PVA (Polyvinyl Alcohol)

Subjects: Polymer Science

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PVA (polyvinyl alcohol) is a water-soluble synthetic polymer prepared by hydrolysing polyvinyl acetate, so its properties depend on the residual acetate content. Fully hydrolysed grades dissolve only in hot water and crystallise readily, while partially hydrolysed grades are more flexible and easier to process [1]. Films cast from aqueous solution are transparent, have good oxygen barrier behaviour in the dry state, and lose that barrier as humidity rises [2]. Crosslinking with borax, glutaraldehyde, or citric acid reduces swelling and is the usual route to hydrogels for biomedical use [3]. Blending with starch or cellulose improves biodegradability but lowers tensile strength, and the balance is set by the blend ratio [4]. Water solubility, which simplifies processing, also limits the environments in which the material stays stable [5].

polyvinyl alcohol | hydrolysis degree | hydrogel | water-soluble polymer | oxygen barrier | crosslinking | blend

References

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