Polyvinyl Alcohol (PVA)

CAS # 9002-89-5

Product In Focus

EXIM-INDIS INC
EVOLVING CHEMISTRY

Polyvinyl Alcohol (PVA)

INTRODUCTION

Polyvinyl Alcohol (PVA) is a water-soluble synthetic polymer produced by the hydrolysis of polyvinyl acetate. It is widely used in pharmaceutical, biomedical, and industrial applications due to its excellent film-forming ability, biocompatibility, and chemical stability. Unlike many synthetic polymers, PVA is highly hydrophilic and forms strong, flexible films and hydrogels' Synthetic, linear polymer derived from hydrolysis of polyvinyl acetate Water-soluble polymer with a high density of hydroxyl (–OH) groups Degree of hydrolysis (partially or fully hydrolyzed) controls solubility and properties

MANUFACTURE

It is typically manufactured by polymerization of vinyl acetate to form polyvinyl acetate, followed by controlled hydrolysis (alcoholysis) to convert acetate groups into hydroxyl groups, yielding PVA with desired properties.

KEY DETAILS

CAS Number	9002-89-5
Molecular Formula	$(C_2H_4O)_x$ or $[CH_2CH(OH)]_n$
Common Name	Polyvinyl alcohol, PVA, Polyvinol, Ethenol homopolymer
Structure	Linear
Melting Point	180-190°C (partially hydrolyzed), 230°C (fully hydrolyzed)
Solubility	Soluble in water, sparingly soluble in ethanol, and insoluble in most organic solvents.
Structure	

APPLICATION

Pharmaceutical

- Tablet binder and film-forming agent in coatings
- Stabilizer for emulsions and suspensions
- Matrix polymer for controlled drug delivery systems

Biomedical

- Hydrogels for topical and ophthalmic formulations
- Hydrogel-based wound dressings
- Artificial cartilage and contact lens materials
- Drug delivery matrices and tissue engineering scaffolds

It is widely used because it

- is highly water-soluble and easy to process
- forms strong, flexible, and transparent films
- is biocompatible and non-toxic
- allows tunable properties via degree of hydrolysis and molecular weight

Cosmetic / Personal-care

- Film-forming agent in peel-off masks and hair styling products
- Used in gels and emulsions for improved texture and stability

Industrial

- Water-soluble films (e.g., detergent pods packaging)
- Adhesives, paper coatings, and textile sizing agents
- Emulsion stabilizer in polymerization processes

Tel: (713) 400-7683 info@exim-indis.com www.exim-indis.com
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SPECIFICATIONS

Test	Unit	Specification
Description	-	
Identification	a) By IR Absorption/NMR Spectrum	The infrared absorption/NMR spectrum of the test sample should be concordant with the r eference spectrum of PVA
	b) By Solubility Test	Freely soluble in water; insoluble in most organic solvents
Degree of Hydrolysis	%	Typically 87 – 99 (grade dependent)
Viscosity (4% solution)	cP	Typically 5 – 100 (grade dependent)
pH (4% solution)	-	4.5 – 7.5
Moisture Content	%	NMT 5.0
Residual Acetate Groups	%	As per grade specification
Ash Content	%	NMT 1.0
Residual Solvents	ppm	Complies with ICH limits
Heavy Metals	ppm	Complies with pharmacopeial limits

PACKING

HDPE bags / fiber drums with inner polyethylene liner

STORAGE

Store in tightly sealed containers in a cool, dry, well-ventilated area at room temperature. Protect from moisture and contamination.

COMMERCIAL NOTE

Polyvinyl Alcohol is available in a wide range of grades with varying viscosity and degree of hydrolysis to suit applications in pharmaceuticals, biomedical systems, and industrial formulations. Technical data, customized grades, and SDS are available upon request.

Exim-Indis offers Polyvinyl Alcohol on commercial scales and welcomes enquiries. No matter the quantity you need, our exceptional quality and service will make Exim-Indis your supplier of choice. If you need any additional information or SDS, please contact us.

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