

Technical Bulletin

Swellex™ P Polyurethane Swelling Agent

Introduction

Swellex P Polyurethane Swelling Agent is a proprietary solvent used as a swelling media for molded silicone rubber components and silicone rubber tubing. Swellex expands the treated materials to a desired dimension, allowing for easy assembly to (or over) a fitting or a rigid part with complex geometry. The swelling agent then quickly evaporates residue-free from the polymer substrate without impacting physical properties such as color, tear strength or elasticity. The treated component returns to its original size to create a secure connection without adhesives, lubricants or mechanically stressing the component. Swellex has excellent materials compatibility and is hostile to pyrogenic growth.



Regulatory

Swellex P Polyurethane Swelling Agent is accepted by the U.S. Environmental Protection Agency (EPA) under the Significant New Alternatives Policy (SNAP) program as a substitute for ozone depleting substances. Swellex P Polyurethane Swelling Agent has an Ozone Depletion Potential (ODP) of zero. All ingredients are listed in the TSCA inventory.

None of the ingredients are subject to SARA Title III (EPCRA) reporting requirements. Contact MicroCare for details on EU REACH regulatory compliance.

Typical Chemical Properties

Increase in Mass and Diameter of Polyurethane Tubing Exposed to Swellex™ P.

	5 minutes	10 minutes	20 minutes
Tube Mass	21.0%	30.5%	47.5%
Tube Diameter	4.6%	8.3%	12.3%

* All testing and measurements conducted at room temperature.

Material Compatibility

Swellex P Polyurethane Swelling Agent is beneficially selective in its swelling capabilities and is compatible with most materials commonly used in medical device applications and has negligible impact on polycarbonate and polyurethane materials. Elastomer swelling and shrinking will, in most cases, revert to within a few percent of original size after air drying. Swell, shrinkage, and extractables are strongly affected by the compounding agents, part geometry such as wall thickness, plasticizers, and curing used in the manufacture of plastics and elastomers. Therefore, prior in-use testing is particularly important. Long-term compatibility data simulating exposure of specific equipment construction materials is available from MicroCare Medical upon request.

Application Methods

For most applications, parts are immersed in the solvent at room temperature. Swellex P Polyurethane Swelling Agent evaporates quickly, thus it is recommended that the vapor-to-air interface area be minimized and/or the solvent be cooled to promote efficient and effective use. Due to flammability characteristics, this product should be used in appropriately rated areas and equipment. If there is a need to use the solvent at elevated temperatures, a flammable liquids-rated, single sump solvent bath can be used. Call MicroCare for details on how we can help you with your manufacturing requirements.

Physical & Chemical Properties

Appearance	Clear, Water White
Vapor Pressure	0.57 atm
% Volatile by Weight (Carrier)	100
Flash Point: Closed Cup [ASTM D 93]	Nonflammable

* Contact MicroCare for additional Technical details.

Plastic & Elastomer Compatibility

Test data for plastics and elastomers compatibility are summarized below. These tests simulate effects for exposures in a typical treatment cycle of 15 minutes or less.


Compatible	
Polyethylene	Polyurethane
Polyvinylchloride	Acetal
Polyester, PET, PBT	Epoxy
Polyimide, PI, PEI, PAI	Liquid Crystal Polymer
Polysulfone, PSO	Phenolic
Polyetherketone, PEEK	PTFE, ETFE
Polyarylsulfone, PAS	Chlorinated PVC
Polypropylene	Ionomer
Polyphenylene Sulfide, PPS	ABS
Incompatible ¹	
Polyphenylene Oxide	PPO
Polystyrene	Acrylic
Cellulosic	Polycarbonate

¹ Material composition varies depending upon compounding agents, plasticizers, processing, etc. Specific materials should be tested for compatibility with solvent.

Metals & Other Compatibility

Swellex P Polyurethane Swelling Agent is very stable with most common metals such as aluminum, copper, zinc, carbon steel, and stainless steel. Contact with highly basic process materials, pH 10 or above, is not recommended.

Packaging and Availability

Packaging	
Glass Liter ² - 1 L 2.5 Lb / 1.13 kg	MCC-SWXP0GL
Glass Gallon ² - 1 Gal / 3.79 L 10 Lb / 4.5 kg	MCC-SWXP0GG
Steel Pail ¹ - 5 Gal / 18.9 L 45 Lb / 20.4 kg	MCC-SWXP0P
Steel Drum ¹ - 55 Gal / 208 L	MCC-SWXP0D
Recycle	

Note: Products sold by weight, not volume.

One-gallon and smaller sample containers are available upon request.

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