ARCEL ADVANCED FOAM RESIN

Technical Data Sheet

Anti-Static Coatings

Introduction

NOVA Chemicals guide on anti-static coatings for ARCEL® advanced foam resin

Like most plastics, ARCEL resin is an electric insulator and must be surface modified in order to dissipate static electricity. The formulations described herein will significantly lower the surface resistivity of ARCEL resin and reduce friction induced charging, or tribocharging.

The following recommendations will aid molders and OEMs to lower risks associated with spark discharges, material conveying (hang ups) and dust/dirt pickup, without adversely affecting foamed part properties.

Procedure

This procedure was used to achieve the predictable range of surface resistivity:

- Disperse or dissolve anti-static additive in isopropyl alcohol to achieve 10 wt% solution of anti-static additive
- Spray 10 wt% solution onto ARCEL resin pre-puff to desired anti-static solids loading
- Age and mold samples under normal ARCEL resin conditions

Testing

- Condition molded samples for a minimum of 40 hours at 70°F (21 °C) and 50% humidity
- Monitor surface resistivity using ASTM D257 method

Technical Disclaimer

- Permitted to use choice of wt% of the coating solution for loading on prepuff as long as it does not adversely affect ARCEL foam properties
- Permitted to use choice of application method as long as it does not adversely affect ARCEL foam properties
- It is recommended to verify that the final part meets the requirements of the end use application
- Results will vary depending on atmospheric conditions (humidity and temperature)

Anti-Static Coatings *cont'd*

Anti-Static Additive	Manufacturer	Loading	Surface Resistivity (ohms/square)	
		(wt% solids)	48 hours	4 weeks
ARCEL resin	NOVA Chemicals	---	infinity	infinity
ATMER® 163	Croda	0.5	7.5×10^9	5.0×10^8
		1.0	3.0×10^7 to 5.5×10^9	2.3×10^8
LAROSTAT® 264A	BASF	0.5	1.7×10^9	2.0×10^8
		1.0	2.8×10^9	4.0×10^8
ARQUAD® 2HT-75	Akzo Nobel	0.5	4.7×10^9	4.0×10^9
		1.0	4.0×10^9	5.0×10^9

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Surface resistivity data was obtained using an ETS - Surface Resistivity Probe Model 803A, Beckman Industrial - Megohmmeter Model L10A, and acrylic insulated plane for surface resistivity

Reference the ARCEL resin MSDS for additional handling information.