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## Room-Temp-Pourable Polyurethane for Custom Skate Wheels

Tough, Resilient, High-Rebound, Room-Temp Pourable Polyurethane Resin Formulations



When wheels for roller skates, skateboards, and inline skates are designed, the choice of wheel materials is very important. The material must have a good rebound property. It must be resilient for the grip and comfortable rides, and it must also be abrasion resistance for longevity.

High-Performance PTMEG based polyurethane casting resin formulas are very often used for this application. However, the manufacturing process can be very difficult without using an elaborate set of expensive manufacturing equipment. For a small custom manufacturing operation, such a large investment can be very difficult.



Northstar Polymers has developed a series of PTMEG based polyurethane casting resin formulations that can be mixed and poured at room temperature. The formulation allows longer pot life to allow manual mixing and degas at room temperature. The resin is then cast into a heated mold and post cured in an oven. The physical properties of these formulas are close to those of the high-performance PTMEG formulations.



The natural color of the cured material is opaque from yellow creamy color to a light orange color, and it can easily be colored into your desired color. The

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picture on the right is the typical natural color of the cured piece. The picture of the 5 colored samples above shows pigmented appearance.

This series of polyurethane casting resin formulations consists of five different formulations for the common hardness ranges used for skate wheels. The typical physical properties are shown in the following chart.

<i>Formulation Code</i>	<i>Hardness (Durometer)</i>	<i>Bashore Rebound</i>	<i>Tear Strength Die-C (pli)</i>	<i>Applications may be suited</i>
<a href="#"><u>MGB-A75E</u></a>	75 – 80A	59%	389	Inline Skate Wheels Long Board Wheels Cruise Board Wheels Roller Skate Wheels
<a href="#"><u>MGB-A80E</u></a>	80 – 85A	58%	504	Roller Skate Wheels Inline Skate Wheels Cruise Board Wheels Long Board Wheels
<a href="#"><u>MGB-A90E</u></a>	85 – 90A	53%	430	Scooter Wheels Skateboard Wheels Roller Skate Wheels
<a href="#"><u>MGB-A95E</u></a>	90 – 95A	46%	552	Fast Rolling Skateboard Wheels Scooter Wheels Other Wheels Requiring good tear resistance
<a href="#"><u>MGB-D53E</u></a>	50 – 55D	46%	384	Skateboard Wheels Requiring Very Fast Rolling and Quick Response Other Wheels Requiring

Notes: The above data is based on our lab tests and reference only. Bashore Rebound test shows the rebounding distance of a small pendulum off from the specimen. Harder grade material may have better rebounding values against stronger forces.

## General Processing Information

These formulations are specifically designed for small manufacturing operations of custom products. The raw chemical components are liquid at room temperature. The mixing ratios are metered manually by weight. The pot life is a 5-to-10-minute range, which should allow degassing and pouring without the use of an inline-meter-mix dispensing machine. The mold needs to be heated to the 110 °F to 140 °F range. The curing material in the mold can develop the demolding strength for 1 to 2 hours. The demolded parts should be post-cured in an oven heated to the 180 °F to 200 °F range for at least 4 hours. The material gradually settles to the final physical properties in about 2 to 3 days stored at room temperature.





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## Coloring Your Product

The component materials are supplied without colorant. The processors need to add colorant(s) to apply the desired color to the product. Pigment dispersion type colorants carried in polyether polyols is recommended for coloring these materials. The starting-point load of colorant should be approximately 0.3% to 1.0% by weight of the total batch. You may adjust the concentration based on the color strength of the colorant you use.

## General Safety Information

Be sure to operate in a large production area with a good airflow, or otherwise a well-ventilated area. While handling the component materials, wear rubber gloves, long sleeves, and protective eyewear to avoid skin/eye contact. The part-A components for these formulations are isocyanate (MDI) prepolymers. It is generally known that MDI is less likely to surpass the OSHA threshold for the isocyanate concentration in the workplace air (0.02 ppm) while it is handled in a large production area with good airflow or a well-ventilated area. Please read the Safety Data Sheet (SDS) for each component material for the details on safety and handling.

## Standard Packages

Pail Kit: 40 pounds of part-A in a 5-gallon pail and approximately 3 to 5 pounds of part-B in a tin can  
Drum Package: 450 pounds loaded in a 55-gallon drum

## Materials for Higher Production Rate

These formulations are specifically made to service smaller productions with manual casting processes. We also carry high-performance PTMEG polyurethane casting systems in the range for larger operations with an inline meter dispensing machine in larger industrial settings. Please refer to [this page \(https://northstarpolymers.com/high-performance-polyurethane-systems.html\)](https://northstarpolymers.com/high-performance-polyurethane-systems.html) for more information and the datasheets.

For any questions, please contact Northstar Polymers.

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