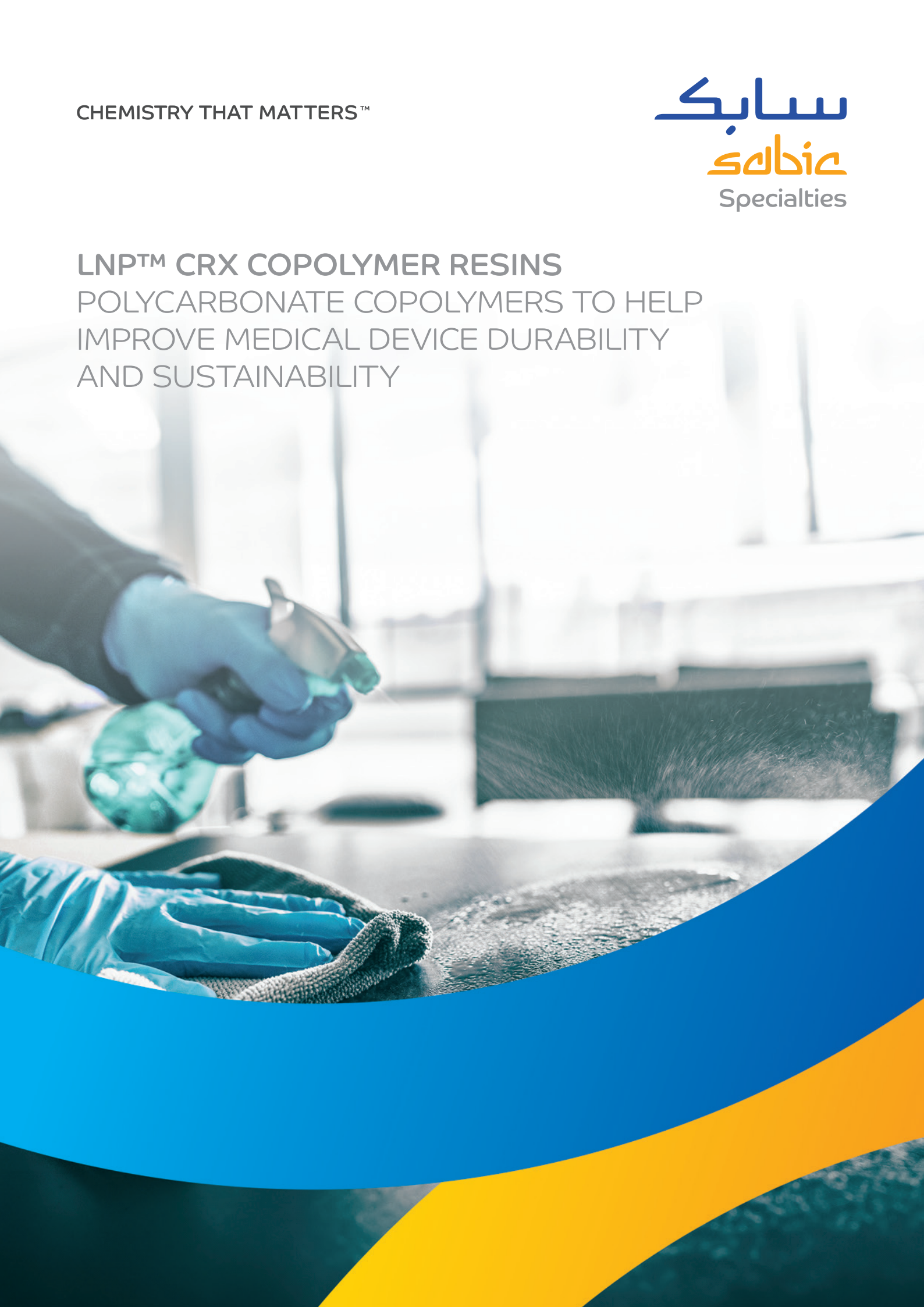
CHEMISTRY THAT MATTERS™

سابك
sabic
Specialties

LNP™ CRX COPOLYMER RESINS

POLYCARBONATE COPOLYMERS TO HELP IMPROVE MEDICAL DEVICE DURABILITY AND SUSTAINABILITY



In the post-COVID world, there continues to be a renewed focus on the proper selection of plastics to address infection control challenges.

SOLVING A HARD INDUSTRY CHALLENGE

The introduction of new disinfectants and enhanced cleaning protocols has pushed medical device OEMs to seek materials with improved chemical resistance to combat the increased trend of premature part failures associated with environmental stress cracking (ESC). To extend device lifetime, robust chemical resistance is needed to a wide range of typical healthcare cleaning agents approved for use against COV-SARS-2.

NEW OFFERING ▶ THIN WALL TRANSPARENT PC COPOLYMER WITH IMPROVED CHEMICAL RESISTANCE CAN EXTEND DEVICE DURABILITY

LNP CRX copolymer resins leverage differentiated PC copolymer technology to overcome traditional drawbacks of incumbent transparent, amorphous resins when exposed to harsh disinfectants in device applications such as clear covers, screens and display lenses. Thin wall transparent CRX amorphous copolymers demonstrate improved chemical resistance compared to incumbent PC resins. Additionally, amorphous co-polyesters may be difficult to process and show incompatibility with harsh chemicals. LNP CRX copolymers can mitigate stress cracking to extend device lifetime, resulting in a more sustainable footprint as fewer devices need to be replaced.

PLASTICS DETERMINATION OF RESISTANCE TO ENVIRONMENTAL STRESS CRACKING (ESC)

	Healthcare Disinfectants							Household Chemicals			
PRODUCT	SANI-CLOTH® Bleach σ_y ε_b	SANI-CLOTH® Plus σ_y ε_b	SANI-CLOTH® AF3 σ_y ε_b	Diversey Oxivir® TB σ_y ε_b	Virex® II 256 σ_y ε_b	Virex® TB σ_y ε_b	CIDEX® OPA Solution σ_y ε_b	IPA (70%) σ_y ε_b	Ethanol σ_y ε_b	Banana Boat* σ_y ε_b	Off DEET 30%** σ_y ε_b
TRANSPARENT PC	●●	●●	■■	●▲	▲■	■■	●▲	●●	●●	■■	●▲
TRANSPARENT COPOLYESTER	●●	●●	▲■	●■	●●	▲■	●●	●●	●●	■■	■■
TRANSPARENT CRX1314TW	●●	●●	▲▲	●●	●●	■■	●●	●●	●●	●●	●●

* 1% strain, 3 days
** 0.5% strain, 3 days

Compatibility Criteria Color rating	Yield stress retention, σ_y (%)	Elongation at break retention, ε_b (%)
Compatible	> 90	80 – 139
Marginal	80 – 89	65 – 79
Not compatible	< 79	< 64 or > 140

SABIC's ESC method evaluates retention of tensile properties vs. control for up to 7 days at continuous exposure.

SABIC ESC Method: per ASTM D543
Strain level: 1% strain
Exposure condition: 23 °C
Exposure days: 7
Application: Saturation method

This information should be viewed as a screening test. End users are responsible for determining the suitability of these products for their application requirements.

FEATURES

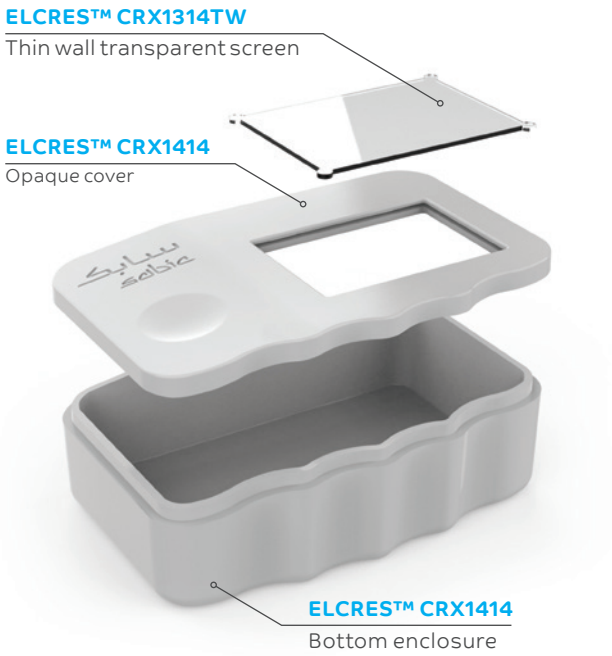
IMPROVED CHEMICAL RESISTANCE
Improved chemical resistance to harsh disinfectants to combat premature stress cracking

IMPACT RETENTION
Retention of ductility upon exposure to chemicals

CLARITY & AESTHETICS
Transparency to translucency based on thickness
Consistent color appearance (for opaque grades)

PROCESSABILITY & FLAME RETARDANCY
Thin wall molding for miniaturization and light weight design. UL V0 rated FR grades available

SUSTAINABALITY
Sustainable ELCRIN™ grades available with lower CO_2 footprint at identical product performance



TYPICAL PROPERTIES

			Amorphous PC Copolymer				Semi-crystalline PC Copolymer/PBT	
PROPERTY	STANDARD	UNIT	ELCRES™ CRX1314TW	ELCRES™ CRX1414	ELCRES™ CRX9411	ELCRES™ CRX7412U	ELCRES™ CRX5421	ELCRES™ CRX9421
Tensile Strength at Yield Tensile Strain at Break Tensile Modulus	ASTM D 638	MPa % MPa	59 124 2150	54 >100 2020	52 >100 1920	48 >100 1950	42 70 1820	44 59 1985
Notched Izod Impact, 23°C Notched Izod Impact, -30°C	ASTM D 256	J/m	910 700	875 777	765 680	670 550	645 180	590 150
Light Transmittance, 1 mm /1.5 mm Haze, 1 mm / 1.5 mm	ASTM D 1003	%	89% / 86% 2% / 3%	Opaque				
UL Flame Rating	UL94	mm	HB 0.75 mm	HB 0.75 mm	V0 1.6 mm	V0 1.2 mm	HB 0.75 mm	V0 1.5 mm
Melt Flow Rate, 300°C, 1.2 kg Melt Flow Rate, 300 °C, 2.16 kg Melt Flow Rate, 250°C, 5 kg Density Mold Shrinkage, flow Mold Shrinkage, x-flow	ASTM D 1238 ASTM D 792 SABIC method	g/10 min – %	– 11 – 1.19 0.5-0.9 0.5-0.9	10 – – 1.2 0.4-0.9 0.4-0.9	10 – – 1.2 0.4-0.9 0.4-0.9	13 – – 1.19 0.4-0.9 0.4-0.9	– – 11 1.3 1.0-1.6 0.9-1.6	– – 11.5 1.3 1.0-1.6 0.9-1.6

LNP™ ELCRIN RENEWABLE GRADES AVAILABLE

ISCC+ certified materials based on renewable feedstocks through mass balance can offer carbon footprint reduction without compromising product performance.

UP TO 43% CO_2

ISCC International Sustainability & Carbon Certification

*Global Warming Potential (GWP): IPCC CO_2 equivalent analysis

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MEDICAL DEVICES

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