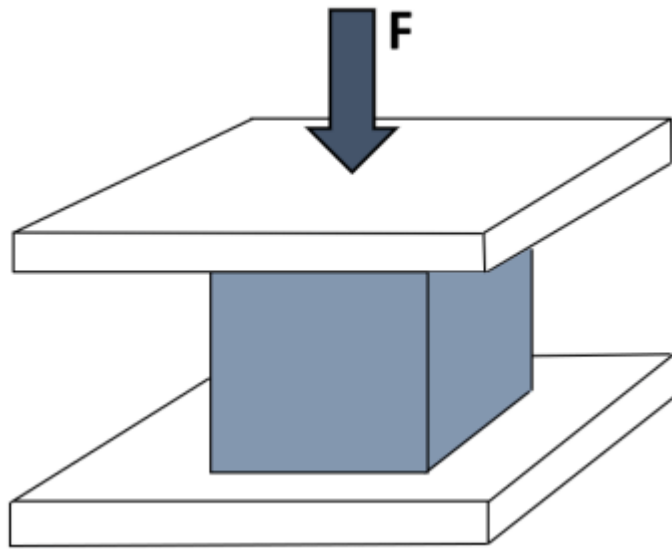


„Hydrophobization of corrugated board through silanized starch”

Tomasz Nowak

Ås, Norway, 11.10.2023

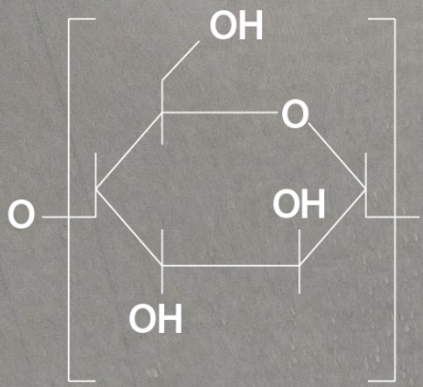
PARTNERZY:



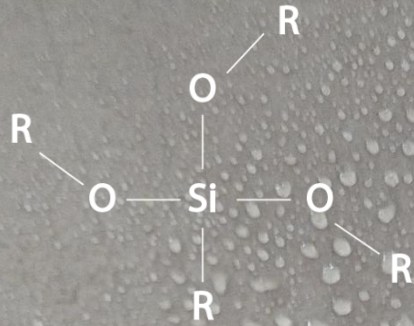
BCT

Box
Compression
Test





Starch



Silane

coated

uncoated

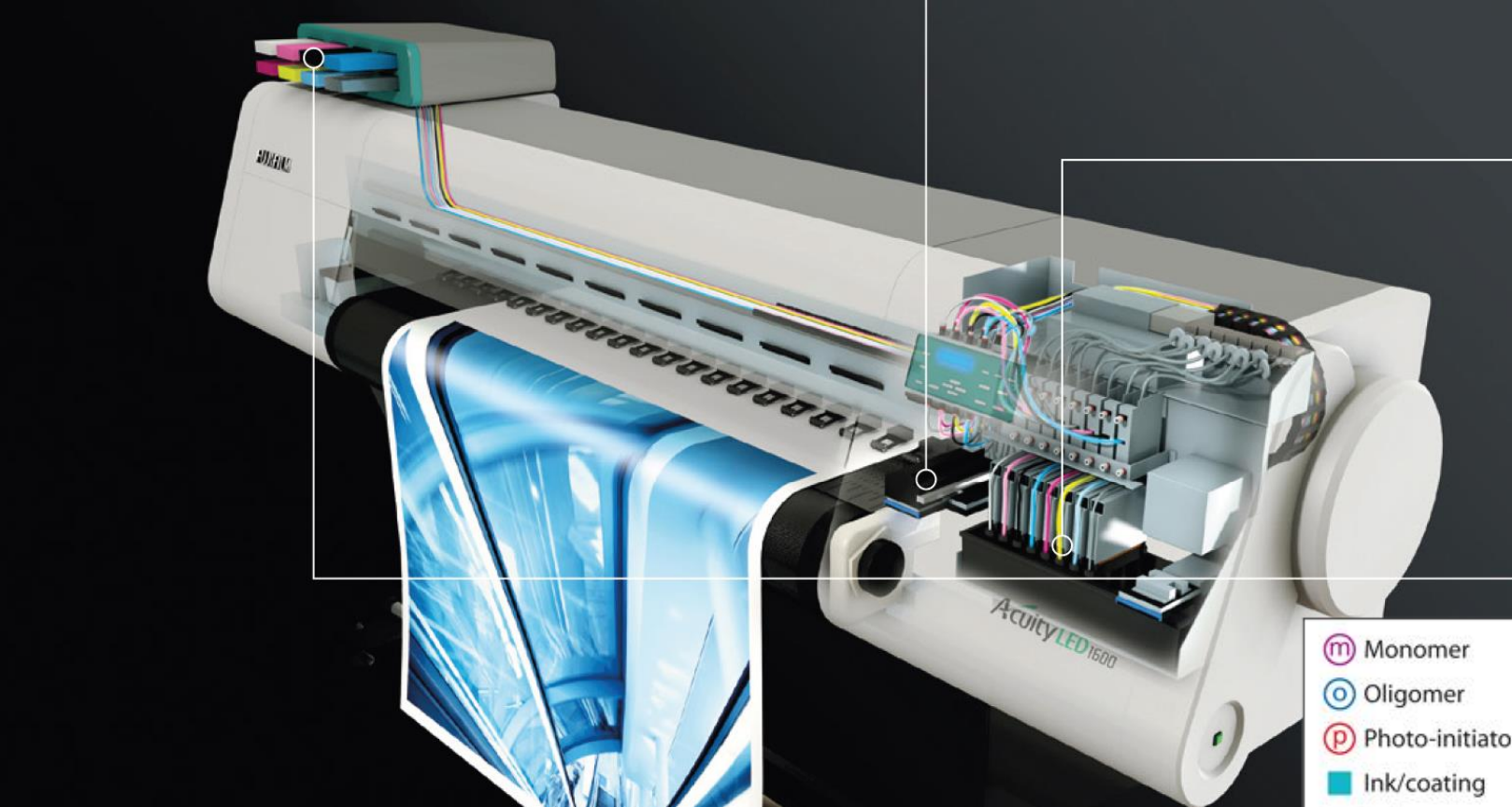
Using organosilane/starch coating we achieved:

very good barrier properties towards water

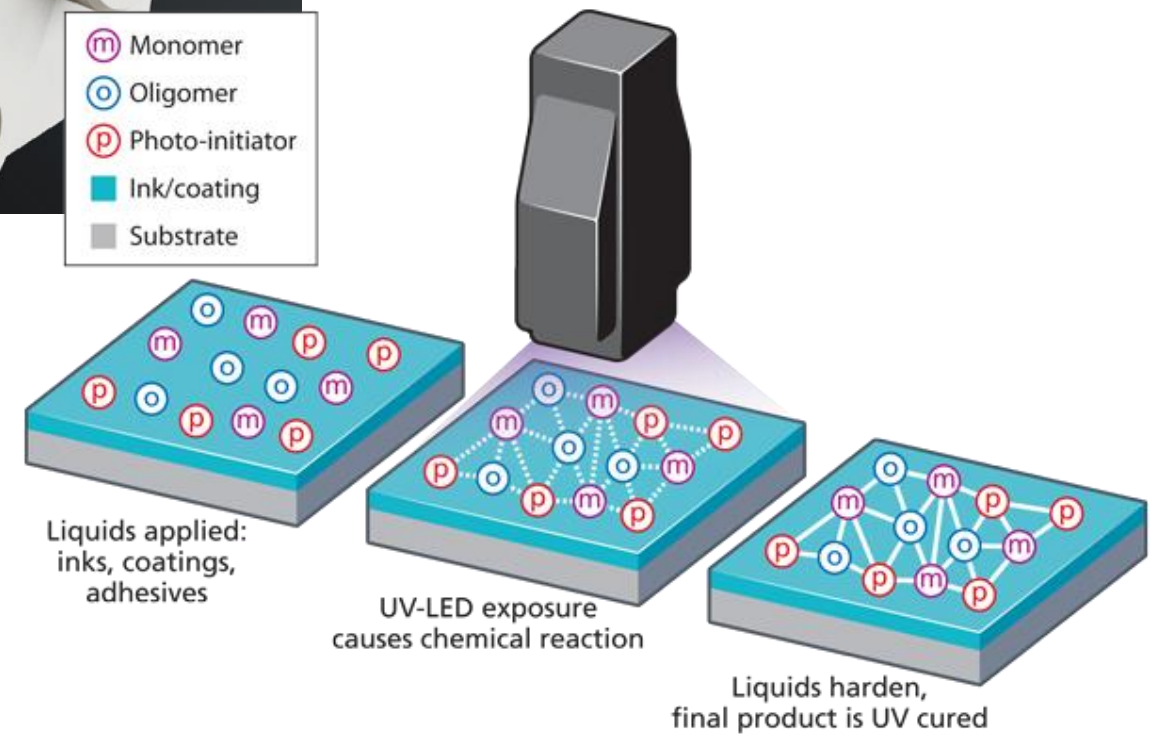
- cobb , contact angle (static and dynamic), PDA (Penetration Dynamic Absorption)

but insufficient protection against humid air

- BCT, stiffness, water absorption after high humidity exposure



- (m) Monomer
- (o) Oligomer
- (p) Photo-initiator
- Ink/coating
- Substrate



NATIVE PAPER



STARCH ONLY



STARCH + MTMS 1,25%



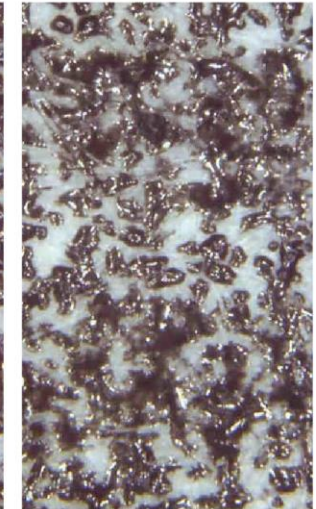
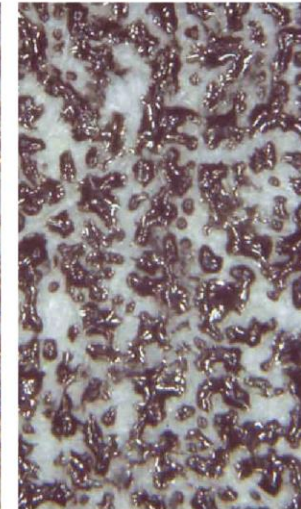
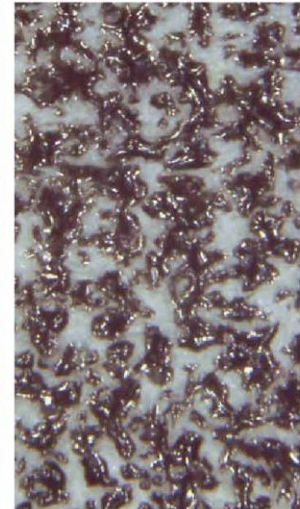
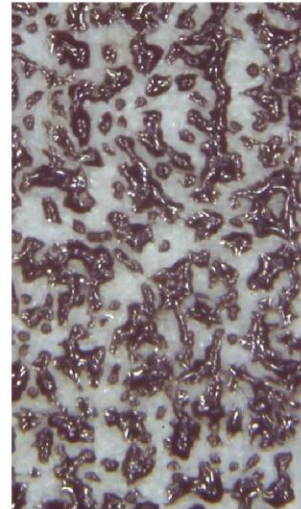
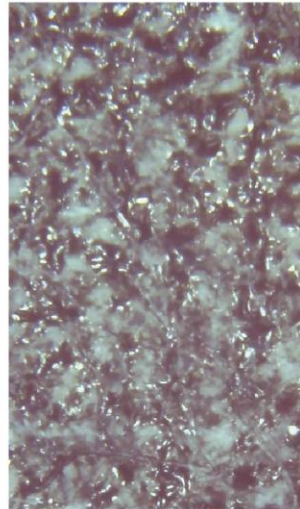
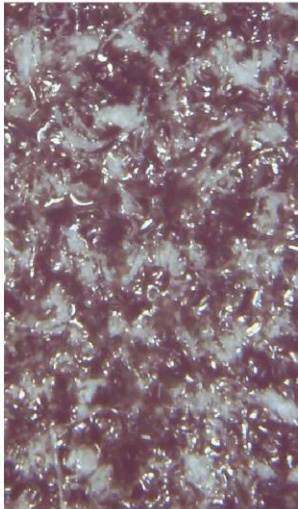
STARCH + MTMS 2,5 %

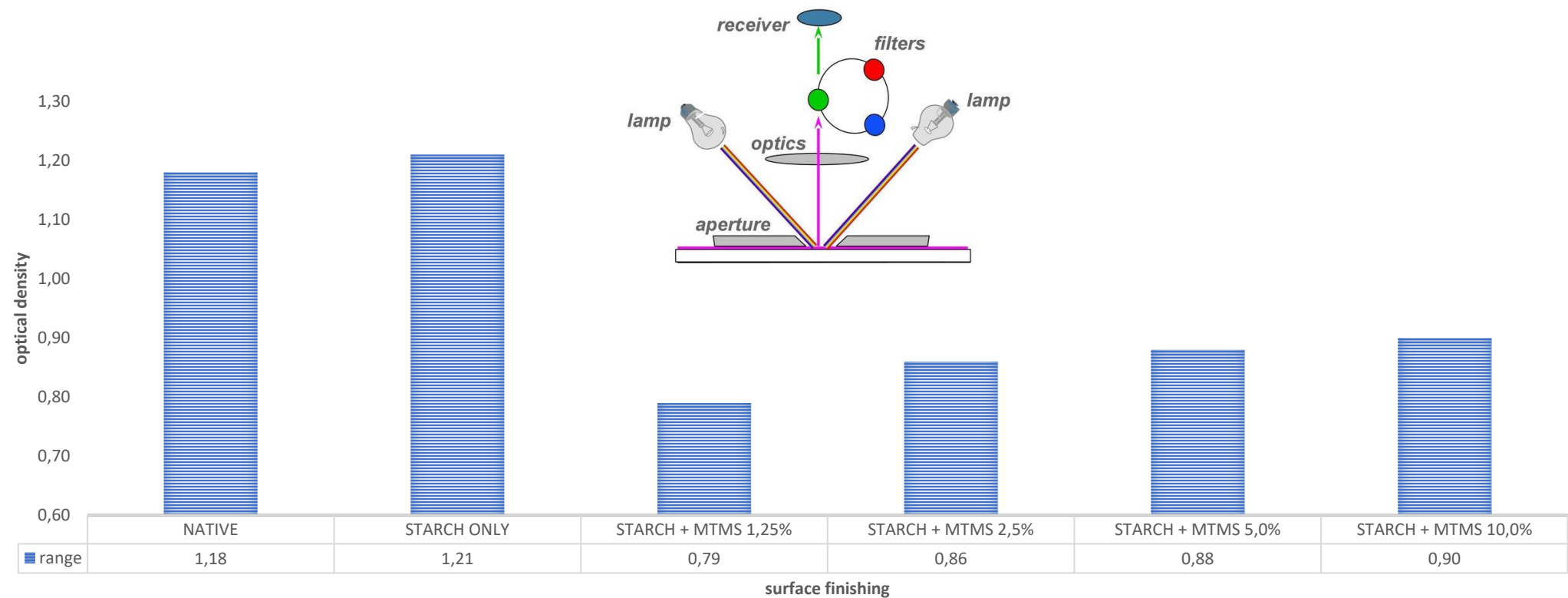


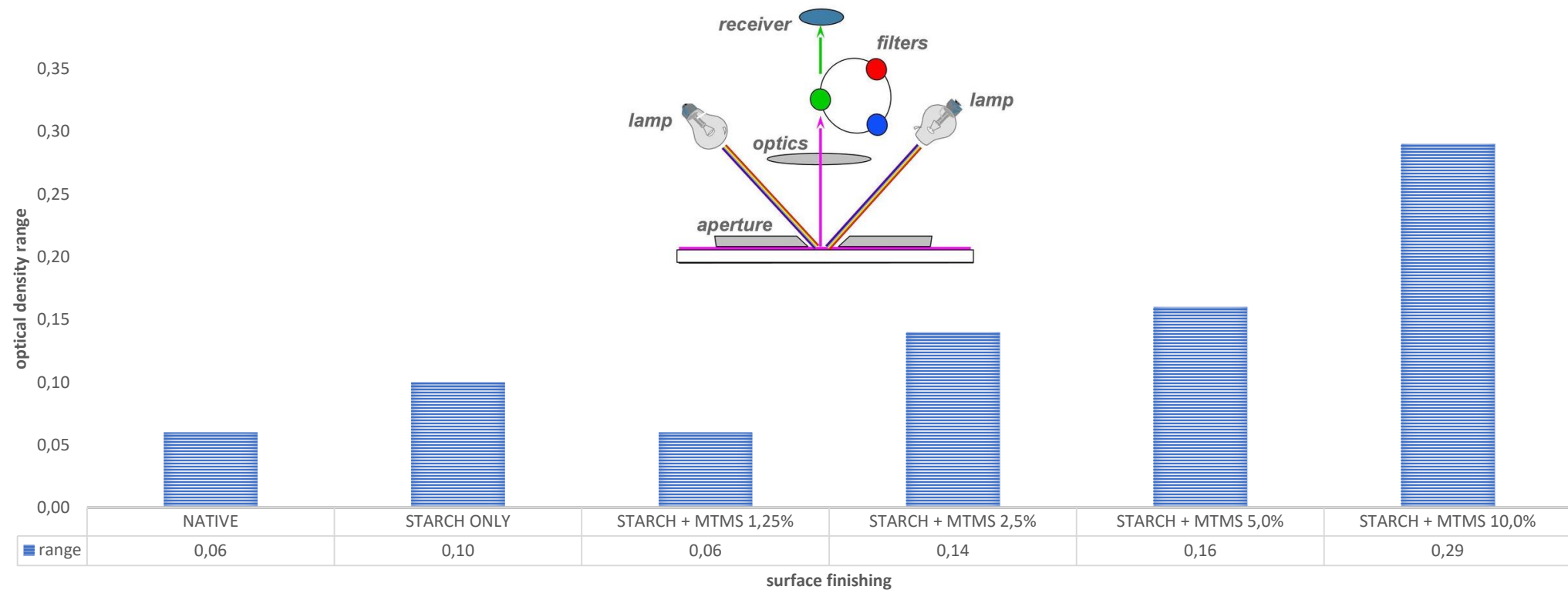
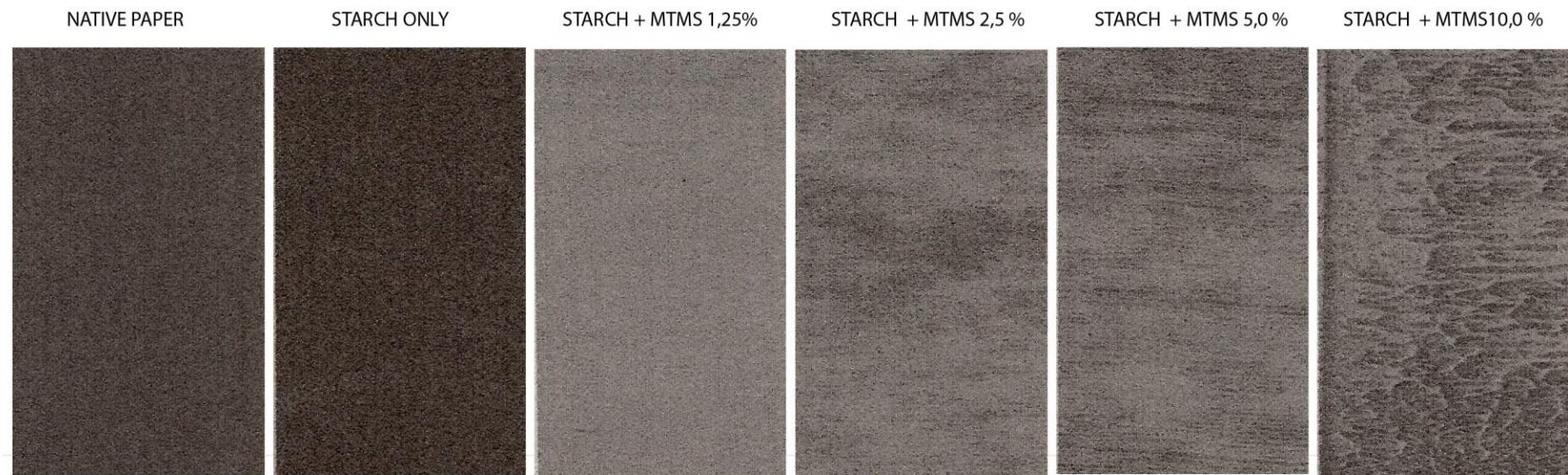
STARCH + MTMS 5,0 %

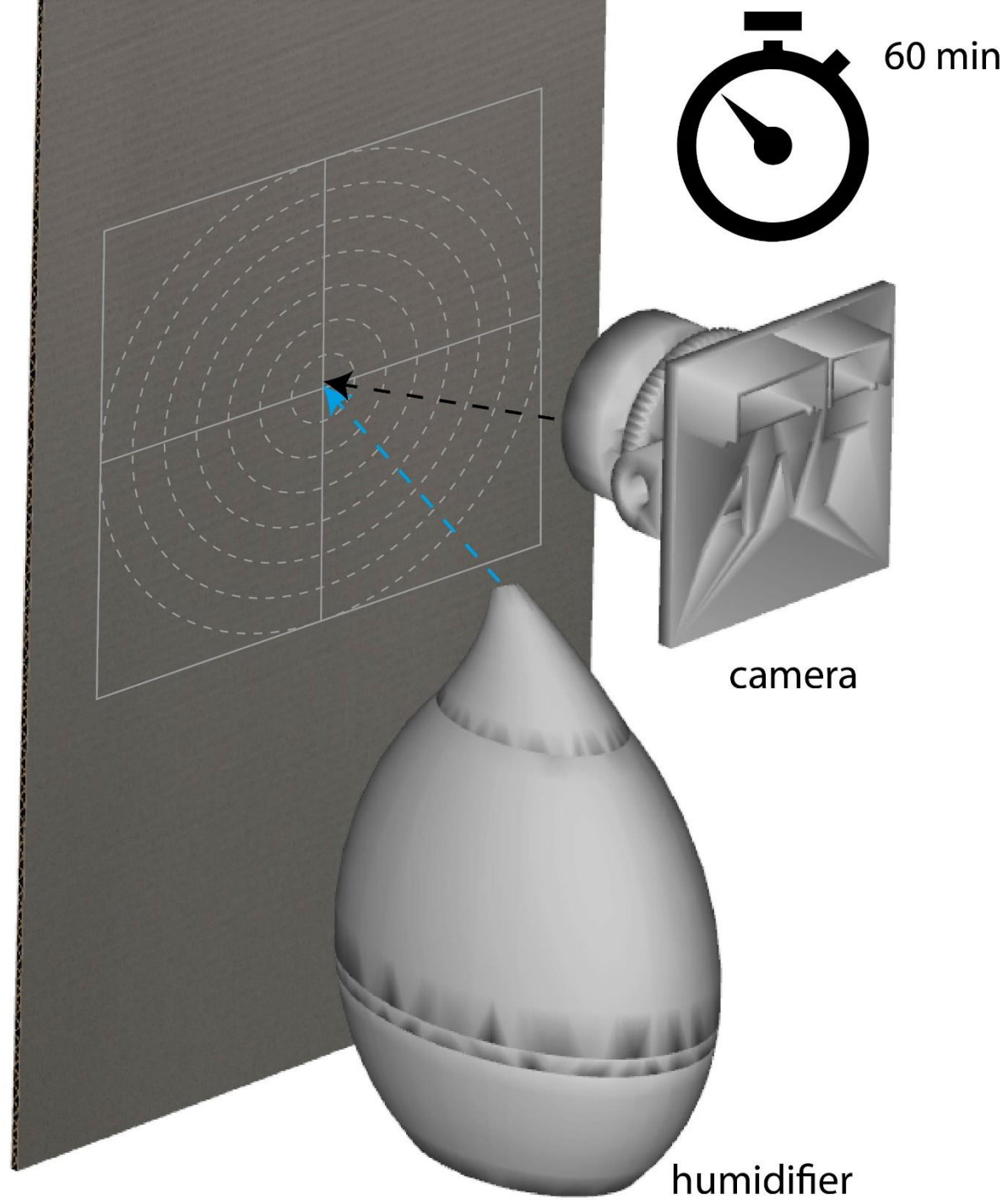


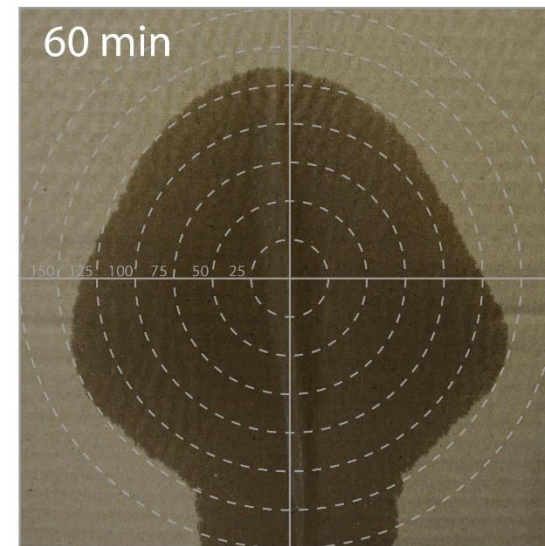
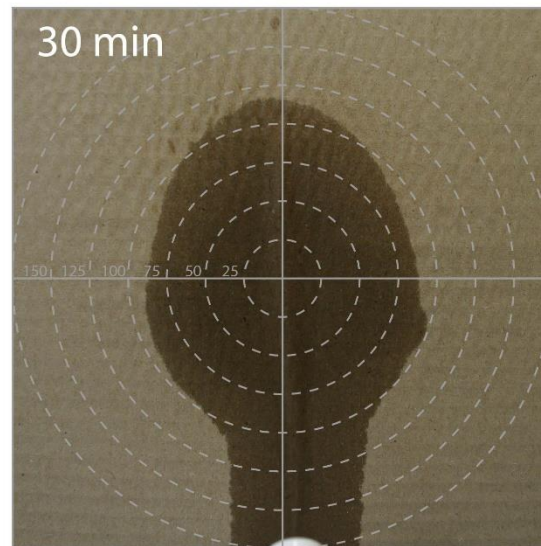
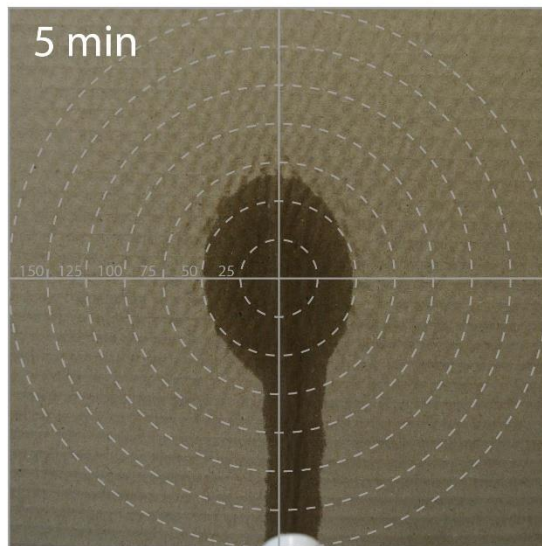
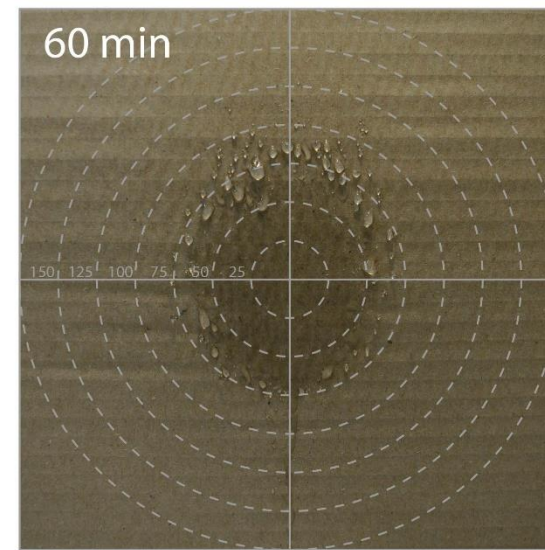
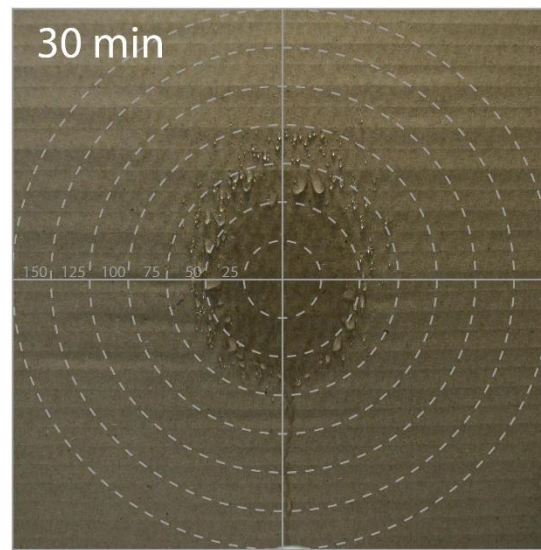
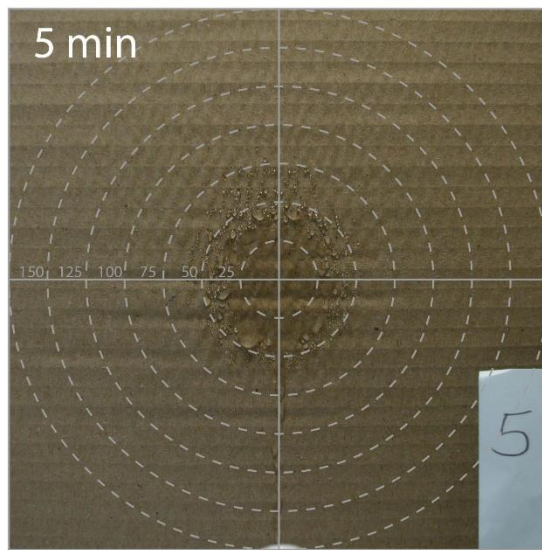
STARCH + MTMS 10,0 %



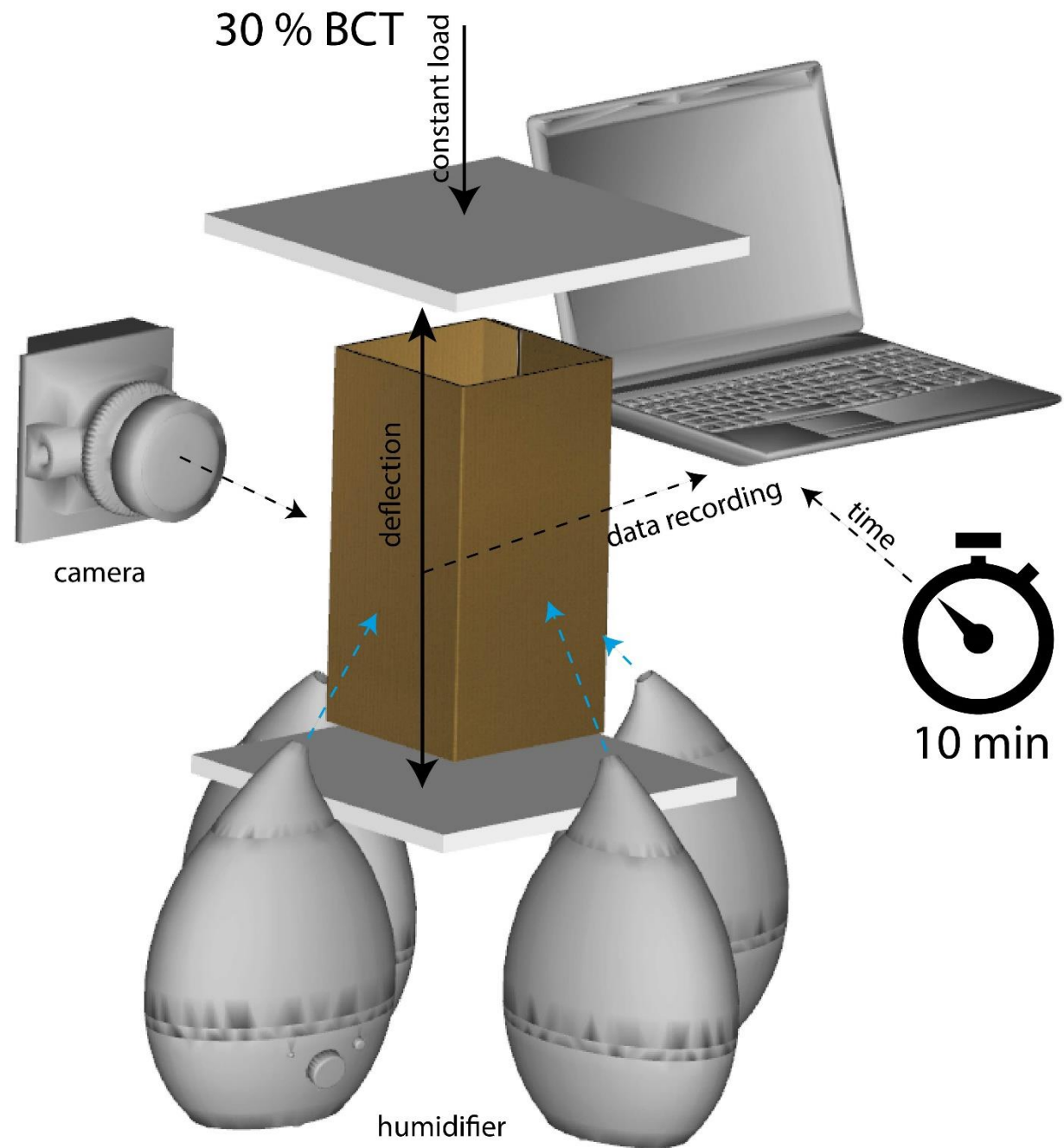


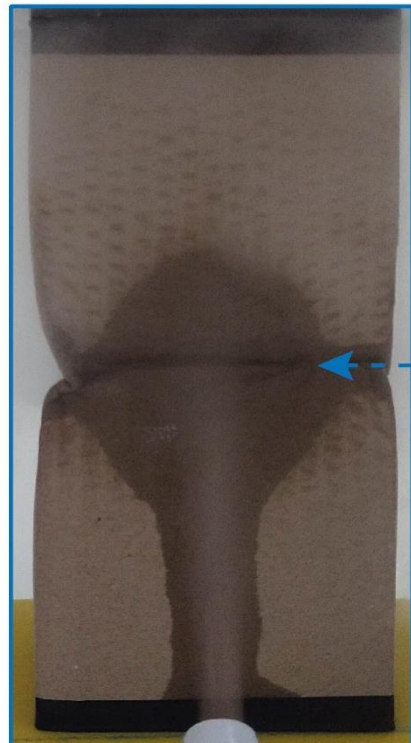
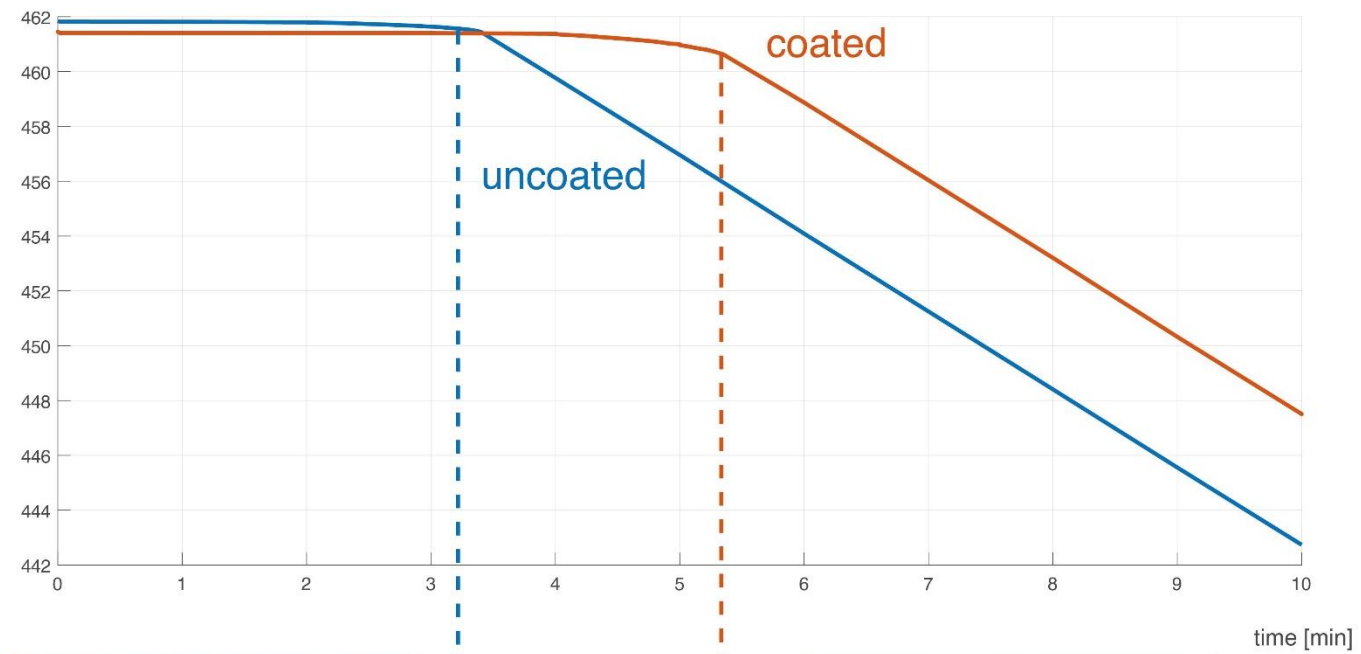


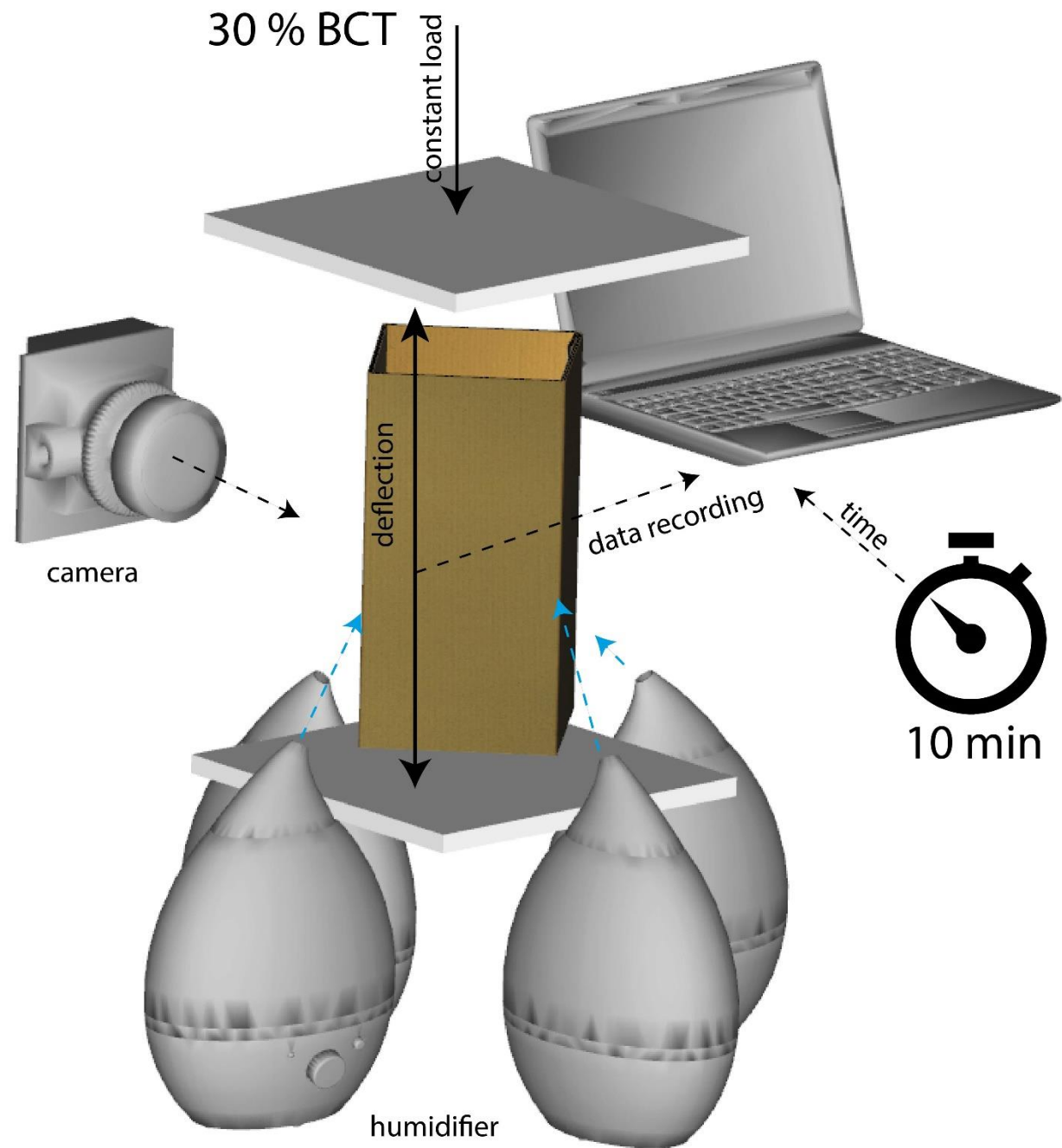


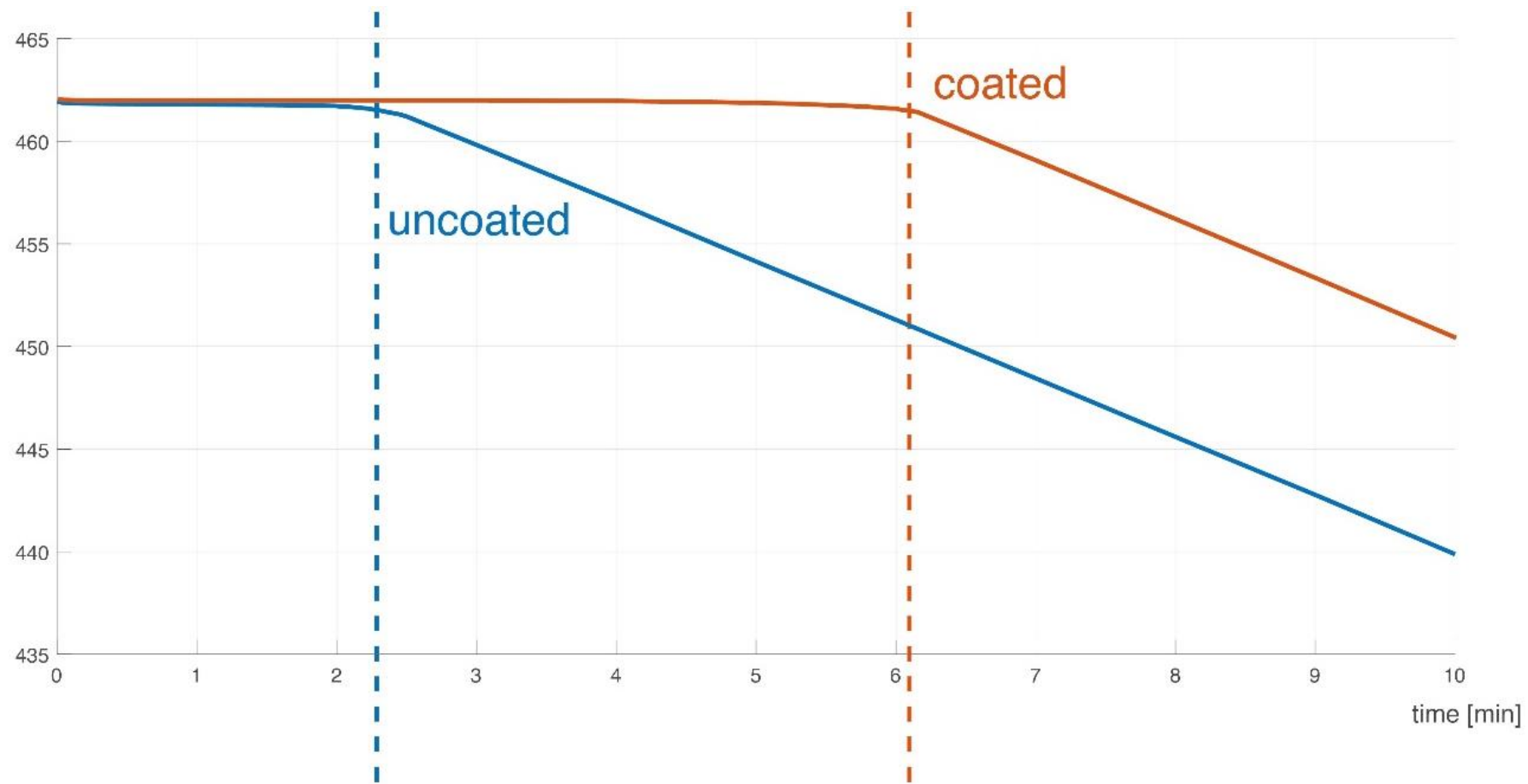


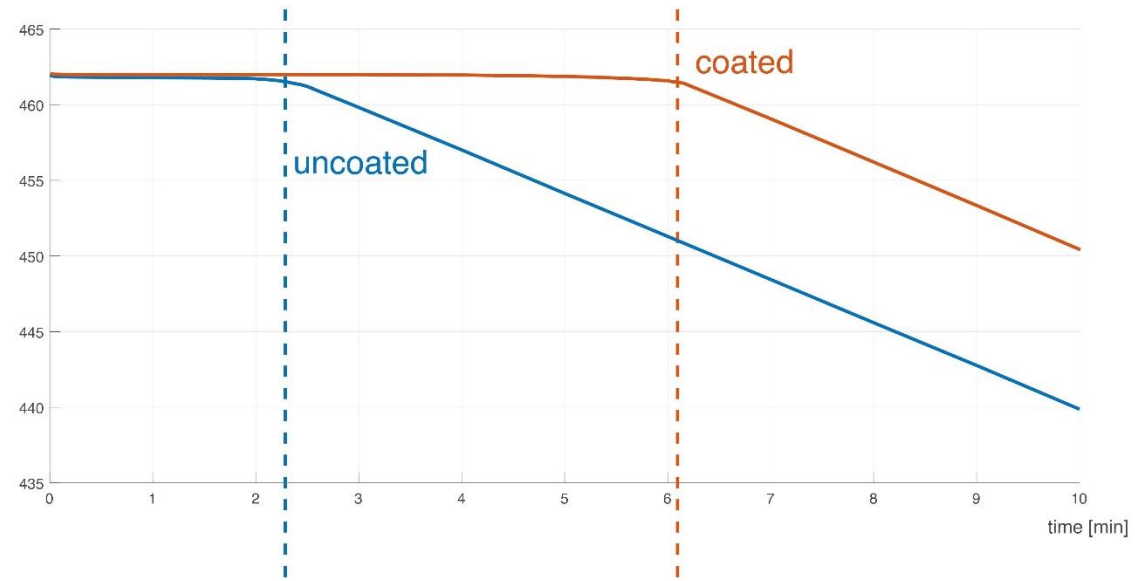
SAMPLE	Absorption
	[g]
SCHRENC PAPER B FLUTE MTMS 1,25% 21,7 g/m2	0,610
SCHRENC PAPER B FLUTE UNCOATED	3,282

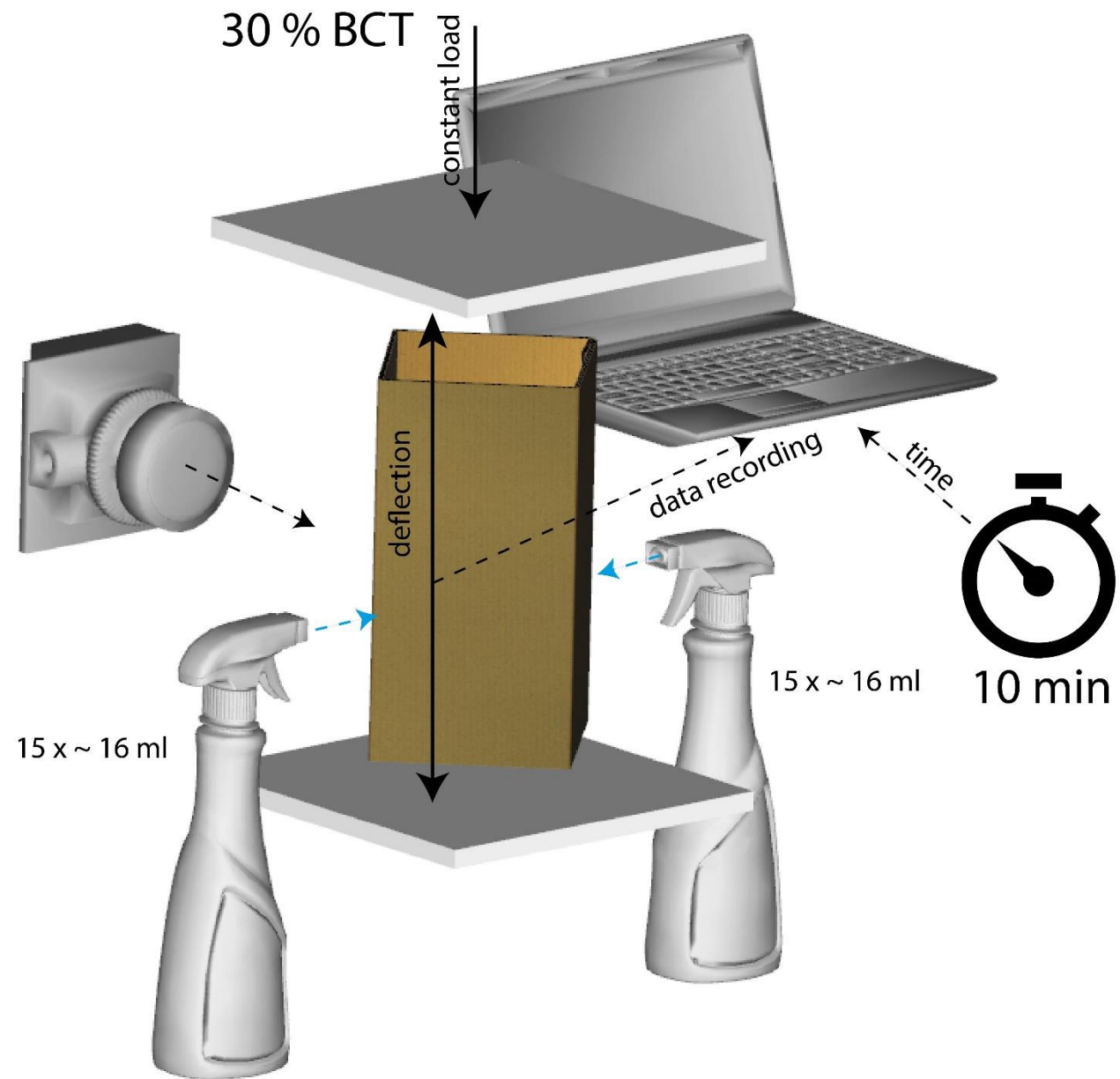


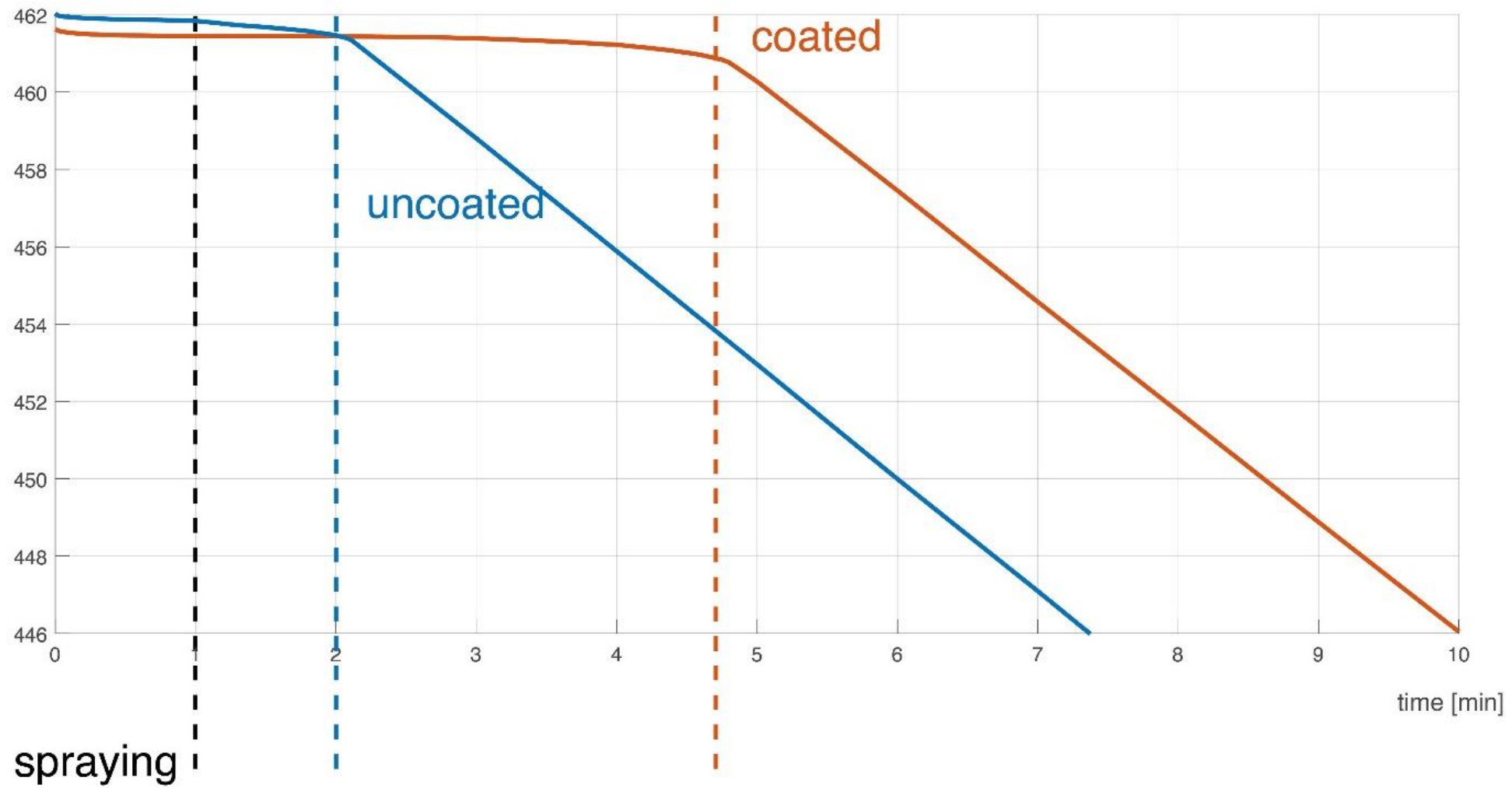


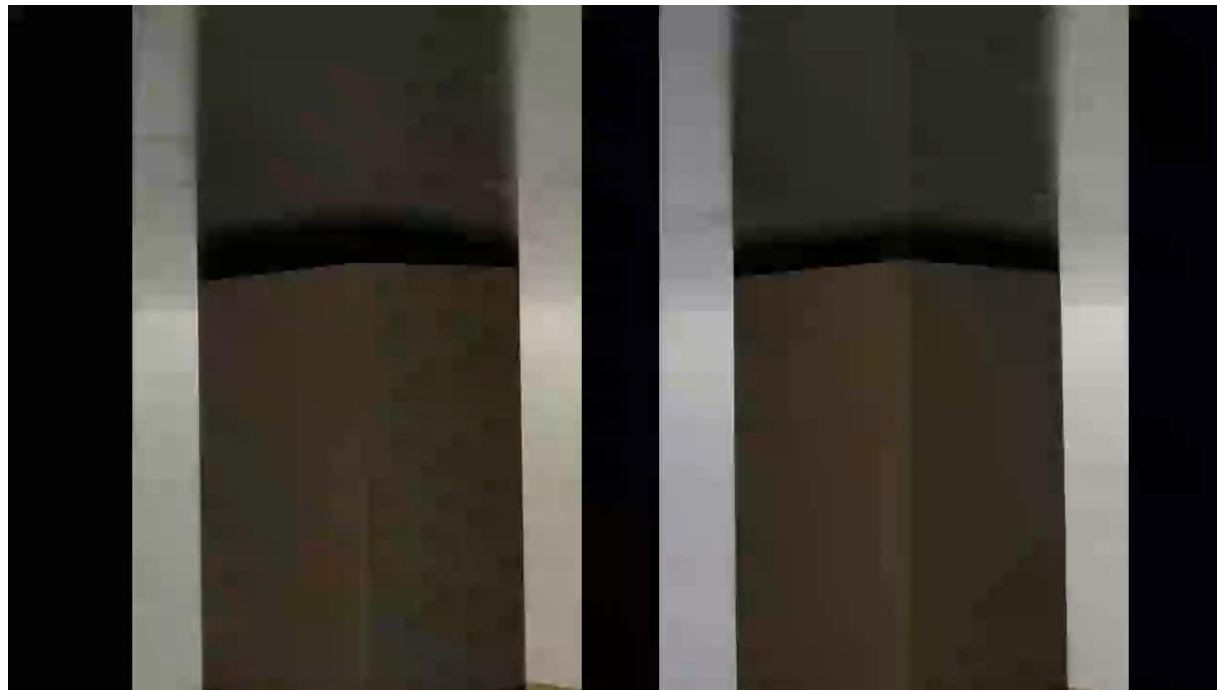
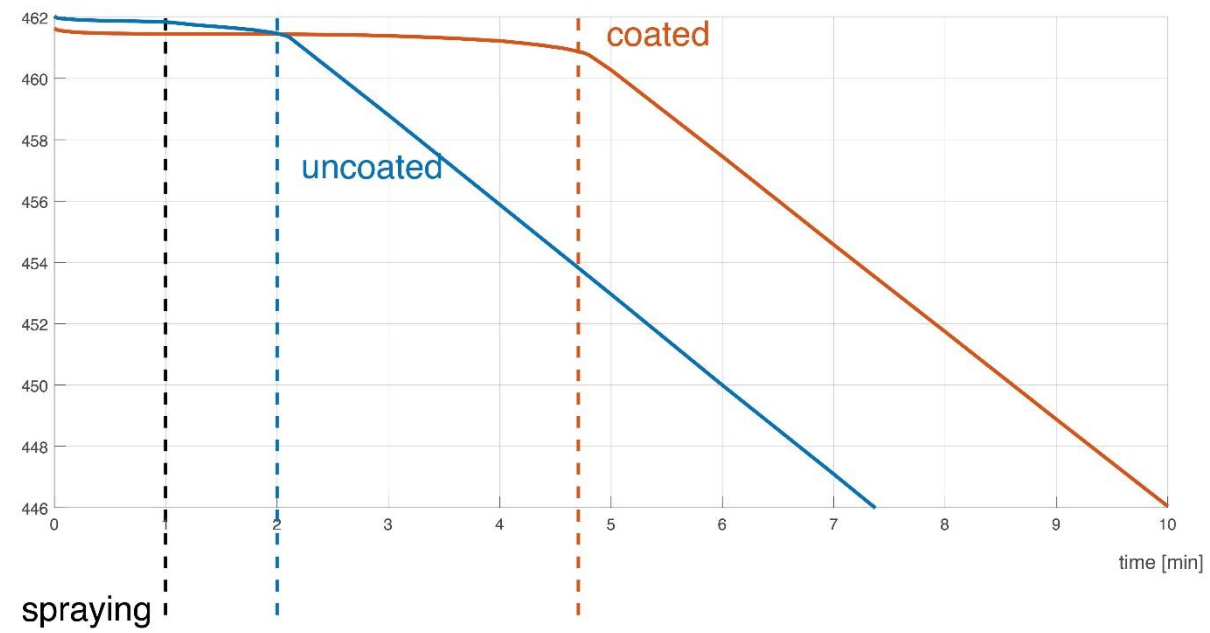












Conclusions :

- Coating of corrugated board based on silanized starch, significantly improves water resistant, and slows down, humidity absorption into the packaging structure.
- Coating don't protect against destroying humid air influence on packaging stiffness, but significantly reduce speed of the process
- Mapping methode based on DOD UV LED printing technology, can be very useful in surface quality scoring and can be source of valuable datas

CELLMAT4EVER



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Acknowledgements.

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PARTNERS: