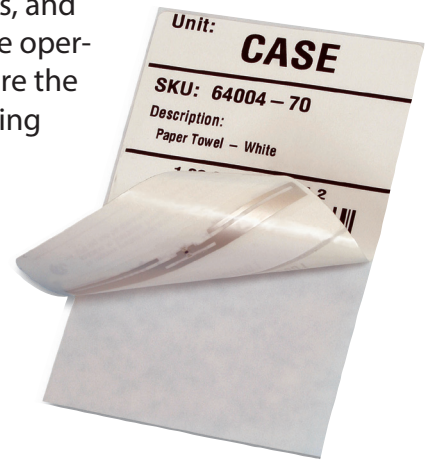
Today, pharmaceutical companies are also recognizing the benefits of RFID labels, and for very good reasons. In pharma, RFID labels help to manage inventory, increase operational efficiencies, remain in compliance with government regulation, and ensure the wellbeing of patients and consumers. RFID labels also enable itemizing and sorting of stock to ensure quality and prevent waste.

Let's take a few minutes to explore the potential applications within the healthcare segment that help make medicine smarter.

Improved Visibility of Inventory and Assets – Lost or stolen materials cost the healthcare industry millions every year. With RFID labels you can see medicines and devices travel through the supply chain as intended, providing an accurate chain of custody. Improved visibility reduces the risk of counterfeit drugs entering legitimate distribution channels and unintended product diversion. Accurate and timely data helps avoid product expiration and stock outages.

Effective Recall Management – Successful recall management requires an efficient process. As we discussed, there is also a lack of synergy between systems in the supply chain that can hamper drug recalls. RFID, paired with the FDA DSCSA (Drug Supply Chain Security Act) delivers an electronic, interoperable system to identify and trace certain prescription drugs as they are distributed in the US, ensuring all medications are safe to use.

Anti-counterfeiting – Nothing is more important than patient safety, but counterfeit drugs are real and one of the largest fraudulent markets in the world. It's critical to provide the right drug and of course, one that's free of tampering. RFID not only ensures integrity; it delivers strong counterfeiting deterrence as the label itself could be used to authenticate the pharmaceutical product and tamper evidence.



During these unprecedented times, Weber remains committed to the well-being of our employees, business partners, and local communities. Furthermore, as an Essential Business, Weber's products are a key component of a vital supply chain supporting our medical, pharmaceutical, and healthcare industries. We are aware of the critical need to continue operating within these important sectors of the scientific community in order to aid in detecting and containing the spread of the virus, while helping to keeping consumers safe.

In addition, as a leading supplier in this space, Weber partners with our customers and works together to develop innovative labeling and coding solutions that help them meet their strategic goals. Contact one of our label experts for more information on our Life Science label solutions.

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