POLYVINYL PYRROLIDONE (PVP)

AIPHTACT K-30PH is polyvinyl pyrrolidone for pharmaceutical applications, to be used as a pharmaceutical additive as a binder of tablets, capsules and granules, suspension stabilizer and solubilizer of low-soluble drug substances.

Synonyms: poly(n-vinylbutyrolactam), poly(vinylpyrrolidone), povidone, PVP, agent AT 717, agrimer, albigen A, aldacol Q, bolinan, 1-ethenyl-2-pyrrolidone polymer, Ganex P 804, hemodesis, Hueper's polymer No. 5, demodez, K30, kollidon, plasdone XL, polyvidone, numerous other names.
CAS number: 9003-39-8

Table 1. Properties of AIPHTACT K-30PH

	Units	Specifications
Appearance		White/slightly yellowish powder
pH		3.0-5.0
Heavy metals	ppm	≦10
Aldehydes	ppm	≦500
NVP (to solid)	ppm	≦10
Peroxides	ppm	≦400
Hydrazines	ppm	≦1
Moisture	wt%	<5.0
Residue on ignition	%	≦0.10
K-Value		27.0-32.4
Nitrogen	%	11.5-12.8
Solid	wt%	≧95.0

A. Powder properties

Table 2 shows apparent density and repose angle of **K-30PH** and Table 3 particle size distribution, based on the average values of three lots. Figure 1 is the product micrograph.

Table 2. Apparent density and repose angle

Apparent density	Loose	g/ml	0.42
	Tapped		0.49
Repose angle		degree	40

Table 3. Integrated particle size distribution

	<75μm	<105μm	<149μm	<180μm	<212μm
%	5.7	12.3	38.8	83.3	98.6

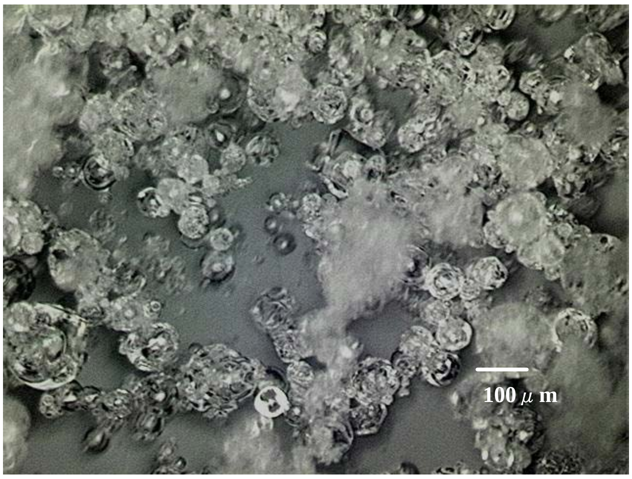

Figure 1. Micrograph of AIPHTACT K-30PH (×250)

B. Moisture absorption

Figure 2 shows correlation between moisture absorption (equilibrium) of **AIPHTACT K-30PH** and relative humidity.

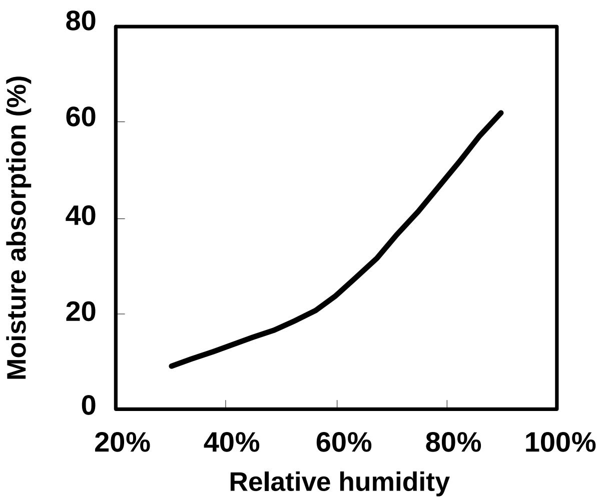

Figure 2. Correlation: Relative humidity & moisture absorption (equilibrium) at 20°C

C. Solubility in organic solvents

Polyvinyl pyrrolidone is soluble in water and certain organic solvents — Table 4 shows some of such solvents.

Table 4. Organic solvents

Alcohols	Methanol
	Ethanol
	Propanol
	Isopropanol
	Ethylene glycol
	Propylene glycol
	1,3-butanediol
	Glycerin
Ether-alcohols	Diethylene glycol
	Triethylene glycol
Lactams	2-methyl pyrrolidone
Amines	Ethylene diamine
	Triethanolamine
Acids	Acetic acid

D. Viscosity character

1) Viscosity of aqueous solution

Figure 3 shows the correlation curve of concentration and viscosity of **AIPHTACT K-30PH** aqueous solution. The viscosity is lower at higher concentrations, and it displays viscous behavior close to that of Newtonian fluids. It also receives influence of temperature; the viscosity is lower at higher temperatures.

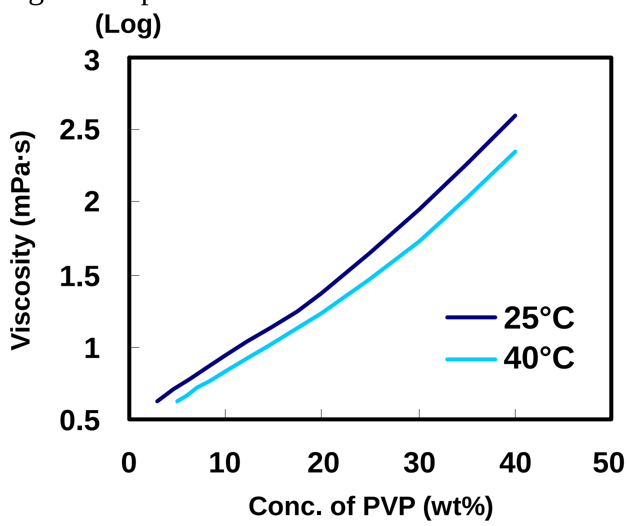

Figure 3. Concentration - viscosity correlation of aqueous solution

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2) Viscosity of organic solvent solutions

Figure 4 shows the correlation curve of concentration and viscosity of **AIPHTACT K-30PH** ethanol and water/ethanol (mixed) solutions. The ethanol solution exhibits similar viscosity to that of aqueous solution; water/ethanol mixed solvent results in higher viscosity than ethanol only.

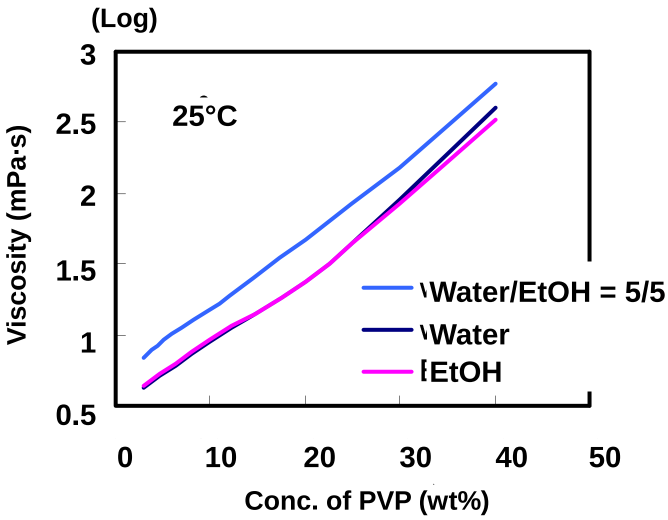

Figure 4. Concentration - viscosity correlation of water/ethanol solution

Manufactured by	第一工業製薬株式会社
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