

NTG-10

Polyurethane Gel Elastomer with Less Tacky Surface

NTG-10 is one of our polyurethane gel formulations to make a soft elastomeric material with a good cushioning effect, better strength, and a less tacky surface compared to the commonly available polyurethane gel formulations. NTG-10 may be suited to make shoe insoles, handle grips, and many other custom products.

The low viscosity values of the component materials allow easy handling and replication of an intricate mold surface design. The standard catalyst package allows a long pot life for ease of the process. The curing rate can be sped up by catalyst(s).

NTG-10 does not bottom out from compression as readily as foams. This formulation can be used in cushioning/padding products supplementing foam to support pressure points.

NTG-10 can also simulate many TPE (thermoplastic elastomer) class polymer parts. Whereas TPE polymers require high heat and high-pressure injection molding processes, NTG-10 can be processed at room temperature* in ambient pressure molds.

NTG-10 may be an ideal material for prototyping or simulating TPE parts.

(Note*: Although it can cure at room temperature, mold temperature of 120 – 190 °F is recommended for a less tacky surface.)



Physical Properties

<u>Physical Properties</u>	<u>Typical Values</u>
Hardness:	Shore OO 50 - 60 Durometer*
Elongation	677%
Tensile Strength	87.2 psi
Die-C Tear Resistance	25 pli
Bashore Rebound:	36%



Tandem Products, Inc., DBA Northstar Polymers
3444 Cheatham Avenue, Minneapolis, MN 55406
Tel: (612)721-2911 Ext 119
Email: info@northstarpolymers.com

Natural Color: Translucent with some haze and slight yellow tint

Designations

System Code:	NTG-10
Part-A (Isocyanate) Component:	MPB-028
Part-B (Curative) Component:	PPB-131

Processing Temperature

Part-A Component: Ambient
Part-B Component: Ambient

Mold Temperature: 120 – 190 °F

Note: If a large amount of catalyst is added to the components for a fast cure rate, heating the mold may not be necessary.

Ratio Information

Mixing Ratio: **21: 100 = Part-A: Part-B by Volume Ratio**
100: 449 = Part-A: Part-B Weight Ratio

NCO Index: 1.004

Note: This product is not recommended to be processed at varied mixing ratios.

Curing Pattern

Pot-Life:	10 to 15 minutes
Demolding Time:	2 hours at mold temperature 180 °F
Complete Cure:	3 to 5 days at room temperature

Note: Addition of catalyst(s) speeds up the curing pattern. Using TEDA (33% in DPG) and/or dibutyltin dilaurate (DBTDL) catalysts are recommended.





Tandem Products, Inc., DBA Northstar Polymers
3444 Cheatham Avenue, Minneapolis, MN 55406
Tel: (612)721-2911 Ext 119
Email: info@northstarpolymers.com

Component Materials (Typical Properties)

Part-A: MPB-028 (Isocyanate)

General Description: Isocyanate Terminated Prepolymer based on MDI and polyether polyol

NCO: 14.5%

Equivalent Weight: 290

Specific Gravity (Theoretical at 77 °F): 1.108 grams/cm³

Viscosity at 77 °F: 450 – 550 cps

Storage/Handling: Store indoor at room temperature between 72 °F and 86 °F. The container head space must be purged to blanket the material with dry nitrogen gas or argon gas.

Part-B: PNB-131 (Curative)

General Description: Curing Agent (Curative) based on a blend polyether polyol, additives, and catalyst

Equivalent Weight: 1306

Specific Gravity (Theoretical at 77 °F): 1.045 grams/cm³

Viscosity: 900 cps at 77 °F

Storage/Handling: Store indoor at room temperature between 72 and 86 °F. Avoid moisture entering the product.

Standard Package Sizes:

55-gallon Steel Drums (450 LBS per drum)

5-gallon Plastic Pails (40 LBS per pail)





Tandem Products, Inc., DBA Northstar Polymers
3444 Cheatham Avenue, Minneapolis, MN 55406
Tel: (612)721-2911 Ext 119
Email: info@northstarpolymers.com

Other Handling Information

Storage/Handling Information for the Component Materials

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 head 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 in dry indoor storage within the temperature range between 77 and 86 °F. Avoid direct sunlight, high humidity, and high temperature.

Note:

The prepolymer used for this formulation contains different isocyanate isomers with different freezing points. When the product is shipped in cold season, the isocyanate isomers and extended prepolymer may separate into layers in the container. During the cold season, the container must be heated to about 120 °F and agitated to ensure homogeneous blend before use. The material should stay as liquid at room temperature. To avoid separation during the storage, store it in between 72 °F and 86 °F storage temperature range.

If a large amount of water mixes with a large amount of isocyanate base materials, the chemical reaction may produce a large amount of CO₂ gas and heat to create a hazardous condition. Keep the storage area free of water.

Under a certain combination of heat, catalyst (basic chemicals), amounts of reactive materials, and some other favorable conditions for the reaction, the water (or alcohol/glycol/amine) to isocyanate reaction can reach a dangerous state of accelerated reaction. The accelerated reaction may create a very high temperature condition. The thermal decomposition of isocyanate based material by extremely high temperature or fire can produce toxic gasses and smokes. Please be sure that the containers are stored in dry indoor storage, away from the source of large amount of water.

If a leak is found in a drum, please place the drum in such a position that the leaking part is at the highest part of drum so that the content no longer leaks out. Cover the leaking area with dry towel to prevent air from entering. If possible, transfer the material into new container(s) with nitrogen purge. If moisture enters into an isocyanate container from a small leakage, CO₂ gas may be produced to gradually pressurize the container. If pressure built up is suspected, open the bung (or cap) very slowly to release the pressure before you change the drum position.





Tandem Products, Inc., DBA Northstar Polymers
3444 Cheatham Avenue, Minneapolis, MN 55406
Tel: (612)721-2911 Ext 119
Email: info@northstarpolymers.com

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, and/or causes the parts to cure improperly 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-dew-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 and duration of the exposure.)

Store it in a dry indoor storage at a room temperature between 72 and 86 °F. Avoid direct sunlight.

Part-B material contains chemical constituents that can separate during storage. Agitation of the part-B content before dispensing may be required for the system. Separation can be seen in a higher degree when the material is stored in cold temperature for a long time. You may need to heat to re-blend the separated material in some cases. Please consult Northstar Polymers when separation is suspected.

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 Safety Data Sheet (SDS) for detail information on safety and handling of the materials. The SDS 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 workplace 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 SDS for each component for the detailed health information.

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

<http://www.northstarpolymers.com>





Tandem Products, Inc., DBA Northstar Polymers
3444 Cheatham Avenue, Minneapolis, MN 55406
Tel: (612)721-2911 Ext 119
Email: info@northstarpolymers.com

Notice: All of the statements, recommendations, suggestions, and data concerning the subject material are based on our laboratory results, and although we believe the same to be reliable, we expressly do not represent, warrant, or guarantee the accuracy, completeness, or reliability of same, or the material or the results to be obtained from the use thereof, neither do we warrant that any such use, either alone or in combination with other materials, shall be free of the rightful claim of any third party by way of INFRINGEMENT or the like, and NORTHSTAR POLYMERS DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE.

