

CHEMISTRY THAT MATTERS™



MATERIAL TRENDS IN AUTOMOTIVE LIGHTING

FOCUS: CHROME & LIGHT

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INTRODUCTION AND OBJECTIVE OF THE PRESENTATION

SABIC

- A leading automotive thermoplastic solutions provider
- **PROVEN** materials for use in lighting and smart panels; broad portfolio of versatile **LEXAN™** & **ELCREST™** PC /PC CoPolymer resins and PC blends
- Strong application development and technical expertise to bring your designs to life

CONTENT

Material trends with a focus on:

- Diffusive and reflective PC
- Diffusive co-polymer materials
- Integration examples – chrome and light



EXTERIOR LIGHTING APPLICATIONS

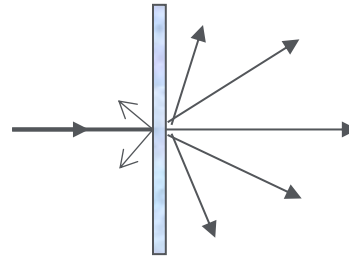
- Headlamps
- Emblems
- Front & rear panels
- Illuminated grilles



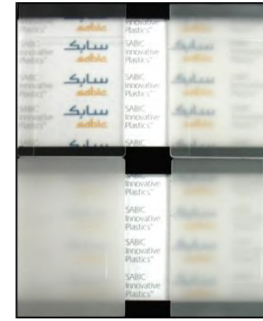
MATERIAL TRENDS

Diffusive white/red color LEXAN™ AD

- Adjusted appearance through material, part thickness or part texturing
- Compatible with IMD, film and 2K molding
- Radar compatible
- No AMECA listing currently (>30%haze)



Light scattering



Unlit



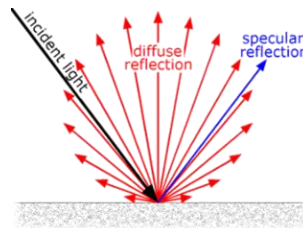
Lit

Renault R4 Front Panel

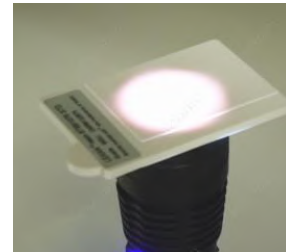


White reflectiveness LEXAN™ LUX

- Aesthetics and unique styling
- Uniform light distribution and reflectivity
- Light shielding to prevent LED light leakage



Light reflecting



Light leak



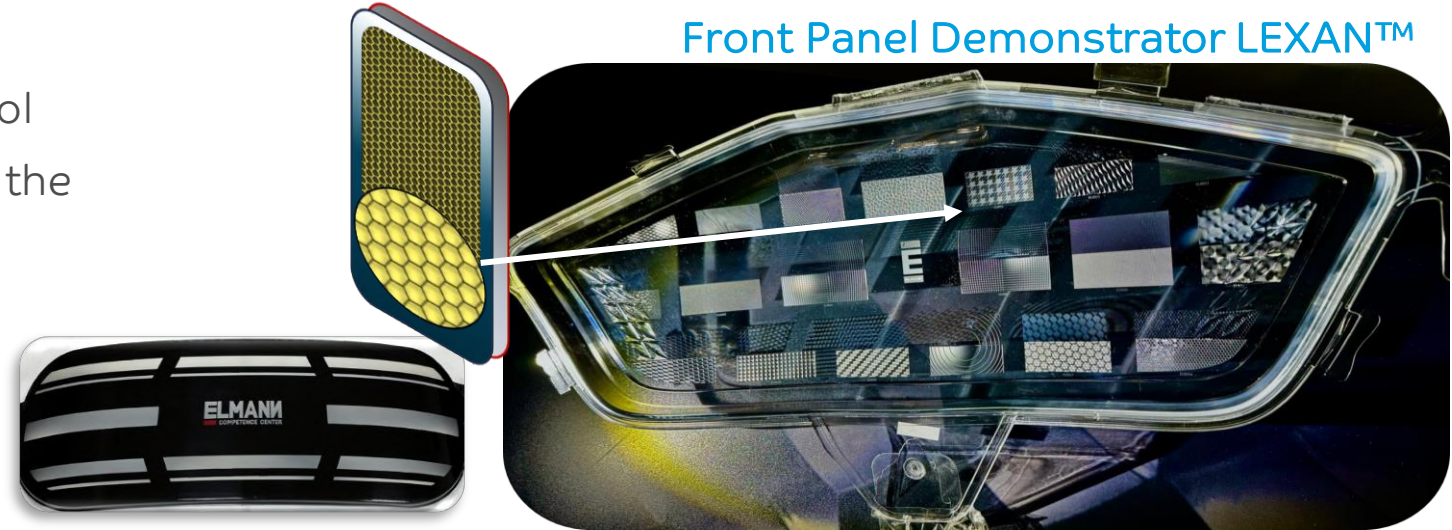
LUX light block



TECHNOLOGY DEMONSTRATOR

ELMANN Technology Center

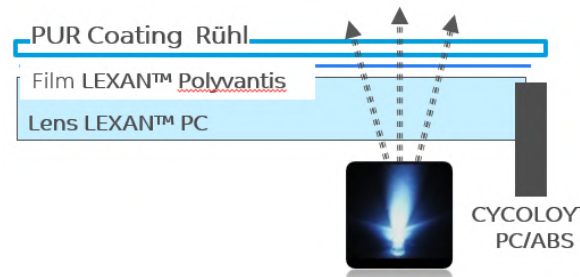
- Femto Second Laser structuring of the tool creating unique structures & patterns on the PUR coating or on the PC lens / panel
- Micro optic integration
- Decorated film overmolding



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



DESIGN OPTIONS FOR COMBINING CHROME & LIGHT



Film

- ✓ High flexibility regarding color
- ✓ Integration with radar possible
- ✗ Low flexibility regarding shape (depth)



Combined Frame & Lightguide

- ✓ High diversity for part combination and flexibility regarding shape
- ✗ Difficult to achieve homogeneous light appearance



Integrated (2K part - plated)

- ✓ High flexibility regarding shape
- ✓ One shot design (match head lights)
- ✗ Color limitations

ELCREST™ SLX RESIN AS ENABLER FOR INTEGRATED CHROME & LIGHT PARTS



- 2K part combining ELCREST™ SLX resins with ABS or PC/ABS
- Selective chrome plating of ABS (sharpe contrast)

WHY ELCREST™ SLX RESINS?



WEATHERABLE LIGHT DIFFUSION EFFECT
SLX1271D offers weatherable, coating free solution for integrating lighting effect in complex grill & emblem designs



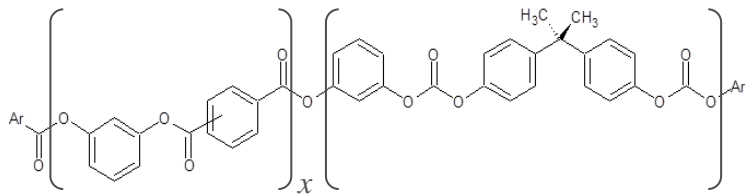
IMPROVED PRODUCTIVITY
Reducing reject levels via potential reduction of part issues during secondary operations (coating/painting)



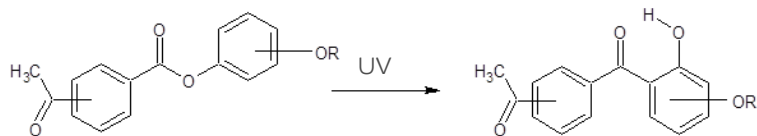
IMPROVED SUSTAINABILITY
Potential coating elimination may allow for lower volatile organic compound (VOC) emissions

HOW DOES ELCRES™ SLX RESIN WORK

CHEMISTRY



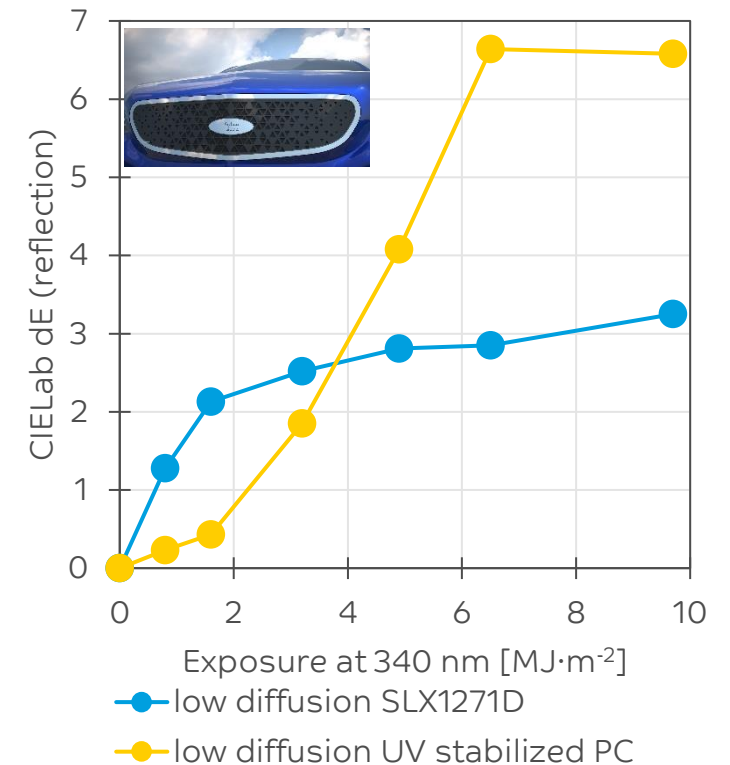
ITR – BPA copolymer



SURFACE REACTION RESULTS IN

- Retained mechanical and impact properties
- High transmission in visible and infrared region before and after UV exposure
- Equal or better scratch, chemical and staining resistance vs standard PC resins (uncoated)
- Only low color shift after UV exposure (color shift stays within the ECE white chromaticity boundaries)

PROTECTION MECHANISM



ELCRES™ SLX resins offer good weatherability performance enabling the combination of Chrome & Light integrated in one part

LET'S CONNECT, COLLABORATE, AND DEVELOP VALUE TOGETHER



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