

Shield FR PC

Fire-Retardant Polycarbonate Sheet · Halogen-Free · Extruded

UL 94 RATING
V-0

@ 0.25 mm and above

CHARACTERISTICS

- UL 94 V-0 verified at 0.25 mm and above
- VTM-0 rated for thin-film applications
- Native halogen-free formulation
- High-voltage electrical insulation grade
- High thermal performance — Vicat 138 °C

APPLICATIONS

- EV battery CCS trays · cell-contacting systems
- BESS modules · high-voltage compartment liners
- Power electronics · insulation components
- Electrical cabinets · switchgear barriers
- Rail HVAC duct covers · flame-rated airflow parts

COMPLIANCE UL 94 V-0 / VTM-0 · CNAS L5816 Verified · Halogen-Free · RoHS · REACH SVHC · ISO 9001:2015

TYPICAL PROPERTIES

All values are typical · ISO/ASTM/IEC methods · injection-moulded specimens unless noted

PROPERTY	TEST METHOD	VALUE	UNIT
MECHANICAL			
Tensile Strength	ISO 527	60	MPa
Tensile Modulus	ISO 527	2300	MPa
Elongation @ Break	ISO 527	> 50	%
Flexural Strength	ISO 178	91	MPa
Flexural Modulus	ISO 178	<i>On request</i>	
IMPACT			
Notched Izod	ISO 180	<i>On request</i>	
HARDNESS			
Rockwell Hardness	ASTM D785	<i>On request</i>	
PHYSICAL			
Density	ISO 1183	1.20	g/cm ³
Water Absorption	ASTM D570	< 0.3	%
Surface Tension	Test pen	> 32	dyn/cm
Thermal Shrinkage	ASTM D1204	0.5 - 0.7	%

PROPERTY	TEST METHOD	VALUE	UNIT
THERMAL			
Vicat Softening Temp	ISO 306	138	°C
HDT	ASTM D648	<i>On request</i>	
CLTE	ISO 11359	5.8 × 10⁻⁵	/°C
Thermal Conductivity	ASTM D5470	0.2	W/m·K
RTI	UL 746	<i>On request</i>	
ELECTRICAL			
Dielectric Constant	IEC 60250	~ 3.0	
Dielectric Strength	IEC 60243	38	kV/mm
CTI — Premium	IEC 60112	600	
CTI — Standard	IEC 60112	250	
Surface Resistivity	IEC 60093	> 10¹⁴	Ω/sq
Volume Resistivity	IEC 60093	> 10¹⁵	Ω·cm
FLAMMABILITY · UL 94			
Rating ≥ 0.25 mm	UL 94	V-0	
Rating < 0.25 mm	UL 94	VTM-0	
Halogen Content	—	Halogen-Free	
Smoke Behaviour	—	Low Smoke	
Oxygen Index (LOI)	ASTM D2863	<i>On request</i>	
PROCESSING			
Pre-drying Temperature	—	<i>On request</i>	
Pre-drying Time	—	<i>On request</i>	
Forming Temperature	—	<i>On request</i>	
Mould Temperature	—	<i>On request</i>	

NOTES

Tests primarily per ISO methods (Tensile/Modulus/Elongation: ISO 527; Flexural: ISO 178; Vicat: ISO 306; Density: ISO 1183). Electrical properties per IEC. UL 94 V-0 and CTI ratings verified by CNAS-accredited third-party laboratory (CNAS L5816) per ANSI/UL 94-2023 and IEC 60112-2020. Two CTI grades available — Premium (CTI 600) and Standard (CTI 250). Thermal shrinkage at 130 °C; dielectric strength on 0.5 mm samples. Values are typical, intended as guide only. Final product suitability must be validated under actual application conditions. HDT, Notched Izod, RTI, MFI and processing parameters available on request.

FIRE & ELECTRICAL SAFETY

V-0 @ ≥ 0.25 mm

UL 94 vertical burn

VTM-0 @ < 0.25 mm

Thin-film rated

0 halogens

Native halogen-free

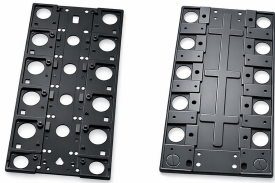
600 CTI premium

Standard grade: CTI 250

Verified by CNAS-accredited third-party lab — ANSI/UL 94-2023 and IEC 60112-2020.

APPLICATIONS

Where Shield FR PC gets specified — halogen-free FR sheet for BESS, EV battery, and high-voltage electrical infrastructure.



CCS Trays EV Battery

Cell-contacting system trays for EV battery modules. High-voltage isolation, V-0 fire safety, halogen-free.



BESS Modules

Outdoor and indoor enclosure shells for grid-scale battery energy storage. Halogen-free FR critical.



Electrical Cabinets

Switchgear barriers and high-voltage compartment liners. CTI 250 tracking resistance.



Rail HVAC Duct Covers

Flame-rated airflow covers for rail HVAC. Low-smoke, halogen-free combustion.

PRODUCTION SPECIFICATIONS

Sheet Thickness	0.25 - 8.0 mm	V-0 ≥ 0.25 mm · VTM-0 < 0.25 mm
Sheet Width	up to 2500 mm	XL line capacity
Sheet Length	up to 6 m	Custom cut-to-size on request
Thickness Tolerance	± 5 %	Multi-point validated
Layer Structure	Mono / ABA	Co-extrusion option for skin-core differentiation
Colour Matching	Pantone & RAL	Spectrophotometer ΔE validation, batch-traced

SURFACE TEXTURES



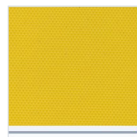
T01
Regular



T02
Fine



T03
Diamond



T04
Fine Diamond



T05
Plain Smooth



T06
FM06

HOW TO READ THESE NUMBERS

Quick reference for what each test actually tells you about how the sheet behaves.

.Tensile Strength

Pulling force before sheet starts to permanently stretch.

.Elongation

How far it stretches before snapping. Higher = more forgiving.

.Flexural Strength

Bending force before fracture. Higher = stronger when flexed.

.Density

Weight vs water. 1.20 means 20% heavier than water.

.Vicat

Temperature at which a small probe pushes 1 mm in. Softening ceiling.

.CLTE

How much it expands when heated. Lower = better dimensional stability.

.Thermal Conductivity

How easily heat passes through. Lower = better thermal insulator.

.Thermal Shrinkage

How much it contracts when heated to 130°C. Stability indicator.

.Dielectric Strength

Voltage the sheet can take before it breaks down and conducts.

.CTI

Resistance to a conductive carbon track on a wet, live surface. Higher = safer near voltage.

.Volume Resistivity

How well it blocks current flowing through the bulk material.

.UL 94 V-0

Strictest vertical burn pass. Self-extinguishes <10s, no flaming drips.

STELLAR-EX

Sheet Extrusion Excellence

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Values are typical and intended as a guide only. Validate for application. Resin: globally certified suppliers.

ISO 9001 : 2015

Quality Management Certified

GSTIN 27AADCM9861D1ZA

Established 1985

Stellar-Ex™ — a brand of Indu Thermoformers