Product Datasheet

SP&S
Specialty Polymers and Services

Primax™ S
Primax™ S Red
1-COMPONENT MULTIPURPOSE PRIMERS

Primax™ S and Primax™ S Red are designed to improve the bond strength of strength of epoxy, polyurethane, silicone, and other polymeric adhesives, encapsulants, and coatings to a wide variety of materials. They have had success in improving adhesion to many metals including abraded aluminum, glass, ceramics, masonry, wood, fabrics, and some plastics.

Grade	Color	Solvent	Flash point	Volatile organic Content (g/L)	Standard Shelf-life
Primax S	Clear	ozone-safe volatile methylsiloxane fluid	31°C (88°F)	110	18 months
Primax S Red	Red	ozone-safe volatile methylsiloxane fluid	31°C (88°F)	110	18 months

ENHANCING ADHESION

Many epoxies, polyurethanes, and silicones are designed to adhere well to a most substrates, but some products and some surfaces require adhesion enhancement to achieve optimal bond strength or to ensure that the bond strength remains adequate when the bonds are subject to moisture or other environmental conditions. Primax S both increase the bond strengths and protect the critical interfaces against moisture and other conditions that can weaken the bond over time.

Primax S and Primax S Red have found specific application in priming aluminum, which is known to be difficult to bond to because it natural develops a weakly attaches oxide layer. This oxide layer can be removed by using sandpaper, a stiff wire brush, or grinding the aluminum surface, but the oxide layer will begin to reform within 10 minutes. Abrading the aluminum, wiping it clean of dust and debris, and then applying Primax S and prime and stabilize the aluminum surface so that oxidation does not occur and the surface is ready for bonding for up to 24 hours if keep clean and away from high humidity conditions. An example of the benefits of priming aluminum with Primax S in this way is shown below:

Aluminum substrate, surfaces lightly abraded with wire wheel on an angle grinder. Bonded with EpoPro 158A/B aluminum filled epoxy repair adhesive:

Sample	Lap Shear Strength (psi)	Sample	Lap Shear Strength (psi)
#1 – ground, unprimed	1538	#1 – ground, Primax S	2830
#2 – ground, unprimed	1620	#2 – ground, Primax S	2792
#3 – ground, unprimed	1342	#3 – ground, Primax S	2446
#4 – ground, unprimed	1302	#4 – ground, Primax S	3284
#5 – ground, unprimed	1312	#5 – ground, Primax S	2164
Average	1423	Average	2703

All samples cured at 24 hours at room temperature (approximately 25C) and test at room temperature. Similar results have been observed with other epoxy and urethane adhesives when working specifically with aluminum.

For large numbers of parts, we have had success set up a bat of Primax S diluted with additional solvent by up 1:1 next to a grinder, wire brushing or similar station. Parts can be abraded, cleaned, and then dipped or submerged into the Primax and allowed to dry and the Primax will prepare the parts for later bonding, painting or other processing and protect them from oxidation.

SURFACE PREPARATION

For best results Primax Primers must thoroughly wet-out and coat the surface to be bonded. For most applications, general, light surface abrasion is all that is required to provide a good clean surface and to increase the surface area for bonding. Steel wool, a wire brush, sandpaper, or abrasive pads are all suitable for light abrasion of most surfaces. After the abrasion, the surface should be dusted to remove any loose material and then cleaned or degreased with an aqueous cleaner, naphtha, mineral spirits, methyl ethyl ketone (MEK) or other suitable means of removing oils and other contaminants. A final surface wipe with acetone or IPA may also be helpful. Allow solvents to completely evaporate before applying the primer. Different cleaning techniques may give better results than others and the user should determine the best technique for each specific application.

For especially difficult-to-bond-to surfaces, it may be necessary to increase the surface reactivity by chemical etchants or oxidizers, or by exposing the surface to UV, corona, plasma or flame sources.

APPLICATION

These products should be applied in a very light, even coat by wiping, dipping or spraying. Excess material should be wiped off to avoid over-application, which generally appears as a chalky surface. When dip or spray coating, diluting by a factor of 2 to 4 with additional solvent may avoid excessive build-up on the parts. Additional solvents for dilution may include Ultralane™ Thinner # 25, Dow OS fluid #30 (or a similar VMS from another vendor), and other solvents as may be suitable for your application. If there are any questions about suitable solvents please contact SP&S for assistance.

CURE CONDITIONS

Primax S requires moisture in the air to cure and will generally cure at room temperature in 20% to 90% percent relative humidity within about 1 to 2 hours. Low humidity and/or low temperature conditions require longer cure times. Mild heat acceleration of the cure rate may be possible but temperatures above 60°C (140°F) are not recommended. During application, the carrier solvent typically evaporates quickly, allowing the active ingredients to begin to react with atmospheric moisture and bond to the surface. Users should determine the best cure schedule and conditions for their applications.

SUGGESTED PROCESSING GUIDELINES:

The desired adhesive, castings materials, or coating should be applied after the primer has fully cured. Typically applying within 1-2 hours after the primer has fully dried is most desirable, but in most situations, keeping the primed surface clean will allow application of desired materials to be delayed. However if more than 8 to 24 hours has elapse between the drying of the primer and the application of the material required to bond to it, then applying an additional layer of primer may be necessary to achieve the optimal results.

STORAGE AND SHELF LIFE

Shelf life is indicated on the product label. For best results, Primax S and Primax S Red should be stored below 32°C (90°F). Precautions must be taken to prevent moisture from contacting these materials before use. Containers should be kept tightly closed and head or air space minimized. Partially filled containers should be purged with dry air or other gases such as nitrogen to maximize shelf life. Small quantities of the Primax S that are intended for immediate use should be poured into clean, dry containers and discarded when usage is complete. Primax S should not be used once it become milky or a large amount of white precipitate is observed as this indicates moisture contamination has occurred. Repeated opening of the container can cause a small amount of white precipitate to form inside the container cap area, which does not affect the bulk material.

HANDLING PRECAUTIONS:

Mandatory and recommended industrial hygiene procedures should be followed whenever these products are being handled and processed. For additional information please consult the corresponding material safety data sheets.

PERSONAL HYGIENE:

Primax S and Primax S-Red

FLAMMABLE: AS WITH ALL INDUSTRIAL MATERIAL USE CAUTION WHEN WORKING WITH THESE MATERIALS. Avoid breezing vapors. Keep away from sparks or open flames. Avoid contact with eyes, skin, or clothing. Wear eye protection and impervious gloves when handling. Extending exposure could cause a slight irritation of the nasal passages, eyes, or skin. May cause eye & skin irritation. Wash thoroughly after handling. Use only with adequate ventilation. Do not take internally.

FIRST AID

In case of contact:

Skin – Immediately wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Destroy contaminated shoes and other articles made of leather.

Eyes – Immediately flush eyes with plenty of water for 15 minutes and get prompt medical attention.

Inhalation - Remove person to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.

Ingestion - Do not induce vomiting. Dilute with plenty of water and contact physician immediately. Never give anything by mouth to an unconscious person.

DISCLAIMER:

IMPORTANT: The following supercedes Buyer's documents. **SELLER / MANUFACTURER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE**. No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller / Manufacturer be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results presented are based on controlled or laboratory work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended

Specialty Polymers & Services, Inc. (SP&S)
28064 Avenue Stanford, Suite F **Tel: 661-294-1790**
Valencia, CA 91355 **Fax: 661-294-0640**
www.spolymers.com **info@spolymers.com**