

LEATHER AUXILIARIES

WATERPROOFING SYSTEMS

Products and technologies



ZSCHIMMER & SCHWARZ

WATERPROOFING AGENTS



OMBRELLON 072 N | New-generation hydrophobing agent for basic waterproofing

- ▶ Excellent waterproofing figures
- ▶ Results in tight and firm leathers
- ▶ Easy handling and short process
- ▶ Excellent water vapour performance
- ▶ Non-yellowing
- ▶ Excellent area yield compared to classic waterproofing products
- ▶ Good finish adhesion
- ▶ Lightweight and relaxed leathers
- ▶ Excellent wearing comfort
- ▶ Suitable for all articles
- ▶ Can be used alone or in combination with OMBRELLON S (and/or OMBRELLON WD)

OMBRELLON HSL | Waterproofing agent especially for firm to medium-soft leathers

- ▶ Fulfils highest requirements
- ▶ Controlled softness, firm and tight grain
- ▶ Effective even in low quantities
- ▶ Level dyeings
- ▶ Combination with booster creates outstanding results
- ▶ Liquid and thus easy to handle

OMBRELLON S | Waterproofing booster

- ▶ Improves waterproofing values
- ▶ Imparts fullness and softness
- ▶ Excellent for milled articles
- ▶ Pleasant to touch, round handle
- ▶ Versatile use

OMBRELLON WD | Polymeric all-round waterproofing agent

- ▶ Retaining and waterproofing in one agent
- ▶ May be used for washable leathers (including dry cleaning)
- ▶ Imparts good grain tightness
- ▶ Liquid, easy to handle
- ▶ Excellent filling
- ▶ Moderate softening
- ▶ Very good exhaustion and fixation
- ▶ Can be combined with OMBRELLON S to reach higher hydrophobing effect

OMBRELLON WR-N | Classic, highly softening waterproofing agent

- ▶ Waterproofing agent especially for split and suede
- ▶ Imparts excellent softness
- ▶ Very good exhaustion and fixation
- ▶ Shiny suede surface
- ▶ Writing effect on suede
- ▶ Rich and silky touch
- ▶ May also be used for washable leathers (including dry cleaning)

REQUIREMENTS

The objective of processing value-added waterproof leather is to produce leather which has an appealing appearance and results for example in shoes or motorbike garments with high wearing comfort even in wet and cold conditions. Our skin protects us against external influences; however, it also allows the body to regulate its temperature through perspiration. Leather should act as a second breathing skin.

Waterproof leather cannot be penetrated by water; however, leather should allow high permeability for water vapour. Besides, leather is supposed to offer thermal insulation and be lightweight. The testing procedure for waterproofness has to be adapted to the use of the respective leather.

THE PRINCIPLES OF OPEN WATERPROOFING

The waterproofing of leather is a longstanding tradition. Famous examples are the housing of Native Americans – wigwams – and the boats of the Inuit – umiat. Waterproof leathers were commonly used in military clothing and in cavalry boots: for this purpose, leather was soaked with

water-repellent oils; for instance, cavalry boots made of leather were treated with chrome stearates and waxes. Such boots were heavy, and the humidity due to perspiration could not escape. Thus, the feet would feel wet and get cold during wear.

USAGE REQUIREMENTS

- ▶ No surface wetting
- ▶ No water penetration
- ▶ Controllable uptake of perspiration humidity
- ▶ Removal of perspiration humidity
- ▶ Heat and cold insulation
- ▶ Lightweight
- ▶ Wearing comfort

TESTING REQUIREMENT

- ▶ Water droplet test (EN ISO 15700, IUF/420)
- ▶ Bally penetrometer (EN ISO 5403, IUP/10)
- ▶ Maeser (ASTM D 2099)
- ▶ Soaking-up test (Wicking test)
- ▶ Absorption of water (EN ISO 2417, IUP/7)
- ▶ Water vapour absorption (EN 420)
- ▶ Water vapour permeability (EN ISO 14268, IUP/15)
- ▶ No test, effect influenced by moisture content
- ▶ Specific weight and haptic assessment
- ▶ No test

FEEL THE DIFFERENCE IN WEARING COMFORT

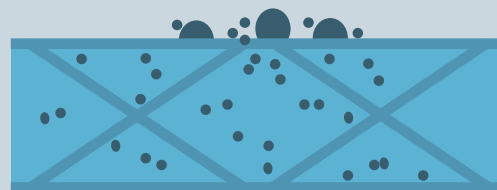
Breathable waterproofing is the smartest approach to making leather waterproof. Openly waterproofed leathers act as a membrane. The internal surface of the leather – the fibrils and elementary fibres – is coated with a waterproofing agent that bonds to the internal surface through its functional groups. Hence, the internal surface possesses a very low surface tension.

Water vapour can easily penetrate hydrophobic leather, i.e. the water vapour can be easily absorbed but just as easily released again. This ensures the breathability of the leather and a high level of wearing comfort. Water vapour always permeates from the side with higher water vapour concentration to the side with lower concentration, from the side with higher temperature to the side with lower temperature. Water drops, however, cannot wet the surface of the leather due to their high interfacial tension, which means that water cannot penetrate.

The effect of open waterproofing can be visualised using an example from nature. Water striders can walk and jump over water; their entire body is covered with numerous fine hydrophobic hairs that repel water and thus keep the insect afloat on the surface. The lotus effect, which is commercialised in wall paints and care products for car windows, works similarly: water simply rolls off the lotus flower.

FIGURE MODEL OF LEATHER ACTING AS A MEMBRANE

Low temperature (shoe/garment exterior)



High temperature (shoe/garment interior)



Chemistry tailor-made

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