

# CONATHANE® EN-21

Polyurethane  
Cytec Industries Inc.

Message:

CONATHANE EN-21 is a two-component, liquid, low viscosity, low toxicity, room temperature curing polyurethane resin system. This system was formulated specifically for the potting, casting, embedding, and encapsulation of electronic circuits, components, and power devices. It is UL 94 HB certified.

CONATHANE EN-21 is an easy-to-use, non-TDI, non MbOCA system. It can be hand mixed or machine dispensed and cured at room or elevated temperatures. CONATHANE EN-21 cures to yield an 80 Shore A elastomer and has the following outstanding characteristics:

Excellent Electrical Properties  
Low Toxicity  
Low Viscosity  
Low Exotherm and Low Shrinkage  
Easy Handling  
Low Stress Build-up on Embedded Components  
Reversion Resistance  
Excellent Moisture Resistance

CONATHANE EN-21 is ideal for use in potting transformers, coils, reed and mercury switches, inductors, solid state ignition systems, voltage regulators, ballasts, micro-circuits, rectifiers and printed circuit assemblies.

General Information		
UL YellowCard	E69804-249047	
Features	Good Electrical Properties	
	Good Thermal Shock Resistance	
	Hydrolytically Stable	
	Low Toxicity	
	Low Viscosity	
	Moisture Resistant	
Uses	Electrical Parts	
	Electrical/Electronic Applications	
Agency Ratings	MIL I-16923E	
Appearance	Clear Amber	
Forms	Liquid	
Processing Method	Casting	
	Encapsulating	
	Potting	
Physical	Nominal Value	Unit
Specific Gravity		
-- 1	0.958	g/cm <sup>3</sup>
-- 2	1.07	g/cm <sup>3</sup>
-- 3	1.14	g/cm <sup>3</sup>
Water Absorption (25°C, 24 hr)	0.070	%

Viscosity			
Hardener : 25°C	800	mPa·s	
Resin : 25°C	6000	mPa·s	
Gel Time			
25°C <sup>4</sup>	1.5	hr	
60°C	0.3	hr	
Peak Exotherm	69	°C	
Linear Shrinkage	1.4	%	
Hardness	Nominal Value	Unit	
Durometer Hardness (Shore A)	80		
Elastomers	Nominal Value	Unit	
Tensile Strength (Yield)	13.8	MPa	
Tensile Elongation (Break)	160	%	
Tear Strength	20.8	kN/m	
Compression Set <sup>5</sup>	10	%	
Thermal	Nominal Value	Unit	
CLTE - Flow	3.8E-4	cm/cm/°C	
Thermal Conductivity	0.30	W/m/K	
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	
Volume Resistivity	7.2E+14	ohms·cm	
Dielectric Strength (1.59 mm)	26	kV/mm	
Dielectric Constant (1 kHz)	3.40		
Dissipation Factor (1 kHz)	0.017		
Insulation Resistance	> 2.5E+13	ohms	
Flammability	Nominal Value	Unit	Test Method
Flame Rating	HB		UL 94
Thermoset	Nominal Value	Unit	
Thermoset Components			
Hardener	Mix Ratio by Weight: 120		
Resin	Mix Ratio by Weight: 100		
Pot Life			
25°C <sup>6</sup>	40	min	
60°C	8.0	min	
Thermoset Mix Viscosity			
25°C	2000	cP	
60°C	320	cP	
Demold Time			
25°C	10000	min	
80°C	240	min	
NOTE			
1.	Hardener		

2.	Mixed
3.	Resin
4.	250 gms
5.	Method B
6.	250 gms

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