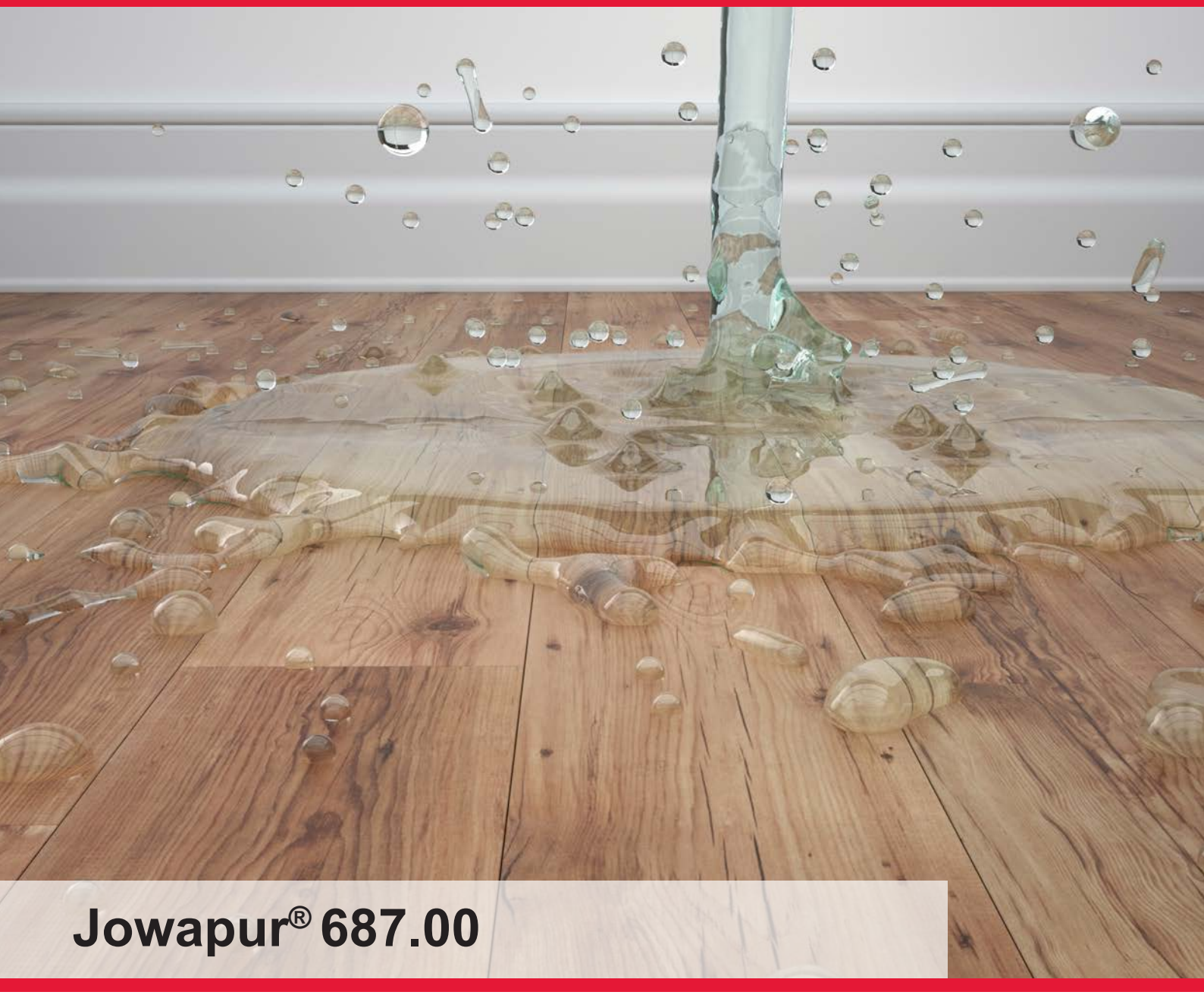
Hydrophobing

- Modification of hydrophilic materials
- Reduced swelling
- Improved physical material properties



Jowapur® 687.00

Jowat Klebstoffe

Jowapur® hydrophobing agent - Hydrophilic becomes hydrophobic

Function: The treatment of wood-based materials with a hydrophobing agent makes them either water-repellent or at least reduces the water absorption. The ingredients of the hydrophobing agent cover the wood fibres, pores and capillary surfaces, therefore preventing moisture ingress. Since the pores and the capillaries are not closed in this procedure, the diffusion capacity (breathability) of the material remains virtually unaffected by the hydrophobing treatment.

Objective: The hydrophobing effect has to be permanent and without any negative side effects. The characteristics of the substrate have to be maintained and may even be improved significantly depending on the application. In particular, the hydrophobing treatment is not allowed to have a detrimental effect on the downline bonding processes with different adhesive systems.

Effect: In general, the deeper the agent penetrates into the material, the better the hydrophobing effect will be. The ideal degree of impregnation has to be determined for every application individually depending on the price-performance ratio, the desired improvement as well as on the downline processing steps and the time between them. In general, the achievable penetration depth depends on:

- the absorbing capacity of the material to be hydrophobised
- the density profile of the substrate
- the type and formulation of the hydrophobing agent
- the application technology and application amount
- the contact time

Substrates: The **Jowapur®** hydrophobing agent is suitable for instance for the following substrates: MDF/HDF, particleboard, plywood, solid wood, plaster and cement fibreboard, paper, cardboard

Application methods

- Roller applicators
- Curtain coating + vacuum deep-drawing
- Vacuum – spray application
- Brush or roller (manual application)
- Pressurised containers

HDF/MDF finishing through hydrophobing treatment

The physical characteristics of wood-based materials such as MDF and HDF can be improved significantly with the **Jowapur®** hydrophobing agent. This provides the opportunity to tap into new markets and fulfil the increasing requirements for the latest applications, and to achieve higher resistances.
Especially the tensile strength, shear strength, bending strength, E modulus and transverse tensile strength can be increased by up to 100 %.
The application amount and therefore also the achievable improvement are depending directly on the material thickness, density and penetration depth.
The hydrophobing agent is applied in a curtain coating process and drawn into the board through vacuum. The penetration depth can be adapted by changing the application amount, the vacuum and the duration of the process. Depending on the purpose, only the surface with a few millimetres of penetration into the material or a complete treatment may be necessary.
Materials treated with a hydrophobing agent can be bonded easily with different adhesive systems. Superior bonding strengths are achieved with dispersion adhesives directly after the hydrophobing treatment (wet in wet).

Advantages compared to materials without hydrophobing treatment

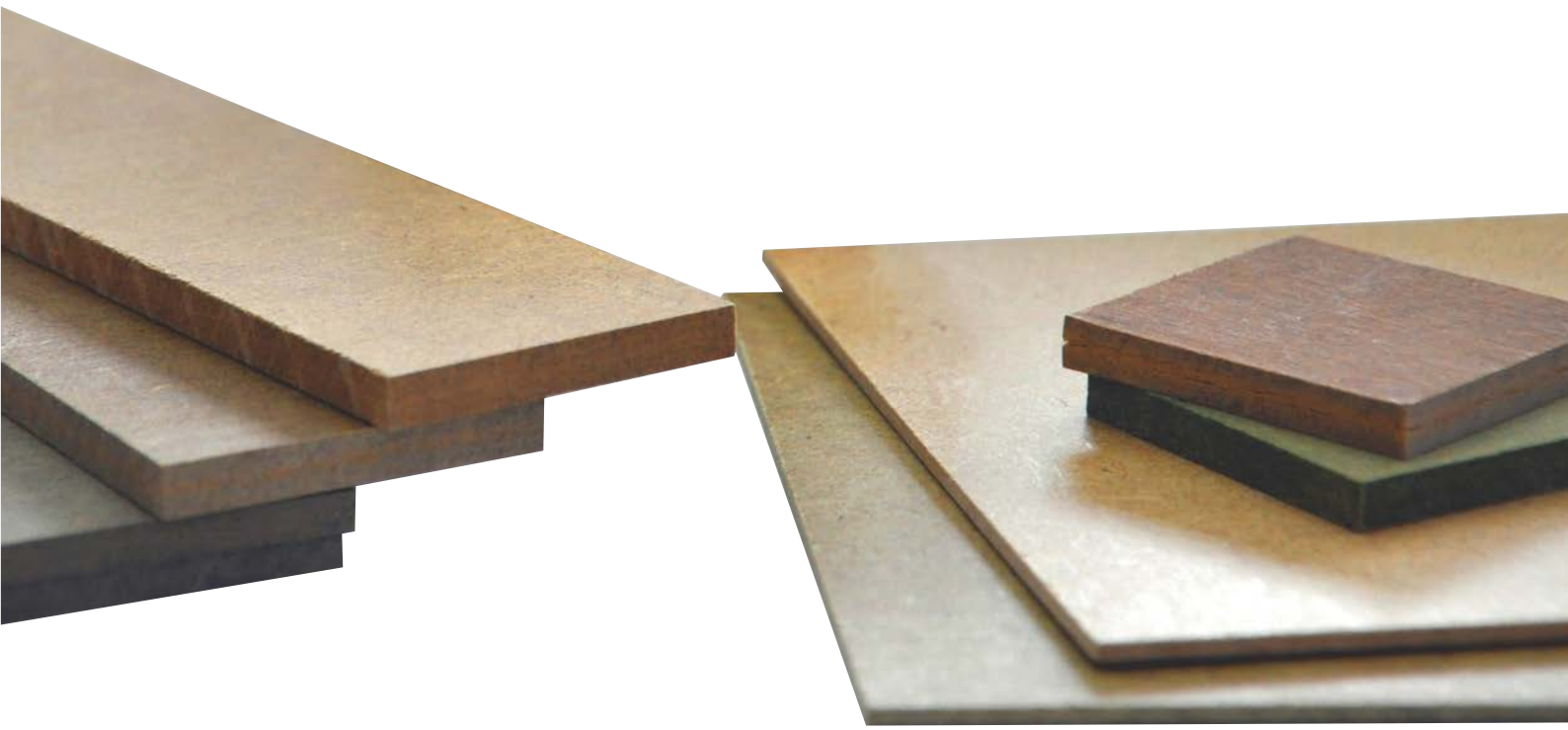
- Shear strength up to +100 %
- Tensile strength up to +100 %
- Bending strength up to + 50 %
- Elasticity E modulus up to + 50 %
- Reduced swelling by up to 80 % (after 24 h storage in water + after drying)
- No erected fibres after exposure to moisture – e.g. during varnishing or bonding

Application methods

- Curtain coating + vacuum deep-drawing (Innovapress patented by Cefla)
- Easy and precise application amount dosing
- Variable penetration depth; up to the entire cross section
- Homogeneous application pattern

Applications

- Floor elements for rooms with high humidity
- Cladding panels
- Doors
- Building products e.g. wood fibre insulation boards
- Lightweight building panels



INFO: PUR hydrophobing agent

The one-component Jowapur® hydrophobing agent based on isocyanate hardens due to a chemical reaction with moisture. During this crosslinking reaction a small amount of CO2 gas is formed. The released amount of gas is depending largely on the moisture content of the substrate and the ambient air. Therefore, the available moisture has to be controlled depending on the intended process if necessary. Jowapur® hydrophobing agents have to be protected from humidity during production and storage to prevent a premature reaction. The material temperature is not allowed to drop below 5 °C. The PUR hydrophobing agent is classified as hazardous material and certain safety instructions apply. The information in the Safety Data Sheets as well as legal and official regulations must be observed. Jowat SE recommends and provides training regarding the safe handling of isocyanates. After complete chemical crosslinking, the PUR hydrophobing agent is no longer hazardous.

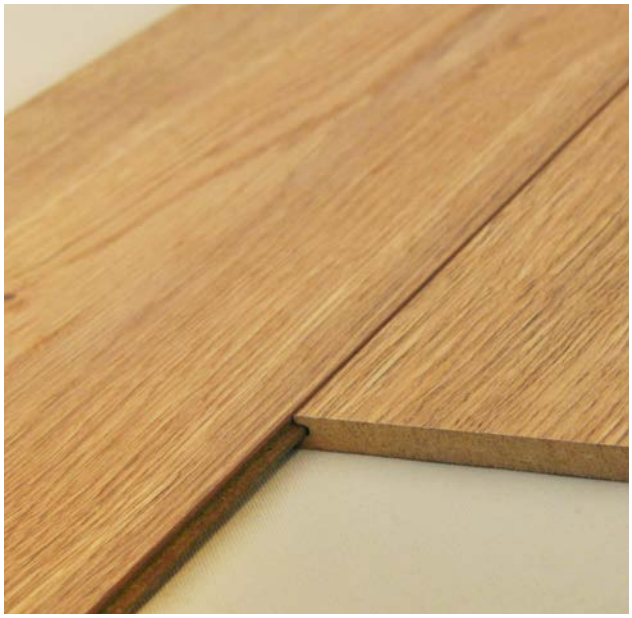
Laminate floors – Permanently high-quality joints

Depending on the quality of the laminate, the appearance of the joints may become unattractive after some time. Firstly due to the ingress of moisture causing a swelling of the MDF substrate and secondly due to a movement of the individual rows of planks in the longitudinal direction.
The hydrophobing treatment is especially suitable for the laminate flooring industry in combination with a vacuum spraying application to ensure a homogeneous and complete coating of the tongue and groove of the laminate and to facilitate a permanent superior appearance of the joints.
Using the vacuum spray technology, the hydrophobing agent **Jowapur® 687.00** can be applied easily and extremely accurately even on the profiled edges of wood-based substrates.
The standard feed speeds of up to 300 m/min in the flooring industry are no problem for the hydrophobing agent.
The positive effect and a substantial reduction of edge swelling has been confirmed in tests with low surface tension water. Edge swelling can be prevented almost completely, facilitating a leap forward in quality and permanent customer satisfaction.

Advantages
- Reduced swelling by up to 90 % to < 1 %
- Efficient and permanent protection
- Improved water resistance
- Increased profile tensile strength

Applications
- Floors, e.g. laminates
- Furniture parts
- Solid wood elements
- Skirting
- Doors

Vacuum-Coater Talent | Cefla
- Vacuum spray application in a profiled mould
- Retrieve and reuse of excess material
- Edge coating e.g. of tongue + groove
- No waste or overspray
- Consistent + reproducible quality
- Easy to use
- Precision 0.1 mm
- Profile-independent coating
- Homogeneous application
- Precise application amount dosing
- Decades of experience in the varnishing of laminate floors



Quantum leap in lightweight panels with paper honeycomb

Whether with or without frame, the lightweight panels with a paper honeycomb core play an increasingly important role in the manufacture of furniture. The objective of using these materials is to reduce weight and to save resources. The water-repellent properties of the honeycombs and the skins can be improved through a hydrophobing treatment. One major demand from the industry are boards with an increased carrying capacity. The loading capacity of lightweight panels can be increased significantly with a hydrophobing treatment of the paper core and optionally of the skins.

The **Jowapur® 687.00** hydrophobing agent can be applied by roller on the ridges of the honeycombs. This reduces the material consumption to a minimum.

For superior results, the substrates may be bonded directly after hydrophobing with a PVAc dispersion adhesive (wet in wet). If the substrates are bonded with hot melt adhesives, the hydrophobing agent should dry before bonding. Depending on the requirements, the hydrophobing agent may be applied only on the surface or penetrate into the entire cross-section.

The hydrophobing treatment improves the performance of lightweight elements, especially with regard to the tensile strength, bending strength and the transverse tensile strength. Compared to an untreated element, the achieved strength values are much more evenly distributed. This optimisation can lead to a quantum leap in the manufacture of lightweight furniture and opens up new opportunities regarding application and structure, especially since material consumption can be reduced further.

Advantages compared to a raw panel

- Tensile strength up to 50 % higher
- Increased bending strength by up to 50 %
- Increased transverse tensile strength by up to 100 %
- Substantial reduction of the standard deviation
- Lower dispersion of the strength values

Applications

- Lightweight furniture
- Doors
- Tables
- Worktops
- Shelves

Technical Information

Jowapur® 687.00
Moisture-curing 1-component PUR hydrophobing agent

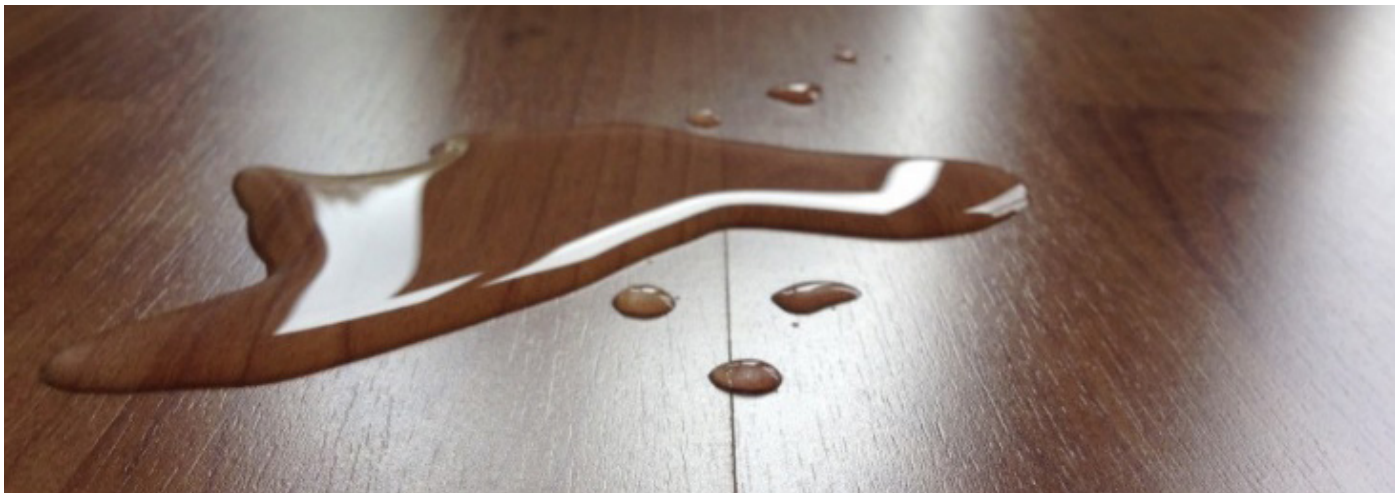
Classic hydrophobing agents prevent the ingress of moisture by reducing the surface tension i.e. the wetting property of the material surface. However, this also has a detrimental effect on downline processes such as bonding. This is not the case with **Jowapur® 687.00.** In addition to a very good adhesion of most standard adhesives to the fully crosslinked system, dispersion adhesives may be applied wet in wet without previous drying and provide excellent bonding strengths.

More hydrophobing products from the **Jowapur®** series are available for many different applications, application methods and substrates. In general, the hydrophobing treatment can be adapted individually to the specific requirements. Products which have been optimised for curtain coating applications are available. The hydrophobing agent may be coloured to a limited extent.

Jowapur® 687.00

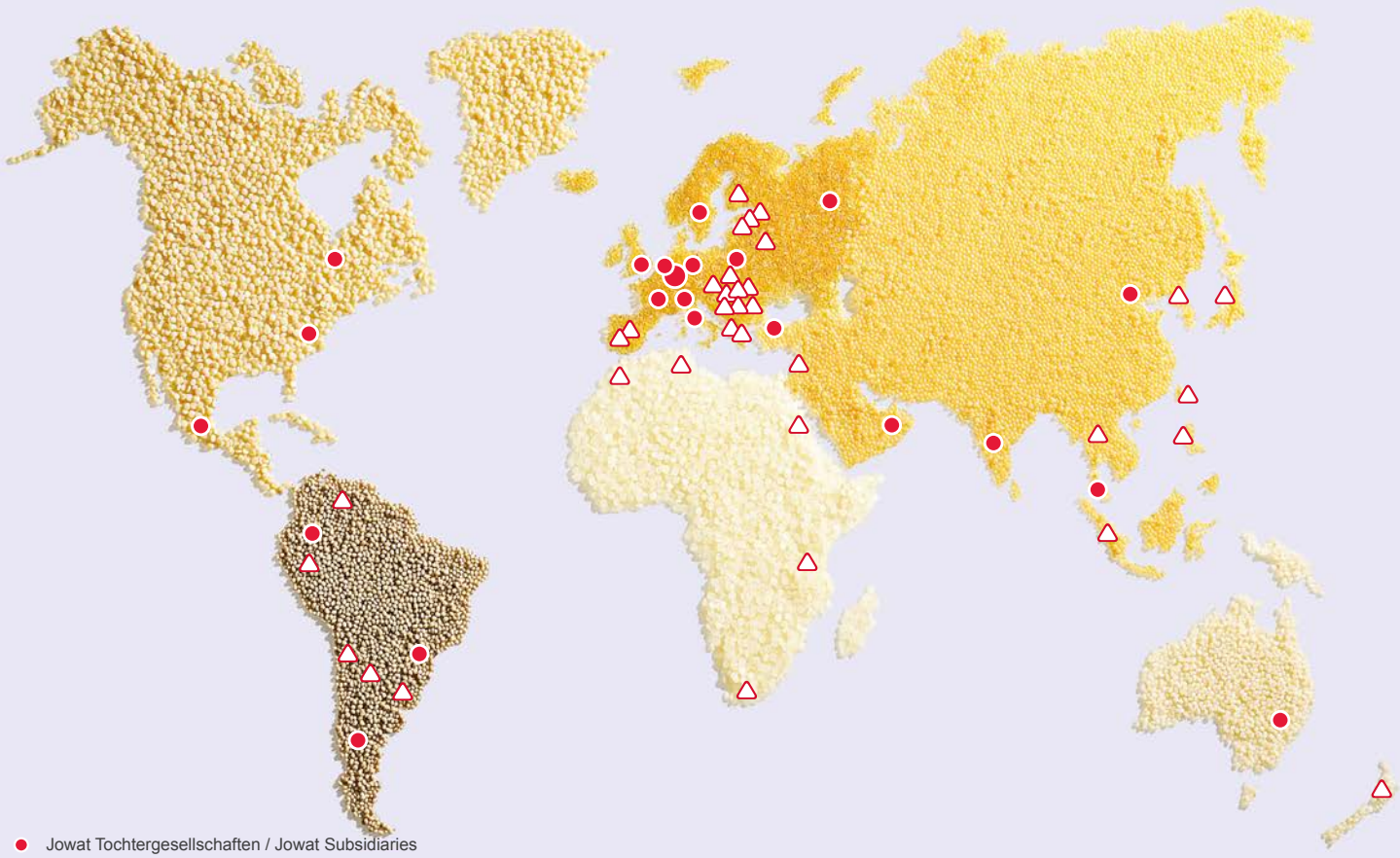
Moisture-curing 1-component PUR hydrophobing agent; application by roller or spraying.

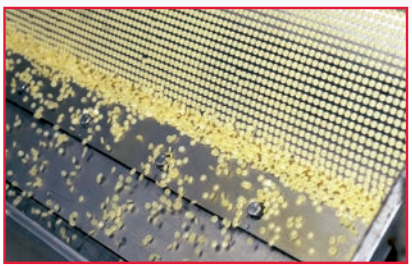
Polymer basis	PUR
Processing temperature	15 - 25 °C
Viscosity Brookfield at 20 °C	approx. 80 mPas
Density	approx. 1,2 g/cm^3
NCO content	approx. 28 %
Appearance	light brown, translucent



Note: The products listed only represent a limited selection of the available product portfolio. Our service and consultation team from Sales and Product Marketing will be pleased to provide specific information, to select the product suitable for your process.

Jowat | Ihr Partner in Sachen Kleben
Jowat | Your Partner in bonding





Jowat – Kleben erster Klasse
Jowat – first class bonding

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