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

MPP-D73C

Rigid Room-Temperature-Cure Casting Urethane System

MPP-D73C is formulated to meet requirements of molding custom parts by either manual hand-mixing/casting or by meter mixing dispensers. The cured material is rigid enough for some load bearing parts, yet it has some flexibility to resist cracking from impact force.

All process can be done at room temperature. The low viscosity components make it easy to mix, degas, and cast. The reasonably long pot-life and quick demolding time contributes to higher production rate with easier casting process. The mixing ratio is easy 1:2 by volume, which is convenient metering.

System Name:	MPP-D73C
Part-A:	MNA-014
Part-B:	PNC-025

Mixing Ratio: **1: 2 by volume** (1: 1.685 by weight) = part-A: part-B

Processing Temperature:

Component Materials:	Ambient (72 ° - 85 ° F)
Mold:	Ambient
Post Cure:	Ambient

(Post cure temperature may be elevated up to 180 °F for faster complete cure cycle)

Curing Pattern:

Pot-Life:	9 - 10 minutes
Demolding Time:	20 to 30 minutes (1/2” part thickness)
Complete Cure:	1 – 2 days at room temperature

Physical Properties of Cured Part

Hardness:	70 - 75 D Durometer
Tensile Strength	5,000 psi
Ultimate Elongation	14%
Die-C Tear Strength	990 pli
Bashore Rebound	24%

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Component Properties

Part-A

Product Code	MNA-014
General Name	Prepolymer/ Isocyanate
NCO%	29.4%
Equivalent Weight	143
Specific Gravity	1.220
Viscosity	< 100 cps at 77 °F

Part-B

Product Code	PNC-025
General Name	Curative/ Blend of Polyol-additive
Equivalent Weight	246
Specific Gravity	1.027
Viscosity	270 cps at 77 °F

When you are handling these component materials, please operate in a wide area with good air circulation or well-ventilated area. Please wear rubber gloves, long sleeves, and protective eyewear (paint goggle etc.) to avoid skin/eye contact of the materials. Please read the Safety Data Sheet for each component for the details on safety, handling, and storage.

Packaging Sizes:

5-gallon pail (40 LBS per pail)
55-gallon drums (450 LBS per drum)

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 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 °F and 86 °F. Avoid direct sunlight.

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Note:

This material freezes during the transportation and storage particularly in the cold seasons. Frozen state of isocyanate prepolymer can be indicated by solid, gel, or high viscosity liquid state and cloudy color. If the material is frozen during shipping, it must be thawed immediately after receiving the shipment. Please consult Northstar Polymers for the detailed thawing instructions. Generally, we recommend isocyanate components to be stored in their liquid state in room temperature range. Some isocyanate and prepolymer products make unwanted byproducts if it is kept frozen. It may ruin the material if it is store frozen for a long time.

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) 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 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 a higher 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.

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.

Note: Moisture contamination of part-B material can be reversed by heating material to 160 - 180 °F and vacuuming it at about 29" Hg negative pressure for several hours.

Some part-B materials contain chemical constituents that can separate during the 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. You may need to heat to re-blend the separated material in some cases. Please consult Northstar Polymers when separation is suspected.

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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.

For any questions, please contact Northstar Polymers.

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