

PVC suspending polymerization



kuraray

Kuraray Poval™

PVC additives made by Kuraray

Specialities for polymerization processes

Kuraray has a long history in the development of polyvinyl alcohol (PVA or PVOH) based suspending agents especially for the needs of PVC manufacturers. In these applications polyvinyl alcohol is used as a protective colloid for the polymerisation of PVC: vinyl chloride monomer is suspended in water by means of stirring in combination with a suspending agent to allow the polymerisation reaction to proceed. The physical properties of the resulting PVC, including size, shape of the grains and bulk density, are directly related to the grain forming process during polymerisation. Kuraray's primary and secondary suspending agents allow precise control of the grain formation and its resulting structure and morphology. Furthermore, the surface active performance can be widely optimised by selecting an appropriate combination of Kuraray's suspending agents. This diversity enables the PVC manufacturer to produce a very versatile range of PVC resins, varying in morphology and K value according to the intended end application.



Kuraray suspending agents

Easy handling – precise control

Kuraray's polyvinyl alcohol based primary suspending agents (L-series) enable accurate control of the grain size distribution of the PVC resin. A high degree of uniformity from grain to grain as well as a narrow grain size distribution is required to avoid the formation of a coarse fraction that could give rise to fisheyes or other defects, and also make VCM (Vinyl Chloride Monomer) removal difficult.

PVC grains must be able to absorb a variety of compounding additives including plasticizers, lubricants and stabilisers to name just a few. For this purpose PVC resin must have some degree of porosity that can be measured using cold plasticizer absorption (CPA).

Porosity in PVC grains is created by a complex series of interrelated steps in the formation and growth of a sub-microscopic structure within each droplet. It also depends on the unique nature of the VCM / PVC system. Kuraray's secondary suspending agents (LM-series) improve the porosity of systems.

In addition to the porosity, the control of bulk density (BD) or apparent density (AD), which mainly depends on porosity, grain shape and grain size, is critical to the PVC processor, who is concerned with charge size, cycle times in high speed mixers, output rates, motor torque and degree of gel formation in extruders.

Kuraray's secondary suspending agents (LM-series) are solid grades, which are self-dispersible in cold water. LM-series can be charged directly into the reactor as a dispersion.

Specialty polyvinyl alcohol

Supporting the versatility of PVC products

Thanks to the diversity of Kuraray's primary and secondary suspending agents the PVC manufacturer can produce a versatile range of PVC polymers which vary in morphology and K-value, according to the intended end application. Our expertise in the development of primary and secondary suspending agents enables us to support our customers in processing rigid or flexible formulations as well as low K-value formulations.

Rigid formulations are used to produce PVC articles of low flexibility and good impact resistance for example rigid pipe, guttering and decorative siding in house construction. Flexible formulations are used to produce PVC articles of high flexibility for cable covering, hoses and medical tubing applications. Low K-value formulations are ideal for injection moulding processes, conduit fittings, and electrical plugs. Furthermore they can be applied in blow moulding of bottles and other containers.



Adding value to your products – worldwide

Kuraray Poval™, Exceval™, Elvanol™ and Mowiflex™ are the trademarks for polyvinyl alcohols made by Kuraray. Their key characteristics — outstanding film-forming properties and high binding strength — add real value to your products. Our polymers are water-soluble, highly reactive, crosslinkable and foamable. They have high pigment binding capacity, protective colloid characteristics and thickening effects. The physical and chemical properties of Kuraray Poval™ make it ideal for a wide variety of applications, ranging from adhesives through paper and ceramics to packaging films. Many of our polymers are food contact-approved and thus suitable for food applications. Ecologically Kuraray Poval™ is advantageous due to its biodegradability and the fact that combustion does not generate residues. It is available in various particle sizes from granules to fine powders.

Kuraray produces its wide range of Kuraray Poval™ grades in Japan, Singapore, Germany and the USA. Kuraray's global production and service network make us your partner of choice for innovative high-quality PVOH resins.

Kuraray – Here to Innovate.

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Kuraray Poval™ product portfolio

Please contact your local Kuraray office to discuss the right Kuraray product for your needs.

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