TEKNOR APEX

TEKNOR APEX MATERIALS SOLUTIONS:

Glass Filled Halogen-Free Flame Retardant CREALEN Polypropylene

Features

Halogen-free flame retardant technology
- ☑ UL94 V0 at 1.5mm
- ☑ UL94 5VA at 3.0mm

Excellent chemical resistance

Excellent glow wire ignition temperature

Excellent electrical performance
- ☑ Comparative tracking index of 600V (PLC = 0)
- ☑ Dielectric strength of 26 kV/mm

Does not absorb moisture

Glass Filled Halogen-Free Flame Retardant Crealen Polypropylene

Introducing CREALEN PP-HFFR; a glass-filled, halogen-free flame-retardant polypropylene product series designed to meet new and demanding challenges in markets such as Electrical and Electronics, Automotive, Appliances, and Energy Storage.

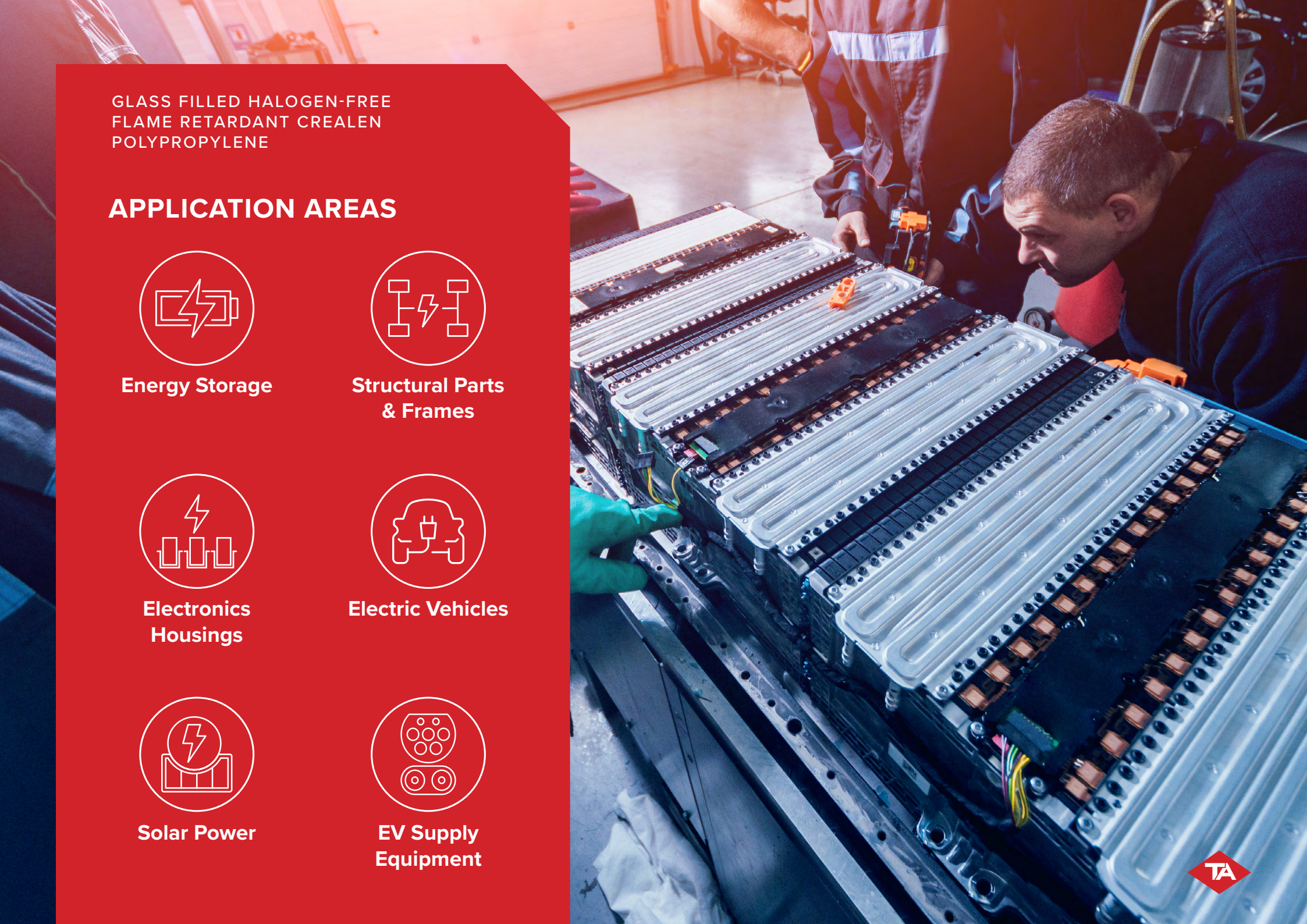
As these markets continuously require higher voltages and smaller, lighter components, materials that balance safety and performance become increasingly important. This series of CREALEN PP (polypropylene) offers excellent flammability ratings and superior glow wire ignition temperature performance while maintaining mechanical properties, providing an exceptional balance of impact strength and stiffness, even after exposure to humid conditions and acids. CREALEN PP-HFFR products offer a wide range of benefits, such as inherent resistance to moisture absorption and superior adhesion to TPEs and TPVs in 2-K molding – all while also providing sustainability benefits like a low smoke density, a lower carbon footprint than polyamides, and a significantly lower density. By utilizing this innovative halogen-free flame-retardant technology, these grades deliver UL94 V0 performance at 1.5mm and achieve UL94 5VA performance at 3.0mm.

This unique balance of properties makes them well-suited for a wide range of demanding applications, including thin-wall housings, connectors, brackets, shields in eMobility, power tools, outdoor power equipment appliances, and electronics.

GLASS FILLED HALOGEN-FREE
FLAME RETARDANT CREALEN
POLYPROPYLENE

APPLICATION AREAS

- Energy Storage
- Structural Parts & Frames
- Electronics Housings
- Electric Vehicles
- Solar Power
- EV Supply Equipment



GLASS FILLED HALOGEN-FREE
FLAME RETARDANT CREALEN POLYPROPYLENE

Available Enhancements

V0 Rating @ Different Thicknesses

Glass Loading / Structural Additives

Custom Colorability

Stabilization Packages (UV, Heat, etc.)

Why Flame Retardant PP?

- ☑ UL94 V-0 properties @ 1.5 mm
- ☑ Different GF loadings possible
- ☑ Different colors possible (including orange)
- ☑ Electrically Friendly
- ☑ Non-Blooming FR Package
- ☑ Superior retention of properties after exposure to moisture & acids

CREALEN PP-HFFR GF

		CREALEN-EP15G6HS3 HFFR*800	CREALEN-EP15G2HS3 HFFR*800
		PP 30% GF, HFFR, natural	PP 10% GF, HFFR, natural
Mechanical Properties	Specific gravity	1,35	1,10
	Mold shrinkage, (MD) [%]	0,7	0,8
	Mold shrinkage, (TD) [%]	0,7	0,9
	Izod, notched [kJ/m2]	11	7
	Charpy, notched [kJ/m2]	10	7
	Charpy, unnotched [kJ/m2]	40	30
	Tensile Modulus [MPa]	8000	3300
	Tensile Strength [MPa]	75	45
	Elongation at break [%]	3,5	4,5
	Flexual Modulus [MPa]	7700	2900
	Flexual Strength [MPa]	110	60
Flow	MFR: 2.16 kg, 230 °C [g / 10 min]	4	9
FR Properties	UL94 @ 0.75 mm	V-2	V-2
	UL94 @ 1.5 mm	V-0	V-0
	UL94 @ 3.0 mm	V-0	V-0
	GWFI @ 0.8 mm	960	900
	GWIT @ 0.8 mm	825	800
	GWFI @ 2.0 mm	960	960
	GWIT @ 2.0 mm	875	825

Why Flame Retardant PP vs Polyamides

		CREALEN-EP15G6HS3/ HFFR*800	CREALEN-EP15G2HS3/ HFFR*800	CREAMID-A3H2G-6FRS*800	CREAMID-B3H2G-3FR*9200
		PP 30% GF, HFFR, natural	PP 10% GF, HFFR, natural	PA66 30% GF, HFFR, natural	PA6 15% GF, HFFR, black
Mechanical Properties	Specific gravity	1.35	1.10	1.42	1.30
	Mold shrinkage (MD) [%]	0.7	0.8	0.3	0.6
	Mold shrinkage (TD) [%]	0.7	0.9	1.3	1.2
	Charpy, notched [kJ/m2]	10	7	9/9	6/6
	Charpy, unnotched [kJ/m2]	40	30	45/45	42/42
	Tensile Modulus [MPa]	8000	3300	10700/9000	6600/4900
	Tensile Strength [MPa]	75	45	145/125	105/80
	Elongation at break [%]	3.5	4.5	3/3	3.4/4.5
	Flexural Modulus [MPa]	7700	2900	9600/7500	3700/1800
	Flexural Strength [MPa]	110	60	180/150	145/110
Flow	Spiral flow @ 1000 bar	260 mm @ 220 °C	360 mm @ 220 °C	320 mm @ 290 °C	215 mm @ 260 °C
FR Properties	UL94 @ 0.75 mm	V-2	V-2	V-1	V-0
	UL94 @ 1.5 mm	V-0	V-0	V-0	V-0
	GWFI @ 0.8 mm	960	900	960	-
	GWIT @ 0.8 mm	825	800	800	-

Why CREALEN PP vs. Polyamides?

- ☑ No conditioning
- ☑ Better hard-soft compatibility compared to PA
- ☑ Lower processing temperature compared to PA
- ☑ Lower Smoke Density
- ☑ Better moisture and acid resistance compared to PA
- ☑ Significantly lower CO_2 footprint compared to PA

TEKNOR APEX

Teknor Apex is a leading global supplier of specialty thermoplastic compounds with solutions tailored for your unique application needs.

You can rely on Teknor Apex for high levels of service and support from concept to launch; in design, prototyping and process optimization. Our product portfolio spans a broad spectrum of thermoplastic performance, and with industry leading technologies we provide you optimized solution meeting your performance and cost requirements.

Our expertise lies in designing solutions to address unique application requirements that cannot be met using standard materials. If you're facing performance issues with an existing part or looking for the right material for a new design, contact us for a custom solution.

Contact Teknor Apex to begin customizing your solution today.

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About Teknor Apex

The Teknor Apex Company, a privately-owned company founded in 1924, is one of the world's leading customer-specific plastic compounders. Teknor Apex produces flexible and rigid vinyl, thermoplastic elastomers, polyamides, specialty compounds, color masterbatches, chemicals and garden hoses.

The company is based in Pawtucket, RI, USA. It operates fourteen production plants worldwide: in the United States, Belgium, Germany, China and Singapore.

Industries Served

- TRANSPORTATION
- CONSUMER PRODUCTS
- BUILDING & CONSTRUCTION
- MEDICAL
- INDUSTRIAL
- PACKAGING
- ELECTRICAL & ELECTRONICS