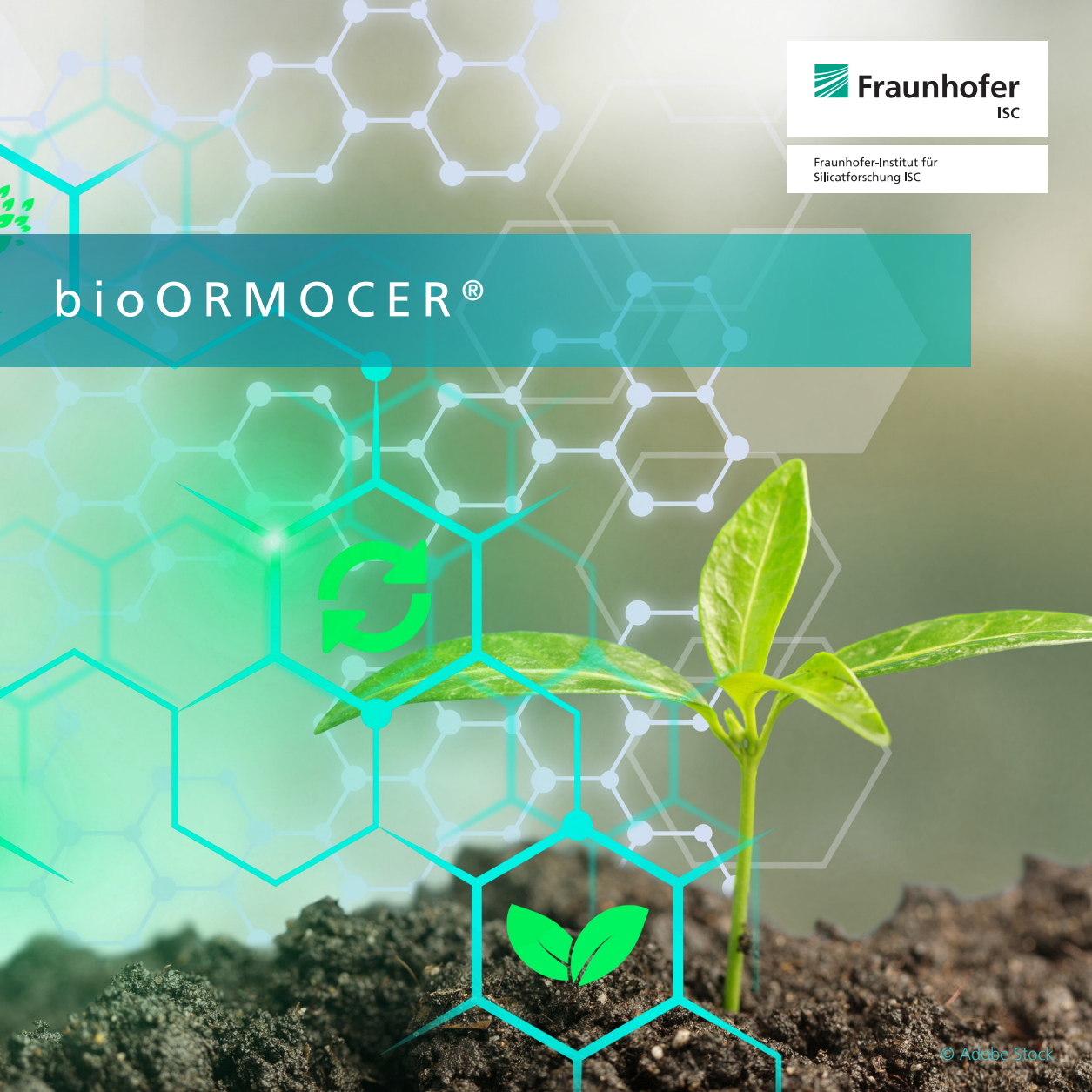
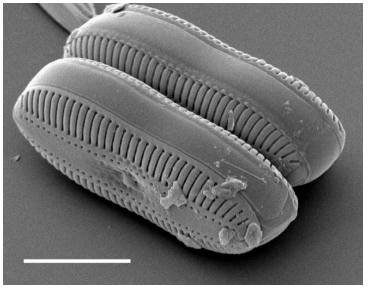
Fraunhofer ISC

Fraunhofer-Institut für Silicatforschung ISC

bioORMOCER®



ROLE MODEL "NATURE"

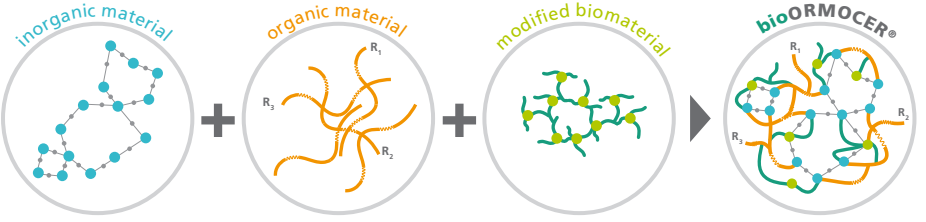


DIATOM

Images courtesy of Mary Ann Tiffany, San Diego State University. - Bradbury J: Nature's Nanotechnologists: Unveiling the Secrets of Diatoms. PLoS Biol 2/10/2004: e306. doi:10.1371/journal.pbio.0020306, CC BY 2.5, https://commons.wikimedia.org/w/index.php?curid=1375319

Combination of inorganic, organic and biomaterial leads to bioORMOCER®

- Use of different biopolymers possible (e.g. chitosane, cellulose)
- Biodegradable but fossil based polymers as further option (e.g. polycaprolactone-triol PCL-T)
- Variation of the inorganic, organic and bio part is possible
- The duration of biodegradation time and other properties can be influenced by the composition



BIODEGRADABILITY

BioORMOCER® is biodegradable under standard composting conditions according to ISO 14855-1:2013 (Determination of the ultimate aerobic degradability of plastics under controlled composting conditions – Method by analysis of released carbon dioxide).The degradation rate is adjustable via the composition of the barrier lacquer.

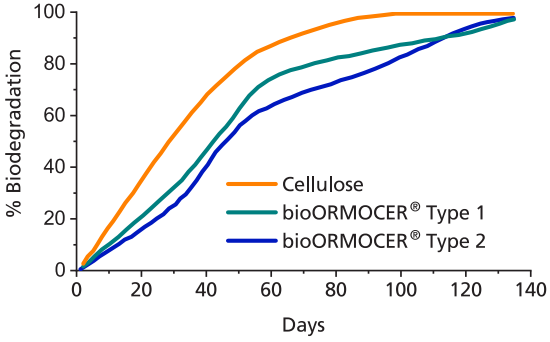
BARRIER

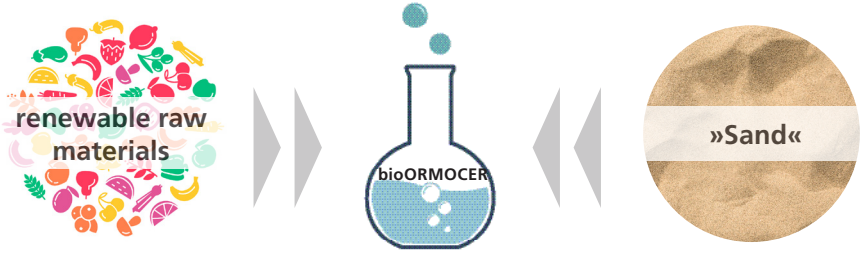
Barrier performance (oxygen, water vapor, fragrances, aroma) suitable for typical applications in food, cosmetics and some pharmaceutical packaging.

ADVANTAGES

Your way to new compostable packaging materials.

Also suitable for fossil based polymers, e.g. to enable sorted recycling.





BIOORMOCER®

- Combines the advantages of ORMOCER® with biodegradation and/or bio-based materials
- Has excellent performance in combination with biodegradable polymers or paper

PROPERTIES

- High transparency
- Processable at moderate temperatures (< 130 °C)
- Very good adhesion to almost all types of substrates
- Very good compatibility with other coatings and materials
- Suitable for standard industrial processes
- Printable

POSSIBLE ADDITIONAL FUNCTIONS

- Time-controlled and adjustable biodegradability
- Antimicrobial activity
- Barrier properties against (water vapor, oxygen, flavors, plasticizers)
- Abrasion resistance
- Anti-adhesive
- Antistatic