



Assurance

# Mould matters

Preventing mould in garment production  
with inspection in supply chain



# Table of index

November 2024

Proprietary® Eurofins Scientific (Ireland) Ltd., 2024. All rights reserved. This document contains information that is proprietary to Eurofins Scientific SE and/or its affiliates. No part of it may be used, circulated, quoted or reproduced for distribution outside companies belonging to the Eurofins Group.

The information contained in this white paper is subject to change at any time without prior notice. This white paper is prepared to the best of our knowledge and research at the time of writing, however the information presented may not reflect the latest regulatory or industry developments/changes. This white paper should not be relied upon for any future actions including but not limited to financial decisions.

01	Introduction	3
02	Why and where does mould exist in supply chain?	4
03	What are the adverse impacts?	6
04	How to prevent mould growth by inspection?	7
05	What are the benefits of adopting a third-party services provider in mould prevention?	10
06	Conclusion	11
07	About us	12

# Introduction

Mould growth in apparel and accessories poses significant challenges to manufacturers, retailers and consumers. Mould not only damages goods, rendering it unsellable but it can also lead to health issues for those exposed. It is estimated that a few million dollar is lost every year on damages caused by mould to the industry.

This White Paper explores the causes of mould in garment, share inspection methods to detect mould presence, and go through effective measures for mould prevention throughout the supply chain.



# Why and where does mould exist in supply chain?

Mold thrives on moisture and organic materials, making cellulosic and protein-based fibers such as cotton, linen and leather/ hide particularly susceptible.

How fast does mould grow? Taking clothing as example, if the garment is damp or in a humid environment with poor ventilation, mould can start growing in as soon as 24 to 48 hours. A musty smell can be smelled from mould that can appear black, green or white.

## Causes of mould in garment and accessories

### 01 Humid environment

High humidity provide an ideal environment for mould growth. Materials and goods stored in humid conditions, especially above 60% relative humidity, are at high risk.

### 02 Improper work process

Pressed garments retain heat, which can increase the moisture level inside the packaging if packed immediately as warm garment cools down in sealed environment, and condensation forms, providing the moisture mould feeds on to thrive.

### 03 Improper storage method or condition

Poor ventilation in storage and transport areas can trap moisture, increasing the likelihood of mould growth.

### 04 Temperature

The optimal growth range of temperature for mould in storage environments is between 25°C (77°F) and 30°C (86°F).

# High-risk countries for mould in garment manufacturing

Some countries are at higher risk for mould in garment manufacturing due to their climate and geographic conditions. These regions typically are located in tropical or sub-tropical areas with high levels of humidity and significant amounts of rainfall, coupled with high temperature, making them the best cradle for mould growth in goods production and shipping.

Proper packaging, climate control during transportation, and mould prevention measures are essential when shipping materials to or finished goods from these regions to mitigate the risk of mould damage. We will talk about these in details in later chapters.



# What are the adverse impacts?



Mould can cause staining, discoloration and deterioration of fabric fibers and leather, compromising the quality, integrity and appearance of the goods.



Suppliers and buyers need to bear extra cost from rework/ reproduction to compensate the loss of production caused by mould. In extreme cases, scrapping the damaged shipment or recalling the slot from market would be required.



A shipment rework would probably cause the shipment delay, missing retail seasons and causing additional financial loss.



Brand reputation damage from consumer complaints on purchases of mould-impacted goods. Certain groups of people are more vulnerable to mould and complaints might arise for health concerns as well.

# How to prevent mould growth by inspection?

On-site prevention work, whether carried out in-house or by third-party agent, is fundamental to avoid mould growth from source. In a nutshell, there are six areas that you can follow to minimise mould risk.

## 01 Standard Operating Procedure

Implement a mould prevention policy and Standard Operating Procedure (SOP) in the workplace. This is crucial for the several reasons on the right.



### Health and Safety

Mould can cause various health issues, including allergies, respiratory problems, and infections. A clear policy helps protect employees' health by minimising exposure to mould.



### Product Quality

Mould can damage products, leading to spoilage and loss of quality. Preventing mould growth ensures that products remain in good condition, reducing waste and maintaining customer satisfaction.



### Compliance

Many industries have regulations regarding mould control. Having a formal policy and SOP helps ensure compliance with these regulations, avoiding potential legal issues and fines.



### Cost Efficiency

Preventing mould growth can save money by reducing product loss, minimizing health-related absences, and avoiding expensive remediation efforts.



### Reputation

A workplace that prioritizes mould prevention demonstrates a commitment to quality and safety, which can enhance the company's reputation with customers, partners, and employees.



## 02 Worker training

Establishing an effective process for handling garments after ironing or steaming is crucial to prevent excess moisture that may promote mould growth. To ensure proper cooling before packing, place the garment on a hanger or a flat surface.

Using Moisture Content (MC) Meter on garments and shipping cartons is a quantitative way to monitor moisture levels and prevent mould growth, especially in humid or damp environments and seasons.

### 03 Develop humidity control system

Develop an effective humidity control system by adding adequate ventilation facilities in storage and shipping area is critical to prevent moisture buildup. There should be meters to measure the humidity level, temperature in workplace. Roof shelter to cover the storage area has proven to be effective in keep the materials and goods dry.

## 04 Effective housekeeping

Regularly clean surfaces to remove dust, dirt and organic materials that mould spores can use as a food source. Use mould-killing cleaners and disinfectants, especially in damp areas, is essential. Promptly repair any leaks in roofs, walls or plumbing to prevent water accumulation.



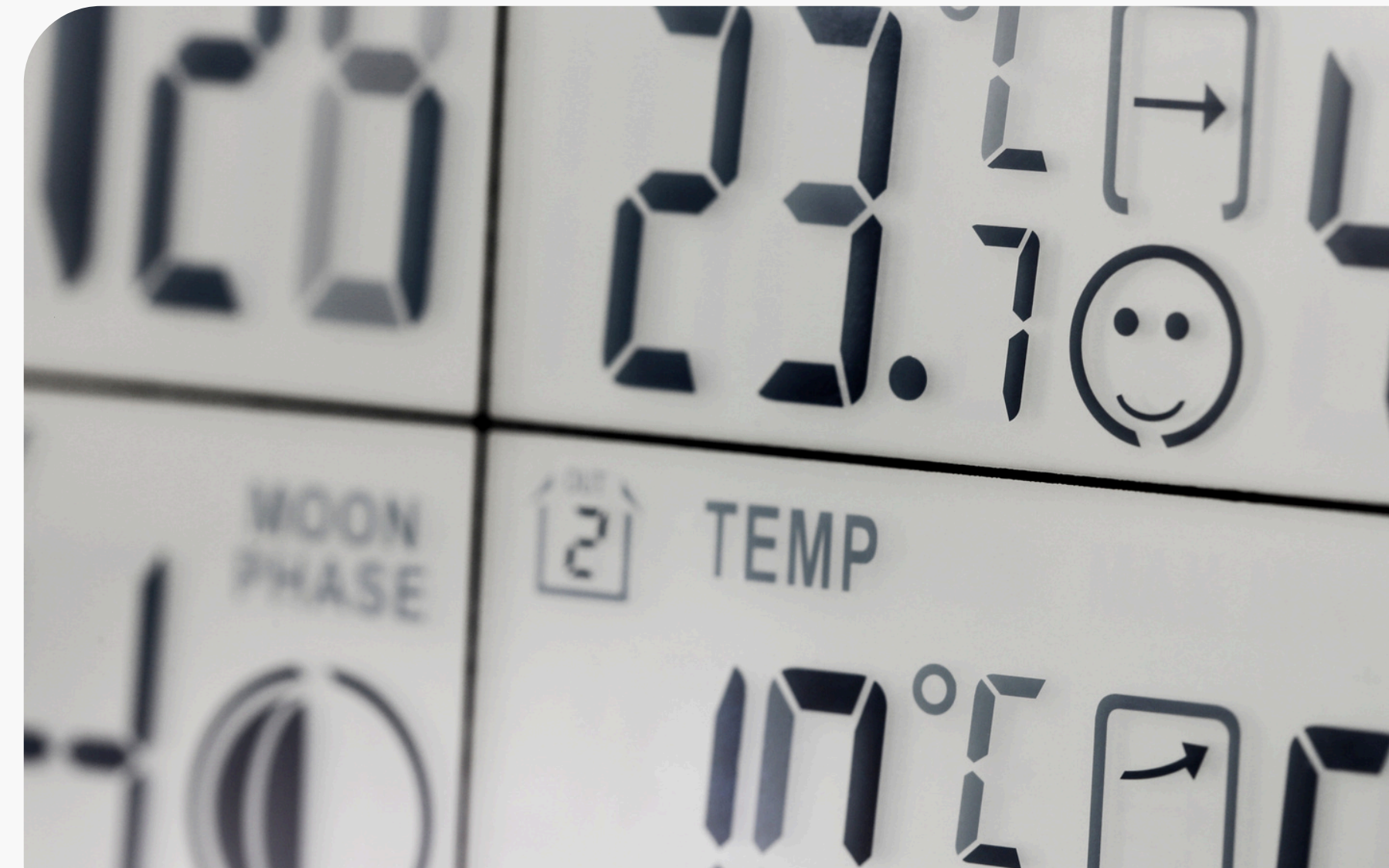
## 05 Anti-moulding materials

Desiccants are materials used to control and reduce humidity levels in enclosed environments. Their primary purpose is to absorb moisture from the air, which helps prevent damage caused by excess humidity, such as mould, mildew, corrosion, and spoilage. Popular types of desiccants include:

- Silica Gel: The most common desiccant, suitable for a wide range of products, with excellent moisture-absorbing properties.
- Calcium Chloride: Often used in larger applications due to its high absorption capacity.
- Activated Charcoal: Used for both moisture and odor control.
- Molecular Sieves: Effective in industrial applications and environments with extreme conditions.

## 06 Good shipping conditions of finished products

Implement first in first out inventory management to ensure older stock is shipped first, reducing the risk of mould growth on older products. It is same important to pre-check the container condition before loading. Any damaged or damp floor container should not be used for shipment loading.



## What are the benefits of adopting a third-party services provider in mould prevention?

Engaging a third-party service provider can be highly beneficial in preventing mould growth on garments in multiple ways:



A third-party provider offers a neutral perspective, assessing mould risks and conditions without any internal biases. This impartiality is crucial for quality assurance, particularly when disagreements or concerns arise between suppliers, manufacturers, and buyers. Third-party providers typically employ experts specifically trained in mould prevention and environmental control, who are well-versed in the latest best practices and industry standards.

Third-party inspection can provide suggestions and improvement actions regarding the factory environmental control.

Third-party inspector can conduct thorough and regular inspections of manufacturing facilities, workplace, and storage areas to detect early signs of mould.

Moisture content test to be done on finished goods during inline or product inspection. Semi-finished goods and finished goods with particularly high moisture content can be detected and pulled out from shipment for other processing.

Third-party agent can offer specialized expertise, advanced technologies, and unbiased assessments to ensure effective mould prevention.

# Conclusion

By addressing the above key areas, apparel manufacturers can effectively prevent mould, ensuring their products remain in excellent condition from production to delivery. This proactive approach not only enhances product longevity and customer satisfaction but also upholds the manufacturer's commitment to quality and safety.





# About Eurofins

## Consumer Products Assurance

The Eurofins Consumer Products Assurance (CPA) network of companies offers comprehensive supply chain assurance to various industries on their quests towards compliance and performance improvement around social, environmental, security, technical and product quality.

With the full-range audit and inspection services available globally, coupled with our signature solution QA/QC Programme, we support different stakeholders in the supply chain in becoming more successful and responsible businesses, achieving risk mitigation, brand protection, supply chain optimisation and customer satisfaction.

**PARTNER WITH US**

[www.eurofins.com/assurance/](http://www.eurofins.com/assurance/)

 Eurofins Consumer Products Assurance

 Eurofins Assurance