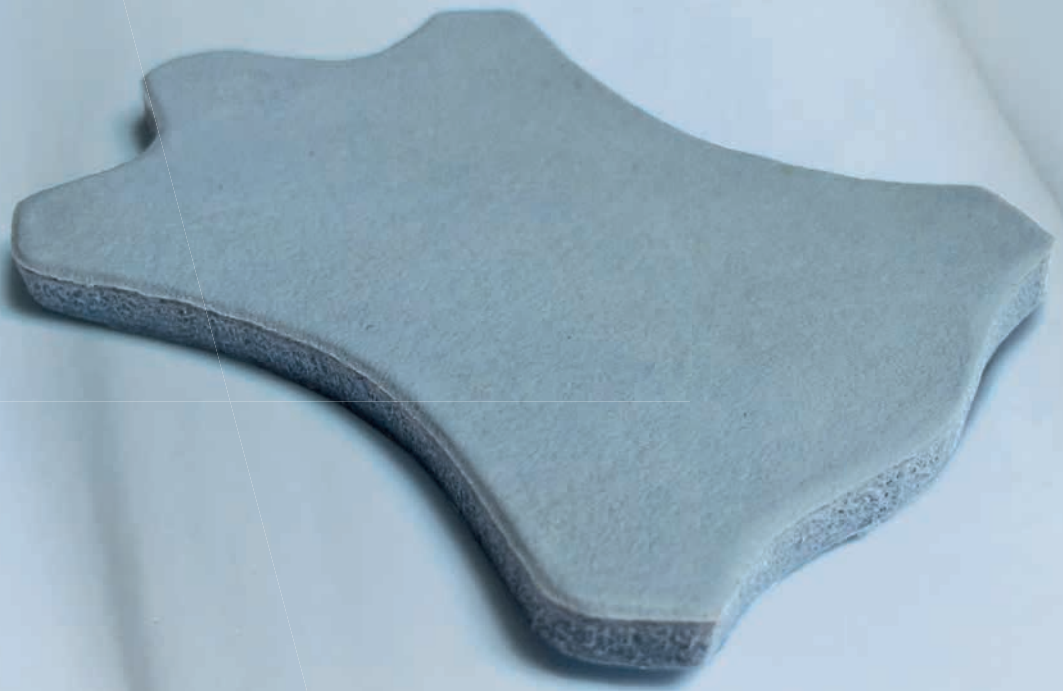


QUALITY **PROTECTS.**



The LANXESS **preservation systems** for leather intermediates.

X Preventol®

QUALITYWORKS.

LANXESS
Energizing Chemistry

PREVENTOL® – PRESERVING LEATHER MORE EFFECTIVELY



In today's industrialized leather industry intermediates are shipped all over the world. With a moisture content of around 50% they need long-term protection against microbial attack during weeks or months of storage and transportation. Failure to tackle this problem can have costly consequences. Once microbial growth is visible to the naked eye, irreversible damage of the leather could already have occurred and treatment at this stage can only prevent further degradation. With Preventol®, LANXESS offers effective and economical long-term preservation of leather intermediates.

PERFORMANCE

Microorganisms are ubiquitous. They grow in large numbers especially in areas with sufficient moisture and nutrients, hence, tanneries are an ideal environment for growth. In each location, a wide variety of microorganisms generally exist. As every species has different susceptibilities to a single biocide, effective protection requires a broad spectrum of active ingredients.

The major active ingredients can roughly be divided into main classes by "mode of action": membrane actives and electrophilic actives.

Phenolic biocides belong to the group of membrane actives. This group of active ingredients is also effective in natural or even dirty environment and remains stable in hot and strongly alkaline environments.

They have a very positive toxicity profile and do not contain formaldehyde or isothiazolinones. As they are membrane active, these active ingredients are not consumed and can act multiple times. Phenolic active ingredients are biodegradable in effluent concentrations.

Preventol® U Tec G

- Applicable on wet blue, chrome-free leathers and vegetable tanned leathers
- Combines strengths of phenolic biocide and OIT
- Can be added undiluted
- Very cost-effective (per ton of leather)
- Contains no emulsifier, water or formulation aids (> 90% pure active ingredients)
- Broadest fungicidal spectrum of activity
- Dermatologically tested in leather application

Preventol® IC-L

- Combines strengths of phenolic biocide and OIT
- Free from OPP
- Can be added undiluted
- Applicable on wet blue, chrome-free leathers and vegetable tanned leathers

Preventol® WB plus-L

- Combines strengths of phenolic biocides and pyriithione
- Formulation is easy to dilute
- Also suitable for wet whites und vegetable tanned products

Preventol® WB-L

- Combination of phenolic biocides
- Formulation is easy to dilute
- Also suitable for wet whites und vegetable tanned products



PREVENTOL® – PRODUCT BENEFITS



- Unlike other systems, Preventol® products contain more than one active substance/function ensuring that both modes of action are combined in one product. This leads to a broader spectrum of effect and additional safety for the tannery – all typical strains of leather molds are actively counteracted.
- A further benefit of these active substances – unlike electrophilic active substances which protect the surface – is their ability to penetrate the cross-section of a hide and protect it during splitting: As mold can also pass right through the leather, new surfaces emerging from splitting would immediately be at risk. Membrane active biocides reduce this risk and give tanneries more time to react.
- Preventol® products are well-known for their long-term protection. This can be attributed to the membrane-active biocides in particular. While fighting mold, they are not deactivated but released unchanged, so they can repeat their defense work over and over again – a truly regenerative biocide ensuring long term protection.

TESTING

Challenge tests simulate real-life protection of hides in a shortened time. The test result gives a good indication of whether hides are protected enough to last a short- or long-term period without microbial attack.

Generally, there are two different microbiological challenge tests available. LANXESS uses a modified ASTM D4576 agar diffusion test which was established as an industry standard test. It closely simulates the real-life conditions of long-term storage and transportation. Furthermore this test can identify efficacy gaps and has a good repeatability.

The well-known and widely used tropical chamber test, however, can only estimate the performance of biocides. It can only assist a prediction of short-term storage in the environment in which the wet blue is inoculated. A determination of possible efficacy gaps is usually not possible and the repeatability is rather moderate. This can lead to an increased test frequency.

Test procedure:

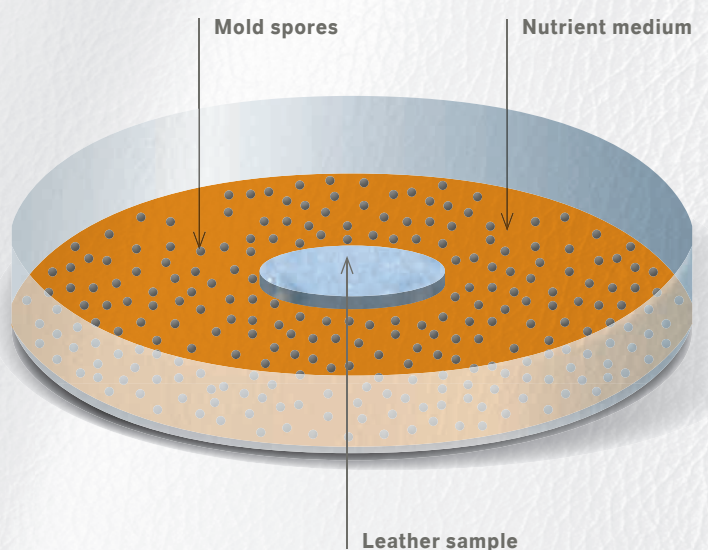
The agar diffusion test ASTM 4576 is an industry standard test method for wet blue: “Standard Test Method for mold growth resistance on wet blue.”

This test method determines the resistance of leather intermediates to mold growth due to storage and transportation. Over the years, LANXESS has improved and modified this industry standard to better simulate real-life transport and storage conditions.

Circular discs of leather are cut out and are separately placed on sterile (control) and contaminated agar in petri dishes covered by a lid. petri dishes are stored in a humid and temperature-controlled atmosphere (24° / 28°C) and are regularly checked for any visible signs of mold growth. This set-up mimics the real-life conditions of leather set up on a pallet sealed with plastic sheeting.

This test has been chosen as the industry endorsed standard method due to its advantages of highly reproducible results and real-life simulation at the same time. With this test it is possible to determine efficacy gaps (weak spots) of an active substance to different mold test strains. Therefore this test method is clearly superior to any currently known alternative.

Agar Diffusion Test



DOSAGE AND TECHNICAL APPLICATION

Products in the Preventol® range can be applied as a stand-alone solution or combined with each other to achieve leather protection fine-tuned to the specific requirements of the tannery.

Numerous factors must be taken into consideration for adequate protection against mold fungi. Fluctuating natural fat content, differences in thickness, density and fiber structure of the raw material used. Furthermore subsequent process steps (washing, neutralization) and requirements regarding duration of storage, storage conditions and the prevailing local industrial hygiene need to be taken into account.

Preventol® products can be added undiluted or diluted at different stages of the process. Detailed application guidance can be found in the product-specific technical data sheets and a preservation concept can be worked out with your local LANXESS representative. Therefore, protection with Preventol® products can easily and individually be implemented during the tanning process.

Plant hygiene also plays a crucial role in the adequate protection of hides. Unclean machines and areas with pools of water quickly become contaminated areas. Eliminating these factors reduces the risk of hide contamination and thus provides the leather with more safety. A plant hygiene audit can help to identify risks and eliminate potential contamination factors in your facilities.

REGISTRATION AND LEGAL COMPLIANCE

Biocides are strictly regulated in Europe and other relevant markets. LANXESS operates with a long-term view in these markets and therefore invests in local registrations and guarantees of marketability.

An example is the Biocidal Product Regulation in the EU (BPR, Regulation (EU) 528/2012). Here, LANXESS as one of the first companies has directly or indirectly ensured the compilation of the registration dossier for all its active substances.

Authorization of the biocidal products follows after registration. For the customer, this means that LANXESS ensures the long-term availability of these products in all relevant markets through significant investment. LANXESS is fully compliant with all legal requirements regarding chemicals and chemical preparations for the production of leather and fur.

SUSTAINABILITY

Preventol® products are free of phenol and of comparably low toxicity. Thanks to its regenerative properties and combination of modes of action, these products show a very high efficacy against a broad range of fungi and molds.

Preventol® products are easily biodegradable and affect neither wastewater treatment nor the environment. The German Environment Protection Agency (Umweltbundesamt) considers this product's active ingredients to be the "best available technology". (RAL UZ 148).



PREVENTOL® – PRODUCT OVERVIEW



Product	Membrane Active	Electrophilic Active	Active substances*	Full Penetration	Technical application**	BPR compliance (EU - Biocidal Product Regulation)***
Preventol® U-Tec G	X	X	PCMC, OPP, OIT	X	Undiluted	X
Preventol® IC-L	X	X	PCMC, OIT	X	Undiluted	X
Preventol® WB-L	X		PCMC, OPP	X	Diluted	X
Preventol® WB plus-L	X	X	PCMC, OPP, Pyrethione	X	Diluted	X
Preventol® OI-L	X	X	OPP, OIT	X	Diluted	X
Preventol® C40-L	X		PCMC	X	Diluted	X

* PCMC = 4-Chloro-3-methylphenol (Chlorocresol),
OPP = Biphenyl-2-ol, OIT = 2-octyl-2H-isothiazol-3-one,

** for detailed application guidance please refer to the TDS
(Technical data sheet)

*** According to the Biocidal Product Regulation (BPR (EU)
528/2012), articles can only be treated with biocidal prod-
ucts containing active substances approved in the EU.

GENERAL INFORMATION / DISCLAIMER

The current safety data sheet should be observed. It contains further information on labeling, transport and storage, as well as information on handling, product safety, toxicity and ecology. Use biocides safely. Always read the labels and product information sheets prior to use.

PREVENTOL® – PRODUCT BENEFITS

- **Broad spectrum of efficacy due to a combination of active substances with different modes of action**
- **Long-term protection by using membrane active biocides which are not consumed**
- **Protection of grain and drop splits (wet blue splitting) due to full penetration of active ingredients**
- **Full compliance with all legal requirements and biocidal registrations for all major markets**
- **Sustainable and best available technology for preservation of intermediates (according to German Environmental Agency, UBA)**



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