

## ELECTRICAL & ELECTRONIC APPLICATION PROFILE

# Electrical Connectors

Ascend Performance Materials' high-performance nylon 6,6 compounds are ideal for electrical and electronic (E&E) applications. With over 150 grades with more than 100 UL approvals and VDE recognition, Vydyne<sup>®</sup> grades for E&E applications are designed to meet ever stricter regulatory requirements, including fire and safety standards. Vydyne grades provide superior mechanical and thermal performance while maintaining dimensional integrity, and exhibit excellent flow and moldability for complex designs.

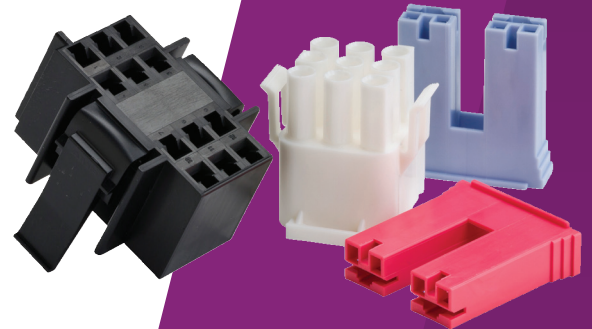
**Products Used:** 21SPF, 20NSP, ECO315J, ECO366, ECO366H, R515J, R535J, FR350J

### Application Description

Electrical current produces heat, and the connectors, wires and other infrastructure used to direct the flow of electricity must withstand persistent exposure to elevated temperatures. Furthermore, given the potential hazards should electrical systems fail, how a material behaves during a failure is vitally important. And as electrical components find their way into more everyday applications, miniaturization, thin walls and reliable molding and processability become increasingly important.

### Applications

- Electrical and electronic applications
  - Household electrical devices
  - Unattended appliances
  - PV panels
- Automotive applications
  - Hybrid and electric auto batteries
  - Multicircuit systems
  - EV charger plugs and face covers
  - Airbag housings
  - Interface modules
  - Automotive onboard component sensors



## The Vydne Difference

Vydne PA66 grades exhibit outstanding dielectric strength and electrical insulation properties. Superior flow makes it possible to mold thinner wall sections for smaller parts without sacrificing strength or toughness. Vydne quality can also lower costs by reducing cycle times and molding reject rates. For non-halogenated V-0 flame rated electronic applications, ECO315J, ECO366 and ECO366H meet the challenge without losing processing performance. FR350J for unattended appliances meets all these requirements plus IEC 60335-1 750°C glow wire on molded parts with no flame (<2 seconds).

## Benefits

- High electrical tracking resistance (CTI)
- High dielectric strength
- Electrical insulating properties
- Excellent flow
- Chemical resistance
- Excellent heat resistance
- Non-halogenated V-0 flame ratings
- Excellent mechanical strength
- Excellent ductility
- Good long-term heat stability
- Colorable at the press
- Superior GWIT
- Low contact corrosion

## Product Properties

21SPF, 20NSP, ECO315J, ECO366, ECO366H, R515J, R535J, FR350J										
Property	Test Method	Units	21SPF	20NSP	ECO315J	ECO366	ECO366H	R515J	R535J	FR350J
Density	ISO 1183	g/cm <sup>3</sup>	1.14	1.14	1.16	1.17	1.17	1.24	1.41	1.31
Tensile Strength @ Break	ISO 527-2	MPa	88	95	75	80	83	120	209	70
Tensile Elongation @ Break	ISO 527-2	%	20	13	25	5	6	3	2.8	15
Notched Charpy Impact @ 23°C	ISO 179/1eA	kJ/m <sup>2</sup>	6	6	5.4	3.4	3.4	6.0	12	4.3
Notched Charpy Impact @ -30°C	ISO 179/1eA	kJ/m <sup>2</sup>	5	5	5.4	3.7	3.7	6.0	11	NA
Flammability @ 0.4 mm <sup>†</sup>	UL 94	NA	V-2	V-2	V-0	V-0	V-0*	HB	HB	V-0*
RTI Electrical @ 0.4 mm <sup>†</sup>	UL 746B	°C	130	130	130	120	150	120***	120***	130
RTI Strength @ 0.4 mm <sup>†</sup>	UL 746B	°C	75	75	100	105	130	115***	125***	110
Dielectric Strength	IEC 60243	kV/mm	26	26	13	17	20	24	20	17
Volume Resistivity	IEC 60093	ohms-cm	1.0 E+13	1.0 E+10	1.0 E+11	1.0 E+10	1.0 E+19	1.0E+13	1.0E+14	1.0E+18
CTI	IEC 60243	V	>600	>600	>600	>600	>600	>600	>600	250 to 399
GWIT @ 0.4 mm	IEC 60335-1	°C	825	825	875**	960	960	NA	775***	960*

All properties dry as molded (DAM) <sup>†</sup>Except as otherwise noted \*@ 0.2 mm \*\*@ 0.38 mm \*\*\*@ 0.75 mm

For more information, contact our expert applications specialists or visit [ascendmaterials.com](http://ascendmaterials.com).



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