

CHEMISTRY THAT MATTERS™

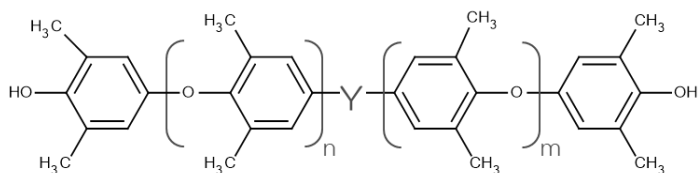


NORYL™ SA90 RESIN
SOLUBILITY GUIDE
SOLUBILITY IN ORGANIC SOLVENTS

SABIC's Specialties Business
Thermosets & Additives
May 2019

GENERAL BUSINESS USE

NORYL™ SA90 RESIN – PRODUCT DATA



NORYL SA90 RESIN

NORYL SA90 resin is a low molecular weight bi-functional oligomer with increased hydroxyl functionality based on polyphenylene ether (PPE). It can be used as a reactive component in epoxy, cyanate ester, and urethane thermosets in electronics, coatings, adhesives, and composites applications. It has outstanding solubility in toluene & methyl ethyl ketone (MEK) and a low solution viscosity. Targeted application areas include enhancing the performance (e.g. thermal, dielectric, mechanical, flame retardancy, and moisture uptake properties) of epoxy resins used in electronic packaging which include PCB laminates, copper clad laminates, epoxy prepregs, and protective coatings as well as various other composites applications. NORYL SA90 resin can also be blended with thermoplastic elastomers and cured elastomers to enhance properties.

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
THERMAL			
Tg (half width)	140	°C	SABIC method
PHYSICAL			
Specific Gravity	1.02	-	ASTM D 792
Physical Form	PELLET	-	SABIC method
Intrinsic Viscosity	0.09	dl/g	SABIC method
Phenolic End-group Content	21500	ppm	SABIC method
Hydroxy Equivalent Weight (HEW)	840	g/mol	SABIC method
Solubility, Toluene (21°C)	50	wt%	SABIC method
Solubility, Methyl Ethyl Ketone (21°C)	50	wt%	SABIC method
Mn	1600	-	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™ SA90 RESIN IN COMMON SOLVENTS

Solubility was determined by dissolving 30 wt.% NORYL SA90 resin in the listed solvent at ambient temperature and with agitation for 1 hour.

Solvent	Solubility of NORYL™ SA90 resin	Solution stability after 7 days
Aromatic		
Toluene	Y	Clear
Anisole	Y	Clear
Xylene	Y	Cloudy
Alcohols		
Methanol	N	
Ethanol (denatured)	N	
Butanol	N	
Isopropyl alcohol	N	
Ethylene glycol	N	
Ketones		
Acetone	N	
Methyl ethyl ketone (MEK)	Y	Cloudy
Cyclohexanone	Y	Clear
Methyl isobutyl ketone (MIBK)	Y	Cloudy
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)	Y @ 75 °C	Settled
N,N-dimethyl acetamide (DMAc)	Y	Cloudy
N-methyl pyrrolidone (NMP)	Y @ 60 °C	Settled
Acids		
Acetic acid	N	
Ethers		
Dioxane	Y	Cloudy
2-methoxyethanol	N	
Tetrahydrofuran	Y	Cloudy
Ethylene glycol monobutyl ether	Y @ 120 °C	Settled
2-ethoxyethyl acetate	Y	Cloudy



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