

LNP™ ELCRES™ CRX COPOLYMER RESINS

IMPROVED CHEMICAL RESISTANCE MATERIALS FOR MEDICAL ENCLOSURES AND HOUSINGS

With patient safety at the forefront, the healthcare industry is mobilizing to address the concerns of increasing patient infections associated with medical care, known as hospital acquired infections (HAI). To help meet this challenge, medical equipment and high touch surfaces in patient care settings are repeatedly wiped down with increasingly aggressive chemical disinfectants.



NEED FOR IMPROVED CHEMICAL RESISTANCE

Manufacturers of medical equipment for patient monitoring, imaging, diagnostic, fluid and medication delivery need materials that offer improved chemical resistance to the more aggressive disinfectants used today in healthcare settings.

NEW SOLUTION OFFERING

SABIC’s LNP ELCRES CRX resins leverage unique copolymer technology to provide improved chemical resistance for healthcare devices and equipment, compared to existing materials used such as PC/ABS, PC/PBT, or co-polyester resins and blends.

CHEMICAL RESISTANCE DATA – ENVIRONMENTAL STRESS CRACKING (ESC) PERFORMANCE

Compared to traditional PC, ABS, PBT and co-polyester resins and blends — which are potentially incompatible with highly aggressive disinfectants such as quaternary ammonium compounds — the new LNP ELCRES CRX resins can help prevent stress cracking and mitigate crack propagation.

PLASTICS DETERMINATION OF RESISTANCE TO ENVIRONMENTAL STRESS CRACKING (ESC) METHOD

PRODUCT	Mold shrinkage (%)	Exposure days	Disinfectants														
			SANI-CLOTH® Bleach	SANI-CLOTH® HB	SANI-CLOTH® AF 3	SANI-CLOTH® plus	Diversey Oxivir® TB	Trichloroacetic Acid	Cavicide® CavWipes1	SANI-CLOTH® prime	Virex® II 256	Virex® TB	CIDEX® OPA Solution	Betadine	IPA (70%)	Ethanol	
			σ _y E _b														
PC/ABS	0.6	7	●●	■●	■●	■●	▲●	●●	●●	●●	■●	■●	●●	●●	●●	■●	
PC/PBT	1.0	7	●●	●●	■●	▲●	●●	●●	●●	●●	●●	●●	▲●	●●	●●	●●	
CRX5421 RESIN	1.5	7	●●	●●	●●	●●	▲●	●●	●●	●●	●●	●●	●●	●●	●●	●●	
CRX1414 RESIN	0.8	7	●●	●●	▲●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	
CRX9411 RESIN	0.8	3	-	-	●●	-	-	-	-	-	-	-	-	-	-	-	
	0.8	7	●●	●●	▲●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	
	0.8	3			●●												

SABIC’s ESC method evaluates retention of tensile properties vs. control for up to 7 days.

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

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

LNP™ ELCRES™ CRX COPOLYMER RESINS

PERFORMANCE PROPERTIES

LNP ELCRES CRX resins are a new family of polycarbonate copolymers that can provide improved chemical resistance. These resins are based on unique copolymer building block blends offering a combination of:



IMPROVED CHEMICAL RESISTANCE

Improved chemical resistance to a range of chemical disinfectants



IMPACT RETENTION

Retention of ductility upon exposure to chemicals



PROCESSABILITY

Potential for high productivity molding and cycle time reduction



FLAME RETARDANCY

VO rating up to 1.5 mm thickness



AESTHETICS

Consistent opaque color and appearance

POTENTIAL APPLICATIONS - MEDICAL EQUIPMENT HOUSINGS AND ENCLOSURES



Insulin pump



Infusion pump



Dental Chair components



Ultrasound monitor



Hospital Bed components



Surgical Tools



Imaging Devices

PROPERTY PROFILE

Property	Standard	Unit	LNP™ ELCRES™ CRX1414 RESIN	LNP™ ELCRES™ CRX9411 RESIN	LNP™ ELCRES™ CRX5421 RESIN
			Amorphous PC Copolymer	Amorphous PC Copolymer	Semi-crystalline PC copolymer /PBT
Tensile Strength at Yield	ASTM D 638	MPa	54	52	42
Tensile Strain at Break		%	>100	>100	35
Tensile Modulus		MPa	2020	1920	1820
Notched Izod Impact, 23°C	ASTM D 256	J/m	875	765	645
Flame Performance ¹	UL 94 SABIC		HB @ 0.75 mm	VO @ 1.5 mm	HB @ 1.5 m
MFR, 300 °C, 1.2 kgf	ASTM D 1238	g/10 min	10	10	-
MFR, 250 °C, 5 kgf	ASTM D 1238	g/10 min	-	-	11
Density	ASTM D 792	-	1.2	1.2	1.1
Mold Shrinkage	SABIC method	%	0.6-1.0	0.6-1.0	1.2-1.8

UL yellow card pending¹

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