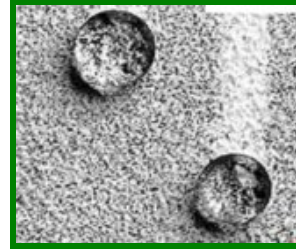


Lotus effect

Biomimetic Principle



How do leaves and flowers keep so clean?

The leaves of the white lotus are covered in a hydrophobic wax that has a special microstructure to its surface roughness that not only repels water, but ensures that any water running over the surface carries away the maximum amount of contaminants. The rough surface considerably reduces the contact area for both dirt and water, therefore greatly reducing adhesion.

When dust falls onto the leaf it lodges on the rough surface, and the water droplets rolling off the water-repellent surface clean this surface by simply carrying away contaminating particles.

The lotus effectively has a self-cleaning surface.

Further Information:

Papers:

W. Barthlott, C. Neinhuis: "Purity of the sacred lotus, or escape from contamination in biological surfaces." *Planta* 202: 1-8 (1997).

W. Barthlott, C. Neinhuis: "From plant to product – biomimetic paint based on the Lotus Effect(r) Abstract Number: 2993, Session = 15.15., XVI International Botanical Congress 5

Websites:

http://www.lotusan.de/lotusan/_01_home/index.jsp

www.botanik.uni-bonn.de/biodiv/

<http://www.botanik.uni-bonn.de/system/bionics.htm>

Applications

Paint

Roof tiles, car lacquers.

Current Commercial Development

Paint is sold under the brand name Lotusan in Europe. Lotusan combines the water-repellent properties of silicon paints with a surface microstructure based on the lotus leaf.