# PRODUCT DATA SHEET

# UI-5681

## LIQUID CASTABLE ELASTOMER 68 SHORE A

### 1. PRODUCT

UI-5681 is a two component, polyether based, transparent liquid urethane casting system. It is a self extinguishing urethane with a UL-94 flammability rating of U-0 Part-A of the system is an isocyanate and Part-B is a polyol polyether blend. It may be mixed and cured at room temperature and does not contain any TDI or Moca.

KEY FEATURES:

Moisture Insensitive
Superior Hydrolytic Stability
Low Shrinkage
Excellent Insulation Resistance
Fungus Resistant and Non-Corrosive
Non Expanding
Flexible and Tough
Low Water Absorption

SUGGESTED APPLICATIONS:

Structural Parts
Molds
Potting and Encapsulating
Gaskets and Diaphragms
Seals and Belts
Roller Facings
Bumper Pads
Foundry Patterns

SHELF LIFE: Shelf life of UI-5681 is one (1) year from shipping, providing it is stored in an cool dry place in unopened containers.

STANDARD COLOR: Dark clear. Special colors are available upon request.

STANDARD PACKAGING

1 Quart Kits
1 Gallon Kit
5 Gallon Pail Packs
55 Gallon Drum Packs

### 2. GENERAL PROCESSING INFORMATION

PROCESSING TEMPERATURES: The higher the temperatures, the faster the reaction rates. Reaction rates are influenced by the temperature of the components and mold, the size of the batch being processed, the shape of the cavity being filled and the ambient conditions.

SURFACE PREPARATION FOR MOLDS: Porous surfaces, i.e., wood and plaster in contact with UI-5681 must be well sealed with a urethane compatible sealer. An acrylic sealer is generally used. Allow final sealer coat to dry for 30-45 minutes and apply a suitable release agent.

MOLD RELEASE AGENTS: The user must perform all pertinent tests in order to determine the suitability of those products in the particular application. Silicone type release agents can be used where neither adhesion nor paintability of the molded part is required. A non silicone type may be used where paintability of the molded part is required. Frequent mold cleaning may be necessary to prevent mold release agent build up.

ADHESION TO METAL AND WOOD: In order to ensure good polymer adhesion, substrate must be free of rust, oils and other impurities. Substrate may be sanded and degreased with a solvent such as Methyl Ethyl Ketone (MEK). Priming steel and wood with a urethane compatible primer will enhance polymer adhesion and application longevity. Other materials being primed may require experimentation in order to ensure optimum polymer adhesion. For further information regarding primers, contact Preformed Line Products Technical Service Department.

WEIGHT RATIO: Must be maintained within ± 2.0%. Deviation from the ratio and processing conditions recommended herein will alter the properties of this product.

CAST PARTS: To produce hand cast parts without bubbles, the mixture of Part A and Part B should be placed under a vacuum prior to pouring into the mold.

CURE: For room temperature cure (77°F), material will gel in 1 to 2 hours and cure sufficiently for most applications in 5 to 7 days. Castings can normally be demolded after 4 hours.
For oven cure (175°F), cast material at room temperature and allow to gel for 4 to 8 hours. Place in oven and heat to 175°F. After casting and mold have reached 175°F, keep in oven for 5 to 6 hours before removing. Heat cure increases shrinkage slightly.

HAND PROCESSING PROCEDURE: For kit packs, Pour Part B into Part A container. For pail packs, weigh Part A, then weigh Part B into Part A container. The two components should be mixed thoroughly by hand, paddle or power mixer for the specified mix time (see Properties section). Caution must be used to generate only a small vortex when mixing to prevent mixing excess air into the mixture. Scrape the sides and bottom of the mixing container periodically as unmixed material has a tendency to adhere to surfaces of mixing container. Pour the mixed material into the prepared mold or surface and allow to cure. Proper application of a parting agent is required for satisfactory release from a mold.

MAINTENANCE AND CLEAN UP: Clean up of the automatic mixing equipment can be performed with the use of a non flammable cleaning solvent, such as Methylene Chloride. Methylene Chloride is a hazardous chemical, therefore chemical data, legislative acts, regulatory guidelines and manufacturer's precautions must be read and understood before use. Hand mixing equipment may be cleaned with a cleaning solvent such as Methyl Ethyl Ketone (MEK). MEK is a highly flammable chemical, therefore necessary safety precautions must be exercised.

STORAGE, SAFETY AND HANDLING: Store UI-5681 in a dry cool area. Avoid storage temperatures above 85°F and below 50°F. In case of skin contact, wash immediately with soap and water. Wash contaminated clothing before re-use. In case of eye contact, flush eyes with water and immediately contact physician. Do not reseal isocyanate containers which have become moisture contaminated. Sealing moisture contaminated containers will trap the generated carbon dioxide from the chemical reaction of the water with the isocyanate. This will create dangerous pressures in the sealed containers, which may rupture explosively.

PRECAUTIONS: Normal handling precautions must be exercised. Use in a well ventilated area and wash hands before eating or smoking. Personnel handling UI-5681 must wear protective gloves, glasses and clothing. Do not burn UI-5681 as it will release toxic vapors. Read Material Safety Data Sheet before using.

TECHNICAL SERVICE: Technical assistance is available by contacting Preformed Line Products' Technical Service Department.

## 3. WARRANTY

The statements made herein are based on our research and the research of others and are believed to be accurate. No guarantee of their accuracy is made, however. Neither the seller nor the manufacturer has any knowledge or control concerning the purchaser's use of the product. No express warranty is made by the seller or the manufacturer with respect to the results of any use of the product. Neither seller nor manufacturer assumes any liability for personal injury, loss or damage resulting from the use of the product. In the event that the product shall prove defective, the buyer's exclusive remedy shall be repayment of the purchase price, or, at the manufacturer's option, replacement of the non-conforming product. The buyer expressly waives any claim to additional damages, including consequential damages. Warranty claims are void unless made in writing within thirty (30) days after purchase. Warranty runs exclusively to the benefit of the original buyer.

## 4. PHYSICAL PROPERTIES (TYPICAL)

| PROPERTY | RESULT | TEST METHOD |
|---|---|---|
| Hardness, Shore A | 65 ± 3 | D-2240 |
| Viscosity @ 77°F CPS | | D-2393 |
| Part A (Prepolymer) | 3000 | |
| Part B (Curative) | 1200 | |
| Mixed | 4500 | |
| Mix Ratio (by weight or volume) | | — |
| Part A | 100 | |
| Part B | 15.1 | |
| Pot Life (1 lb. @ 77°F) - Min. | 30 - 35 | D-2471 |
| Gel Time (1 lb. @ 77°F) - Min. | 60 - 120 | |
| Standard Color (other colors available upon request) | Translucent Amber | — |
| Tensile Ultimate, psi | 1350 | D-412 |
| Tensile Modulus, psi (@ 100°) | 340 | D-412 |
| Elongation, Ultimate - % | 810 | D-2566 |
| Tear Strength, (die C) pli | 220 | D-524 |
| Compression Set - % | 17 - 19 | D-395 |
| Shrinkage (in/in) | 0.004 | D-2566 |
| Demold Time (1 lb. @ 77°F) - Hrs. | 24 | — |
| Complete Cure | | |
| (@ 77°F) - Days | 14 | — |
| (@ 175°F) - Hours | 24 | — |
| (@212°F) - Hours | 18 | — |
| Flammability | V-0 Rating - Self-extinguishing | UL-94 |
| Weight per Gallon - Lbs. | | — |
| Part A | 9.1 | |
| Part B | 7.8 | |

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