

CHEMISTRY THAT MATTERS™



MATERIALAUSWAHL UNTER BERÜCKSICHTIGUNG DER PROZESSANFORDERUNGEN

Ronald van der Wal, Dr. David Elvers
Lüdenscheid, Feb 24th 2026



IN-MOLD COATING – NOTHING IS IMPOSSIBLE, IS IT?



- Process related challenges.
- Continued portfolio additions finetuned for in-mold coating with focus on horizontal and vertical exterior applications.

PUR IN-MOLD COATING APPLICATIONS

EV Grille & Emblems



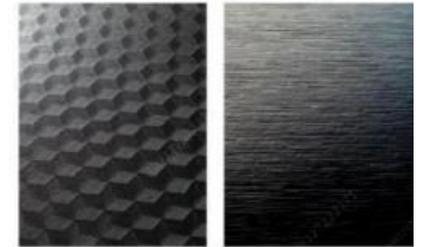
Smart Trim /Pillar



Roof

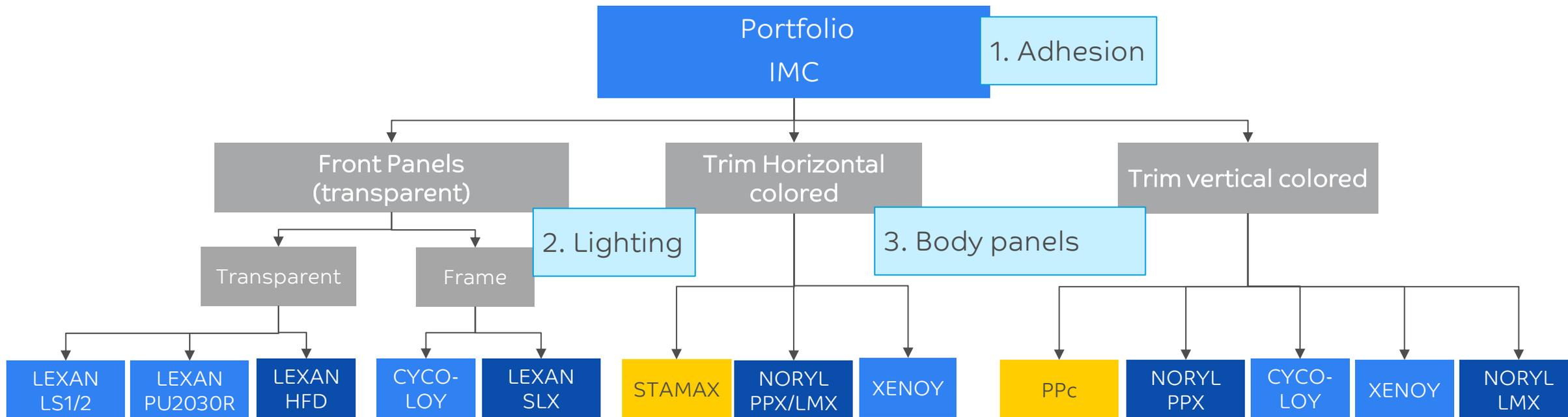


- Decorative A or B side film via IMD
- Panels in transparent / black
- 3D effects with A or B textures
- Colored or tinted PUR coating possible



Structured surfaces out of the mold

RESIN GRADE SELECTOR: LIGHTING, HORIZONTAL & VERTICAL



●	ETP
●	EP
●	SABIC Specialties
●	Film

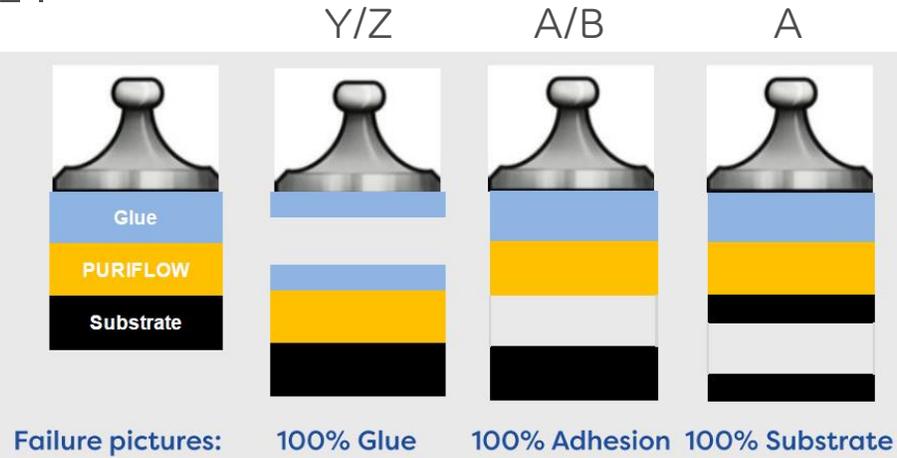
➤ SABIC has a broad range of materials for each IMC scenario

INDUSTRY CHALLENGES & POTENTIAL SABIC SOLUTIONS

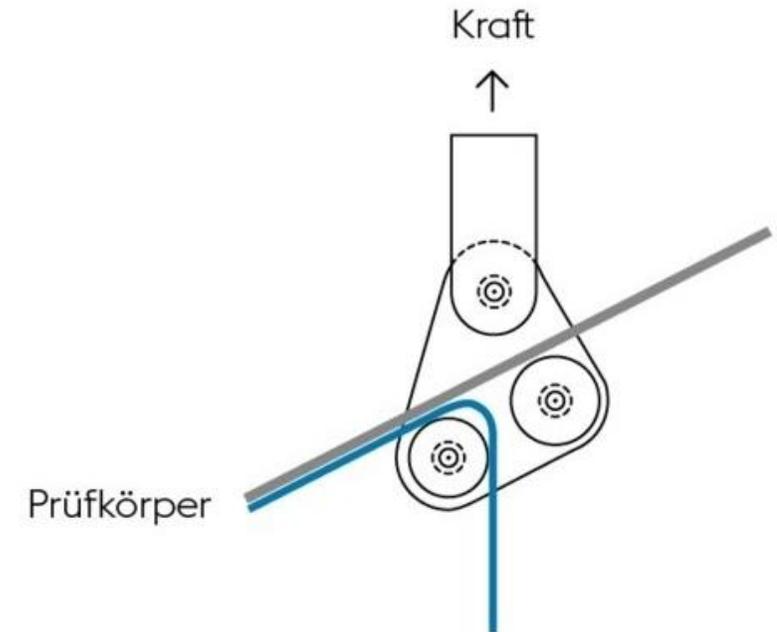
ADHESION

STANDARD ADHESION TESTING METHODS

Positest - DIN EN ISO 4624



Peel-off test (Rollerschälprüfung) – DIN EN-1464



SABIC TESTING CAPABILITIES

Positest



DeFelsko PosiTest AT-A

Peel-off test (Rollerschälprüfung)



Cutting tool to separate coating from resin

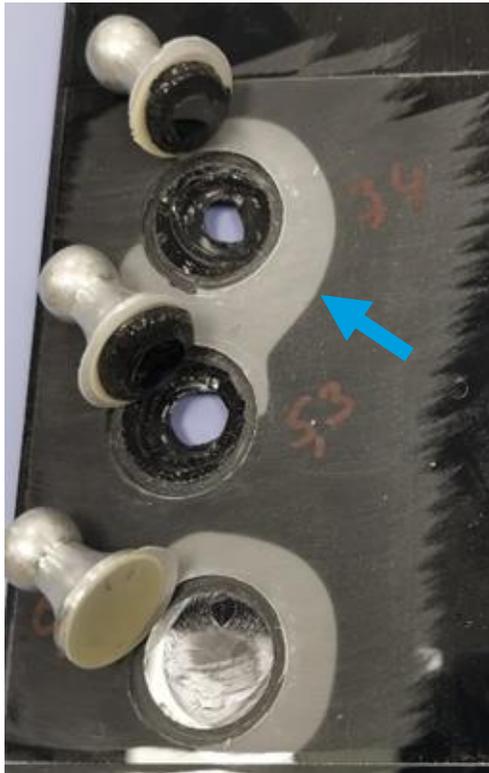


Roller fixtures
90° and 135°

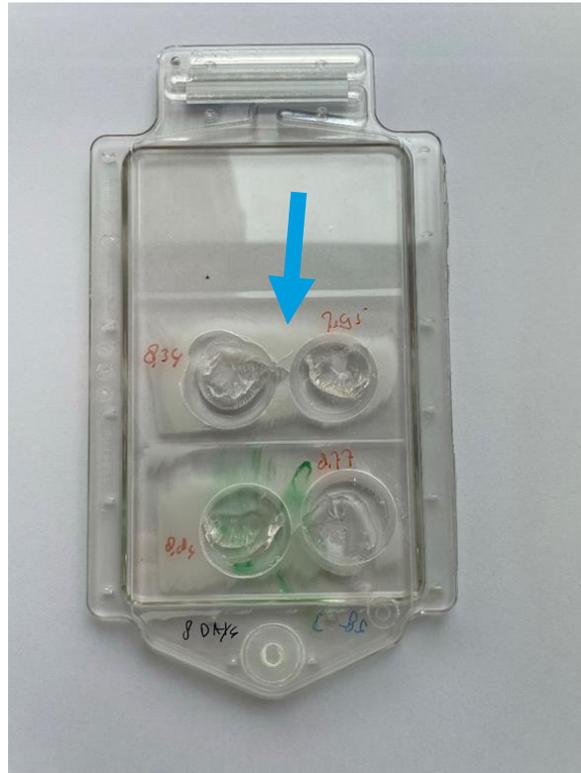


Tensile bar
measurement

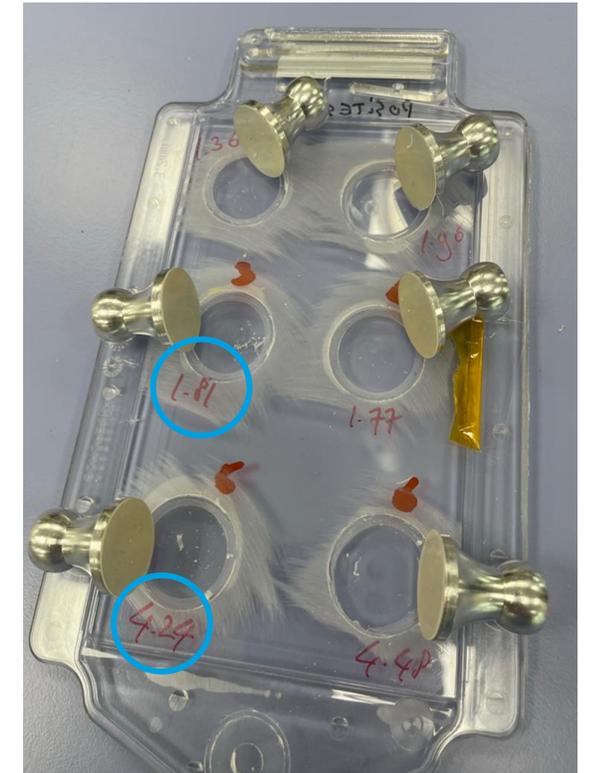
POSI TEST FINDINGS AND ISSUES



High Positest values, but PUR delamination clearly visible with craters in resin.



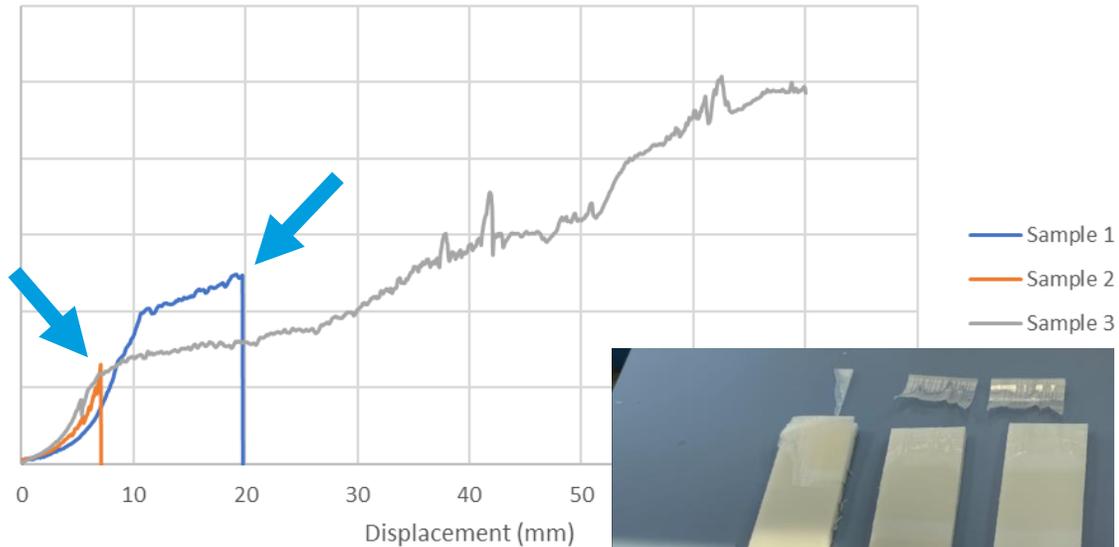
High Positest values on the same sample, all breakages between dolly and glue (Y/Z).



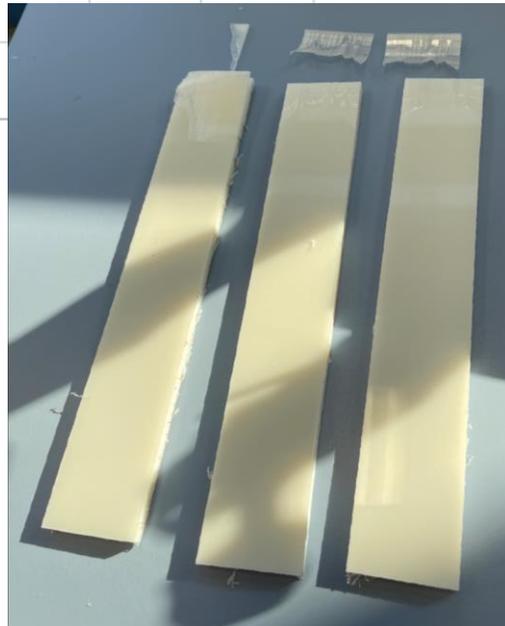
Large variation in test results with same failure mode (A/B).

PEEL-OFF (ROLLENSCHÄLPRÜFUNG) TEST FINDINGS AND ISSUES

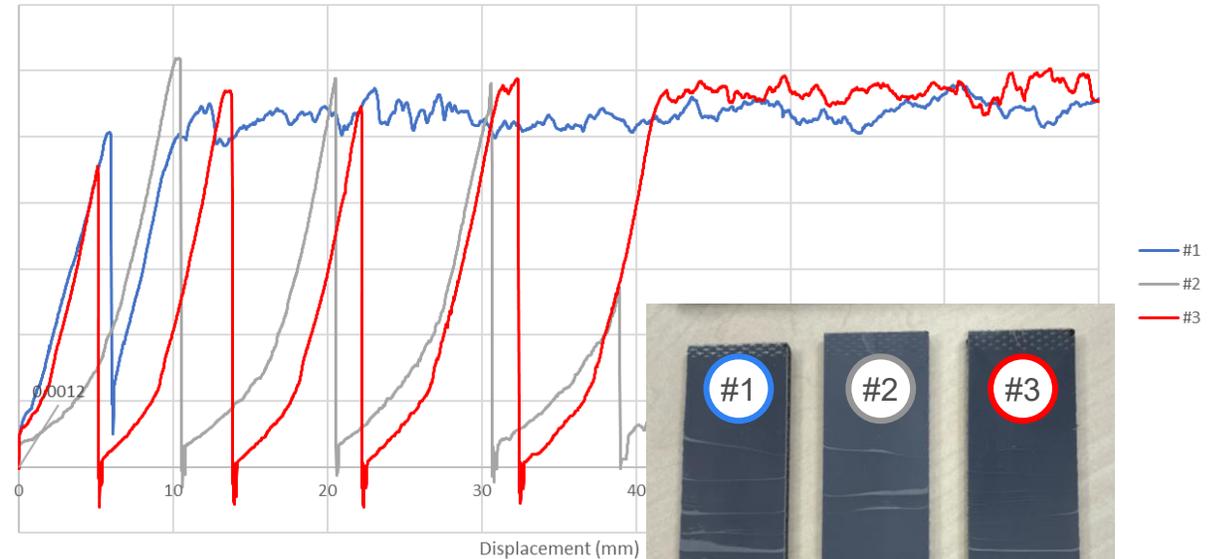
PU2030R with PUR coating - Initial



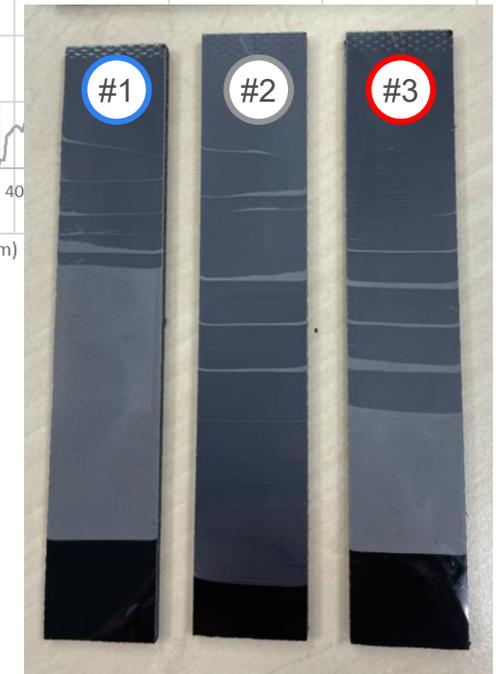
Initial adhesion (no ageing) can be so high that the PUR coating cannot be separated from the resin.
Or early PUR breakage occurs during testing.



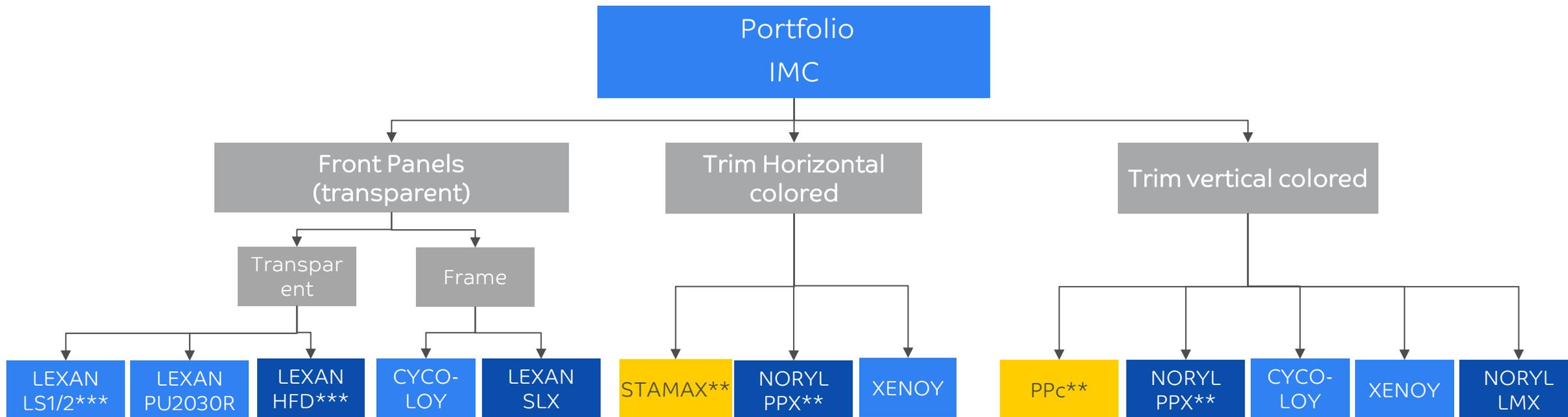
90° roller peel test



‘Stick-Slip’ behavior:
The PUR coating adheres until a critical adhesion force is achieved. Patterns clearly visible on samples are reflected in the graph.



WHICH MATERIAL GROUPS COULD WORK FOR WHICH TEST?*



POSI												
-	+	-	+	+	+	+	+	+	+	+	+	+
Peel Off												
-	-	-	0	-	+	+	0	+	+	0	0	+

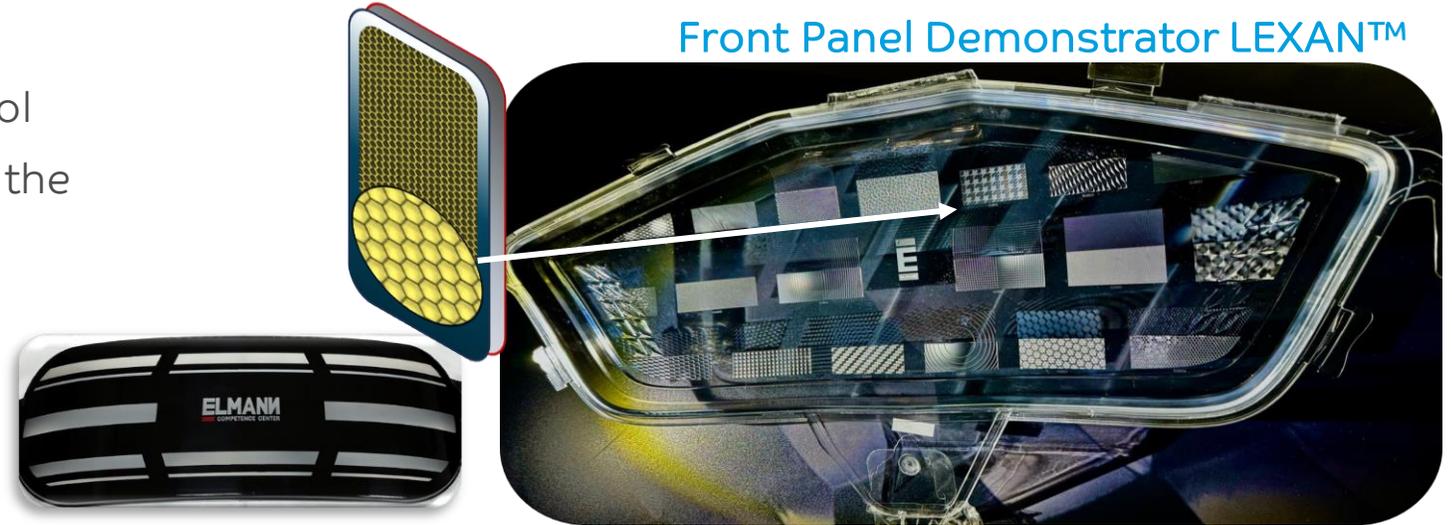
*Status Feb 2026 after climate aging, **pre-treatment required, *** only with film as interface to PUR

LIGHTING

TECHNOLOGY DEMONSTRATOR

ELMANN Technology Center

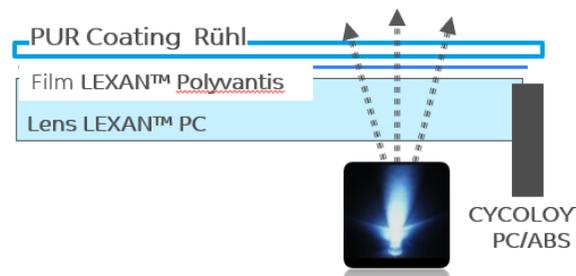
- Femto Second Laser structuring of the tool creating unique structures & patterns on the PUR coating or on the PC lens / panel
- Micro optic integration
- Decorated film overmolding



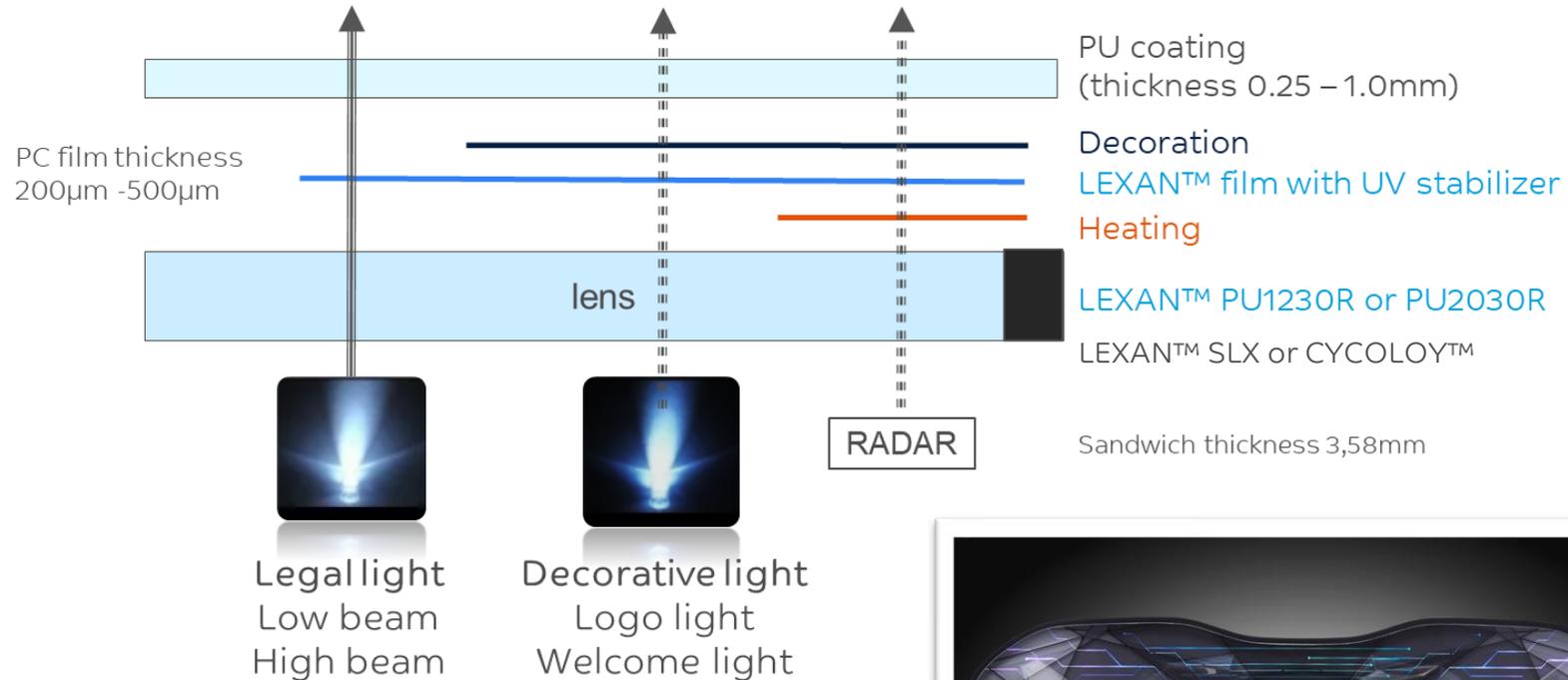
Leonard Kurz IQ light concept

- Brand-specific decorated film
- Functional integration
- One-step process
- Cost-efficient

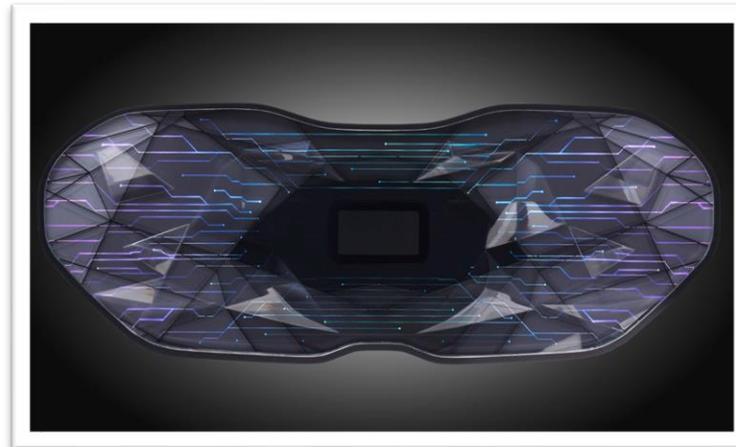
3K lens: PUR coated LEXAN™ PC resin & film + CYCOLOY™ frame



SYSTEM OUTDOOR WEATHERING TEST: AMECA LISTING OF THE FULL STACK



- Different structures are tested at OEMs
- Black rim might be
 - covered from PU coating or not
 - exposed to UV
 - needs same gloss as decoration



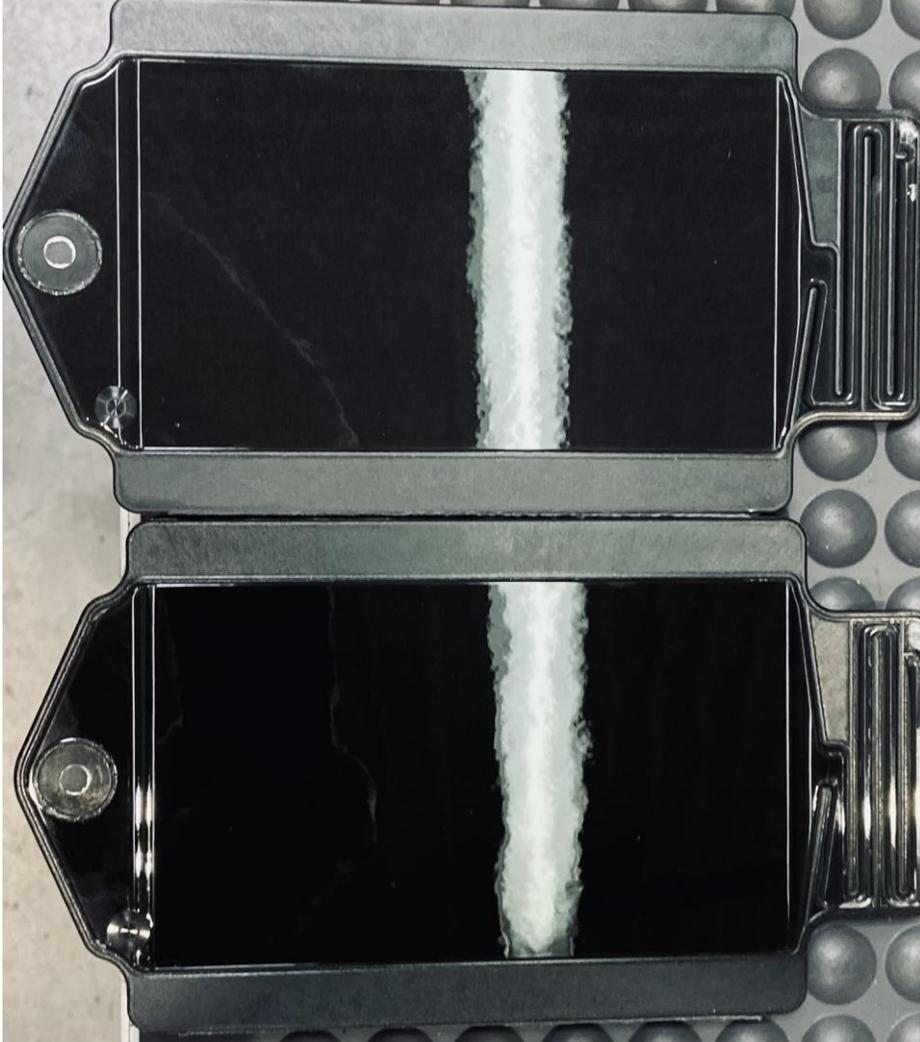
HORIZONTAL & VERTICAL BODY PANEL APPLICATIONS

EXTERIOR TRIM PARTS – CONTRAST COLORS AND / OR PAINT SHOP ELIMINATION



- Requirements on exterior trim parts:
 - Horizontal and vertical weathering resistance
 - High PU adhesion with pre-treatment
 - Chemical resistance
 - ductility
- SABIC offers a broad portfolio for PU coated trim parts, with different
 - Productivity
 - Ductility
 - Dimensional stability
 - Coefficient of thermal expansionBased on PP compounds, PC blends and PPE blends

PP IS A GREAT AND EFFORTABLE MATERIAL WITH GOOD PUR ADHESION AFTER FLAMMING, BUT AESTHETICS AND DIMENSIONS ARE CHALLENGING



SUMMARY

SUMMARY

- PU coating is a technology offering multiple advantages for exterior and interior automotive applications
- While adoption rate of PU technology has increased in the recent years, some major challenges are still in place; e.g. undercuts, frames with UV exposure, large part molding with PP
- SABIC offers a wide portfolio in the industry and can cover solutions for all known applications*



THANK YOU



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