



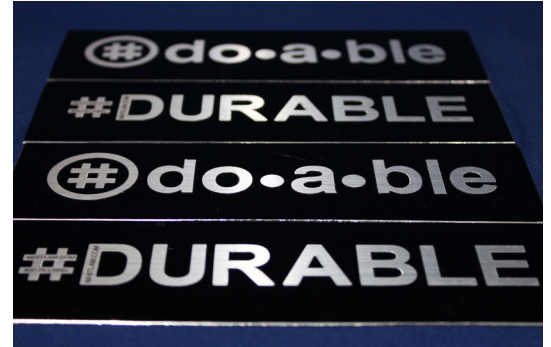
# **Industrial & Durable Labels**

# The need for reliable and durable labeling solutions has never been more important.

Industrial and durable labels play a crucial role in ensuring safety, compliance, and efficiency in industries such as manufacturing, healthcare and automotive. They are designed to withstand harsh conditions, including extreme weather, chemicals, and abrasion, making them essential in settings where typical labels would fail.

## What Are Industrial and Durable Labels?

Industrial and durable labels are created to endure challenging environments. Unlike regular labels, they are made from more robust materials to ensure they remain intact over time. They are designed to provide long-lasting visibility and readability.



## Key Features and Benefits



### 1. Durability and Longevity

One of the main benefits of industrial labels is their durability. These labels can withstand exposure to chemicals, UV sunlight, moisture, and extreme temperatures. This makes them suitable for outdoor use and/or in settings where they may encounter harsh substances or circumstances.



### 2. Enhanced Safety

In industrial settings, safety is of the utmost importance. Durable labels help ensure compliance with safety regulations by clearly marking hazardous materials and machinery. They provide essential information that can prevent accidents and ensure the safe handling of equipment and materials.



### 3. Traceability and Inventory Management

Durable labels are crucial for inventory management and traceability. They allow businesses to track products from production to delivery. Serialized, barcode labels, and QR codes are commonly used to maintain inventory management processes, reduce errors, and improve efficiency.

# Choosing the Right Label

When creating industrial and durable labels, choosing the correct type of ink, material and adhesive is essential. Knowing the specific needs of the printing project, including the desired durability, environmental considerations, and budget constraints, will help make these decisions.

## Inks



### UV Inks

One of the main benefits of UV inks is that they cure quickly, keeping production speeds high. They are ideal for outdoor use due to their durability and resistance to smudging, scratching, and weather conditions. They have a high print quality and are suitable for a range of materials. UV inks do not contain volatile organic compounds (VOCs) and are therefore less harmful to the environment.

### Water-Based Inks

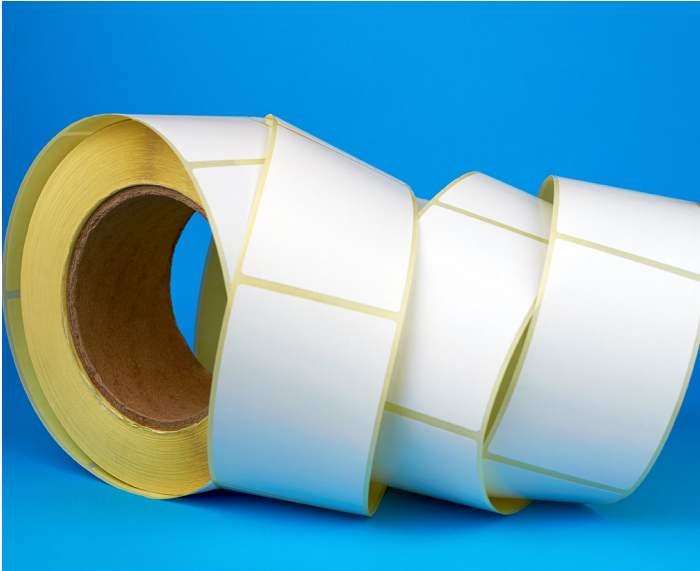
One of the main benefits of water-based inks is their low levels of VOCs, making them better for the environment and safer to work with. They are typically more affordable than UV and solvent inks. However, they are less resistant to water, chemicals, and abrasion. The range of compatible materials is also more limited.

### Solvent Inks

One of the main benefits of solvent inks is that they have good adhesion to many plastic film types. They can be printed on a wide range of materials and are generally less expensive than UV inks. However, they have high levels of VOCs and require proper ventilation during the printing process. They also have a longer drying time than UV ink curing which can slow down production.



# Materials



## Polyester

Polyester labels are ideal for industrial and durable labels because of their resistance to moisture, chemicals and abrasion. They have excellent printability and clarity, perform well in a wide range of temperatures, and can be resistant to UV sunlight. However, polyester is generally more expensive than polypropylene and vinyl. It is also less flexible, which can limit its use on irregular surfaces.

## Polypropylene

Polypropylene labels offer a balance of durability and cost-effectiveness. They are generally more cost-effective than other materials while still providing good printability as well as resistance to moisture and some chemicals. Polypropylene labels can be less resistant to extreme temperatures and prolonged UV exposure than polyester. They can be more suitable for irregular surfaces due to being more flexible than polyester.

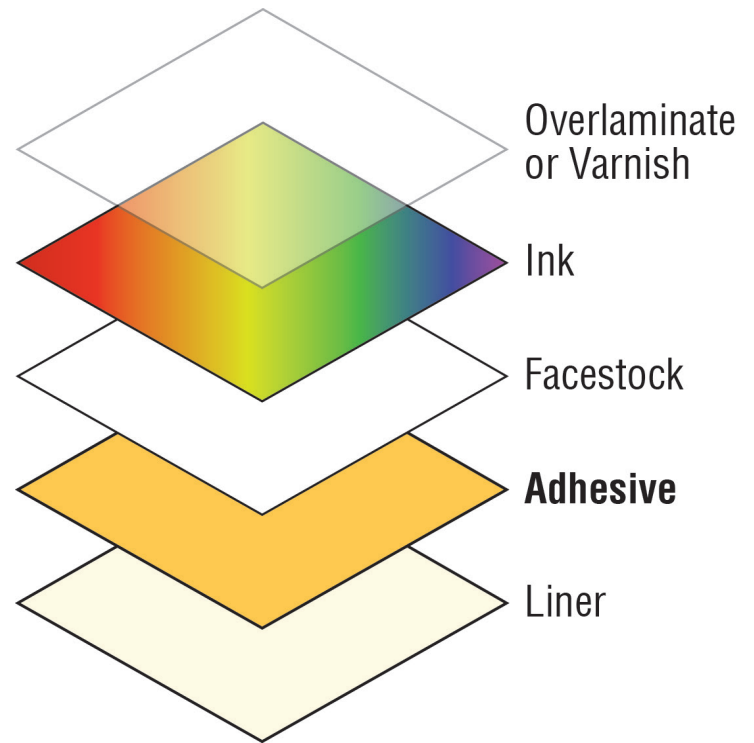
## Vinyl

Vinyl labels are known for their flexibility and resistance to moisture, chemicals and abrasion. They are also available in a wide range of finishes and colors. They are difficult to recycle and therefore are less environmentally friendly. They are not suitable for cold temperatures. If they need to resist UV exposure, UV inhibitors may need to be added.

# Adhesives

## Hot Melt

Hot Melt adhesives are made from thermoplastic resins that become tacky when heated and solidify upon cooling. They have strong initial tack, are suitable for a wide variety of surfaces including rough and uneven surfaces, are resistant to moisture, and are generally cheaper than other adhesive types. They do not perform well under high temperatures, have less chemical resistance than acrylic adhesives, and can leave residue behind if removed.



## Emulsion Acrylic

Emulsion Acrylic adhesives are water-based and made from acrylic polymers dispersed in water during their manufacturing process. They are very durable and have excellent resistance to UV light, chemicals, and aging. They perform well across a wide range of temperatures. They have a lower initial tack compared to hot melt and rubber-based adhesives. They are limited in the surfaces they can be applied to and are generally more expensive than hot melt adhesives.

## Solvent Acrylic

Solvent Acrylic adhesives are solvent-based adhesives also made from acrylic polymers, but dispersed in solvents during their manufacturing process. Some of these can be more durable or have better performance than emulsion acrylic adhesives depending on the application. Emulsion and Solvent acrylic adhesives typically have good long-term adhesion.

## Rubber-Based

Rubber-based adhesives are made from natural or synthetic rubber combined with tackifiers and other additives. They have high initial tack and adhere well to a wide range of surfaces. They can degrade over time, losing adhesive properties due to exposure to UV light and oxidation. They are less resistant to chemicals compared to acrylic adhesives and can leave adhesive residue upon removal.

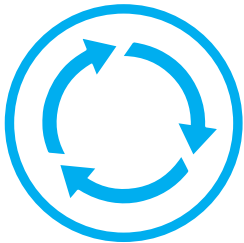
## In-House Lab

Testing for specific applications is always recommended. We can use your specified materials, or our engineers can recommend a label material based on your needs. Whitlam Group has an in-house lab that performs a variety of tests. Below are some of the tests that are offered.



### **Abrasion**

Tests the ability of the label to resist abrasion, analyzes the durability of the printed ink system on various labels, and checks the durability of various varnishes and laminates.



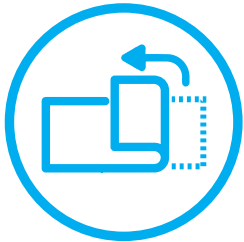
### **Cycle (Oven, Freezer, Or Humidity)**

Tests the ability of the label to stand up to various environmental conditions in a cyclical format.



### **Fluid Immersion**

Tests the ability of the label to resist the effects of a wide variety of chemicals.



### **Adhesion/Peel Strength**

Used to perform peel adhesion testing which shows the amount of force required to remove a label from a surface.



### **Heat Aging / Resistance Test**

Tests the ability of the label to endure elevated to high temperatures.

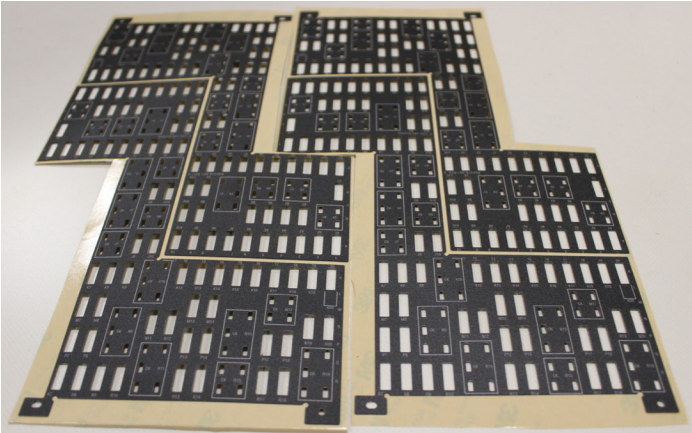


### **Cold Aging / Resistance**

Tests the ability of the label to endure low, to extremely low, temperatures.

## Learn More

Industrial and durable labels provide the resilience and reliability needed to maintain safety, compliance, and efficiency across a variety of industries. As these industries continue to evolve and face new challenges, the demand for robust labeling solutions will only grow. Working with a reputable label supplier who understands the demands of your industry will help you decide on the best label for your needs. Contact Whitlam Group today to learn more!



Sources:

<http://www.cncolorink.com/newsinfo/213457.htm>

<https://www.linkedin.com/pulse/industrial-labels-market-growth-share-insights-lf6hf/>

### Memberships and Affiliations



### Certifications



Intertek

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## About Whitlam Group

Whitlam Group is a leader of engineered label solutions and functional parts, solving complex label challenges for the world's largest corporations. Serving the automotive, industrial and consumer goods market for over sixty years, as a strategic partner. We understand the needs and processes of our customers and we proactively help them to achieve their objectives.

Learn more at [www.whitlam.com](http://www.whitlam.com)



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