

CHEMISTRY THAT MATTERS™



NORYL™ SA9000 RESIN SOLUBILITY GUIDE

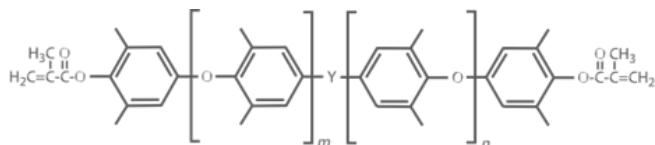
SOLUBILITY IN ORGANIC SOLVENTS

SABIC's Specialties Business
Thermosets & Additives
May 2019

GENERAL BUSINESS USE

NORYL™ SA9000 RESIN

PRODUCT DATA



NORYL SA9000 RESIN

NORYL SA9000 resin is a modified, low molecular weight, bi-functional oligomer based on polyphenylene ether (PPE) with vinyl end-groups. It can be used with other unsaturated monomers and resins which cure via free radical reactions. These include styrenic, allylic, acrylic, maleimide, methacrylic, and unsaturated polyesters monomers and resins. It has a low solution viscosity and outstanding solubility in toluene & methyl ethyl ketone (MEK). Key application areas are in electronic packaging which include PCB laminates, copper clad laminates, non-epoxy prepregs, and adhesives. The use of NORYL SA9000 resin may be especially advantageous in insulating materials where very low dielectric properties and decreased moisture absorption are required.

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
THERMAL			
Tg (half width)	160	°C	SABIC method
PHYSICAL			
Specific Gravity	1.02	-	ASTM D 792
Physical Form	POWDER	-	SABIC method
Intrinsic Viscosity	0.09	dl/g	SABIC method
Phenolic End-group Content	300	ppm	SABIC method
Vinyl Functionality	1.9	-	SABIC method
Solubility, Toluene (21°C)	50	wt%	SABIC method
Solubility, Methyl Ethyl Ketone (21°C)	50	wt%	SABIC method
Mn	2300	-	SABIC method
Viscosity, 50 wt% in toluene, 25°C	298	cP	SABIC method
Viscosity, 50 wt% in methyl ethyl ketone, 25°C	160	cP	SABIC method

SOLUBILITY OF NORYL™ SA9000 RESIN IN COMMON SOLVENTS

Solubility was determined by dissolving 30 wt.% NORYL SA9000 resin in the listed solvent at ambient temperature and with agitation for 1 hour.

Solvents	Solubility of NORYL™ SA9000 resin	Solution stability after 7 days
Aromatic		
Toluene	Y	Clear
Anisole	Y	Clear
Xylene	Y	Clear
Alcohols		
Methanol	N	
Ethanol (denatured)	N	
Butanol	Y (@ 118°C)	Settled
Isopropyl alcohol	N	
Ethylene glycol	N	
Ketones		
Acetone	N	
Methyl ethyl ketone (MEK)	Y	Cloudy
Cyclohexanone	Y	Clear
Methyl isobutyl ketone (MIBK)	Y	Clear
Esters		
Methyl acetate	Y	Cloudy
Ethyl acetate	Y	Cloudy
Butyl acetate	Y	Cloudy
Isopropyl acetate	Y	Cloudy
Amyl acetate	Y	Cloudy
Polar aprotic solvents		
N,N-dimethyl formamide (DMF)	N	
N,N-dimethyl acetamide (DMAc)	Y	Cloudy
N-methyl pyrrolidone (NMP)	Y	Cloudy
Acids		
Acetic acid	N	
Ethers		
Dioxane	Y	Clear
2-methoxyethanol	N	
Tetrahydrofuran	Y	Clear
Ethylene glycol monobutyl ether	N	
2-ethoxyethyl acetate	Y	Clear
Monomers		
Methyl methacrylate	Y	Clear
Methyl acrylate	Y	Clear
Ethyl acrylate	Y	Clear
Butyl acrylate	Y	Clear



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