



Northstar Polymers (Div. of Tandem Products, Inc.)
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Technical Data Sheet

Low Viscosity Polyurethane Gel Casting System

(Product Code: GK-7)

Prepolymer (Part-A): MPG-023 Curative (Part-B): PNC-153

This material is formulated for production of thin polyurethane gel parts. The low viscosity property of the mixed component enables the user to cast this into thin layer without entrapping large amount of air. This product can be laminated in between films, molded in vertical mold, or cast on an open surface to make sheets. It is room-temperature-cure liquid castable system that can be processed without use of heat.

The suitable applications include custom gel sheets, tack pads, vibration dampening parts, and encapsulation of electric components. It is also suitable for many other custom applications where flexibility and some strength of the gel sheets or parts are required.

This material is not suitable for pouch filling application. We recommend MPP-V37A for pouch filling application where the material needs to cure within film encapsulation.

GK-7 (Low Viscosity Polyurethane Gel for Films and Sheets)

Part-A:	MPG-023
Part-B:	PNC-153
Mixing ratio:	A:B = 1: 10.2 by volume
	A:B= 1: 9.26 by weight

This formulation is made in such a way that a user can change the stickiness of the material by adjusting the mixing ratio. The stickiness changes from various processing parameters such as temperature, thickness, and substrate material. We suggest starting at 100: 926 = part-A: part-B ratio using your set up, and then adjust the ratio if the stickiness is not within your acceptable range. A higher part-B ratio makes a stickier product, and a lower part-B ratio makes a less sticky product. You can test it in the increments of 2 to 3% by weight of part-B to see the changes. The part-B ration variation should be within 10% from the starting point ratio.

Processing Temperature:

Part-A:	Ambient
Part-B:	Ambient
Mold:	Ambient
Pot-life:	8 - 10 minutes
Demolding Time:	8 hours
Complete Cure:	3 - 4 days

(The curing pattern can be modification by use of heat and catalyst variation.)

Part-A material has isocyanate material. They are highly moisture sensitive. Blanket the space in the container after the containers are opened. Please refer to the enclosed MSDS for the details on safety and handling the materials.

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The part-A component material could freeze at temperature slightly below room temperature. If you see gel-consistency within the part-A container, the material might have been frozen during the transportation or storage. Heat part-A to 140 – 160 °F to thaw. Then the component material should be stored at room temperature 70 – 86°F. Heating part-A material for a long time can cause increase of viscosity and color change. Consult Northstar Polymers for thawing method.

Typical Properties of Components

Part-A

Product Code:	MPG-023
Description:	Isocyanate terminated prepolymer extended with polyester polyol
%NCO:	18.6% (+/- 0.5)
Amine Equivalent	225.9
Specific Gravity:	1.112
Physical State at 25 °C (77 °F):	Liquid
Viscosity at 25 °C (77 °F):	900 cps (+/- 300)
Storage:	Store in a dry indoor storage at room temperature. The material is highly sensitive to moisture. After using the content, immediately inject dry nitrogen gas or -40° dew-point dry air into the container to blanket the material then store. Heat will accelerate the subsequent reaction within the material and shorten the shelf life of the material. Do not store at an elevated temperature.

Part-B

Product Code:	PNC-153
Description:	Curing agent based on a blend of polyols and additives
OH number:	37
Equivalent Weight:	1560
Specific Gravity:	1.024
Physical State at 25 °C (77 °F):	Liquid with slight haze
Viscosity at 25 °C (77 °F):	800 cps (+/- 300)
Storage:	Store in a dry indoor storage at room temperature. The material is hygroscopic. For long-term storage, inject dry nitrogen gas or -40° dew-point dry air into the container to blanket the material.

(The above data are typical values based on our lab tests.)

Storage:

Part-A component (prepolymer) contains isocyanate component, which is very much sensitive to moisture. If it is left in air, part-A will react with atmospheric moisture and will be ruined. This reaction is non-reversible. Soon after opening a can and dispensing the content, nitrogen gas or negative-40-degree-dew-point dry air needs to be injected to the can to blanket the material. Silica gel or calcium chloride desiccant filter should be installed to 55 gallon drum-vent for your drum





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feeding system. The storage temperature should be at a room temperature between 72 and 87 °F.

Part-A component freezes just below room temperature. The material may be frozen when you receive. Part-A component must be thawed immediately. If the material is left frozen for an extended period of time, a side reaction undergoes and the material will be ruined. The material temperature needs to reach 140 °F to be thawed. Please consult the instructions provided by Northstar Polymers for details.

Part-B component is hygroscopic. If the material is exposed to ambient air, it may absorb moisture. Moisture contaminated part-B material may become source of degradation or excessive bubbles in the product. Avoid exposure of the material to air. Purging the empty space in the container with nitrogen gas or negative-40-degree-dew-point dry air is also recommended to prevent moisture contamination of part-B as well; however most of the cases, keeping in an airtight container will be sufficient. Store it in a dry indoor storage at a room temperature between 65 and 85 °F. The moisture contamination of part-B material is reversible. By heating material to 160 - 180 °F and vacuuming it at about 29" Hg negative pressure for several hours will reduce the moisture level.

Safety:

The component materials are industrial-grade chemicals. Please keep them in a secure place and prevent access from any unauthorized individual. The personnel who handle these materials need to read the Material Safety Data Sheet (MSDS) for detail information on safety and handling of the material. The MSDS for each component is sent with the shipment of the material.

When using this material, be sure to operate in a wide-open area with good air movement, or in a well-ventilated area. Wear rubber gloves, long sleeves, and protective eyeglasses to prevent skin/eye contact of the material. When your operation involves heating or spraying of the material, we recommend, in addition to the above, installation of a proper ventilation system and/or using an appropriate type of respirator to prevent inhalation of the fume.

Direct contact of polyurethane raw materials to skin/eye, as well as ingestion may lead to health problems. No eating or smoking should be permitted at the working area. The operator should wash hands well with soap and water after handling the materials and follow the other procedures of the Standard Industrial Hygiene Practices. Please refer to the MSDS for each component for the detailed health information.

For any questions, please contact Northstar Polymers.

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