



STL-PDS-NA-Polycup 2000

Polycup™ 2000 polymeric resin

Product Description

Polycup™ 2000 polymeric resin is a water-soluble, polyamide-epichlorohydrin, thermosetting crosslinker that is reactive with amine, carboxyl, hydroxyl, and thiol functionality.

Polycup resins may be used as a crosslinker in adhesives, inks, top-coatings, and other barrier finishes. These resins promote water resistance in polymer systems that are typically water soluble/sensitive. They also impart toughness to formulations and improve adhesion to low surface energy substrates. Polycup resins are effective over a wide pH range of 4-9 with optimum results obtained under mild alkaline conditions.

Product Application

Polycup 2000 is recommended for addition into products that are used in direct food contact applications.

Curing Conditions: Concentration, time, temperature, and system pH affect the degree of cure and rate at which Polycup resins will crosslink.

Ideal cure conditions will occur at pH 7 - 9 and temperature at 100 -150 °C. For shorter curing times at high temperature, a high-intensity infrared oven is needed for uniform heating. Ordinary convection and air-draft ovens are satisfactory for longer curing times and lower temperatures. However, the level of cure strength may decline as temperature is reduced. Some natural crosslinking will occur at room temperature over a 2 to 3 week period.

Compatibility: Polycup resins are compatible with cationic and most non-ionic materials. Compatibility with strongly anionic materials may be difficult and should be tested prior to use. To avoid ionic shock, Polycup resins should be diluted to 5% solids or less before addition to anionic systems. To prevent pH shock, the pH of Polycup should be adjusted with an alkali such as ammonium hydroxide to the same level as that of the latex or polymer. Compatibility of Polycup can be improved by addition of sodium sulfate or zinc sulfate at 1-5% based on total formulation weight.

Polycup 3160 is to be used in accordance with control procedures Solenis establishes for a specific application.

Polycup Formulation Examples

Use with Carboxylated SBR Latices: Although many SBR latices are "self-crosslinking", Polycup resins can be used beneficially to speed up the rate of wet strength, or "quick grab", of an adhesive made from latex. Addition of as little as 0.5% Polycup solids, based on latex solids, will increase green bond strength of the adhesive, as well as the modulus, tensile strength, and dimensional stability. Reactivity between Polycup and the carboxyl groups may be so rapid that pot-life will be significantly shortened.

Use with Sodium Carboxymethylcellulose (CMC): Polycup resins can be used with CMC to develop water-insoluble films and coatings with good flexibility and strength. The addition of 5 to 10% Polycup solids to a CMC composition will make it essentially insoluble. However, the composition will remain somewhat water-sensitive, and it will swell to a slight degree in the presence of water.

Use with Polyvinyl Alcohol (PVA): PVA alone does not produce a water-resistant coating. However, a high degree of water resistance can be imparted to PVA coatings and films by adding 5 to 10% Polycup resin solids to PVA solids.

Use with Starch: Starch-based coatings and adhesives can be made water-resistant by adding Polycup resin to the starch either prior to cooking or afterwards, in amounts ranging from 2 to 20% resin solids, based on starch solids.

Benefits

- Water-based formulation
- No formaldehyde intentionally added
- Reactive over a wide pH range
- Low viscosity, low odor liquid

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Packaging

This product is available in a variety of packaging sizes. Your Solenis representative will recommend the appropriate packaging for the application.

Important Information

Typical Properties: Refer to the Safety Data Sheet (SDS).

Regulatory Information: Refer to the SDS or contact your sales representative for any additional regulatory and environmental information.

Safety: Solenis maintains an SDS for all of its products. Use the health and safety information contained in the SDS to develop appropriate product handling procedures to protect your employees and customers.

Our SDS should be read and understood by all of your supervisory personnel and employees before using Solenis products in your facilities.