



Northstar Polymers (Div. of Tandem Products, Inc.)  
3444 Dight Avenue South, Minneapolis, MN 55406 USA  
Tel: (612)721-2911, Email: info@northstarpolymers.com

## Technical Data

# GK-22

## Polyurethane Gel for Adhesion Pad Applications

GK-22 is one of our polyurethane gel formulation designed to make soft sticky polyurethane gel for pressure-sensitive-adhesive type products. This 2-part cast urethane system can be manually processed easily at room temperature. There is no volatile compound within the component materials and no need to dry solvent. This material cures without relying on moisture or oxygen in atmosphere to cure, so this product can be made into any thickness.

Comparing to our other similar formulation GK-7, GK-22 provides stronger adhesion property. GK-22 may be more appropriate where heavier object needs to be held by the gel adhesive pad, or a sufficient adhesion is required within a limited amount of gel adhesive piece.

GK-7 may be more appropriate for: wall-tack product for holding paper, cell-phone/tablet PC holder, and anti-skidding pad on dashboard.

### Processing Parameters:

#### Designations

System Code:	GK-22
Part-A:	MPC-056 (Prepolymer)
Part-B:	PNA-216 (Curative)

#### Processing Temperatures

Component Temperature:	Room temperature (72 – 86 °F)
Substrate Temperature:	Room temperature (72 – 86 °F)
Post Curing Temperature:	Room temperature (72 – 86 °F)

Note: If this material is cast into a very thin layer, the material may not have enough heat energy to cure. You may need to heat the substrate/mold to 100 – 140 °F range to ensure the cure when it is made into a thin layer.





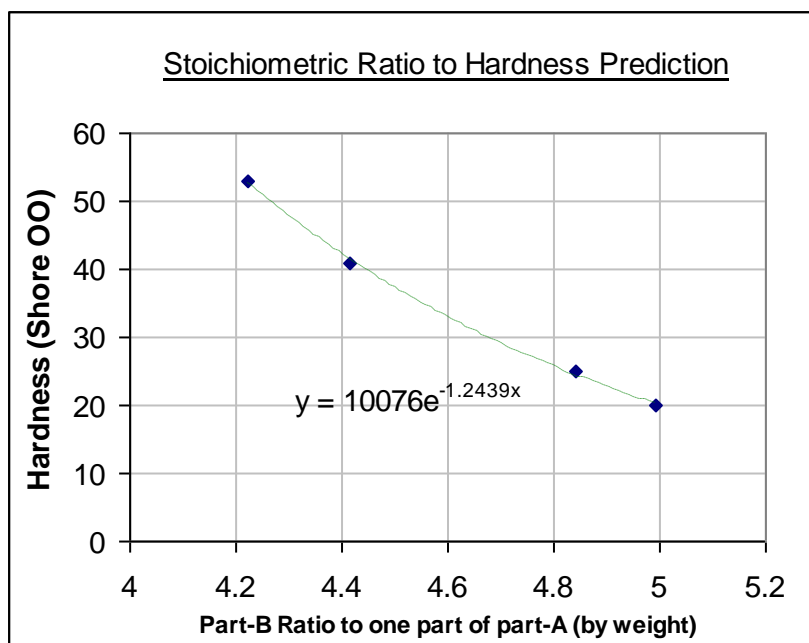
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Starting-Point Mixing Ratio:

Part-A: Part-B = 1.00: 4.66 by weight (**1.00: 5.00 by volume**)  
(Starting Stoichiometric Ratio: 100:126 = NCO: OH)

Note: This formulation is designed to allow users to adjust the tackiness and consistency of the product simply by adjusting the mixing ratio between part-A and part-B component. Larger part-B ratios make softer and stickier products. Please see the following charge as the reference point for your mixing ratio adjustment.

Reference: Mixing Ratio to Hardness Relation



(The above data is based on our lab test and reference only.)

Typical Properties of the components

Part-A

Product Code:	MPC-056 (Prepolymer)
Viscosity:	9,000 cps at 70 °F
NCO:	7.5 %
Equivalent Weight:	560
Specific Gravity:	1.077 g/cm <sup>3</sup>





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#### Part-B

Product Code:	PNA-216
Viscosity:	1,300 cps at 72 °F
Equivalent Weight:	2074
Specific Gravity:	1.003 g/cm <sup>3</sup>

#### Typical Curing Pattern:

Pot-Life: 12 -13 minute at 70 °F  
(The material may be too thick to pour at 10 minutes.)

Demolding Time: 2 hours at room temperature  
(Note: The material is solid at demolding time, but it will be very sticky.)  
Complete Cure: 4 to 6 days at room temperature  
(Can be cured at elevated temperature up to 180 °F for faster turnaround)

Note: The curing pattern is measured at 1:5 by volume mixing ratio. The material temperature, substrate material type, and ambient temperature affects the curing pattern. If specific curing pattern is required for your process, the curing pattern can be modified with use of different catalyst types and levels. Please consult Northstar Polymers for modification.

#### Other notes

The tackiness of the open-top surface and mold-contact (or film-contact) surface will be different. Also, the heat conditions of the raw materials, room, and substrate makes difference in tackiness of the material. Please adjust the mixing ratio to optimize the tackiness of your product based on your process.

If the mixing ratio is adjusted to make stickier material, the material also becomes softer. This also makes the physical properties of material weaker, which may lead to cohesive failure in certain applications. Also, by making a very soft material, it may leave residue on the contact surface. Please test for all possible conditions before marketing your product with this material.

Each component materials come with certain ranges of properties. There is a limitation for us to make the batches exactly the same each time. These lot-to-lot variations are not a significant issue with many applications. However, if your application requires tight specification ranges, you may need to adjust the mixing ratio to compensate the lot-to-lot variations.

#### Storage/Handling Information for the Component Materials





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Storage:

Part-A (Isocyanate Prepolymer) Component

Part-A component (prepolymer) contains isocyanate component, which is highly 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 the container to dispense the content, dry nitrogen gas or argon gas needs to be injected to the container to purge and blanket the top space. Please consult Northstar Polymers for nitrogen gas set-up information.

For gravity feeding system from a 55-gallon, silica gel or calcium chloride desiccant filter(s) should be installed to the vent-hole of the drum. A valve to inject dry nitrogen gas can be installed instead.

Store the containers a dry indoor storage within the temperature range between 72 and 90 °F. Avoid direct sunlight.

Part-B (Curative) Component

Part-B component is hygroscopic. If the material is exposed to ambient air, it absorbs moisture. Part-B component contaminated by moisture can become a source excessive bubbles in the product after mixed with part-A. Avoid exposure of the material to moisture in air.

Purging the empty space in the container with dry nitrogen gas, argon gas, or negative-40-degree-due-point dry air is also recommended to prevent moisture contamination of part-B as well. (However, simply keeping the material in an airtight container may also be sufficient depending on the moisture level of the work place.)

Store it in a dry indoor storage at a room temperature between 65 and 90 °F. Avoid direct sunlight.

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, and if you expect the isocyanate content level in the work place atmosphere may become above the threshold regulated by OSHA or by other appropriate working place safety standard, we recommend, in addition to the above, installation of a proper hooded dynamic ventilation system and/or using an appropriate type of respirator (such as a full-face respirator equipped with OSHA approved HEPA filters for particulate and organic vapor) 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.





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For any questions, please contact Northstar Polymers.

Tel: 612-721-2911.  
Fax: 612-721-1009  
Web Site: <http://www.northstarpolymers.com>  
E-Mail: [info@northstarpolymers.com](mailto:info@northstarpolymers.com)

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