

CONATHANE[®] UC-49

TECHNICAL PRODUCT BRIEF



DESCRIPTION

CONATHANE UC-49 is a liquid, two-component, unfilled urethane resin system that produces tough, high-impact resistant, dimensionally stable castings. UC-49 is used to produce prototype parts requiring a "thermoplastic" feel and appearance. The use of UC-49 as a prototyping material will cut costs by reducing the high expense of tooling normally required for a thermoplastic. It is economical to produce prototype parts and limited production runs using CONATHANE UC-49.

Features	Benefits
<ul style="list-style-type: none">• Good for small runs• Low shrinkage• Low viscosity• Convenient mix ratio• Room temperature curing	<ul style="list-style-type: none">• No expensive dispensing equipment needed• Good reproductively• Easy to cast parts• Easily weighed and mixed• Curing flexibility

CONATHANE UC-49 will cure at room or elevated temperatures. Even at room temperature it is possible to make several castings per mold in one day. The low shrinkage and viscosity of CONATHANE UC-49 enables the production of precision cast parts with excellent detail.

CHARACTERISTICS AND PROPERTIES

Table 1 | Product Description

Property	Prepolymer PART A	Curative PART B	Test Method
Viscosity @ 25°C (77°F)	290 cps	400 cps	ASTM D2393
Specific Gravity @ 25°C (77°F)	1.17	0.97	ASTM D792
Color	Clear Amber	Clear Amber	Visual

Table 2 | Processing Parameters

Property	Value
Mix ratio by Weight, Prepolymer/Curative (Part A/Part B)	100 / 100
Mix ratio by Volume, Prepolymer/Curative (Part A/Part B)	100 / 120
Initial Mixed Viscosity @ 25°C (77°F) @ 60°C (140°F)	400 cps 250 cps
Pot life @ 25°C (77°F) @ 60°C (140°F)	8 minutes 5 minutes
Demold Time @ 25°C (77°F) @ 60°C (140°F)	75 minutes 25 minutes
Cure @ 80°C (176°F)	16 hours
Alternate Cure @ 25°C (77°F)	7 days

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Thoroughly mix the two components together at the recommended ratio. To prevent entrapment of air stir carefully at 25°C (77°F). If air entrapment is excessive, degas the mixture for 2-3 minutes at 1-5 mm of Hg vacuum. If mixing and stirring is done carefully, degassing of the mixed material may not be necessary.

CONATHANE UC-49 has very good adhesion to most substrates and generally will not require the use of a primer. If adhesion improvement is necessary, contact Cytec for specific recommendations. If the cast part is to be demolded after cure, apply a CONAP[®] mold release agent prior to casting. Castings can generally be demolded in 4 hours at room temperature.

Table 3 | Cured Properties

Property	Value	Test Method
Color	White	Visual
Appearance	Opaque	Opaque
Hardness, Shore D	78	ASTM D2240
Tensile strength, psi Cured @ 25°C (77°F) Cured @ 80°C (176°F)	4,900 5,600	ASTM D638
Linear shrinkage, in/in. Cured @ 25°C (77°F) Cured @ 80°C (176°F)	0.0012 0.0062	ASTM D2566
Heat Distortion Temperature, °C – 66 psi / 264 psi Cured @ 25°C (77°F) Cured @ 80°C (176°F)	54 / 54 55 / 59	ASTM D648
Elongation, % Cured @ 25°C (77°F) Cured @ 80°C (176°F)	5 5	ASTM D412
Tear Strength, Die C, pli Cured @ 25°C (77°F) Cured @ 80°C (176°F)	335 390	ASTM D264
Flexural Modulus (psi) Cured @ 25°C (77°F) Cured @ 80°C (176°F)	167,000 185,000	ASTM D790
Flexural Strength (psi), Cured @ 25°C (77°F) Cured @ 80°C (176°F)	6,800 7,300	ASTM D790
Impact Strength, ft.-lb/in., Notched / Unnotched Cured @ 25°C (77°F) Cured @ 80°C (176°F)	0.50 / 4.50 0.45 / 3.20	ASTM D256
Specific Gravity @ 25°C (77°F)	1.06	ASTM D792

HANDLING AND STORAGE INSTRUCTIONS

Both the Part A and Part B components of CONATHANE UC-49 are moisture sensitive. Avoid the use of paper cups and wooden sticks. Unless the contents are used within one day, we recommend

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flushing with dry nitrogen or CONAP[®] DRI-PURGE each time the containers are closed.

CONATHANE UC-49 Part A and Part B have a shelf life of 18 months from date of manufacture when stored in their original, unopened containers at 65°F-85°F.

CAUTION: FOR INDUSTRIAL USE ONLY !

Do not take internally. This product contains an isocyanate-based prepolymer and metal catalysts which are harmful if swallowed. Use only in well-ventilated areas. Avoid breathing of vapors and protect skin and eyes from contact with material.

Should skin contact occur, wash immediately with soap and water. For eye contact, immediately flush with plenty of water and obtain medical attention.

AVAILABILITY

CONATHANE UC-49 is available in the following unit packaging:

<u>GALLON UNITS</u>		<u>5-GALLON UNITS</u>		<u>55-GALLON UNITS</u>	
1-Gallon Part A	8 Lbs.	1 x 5-Gallon Part A	40 Lbs.	1 x 55-Gallon Part A	450 Lbs.
1-Gallon Part B	<u>8 Lbs.</u>	1 x 5-Gallon Part B	<u>40 Lbs.</u>	1 x 55-Gallon Part B	<u>450 Lbs.</u>
Total Unit Weight	16 Lbs.	Total Unit Weight	80 Lbs.	Total Unit Weight	900 Lbs.

An evaluation kit is available for a nominal fee.

CAUTION: Responsible handling of Cytec Industries Inc. products requires a thorough review of safety, health, and environmental issues prior to use. Review the Material Safety Data Sheets(s) for the specific Cytec Industries Inc. product(s) and container label information before opening containers. Ensure that employee exposure issues are understood, communicated to all workers, and controls are in place to prevent exposures above Permissible Exposure Limits (PELs). Review safety and environmental issues to be certain controls are in place to prevent injury to employees, the community, or the environment, and ensure compliance with all applicable Federal, State, and Local laws and regulations. For assistance in this review process, please call your Cytec Industries Inc. representative or our office noted below.

CONTACT INFORMATION

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