BULLETIN VC-956A (supersedes VC-956)

polyvinylpyrroldone (PVP) polymer

(K-15, K- 30, K- 60, K-90, K -120)

Polyvinylpyrrolidone (PVP) is a linear nonionic styling polymer that is widely used in hair care formulations around the world. PVP is an excellent film former that creates stiff, transparent, and shiny films. It also assists in the styling process by delivering sensory attributes such as tack when applied to wet and dry hair as well as feel properties after styling, and it is highly suitable for various application formats.

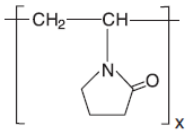
formulator benefits	**formulation benefits**
creates clear films films are non-tacky continuous films high molecular weight compatible with nonionic and cationic polymers water and alcohol compatible compatible with nonionic and anionic thickeners easy to use foam stabilizer no neutralization required	strong hold initial stiffness medium to high tack during application depending on molecular weight provides shine

applications

hair styling
product forms gels, mousses, styling creams/lotions, pomades, waxes, pastes, PVP K- 15 and PVP K- 30 polymer can be used in hair sprays
formulations from Ashland spray gel, wax, mousses, gels, pump hair sprays

chemistry

chemistry description
structure



polymer properties

- hydrophilic polymer
- planar linear molecule with high polarity
- pseudo cationic, N^+ behaviour is dominant in solution, hydrogen bonding at oxygen molecule
- complexation via hydrogen bonding

INCI name: PVP

typical properties

appearance: ..... odorless, white powder or clear aqueous solution
shelf life.....12 months

formulation guidelines

recommended use levels	PVP K- 15, PVP K- 30, PVP K- 60 0,25-6% solid level PVP K- 90 0,25-3% solid level PVP K- 120 0,25-3% solid level
temperature/mixing conditions	Added in cold and hot phase. No neutralization needed. Easy to use.
when to add	Add diluted polymer to the hydrated thickener. Blend thoroughly. Add remaining ingredients.
tips from our technical solvers	When adding to a solution of an anionic acrylate type of polymer such as Carbomer, do not add PVP solution unless acrylate polymer is either partially or totally neutralized. Compatible with commonly used raw material. Easy to plasticize (make more flexible / less cracking). Hygroscopic and soluble in water and alcohol. Physiologically inert.

safety, handling, and storage

It is recommended to store PVP polymer series in a tightly closed container with a minimum amount of head space to prevent skinning on the surface of the polymer.
Additional information concerning safety, handling and storage is supplied in the safety data sheet, which can be made available upon request. Such information includes:

- classification and labelling information
- protective measures for storage and handling

A toxicology summary can also be made available, on a confidential basis, by contacting Ashland's toxicology department.

regulatory

CAS No. 9003-39-8
Other regulatory information can be made available on request.