

Forsch Polymer Corp.
3025 S. WYANDOT ST.
ENGLEWOOD, CO 80110
(303) 322-9611

Application and mixing instructions for Forsch's 60A, 78A, 88A & 75D liquid urethane systems requiring approval under FDA Regulations 21 CFR Sec. 175.105 and 21 CFR Sec. 177.168.

DESCRIPTION:

Forsch's **60A, 78A, 88A & 75D Liquids** are two component polyether based urethane casting systems designed for applications requiring approval under FDA Regulations 21 CFR Sec. 175.105 and 21 CFR Sec. 177.168. Forsch 60A, 78A, 88A & 75D liquids possess outstanding abrasion resistance, excellent tensile strength and high rebound making them ideal for applications including sheeting, bin liners, sizing screens, slider pads, etc.

FEATURES:

Outstanding Abrasion Resistance High Rebound
No MOCA, TDI or MDA Meets FDA 21 CFR Sec. 175.105 & 177.168
Excellent Flexibility High Impact Strength

60A, 78A, 88A & 75D Mixing Instructions:

EXACT MIX RATIO AND PROCESS TEMPERATURE IS CRITICAL!

Processing:

1. Melt and Process Polyol, "B" Side at 120-160°F
2. Melt Isocyanate, "A" Side at 120-160°F **IF FROZEN!** Otherwise use at Room Temperature.
3. Mold Temperature should be between 120-160°F.
4. The "A" & "B" containers are **PREMEASURED!** Therefore, add the entire contents of the "A" container to the "B" component and mix thoroughly. Mix along the bottom and sides of the container to ensure a thorough homogeneous mixture. Be sure to wipe and scrape the mixing stick at least once during the process. Mix approximately 30 to 60 seconds.
5. Partial mixing is **not recommended!** However, if partial mixing is done be sure that both the "A" & "B" liquids are of uniform consistency. Mix or agitate prior to partial material removal.

Mix ratios by weight only:

60A Liquid Urethane	100 parts "B" Polyol	40.00 parts "A" ISO
78A Liquid Urethane	100 parts "B" Polyol	54.50 parts "A" ISO
88A Liquid Urethane	100 parts "B" Polyol	73.00 parts "A" ISO
75D Liquid Urethane	100 parts "B" Polyol	100.0 parts "A" ISO

6. After mixing, degassing in a vacuum is strongly recommended to ensure void and bubble free castings!

7. Working, gel and demold times under recommended processing conditions:

	<u>Working Time</u>	<u>Gel Time</u>	<u>Demold Time</u>
60A Liquid	6-8 mins.	12-14 mins.	60-90 mins.
78A Liquid	4-5 mins.	8-10 mins.	45-120 mins.
88A Liquid	4-5 mins.	8-10 mins.	45-120 mins.
75D Liquid	5-6 mins.	9-11 mins.	50-130 mins.

Urethane to Rubber Bonding:

To ensure consistent bonding results, rough rubber surface with sandpaper or a wire wheel. Wash with MEK or Trichloroethane prior to applying primer.

Forsch Rubber Primer is a single-coat primer for bonding urethane elastomers to rubber. Since it is a solution, no agitation is required prior to use. Forsch Rubber Primer bonds are resistant to water, salt spray, many solvents and other environmental conditions. Forsch Rubber Primer adhesive dries to a non-tacky film in a short time but at least 5 minutes drying @ 77° F. Should be allowed for complete solvent evaporation prior to the bonding operation.

MOLD RELEASE:

Forsch's Liquid Release is a special blend of organo-silicones formulated for use with urethane elastomers or foams. This product is an excellent release agent for use in injection molding, casting and pour molding. It provides a clean, highly cosmetic release with reduced build-up on the mold allowing more cycles between applications. Forsch's Liquid Release is a high quality paintable release which is stable @ 600°F. For additional product information and availability call 303-322-9611.

STORAGE:

Systems should be stored unopened in air tight containers @ 60-90°F. Partially emptied containers should be swept free of atmospheric moisture with dry nitrogen before sealing.

HANDLING PRECAUTIONS:

For complete and updated health and safety information, read the MATERIAL SAFETY DATA SHEET. Do not handle or use until the MATERIAL SAFETY DATA SHEET has been read and understood.

DISCLAIMER:

Forsch products are warranted to be of uniform quality within manufacturing tolerances. Since no control is exercised over its use, no warranty, expressed or implied, is made as to the effects of such use. The obligation herein shall be limited to refunding the purchased price of that portion of the material proven to be defective.

PHYSICAL PROPERTIES:

60A Liquid Urethane

100% Physical Properties After 24 hrs. 120°F + 6 days room temperature

Hardness, Shore A 58-62
Tensile Strength, Ultimate, psi 1400
Elongation, % 480
Tear Strength PLI 175
Linear Shrinkage
D-2566 (1.125" Deep) .05 in/in

78A Liquid Urethane

100% Physical Properties After 24 hrs. 120°F + 6 days room temperature

Hardness, Shore A 78
Tensile Strength, Ultimate, psi 4580
Elongation, % 480
Tear Strength Die "C" Lbs/in 420
Linear Shrinkage
D-2566 (1.125" Deep) .05 in/in

88A Liquid Urethane

100% Physical Properties After 24 hrs. 120°F + 6 days room temperature

Hardness, Shore A 88
Tensile Strength, Ultimate, psi 4555
Elongation, % 570
Tear Strength Die "C" Lbs/in 470
Linear Shrinkage
D-2566 (1.125" Deep) .05 in/in

75D Liquid Urethane

100% Physical Properties After 24 hrs. 120°F + 6 days room temperature

Hardness, Shore D 75
Tensile Strength, Ultimate, psi 8110
Elongation, % 240
Tear Strength Die "C" Lbs/in 130
Linear Shrinkage
D-2566 (1.125" Deep) .05 in/in

PRIMER SELECTION:

Forsch Rubber Primer

Rubber
Wood
Concrete

Forsch Metal Primer

Most common metals
Urethane
Ceramics

Primer and Surface Preparation:

Completely clean and dry all surfaces to be coated. Fiberglass, rubber, wood, galvanized aluminum, stainless steel, brick and concrete are acceptable surfaces. All substrates should be prepared with proper adhesives. Metal surfaces should be sandblasted per SSPC-SP 5-63 "White Metal Blasting Cleaning."

* Concrete surfaces should be acid etched for immersion applications

* For rubber, urethane and other polymeric surfaces, roughen with a wire wheel or sander, then clean and apply primer.

Urethane to Metal Bonding:

To ensure consistent bonding results, metal surfaces must be thoroughly cleaned prior to application of the adhesive. Protective oils, cutting oils, greases, etc. are removed by solvent degreasing or alkaline cleaning. Rust, scale or tightly adherent oxide coatings are removed by suitable mechanical or chemical cleaning methods.

Grit blasting is the most widely used method of mechanical cleaning, but machining, grinding or wire brushing may be used. Steel grit is used for blast cleaning of steel, cast iron, or other ferrous metals. Aluminum oxide, sand or other non-ferrous grit is used for blast cleaning of stainless steel, aluminum, brass, zinc, or other non-ferrous metals.

Chemical cleaning or pretreatment of the metal will remove rust, scale or tightly adherent oxide coating. Chemical treatments are readily adapted to automated metal treatment and adhesive application lines. Chemical treatments are also used on metal parts that would be distorted by blast cleaning or in cases where tight size tolerances must be maintained. Phosphatizing is a commonly used chemical treatment for steel, while chromate conversion coating is commonly used for aluminum.

Forsch Metal Primer may separate and should be thoroughly shaken before use. Forsch Metal Primer is applied to the cleaned substrate by brushing, dipping, spraying, roller coating, or any other method that gives uniform coating and avoids excessive runs or tears. Forsch Metal Primer adhesive dries to a clear, soft, non-tacky film in a short time but at least 60 minutes drying @ 77°F should be allowed for complete solvent evaporation prior to the bonding operation. The adhesive film may be force dried at higher temperatures for shorter periods of time. Drying for 15 minutes @ 200°F has no harmful effect on adhesion.

