

Polyvinylpyrrolidone (PVP)

CAS # 9003-39-8

FEATURED PRODUCT

Polyvinylpyrrolidone (PVP)

INTRODUCTION:

Polyvinylpyrrolidone (PVP) is a water-soluble synthetic polymer obtained from the polymerization of N-vinyl-2-pyrrolidone. It is widely used across pharmaceutical, biomedical, and industrial applications due to its excellent biocompatibility, low toxicity, strong film-forming ability, and exceptional solubilizing and stabilizing properties. PVP is chemically stable, relatively inert, and resistant to thermal degradation, making it a versatile functional polymer.

- ☞ Synthetic, non-ionic, water-soluble polymer
- ☞ Linear polymer composed of N-vinyl-2-pyrrolidone units
- ☞ Available in a wide range of molecular weights (commonly expressed as K-values, e.g., K-30, K-90)
- ☞ Typically supplied as white to off-white hygroscopic powder.

MANUFACTURE:

It is typically manufactured by free-radical polymerization of N-vinyl-2-pyrrolidone monomer. Industrial production may also utilize the Reppe synthesis route to prepare the monomer, followed by controlled polymerization to achieve desired molecular weight and performance characteristics.

Synonym	PVP, Povidone, Polyvidone, Poly[1-(2-oxo-1-pyrrolidinyl)ethylene]
CAS no.	9003-39-8
Molecular formula	(C ₆ H ₉ NO) _n
Common Grades (K-values):	K-15, K-30, K-90.
Structure	 PVP

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APPLICATION:

Advanced Materials / Nanotechnology

- ✧ Carrying polymer for electrospinning of continuous titania nanofibers and zirconium tungstate ultra-thin fibers
- ✧ Structure-directing agent in fabrication of metal oxide nanofibers and porous materials
- ✧ Acts as a reducing agent and colloidal stabilizer in synthesis of palladium nanobars, triangular nanoplates, and related nanostructures
- ✧ Serves as a capping agent to control nanoparticle size, morphology, and dispersion stability

Pharmaceutical

- ✧ Tablet binder and granulation aid
- ✧ Solubilizing agent for poorly water-soluble drugs (solid dispersions)
- ✧ Stabilizer in suspensions and emulsions
- ✧ Film-forming agent in coatings

Food & Beverage

- ✧ Clarifying agent in beverages such as beer and wine
- ✧ Stabilizer for flavors, colors, and active ingredients
- ✧ Used as a processing aid in food formulations

Cosmetic / Personal-care

- ✧ Film-forming agent in hair sprays, gels, and styling products
- ✧ Binder and stabilizer in creams and lotions
- ✧ Enhances texture, spreadability, and formulation stability

Toiletry & Hygiene

- ✧ Used in toothpaste and oral care formulations as a binder and stabilizer
- ✧ Provides viscosity control and formulation consistency

Photographic / Imaging

- ✧ Protective colloid and binder in photographic emulsions
- ✧ Used in coating formulations for imaging films and specialty papers

It is widely used because it

- ✧ Has excellent solubility in water and many organic solvents
- ✧ Provides strong steric stabilization for nanoparticles and colloids
- ✧ Forms clear, flexible, and adhesive films
- ✧ Is biocompatible, non-toxic, and chemically stable functions as both a performance enhancer and processing aid



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SPECIFICATIONS:

Test	Unit	Specification
Description	-	White to off-white hygroscopic powder
Identification	a) By IR Absorption/NMR Spectrum	The infrared absorption/NMR spectrum of the test sample should be concordant with the reference spectrum of PVP
	b) By solubility	Freely soluble in water and alcohol
K-Value (Molecular Weight Indicator)	-	As specified (e.g., K-30, K-90)
pH (5% solution)	-	3.0 – 7.0
Moisture Content	%	NMT 5.0
Residue on Ignition (Ash)	%	NMT 0.1
Residual Monomer (N-vinylpyrrolidone)	ppm	NMT 10
Heavy Metals	ppm	Complies with pharmacopeial limits

STORAGE & PRECAUTION:

Store in tightly sealed containers in a cool, dry, well-ventilated area. Protect from moisture due to hygroscopic nature.

PACKING:

HDPE bags / fiber drums with inner polyethylene liner

GMP STATUS:

Manufactured under cGMP or non GMP conditions based on customer specifications and intended application.

COMMERCIAL NOTE:

PVP is available in multiple grades with tailored molecular weight (K-values) to meet specific requirements across pharmaceutical, cosmetic, food, and industrial applications.

ICS offers Polyvinylpyrrolidone (PVP) on commercial scales and welcomes enquiries. No matter the quantity you need, our exceptional quality & services will make ICS your supplier of choice. For additional information or Safety Data Sheet (SDS), please contact us at- info@itsusainc.com or Phone# 713-337-0152.

