

Supersoft Urethane Adhesive Recommendations

Introduction

The following information is advisory only. The user must verify the suitability of any combination of materials for the intended service.

- ◆ Urethane is a thermoset, polyether-based polyurethane.
- ◆ Urethane has **high surface energy** compared to many other polymers. This generally indicates a readiness to bond with the right adhesives.
- ◆ Urethane is **not a foam**.
- ◆ Urethane is **non-porous**.
- ◆ Urethane contains **plasticizers**.

A number of adhesives will breakdown upon exposure to the trace amounts of free plasticizers found in Supersoft Urethane and other similar polymers.

Because Supersoft Urethane is non-porous, adhesives which require "**air cure**" after the parts are joined will probably not cure (or cure only on air-exposed edges of the joint) if used to bond two sheets of Supersoft Urethane to bond with another non-porous material.

These adhesives may cure when bonding to a breathable material.

In the absence of contradictory information, one can reasonably assume it bonds with the same materials as other non-foam, non-porous, high-plasticizer polyurethanes. Correspondingly, solvents in glues, which cause problems for other polyurethanes will probably also degrade the material. When in doubt, perform suitable testing.

It is recommended to De-grease the surface by using a mild detergent, then rinsed with

clean water and air-dried. Alternately, rubbing the surface lightly with alcohol or Methyl Ethyl Ketone (MEK) will clean off surface and "activate" . **Do not soak parts** in water, alcohol, or MEK prior to assembly.

Solvent-Based One-Part Polyurethane Adhesives

Lord Corporation 7650 is one suggestions. Lightly apply with roller or brush to either (NOT both) of the surfaces.

Allow solvent evaporation per manufacturer's instructions before lightly mating the contact surfaces. (10-20 minutes for 7650). You have a few seconds to adjust contact. Can be freely handled in a few minutes.

Two Part Polyurethane Adhesives

One choice is 7542A/B by Lord Corporation

Neoprene-based Adhesives

A number of customers report success using these adhesives to bond to rubbers and plastics.

Cyanoacrylates

There are many brands of cyanoacrylates (sometimes trademarked as super glue) which bond well with Supersoft Urethane.

One of the most desirable features of cyanoacrylates is that they bond very quickly. Either instantly or up to 30 seconds, depending on the formulation.

For our purposes cyanoacrylates should be divided into *flexible* and *rigid* types.

Rigid cyanoacrylates dry to a rigid joint. When flexed these joints will break down. A rigid cyanoacrylate should not be considered when bonding to another flexible material.

Flexible Cyanoacrylates can provide joints that exceed the strength of the underlying Supersoft Urethane. Loctite 4851 and 4861 are in this category.

Rigid Cyanoacrylates can provide a bond to a rigid material such as metal. A primer can be used to improve the bond to metals

Loctite 401, 409, 447, 454, or Lord 7700, etc. fall in this category.

Duco Cement

Duco cement is available in local hardware stores.

Lightly clamp (one psi). Assemblies can be handled in one hour. Duco cement cures to full strength in 16 hours. Creates a **flexible joint** stronger than the Sorbothane itself. Made by ITW Devcon

Metal Primers

A number of metal primers improve the bond between metals and various adhesives.

Chemlok 213 falls in this category. Made by Lord Corporation.

Where to buy

There are adhesive distributors in major cities throughout the world. Check your local yellow pages under "adhesives."

www.thomasregister.com lists over 3200 adhesive makers and distributors.

www.globalspec.com has equivalent numbers.

Companies Cited

Lord Corporation
Industrial Adhesives Division
2000 West Grandview Boulevard
PO Box 10038
Erie, Pennsylvania 16514-0038
Phone for Adhesives: 866-LORD ADH
(866.567.3234)
Phone for Chemlock: 800-CHEMLOK
(800.243.6565)

ITW Devcon
30 Endicott Street
Danvers, Massachusetts 01923
Phone 800.933.8266

Henkel Loctite Corporation
1001 Trout Brook Crossing
Rocky Hill, Connecticut 06067
Phone 800.571.5100