



*A brief
Introduction*

Technology transfer center

Located in Cologne

Founded in 2010

8 staff members

Nonprofit



Organic & Printed Electronics

Development of everyday products with OPE functionalities in collaboration with industrial and academic partners, especially SMEs and Start-Ups.



light



thin



flexible



transparent



printable



scalable



variable in size



efficient

Organic & Printed Electronics

Development of everyday products with OPE functionalities in collaboration with industrial and academic partners, especially SMEs and Start-Ups.



OLED



solar cells



feedback



sensors



printed circuits



batteries



memory



transistors



Research & Development

Projects

Process development

Contract research

from lab to fab

fair
small
flexible



Reduced
technology risks



Acquisition of
public funding



Profit from ZOEK's
extended network



A link between
university & industry

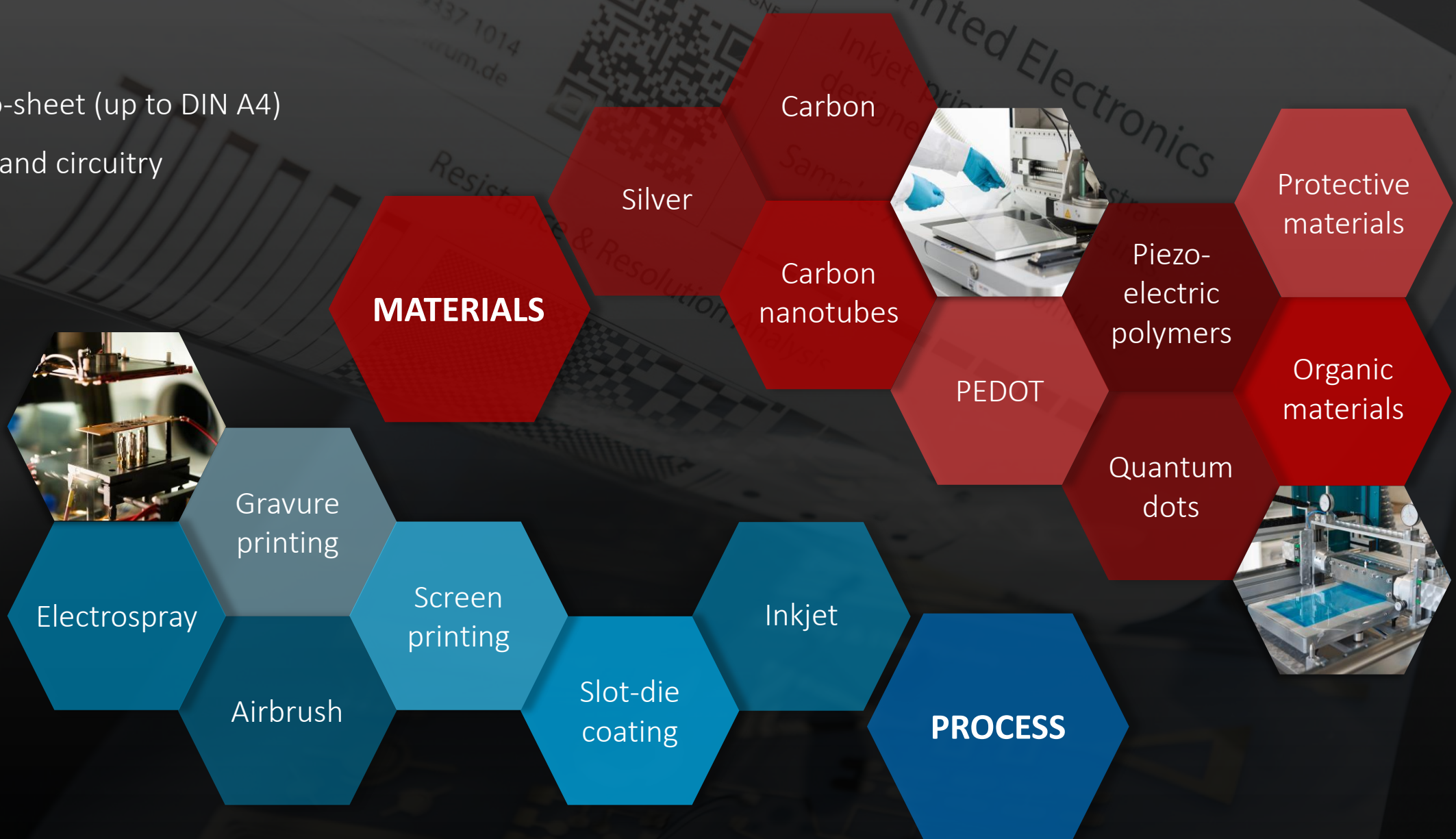


Project results enable
profound decision on investment

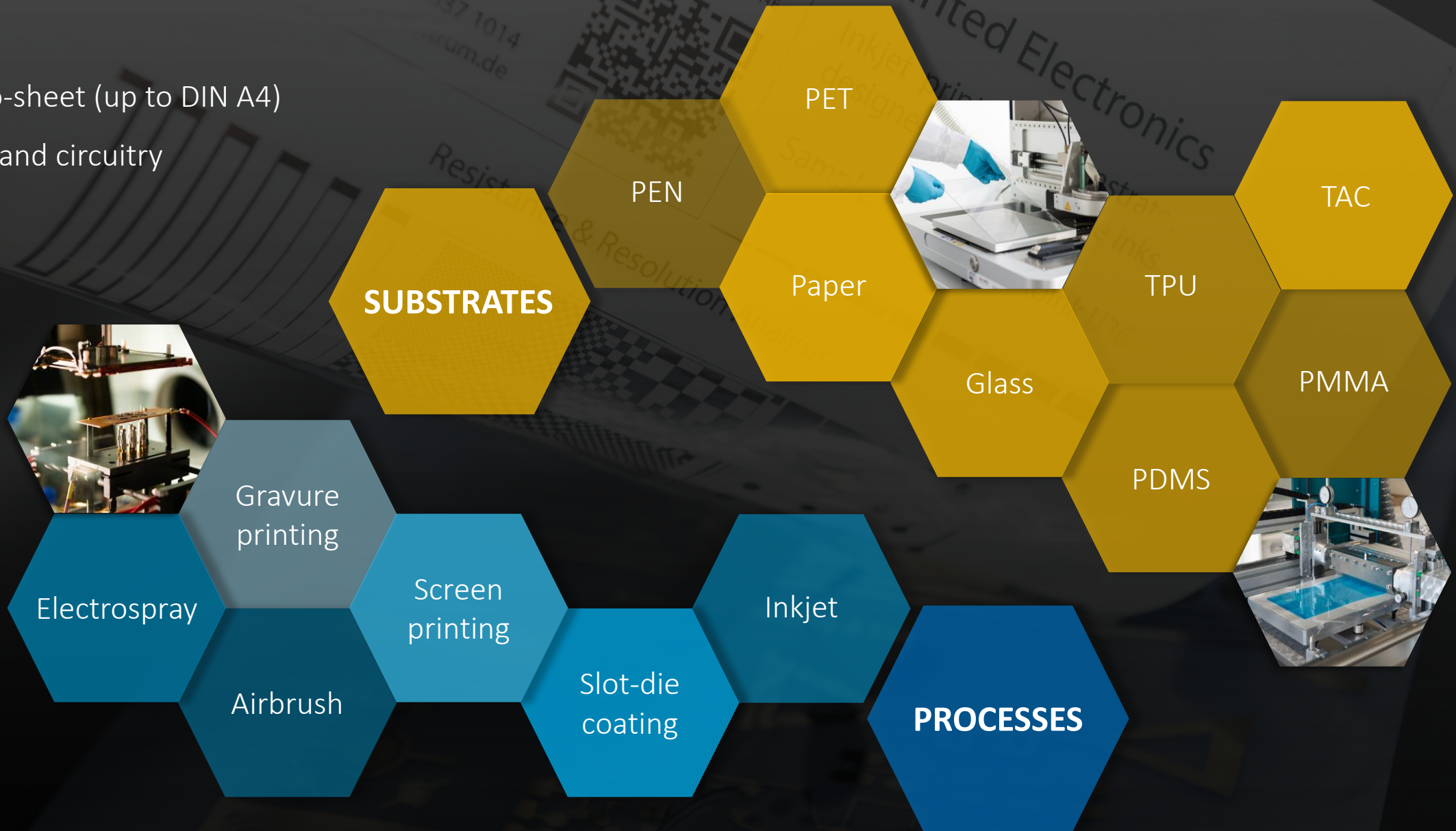


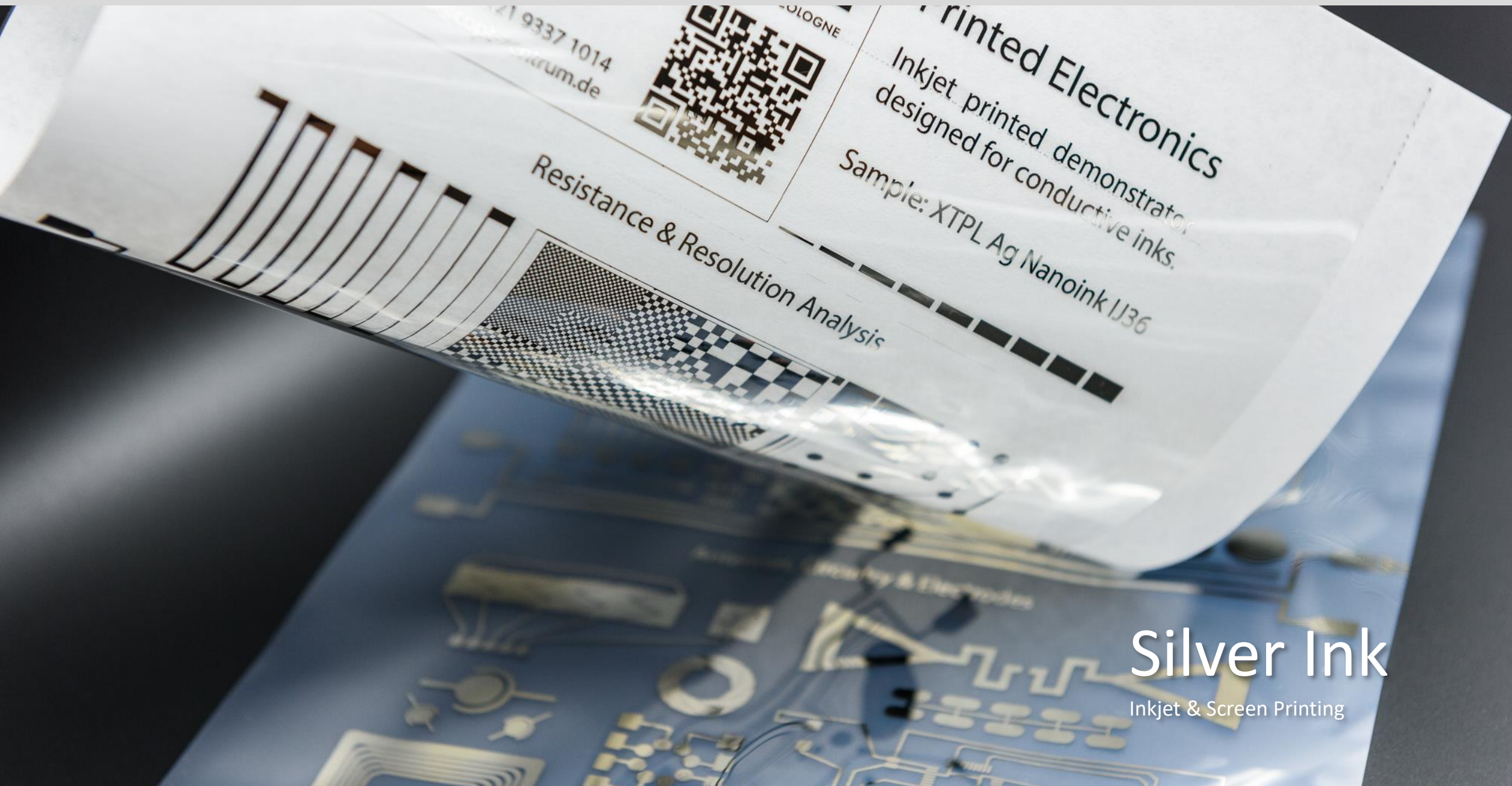
Sheet-to-sheet (up to DIN A4)

Devices and circuitry



Sheet-to-sheet (up to DIN A4)
Devices and circuitry





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...rum.de



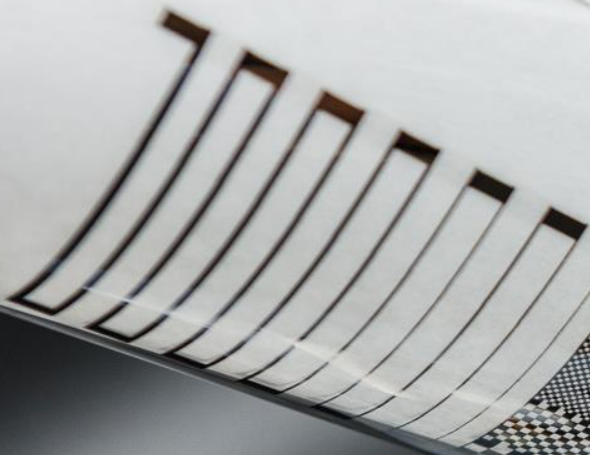
...OLOGNE

Printed Electronics

Inkjet printed demonstrator
designed for conductive inks.

Sample: XTPL Ag Nanoink IJ36

Resistance & Resolution Analysis



Silver Ink

Inkjet & Screen Printing



OLED

3D-SHAPED REAR LIGHTS
FREEDOM IN DESIGN

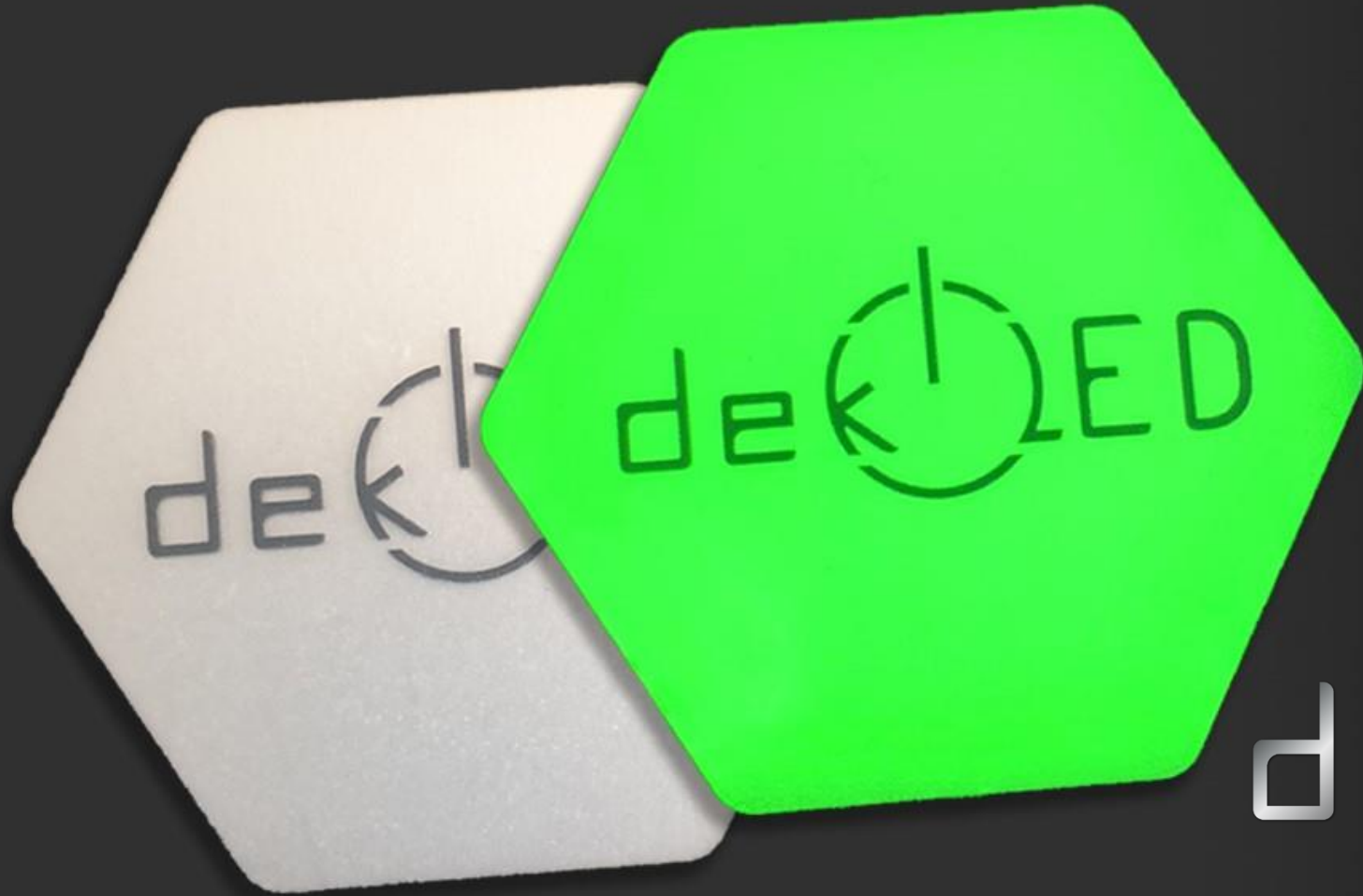


Audi TT RS

F^oM^oLED Interieur

OLED
INTEGRATION
VIA
FILM
INJECTION
MOLDING
PROCESS





NEXT LEVEL
OF OLED
INTEGRATION
VIA FILM
INJECTION
MOLDING
PROCESS



Project **Perobooost**

10% efficiency

58 cm² large module

air solution process

long term stable

up scalable

EnerScale

Upscaling, encapsulation & structuring of perovskite solar cells

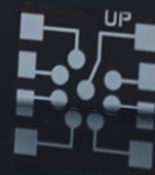
310 cm²
Slot-die



58 cm²
Slot-die
Spin Coating



6.5 cm²
Spin Coating



Enerthing
Solar Energy Solutions for Things

JÜLICH
Forschungszentrum

ZOEK ZENTRUM FÜR ORGANISCHE ELEKTRONIK

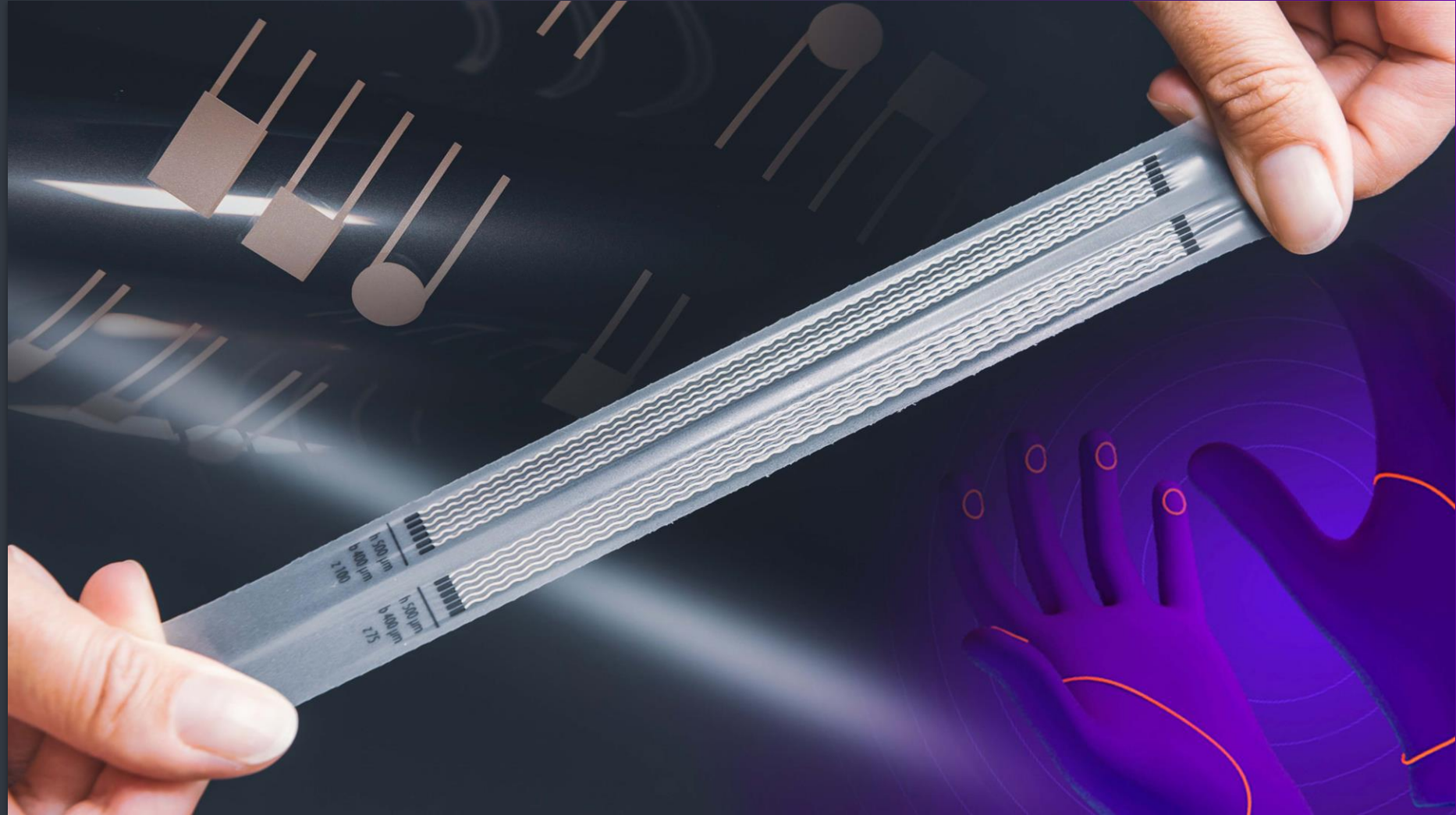
EUROPÄISCHE UNION
Investition in unsere Zukunft
Europäischer Fonds
für regionale Entwicklung

20++ EFRE.NRW
Investitionen in Wachstum
und Beschäftigung

Stretchable cabling &
Haptic-Feedback

••••• MAGOS

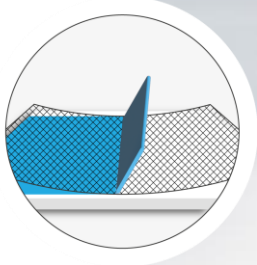
next gen
human
computer
interaction
solution



Applications

- *Positioning*
- *Speed measurement*
- *Acceleration measurement*

Screen printing
Foils (PEN, PET)



Application

- *Status indicator segment displays*
- *Logistics monitoring*
- *Camouflage*
- *Labels*



LIGHT



THIN



TRANSPARENT



PRINTABLE



FLEXIBLE



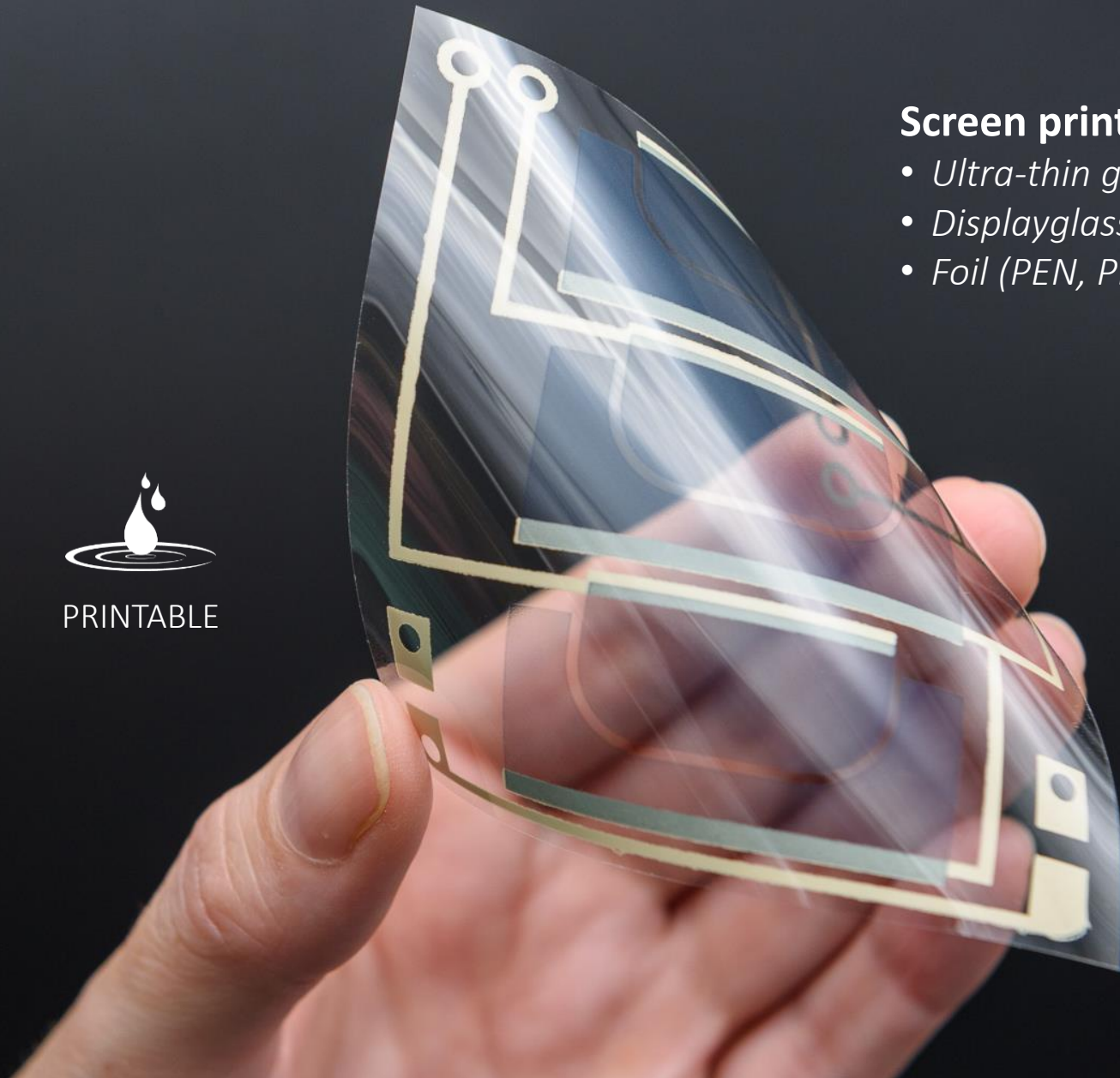
SCALABLE



STRUCTURABLE

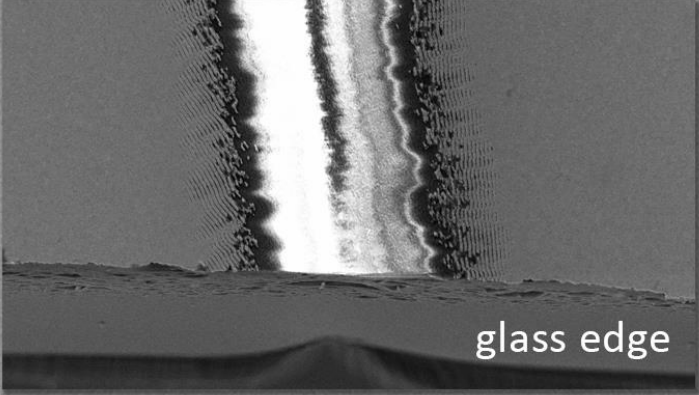
Screen printing on

- *Ultra-thin glass (<math><100 \mu\text{m}</math>)*
- *Displayglass (700 μm)*
- *Foil (PEN, PET)*

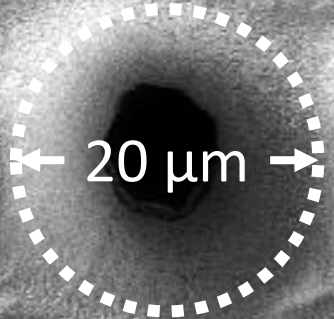


ITO Structuring

Width 13.5 μm



Drilling holes in Copper-Foil



CO₂ laser (10,6 μm)

In cooperation with Bergfeld Lasertech GmbH

Applications

Structuring of ultra-thin glass

- *Different shapes*
- *Contacting through ultra-thin glass*



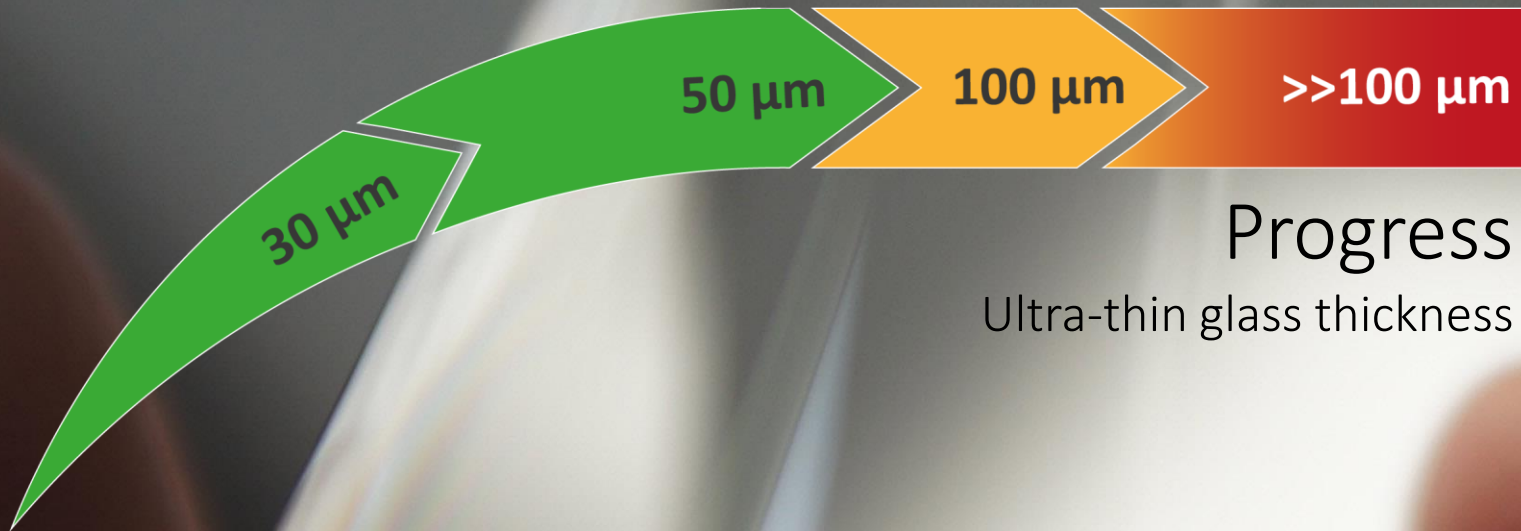
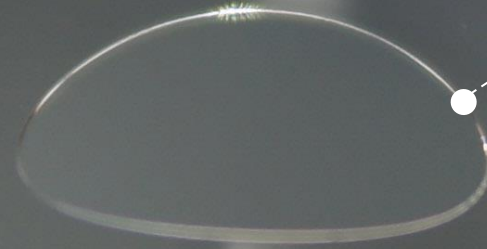
50 μm



10 μm



flexible



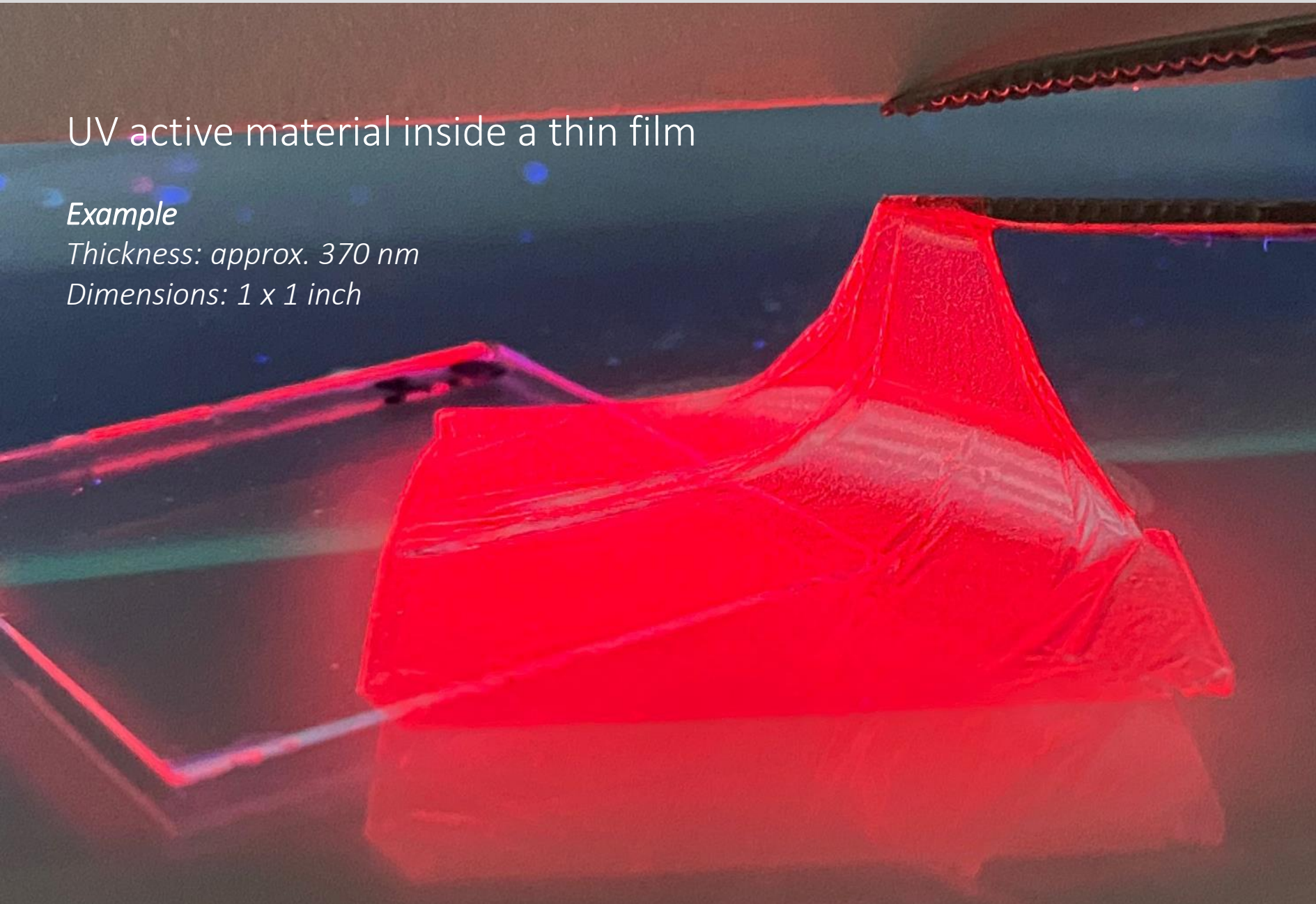
Progress
Ultra-thin glass thickness

UV active material inside a thin film

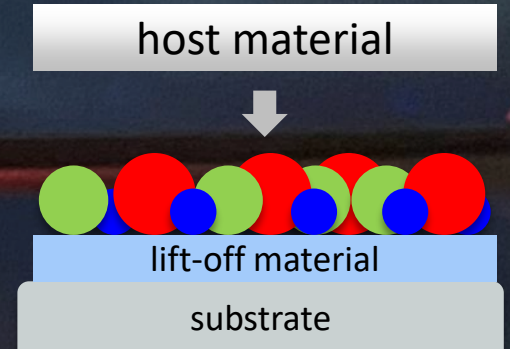
Example

Thickness: approx. 370 nm

Dimensions: 1 x 1 inch



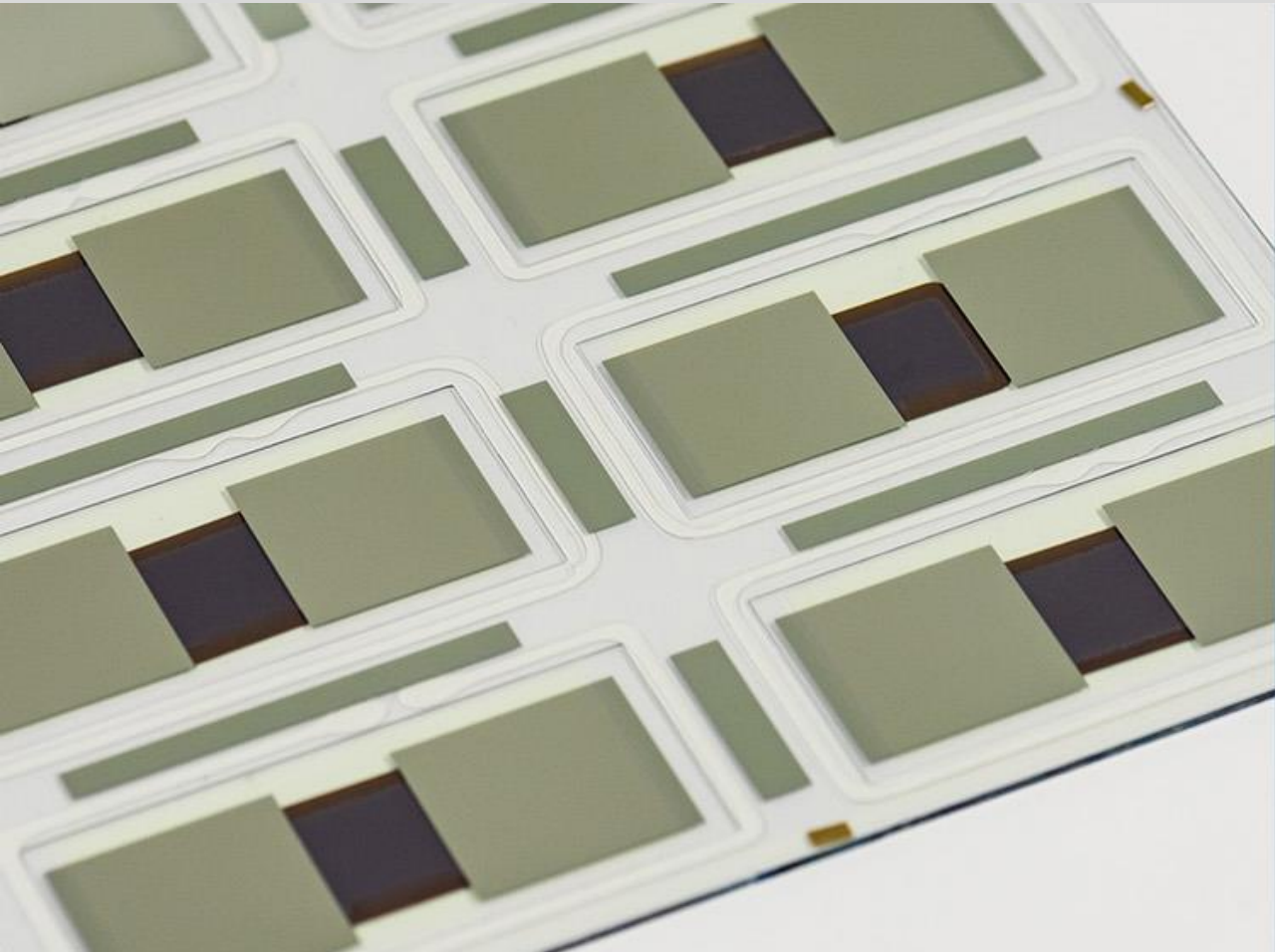
Process



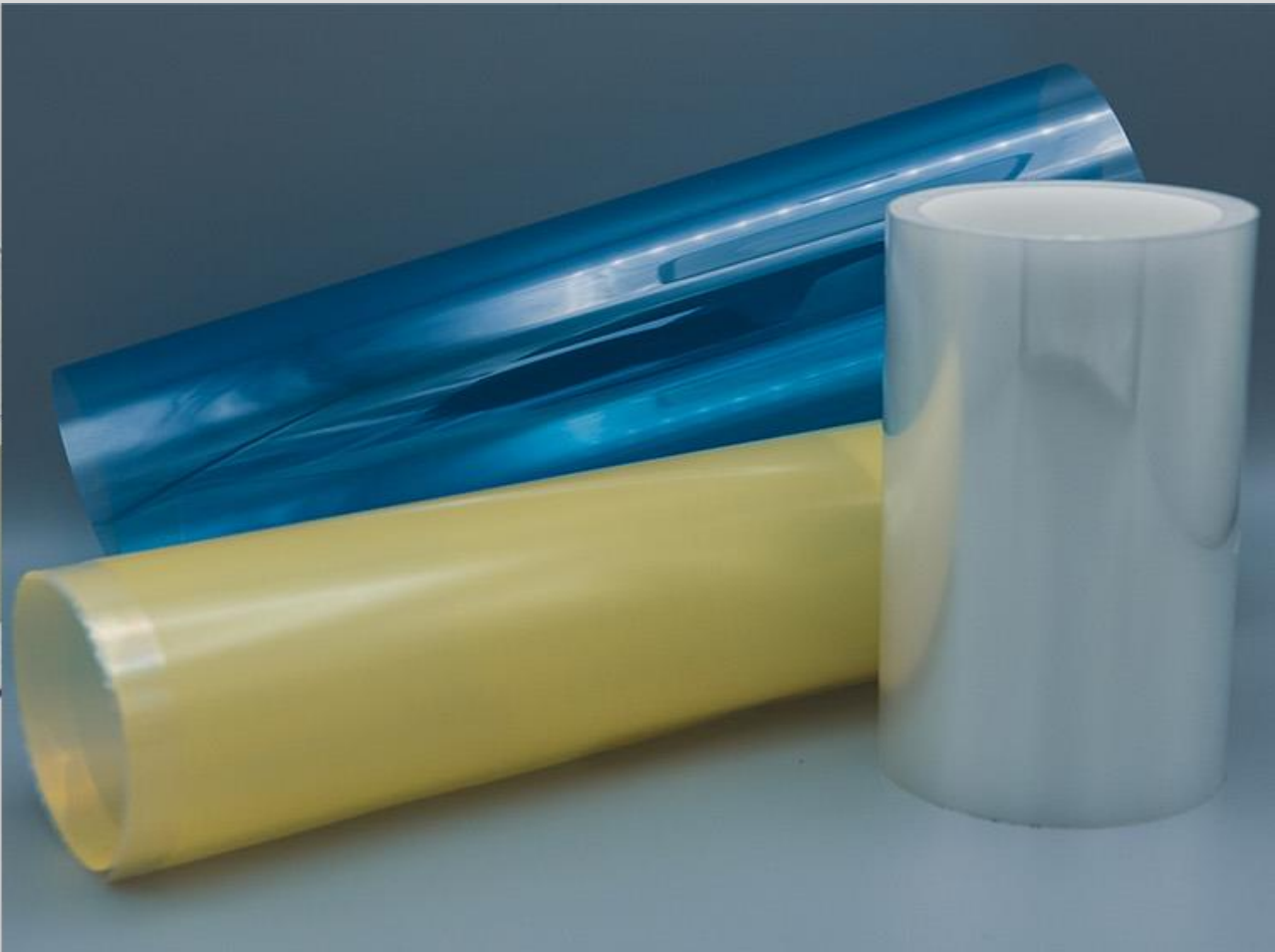
1. Material auf Lift-Off Schicht auftragen
2. Host-Material aufbringen



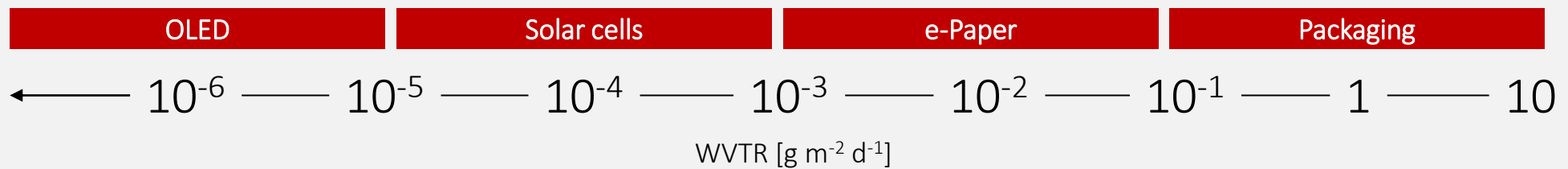
3. Lift-Off Schicht im Wasserbad entfernen



Cavity encapsulation



Barrier foils



Industriell partners



Research facilities & Network partners





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