

1. Name of product and the company

Name of product	OC-BioBinder™ Lotus 54XX, i.e. 5400-5499
Intended use of product	Hydrophobic biobased binder. Improves the mechanical properties of fiber-based materials. For industrial use.
Company	OrganoClick AB Linjalvägen 9 SE-187 66 Täby Sweden
Phone number	+46 (0)8 674 00 80
Email	support@organoclick.com
Internet	www.organoclick.com

2. Product description and uses

The product's intended use is to improve mechanical properties of fiber-based materials such as dry and wet strength. The product is hydrophobic. Additional features are increased material stiffness.

3. Constituents

The product is an aqueous emulsion consisting of modified biopolymers and natural plant compounds.

4. Physical and chemical properties

Form	Opaque water based liquid
Colour	Beige - white
Odor	Faint
pH-value	4.5 – 5.5
Viscosity	100 – 2500 mPa (at 200 – 100 rpm, LV4, 23 °C). The viscosity will decrease if the formulation is stirred and/or heated.
Charge	Cationic
Solid content	18 % (24h, 105 °C)

5. Handling

Avoid contact with eyes. Can be slippery if spilled on the floor, so avoid walking through spilled binder. Ensure adequate ventilation. Normal precautions taken when handling chemicals should be observed. See the Safety Data Sheet for further information.

6. Feasible fibres and material

. The OC-BioBinder™ Lotus system can be used on any fiber-based materials. The system is optimized for cellulosic fibres, however, the system is compatible with all types of fibres.

OC-BioBinder™ Lotus can be used on fibers, nonwoven material (wet or dry process), paper (wet or dry process) and other fiber-based materials. OC-BioBinder™ Lotus has a good retention to cellulosic fibers (e.g. cotton, paper pulp), but also works well with blends containing both cellulosic and synthetic fibers.

New fiber-based materials to be treated with the product should be tested in laboratory prior to large-scale production.

7. Usage instructions

The following instructions for OC-BioBinder™ Lotus are specifically intended for its use as chemical binder for airlaid cellulosic nonwoven materials, but should be possible to generalize to other, similar application areas. When the intended use of OC-BioBinder™ Lotus is as a hydrophobic agent rather than a binder, a higher dilution (1:4 – 1:20) is strongly recommended.

- 1. *Make it a habit to always stir OC-BioBinder™ Lotus before use.***
Since OC-BioBinder™ Lotus is an emulsion, the correct way of handling it is to stir/shake the formulation prior to use, in order to make the texture go back to its initial state. If any part of the emulsion has solidified, remove the solidifications before stirring.
- 2. *Dilute the product with water to a solid concentration less than 9 %.***
Initial solid concentration is 18.0 %. If dilution is needed, it is done with hot or cold water followed by stirring. If the dilution is not stirred enough there will be viscous binder at the bottom of the tank and the dilution concentration will not be homogenous, which will cause fluctuations in the performance and reduce sprayability. The diluted product must be used within one day.
- 3. *Apply the diluted product to the material by impregnation, spraying, coating or foaming aiming at an add-on of 4-12 g /m² of the dry matter.***
To find the optimal add-on for a specific material, apply different add-ons within the range above during separate test runs and then evaluate the material's performance. Foaming is gained with standard foaming procedures and foaming chemicals.
- 4. *Dry the treated material at 100 - 150 °C until completely dry.***
Dry strength is achieved at 100 °C and above.

Wet strength is achieved at 140 °C and above.
The treated material may turn yellow/brown if exposed to temperatures above 100 °C for a longer period of time.

5. ***Allow the hydrophobicity to develop with time.***

The hydrophobicity usually requires 1-5 days after treatment to fully evolve. The exact time span will depend on the substrate material, add-on, curing conditions, relative humidity in air etc. Test the hydrophobicity by placing a water droplet on the material – when it is not absorbed by the material but remains on the surface, the maximum hydrophobicity has been reached.

8. **Cleaning of Equipment**

Before using the product it is important to clean all equipment thoroughly. Flushing with water and scrubbing is necessary to ensure binder performance. Clogging of equipment may occur if Biobinder is mixed with other incompatible chemicals.

After using the product all equipment shall be properly cleaned by scrubbing them with water and dishwashing liquid. Equipment that is not possible to scrub (e.g. pipes and spraying nozzles) shall be flushed thoroughly with water.

If the binder produces foam during dilution the binder has been contaminated and equipment has not been cleaned properly.

9. **Storage**

Store in tightly closed original container in a well-ventilated area. OC-BioBinder™ Lotus is best stored at room temperature or (preferably) colder (above freezing, >1°C). If stored at higher than room temperature, the binder formulation might become dark yellow/brown. The darker color does not affect the performance of the binder but the color cannot go back to its original state. Colder storage will result in less color change.

The shelf life of the binder is approximately 6 months.

The information in this technical data sheet consists of guidelines from the OC-BioBinder™ Lotus Safety Data Sheet, OrganoClick AB test results, accumulated knowledge and experience with the product. The information is not to be used as basic data or verification for other tests or systems. OrganoClick AB does not take responsibility for any other usage areas or any misuse of the OC-BioBinder™ Lotus product. The latest edition of this technical data sheet can be requested from OrganoClick.