


# Innothane®

**Product Name**                      **InnoTuf® TP-4014**  
**Impact Resistant/Flame Retardant**

**Description**                      TP-4014 is an impact resistant polyurea formulated for vacuum assisted or meter-mix dispensing methods. Excellent physical properties can be obtained without the utilization of mercury, MOCA, or TDI. TP-4014 is a U.L 94vO registered flame retardant polyurethane. It also meets the standards to pass FAR 25.853.

**Physical Properties**

<b>Mix Ratio</b>	Resin:Hardener (parts by weight)	<b>100:50</b>		
<b>Mix Ratio</b>	Resin:Hardener (parts by volume)	<b>100:48</b>		
<b>Viscosity</b> (cps@100°F)	Resin	1050	<b>Gel Time</b>	12.5 ± 2.5 Minutes
	Hardener	200	<b>Demold Time*</b>	1 Hour at 150°F
	Mixed	700	<b>Color</b>	Amber
<b>Specific Gravity</b> (g/cc)	Resin	1.23	*Demold time is always mass dependant	
	Hardener	1.27		

**Cured Properties**

Cure 1 ► 1 hour at 150°F + 24 hours at 77°F  
 Cure 2 ► 7 days at 77°F



	Method	Cure 1	Cure 2
<b>Hardness (shore D)</b>	ASTM D-2240	70 ± 5	70 ± 5
<b>Tensile Strength (psi)</b>	ASTM D-638	4,000	5,500
<b>Elongation at Break</b>	ASTM D-638	70%	55%
<b>Ultimate Flex Strength (psi)</b>	ASTM D-790	6,400	4,800
<b>Flexural Modulus (psi)</b>	ASTM D-790	150,000	110,000
<b>Notched Izod (ft.lbs./in.)</b>	ASTM D-256	3.0	2.5
<b>Linear Shrink (in./in.)</b>	ASTM D-2566	.001-.005	.001-.005
<b>Heat Deflection Temp. (66psi)</b>	ASTM D-648	110°C / 230°F	105°C / 221°F
<b>Heat Deflection Temp. (264psi)</b>	ASTM D-648	89°C / 192°F	85°C / 185°F
<b>Specific Gravity (g/cc)</b>		1.23	1.23

## **Processing Notes**

Formulated for hand-batch equipment. For best results, de-air the material prior to casting, then pressurize to 60 psi until cured. The hardener component will darken as it ages. It is recommended that dry nitrogen be used to protect the material from oxidizing and being moisture contaminated.

**Agitate the hardener and resin before use to ensure that the formula is homogeneous.**

## **Kit Weights**

**Quart Kits**

**1 Gal. Kit**

**5 Gal. Kit**

**Drum Kit**

**3 lbs.**

**12 lbs.**

**60 lbs.**

**675 lbs.**

## **Safety and Handling**

DO NOT USE UNTIL MSDSs HAVE BEEN READ AND UNDERSTOOD. Store containers in a dry location. Partially used containers should be blanketed with dry nitrogen to prevent moisture contamination. Moisture will react with the resin component, creating carbon dioxide gas and a possible pressure increase in the container.

SPECIFICATION WRITERS: The above values are meant to represent typical properties only. Users are encouraged to qualify products in their own laboratories prior to specification publication.

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