EASTMAN

Butvar® products

Application guide

Butvar® products

Butvar resin was pioneered in the 1930s as the key ingredient for automotive safety glass interlayers. It still enjoys widespread use in automotive and architectural applications for laminated safety glass. Polyvinyl butyral resins are employed in a wide array of industrial and commercial applications. These unique resins offer impressive performance, as well as outstanding versatility. Butvar® polyvinyl butyral resins have a combination of properties that make them a key ingredient in a variety of successful formulations. Some of these properties for which Butvar is widely used are outstanding binding efficiency, optical clarity, adhesion to a large number of surfaces, and toughness combined with flexibility.

Some of the applications in which Butvar® is a vital ingredient include the following.

Metal coatings

- **Wash primers**—anticorrosive primers that apply easier, adhere better, and dry faster than other materials.
- **Surface coatings**—Butvar enables good wetting of most substrates while providing a reactive site for chemical combination with thermosetting resins. Resulting films may be air dried, baked, or cured at room temperature.
- **Metal coatings**—Butvar can improve coating uniformity, minimize cratering, improve adhesion, and increase coating toughness and flexibility. Butvar resin is approved by the U.S. Food and Drug Administration for indirect food additive uses, making it an excellent choice for drum and can-lining applications.

Wood finishes

- **Protective wash coats and sealers**—Butvar helps provide good holdout, intercoat adhesion, moisture resistance, flexibility, toughness, and impact resistance. In addition, the wood substrate is protected against discoloration when Butvar is used in the finish, including color changes caused by light.
- **Knot sealers**—polyvinyl butyral resins are excellent barriers to bleeding of terpenaceous matter from knots, heartwood, and rosin ducts.
- **Surface coatings**—Butvar enables good wetting of most substrates while providing a reactive site for chemical combination with thermosetting resins. Resulting films may be air dried, baked, or cured at room temperature.

Property	Unit	Test method	B-72	B-74	B-76	B-79	B-90	B-98
T_g	°C	DSC-T_g	72–78	72–78	62–72	62–72	72–78	72–78
MW	1000X	—	170–250	120–150	90–120	50–80	70–100	40–70
Solution visc 10% by wt	cP	—	1600–2500	800–1300	200–450	75–200	200–400	75–200
Hydroxyl content as % polyvinyl alcohol	—	—	17.5–20.0	17.5–20.0	11.5–13.5	11.0–13.5	18.5–20.5	18.0–20.0
Acetate content as % polyvinyl acetate	—	—	0–2.5	0–2.5	0–2.5	0–2.5	0–1.5	0–2.5
Butyral content as % polyvinyl butyral	—	—	80	80	88	88	80	80

Adhesives

- **Structural adhesives**—When combined with phenolic laminating resins, Butvar gives the highest shear strength values at temperatures up to 250°F. Other outstanding properties of the PVB-phenolic system include high peel strength at very low temperatures, excellent dielectric properties, and exceptionally good creep resistance as measured by the ability of the bond to carry sustained loads for extended periods of time.
- **Hot-melt adhesives**—Butvar® makes an excellent base for hot-melt adhesives even where difficult-to-bond surfaces are involved. The many types of Butvar resins allow the best match to individual applications.

Other applications

- **Textile coatings**—PVB resins can be compounded to make fabrics both water and stain resistant without noticeably affecting the appearance, feel, drape, and color of the fabric. Almost any fairly tightly woven fabric with a flat surface can be made both water and stain resistant with a coating based on Butvar.
- **Epoxies and other thermosetting resins**—Butvar resins are compatible with many epoxy resins and can confer such improvements on epoxy-based systems as increased impact resistance and peel strength.
- **Electronics/ceramic tape casting**—Butvar imparts excellent green strength and flexibility to ceramic tape. The primary advantages of using Butvar resins are their solubility in a wide range of solvents and uniform adhesion to conductive metals.

For additional information, including technical specifications and sample formulas, visit BUTVAR.COM.

The results of **insight**™

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