Butvar®
Polyvinyl Butyral Resins & Aqueous Dispersions

Solutions for Improved Performance™

Butvar® Polyvinyl Butyral Resin Dispersion RS-261 Technical Bulletin

Introduction

Butvar Dispersion RS-261 is a stable aqueous emulsion of plasticized polyvinyl butyral in water. The plasticizer level is at 50 parts per 100 parts of resin. Films cast from Butvar Dispersion RS-261 are tough and light transparent. They develop full strength properties when cast and dried at room temperature.

These films adhere well to many surfaces. Resistance to water, heat and sunlight is excellent. These properties make them the choice for such applications as textile finishing; greaseproof and washable wallpaper coatings; and decorative, protective or temporary coatings for metal, wood, glass and other materials.

Butvar Dispersion RS-261 Characteristics

Form:	An aqueous emulsion of plasticized polyvinyl butyral, milk-white in color
Total Solids:	40.0% to 43.0%
Viscosity:	100 - 5,000 cps (Brookfield, LVF No. 3 Spindle, 30 R.P.M., 25oC)
pH:	6.5 - 8.5
Particle Size:	Most particles between 0.25 microns and 1.5 microns
Particle Charge:	Anionic (sodium sulfonate)
Plasticizer Content:	50 parts castor oil per 100 parts of Butvar B-72 resin (12.2% if solids)
Pounds per Gallon:	8.9 at 25oC

Handling and Methods of Application

Butvar Dispersion RS-261 may be handled in most of the processing systems common to latex work. It can be applied by roller coating, knife coating or air knife coating; it can be sprayed in solids concentrations ranging from 30% - 40%; it can be dipped with or without a coagulant.

Whatever method is employed, care should be taken to prevent skinning of the dispersion during exposure to air. Closed containers should be used whenever possible. Spray nozzles should be kept moist.

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Butvar Dispersion RS-261 is stable at a low to alkaline pH, generally 4 to 11, but as-manufactured is in a neutral to alkaline pH range. Butvar Dispersion RS-261 is water based and should not be allowed to freeze. Generally, storage at room temperature results in a shelf life of up to one year.

Compounding Pigments and Colors

Pigments with a positive charge, such as natural iron oxide, should be avoided. Most others, however, are satisfactory. Pigments such as whiting, have been used with success; but it is advisable to avoid impurities, such as lime, which might form soaps and cause inversion. Colors used are the usual rubber pigments with the above limitations. For example, add 1/2 - 1 cup of India ink per drum. For good results, add pigments slowly to water containing a dispersing agent. Then, run the solution through a colloid or ball mill for at least 24 hours.

Plasticization

If additional plasticizer is necessary for a particular formulation, it is suggested to use butyl ricinoleate, castor oil, or Solusolv™ 2075. Plasticizers should be dispersed in water before being added to the Butvar Dispersion RS-261. The finished plasticized dispersion should be an oil-in-water type and should be homogenized before being added to the Butvar Dispersion RS-261. The plasticized dispersion then should be allowed to stand overnight before use to ensure uniform penetration of the plasticizer into the polyvinyl butyral particles.

Protective Colloids

Protective Colloids for increasing viscosity or decreasing pressure sensitivity are frequently added in the coating operation. Suggested thickening agents are casein, methyl cellulose, hydroxyethyl cellulose, carboxymethyl cellulose and gum karaya.

Dispersing Agents

Suitable dispersing agents include those standard in the trade: Darvan® or Tamol®.

Defoamers

Defoaming agents seldom are required for RS-261 dispersion as produced. Foamaster® VF has been identified to control surface foam in polyvinyl butyral-based formulations. The final defoamer choice, however, will depend ultimately on the actual application or reformulation of the RS-261 dispersion.

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Applications

Textiles

Butvar Dispersion RS-261 can be used to impart increased abrasion resistance, durability, strength, slippage control and reduced color crocking. Some of the successful applications for Butvar Dispersions have been in finishing nylon webbing for parachute harnesses and seat belts to improve abrasion resistance.

Butvar Dispersion RS-261 can be applied to textiles from a dilute bath by impregnation on a padder, from a thickened dispersion by coating on regular spreading equipment, or by spraying. When properly processed and applied, plasticized polyvinyl butyral dispersed in water has been used to give a soft, full-bodied finish to rayon, cotton or nylon; for a durable, anti-raveling finish for filament years; and for finishing curtain and drapery fabrics, glass fabrics, upholstery goods, webbing and canvas or duck awnings. Formulations using polyvinyl butyral have been used as a transparent rug backing and as a laminating and combining agent for joining fabric to fabric or to other materials.

Paper

Butvar Dispersion RS-261 can be used in applicators to produce greaseproof, washable coatings for wallpaper, window shades and packaging materials. It can be applied to twisted paper yarns used for rugs and seat covers. The dispersion increases the abrasion resistance and durability of the finished product.

Removable Coatings

Butvar Dispersion RS-261 can be used in strippable or washable coating systems. A temporary coating is formed from the dispersion as produced. Removable coatings, however, often are formulated from the Butvar dispersion base. The functional protective film can be used on metal, plastic or other substrates. A clean surface is retained upon removal of the coating.

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Material Sources

Product Designation	Owner and/or Supplier
Solusolv™ 2075	Solutia Incorporated
Butyl Ricinoleate	CasChem Incorporated
Castor Oil	CasChem Incorporated
Darvan®	R. T. Vanderbilt Company
Tamol®	Rohm & Haas Company
Foamaster® VF	Cognis Incorporated
Vinac® XX210, XX230	Air Products

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