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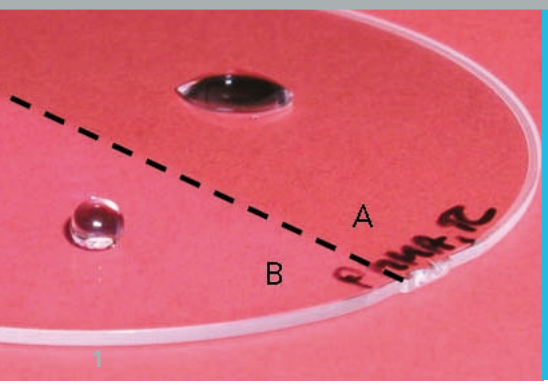

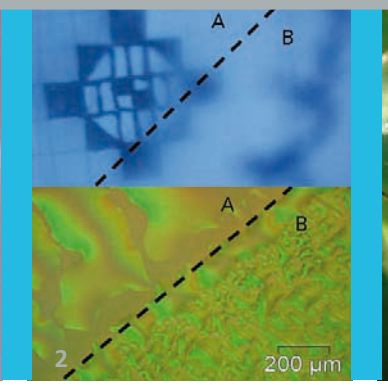

1 *Antireflective structure on PMMA with SiO_2-coating (A) and with additional hydrophobic layer (B).*
2 *Wetting behaviour and contrast of AR-structured PMMA with (A) and without (B) additional SiO_2-coating.*
3 *Lotos-effect in nature.*

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HYDROPHOBIZATION AND ANTIFOGGING COMBINED WITH ANTIREFLECTION PROPERTIES

Motivation

Antireflective nanostructures can be produced on many polymers by plasma etching. The structure formation occurs self-organized or after depositing of a thin layer. Typically the modified surfaces are soft and damageable. Additional thin layers are useful to protect the surfaces mechanically and to modify the wetting behaviour in various ways.

Easy cleanable hydrophobic and superhydrophobic surfaces

Superhydrophobicity can be achieved by depositing layer systems comrising at least a fluoralkylsilane component on top of plasma-etched polymers (i.e. PMMA). The procedure is useful to remove finger prints easily.

- PMMA: cleaning with flowing water/ detergent
- Zeonex: cleaning with cloth/ethanol
- Contact angel >150°
- Water drop roll-off angle on PMMA <10°

Hydrophilic surfaces providing antifogging properties

Thin oxide layers are useful to create an antifogging effect on surfaces with antireflective structure. In addition, antifogging and antireflection can be achieved simultaneously by the direct plasma-etching of water absorbing polymers. i.e. antifogging lacquer Seeklear™ (Exxene Corp.).