

Sticks faster than you might expect

Nanoparticle additives for waterborne adhesives
with significantly higher initial strength

 **Dispercoll**[®] S

Silica Dispersion

Dispercoll® S Silica dispersions: Nanotechnology for heavy-duty adhesive dispersions

Dispercoll® S Silica dispersions – the superior one-component adhesive technology

With the new Dispercoll® S silica dispersions containing nanoparticle additives, Bayer Polymers customers have many new possibilities in the formulation of aqueous adhesive dispersions. Dispercoll® S silica dispersions are particularly well suited as additives for the production of polychloroprene adhesives based on Dispercoll® C polychloroprene latex dispersions to formulate adhesives with an outstanding set of properties that will have value in furniture, automotive, construction and footwear applications.

Good initial wet strength on many substrates

One of the most interesting properties of adhesives formulated with Dispercoll® S silica dispersions is certainly their outstanding initial wet strength. In the case of textiles or leather, for example, the adhesives have such high wet strength that the materials can be processed immediately.

■ Dispercoll® C polychloroprene latex dispersion plus Dispercoll® S silica dispersion
■ Dispercoll® C polychloroprene latex dispersion plus Resin A
■ Dispercoll® C polychloroprene latex dispersion plus Resin B



The innovation: Silicon dioxide and nanotechnology

Dispercoll® S silica dispersions contain silicon dioxide with a particle size ranging from 9 – 55 nm, depending on the grade. In the formulation of adhesives, the specific crosslinking/gelling tendency of these particles gives the resulting adhesive dispersions an outstanding range of properties. The various Dispercoll® S silica dispersions grades differ mainly in their solids content and particle size.

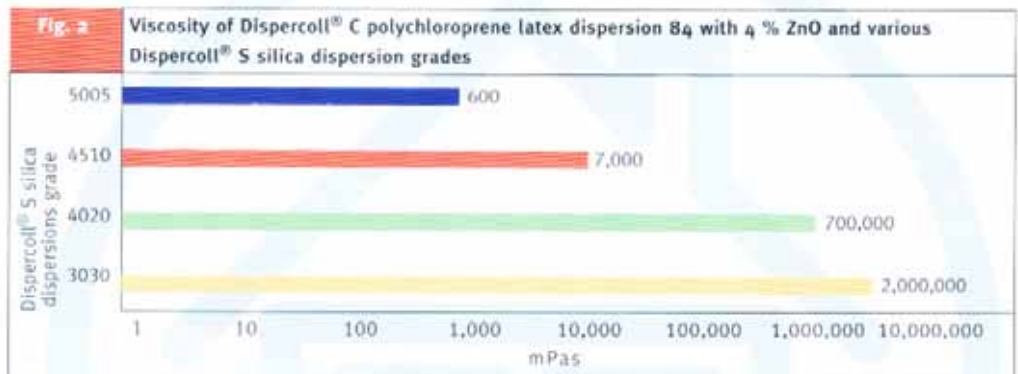
All Dispercoll® S silica dispersion grades at a glance

Dispercoll® S silica dispersion	Concentration (%)	Density (g/cm ³)	Spec. surface (m ² /g)	Particle size (nm)
Dispersion 5005	50	1.39	50	55
Dispersion 4510	45	1.34	100	30
Dispersion 4020	40	1.30	200	15
Dispersion 3030	30	1.21	300	9

Application-specific viscosity

The viscosity of formulations containing a Dispercoll® S silica dispersion is adjusted through the specific selection and quantity of the respective Dispercoll® S silica dispersion grades (the different grades can also be mixed together). The viscosity can be specifically lowered through the addition of electrolytes. The net result is a broad range of adhesives from paste-like to liquid consistency with a very low tendency to sedimentation even during prolonged storage.

With the various Dispercoll® S silica dispersions grades, any desired viscosity range can be adjusted.

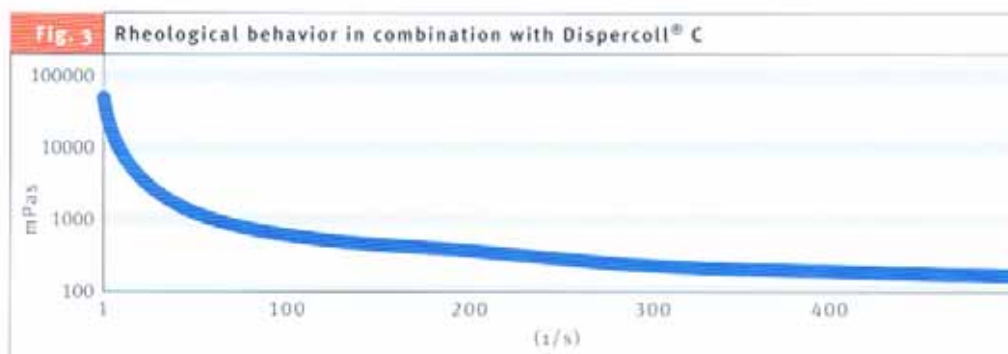


Outstanding storage properties

Ready-formulated adhesive mixtures with Dispercoll® S silica dispersions can be stored without problem over a long period – without any sedimentation or change in viscosity.

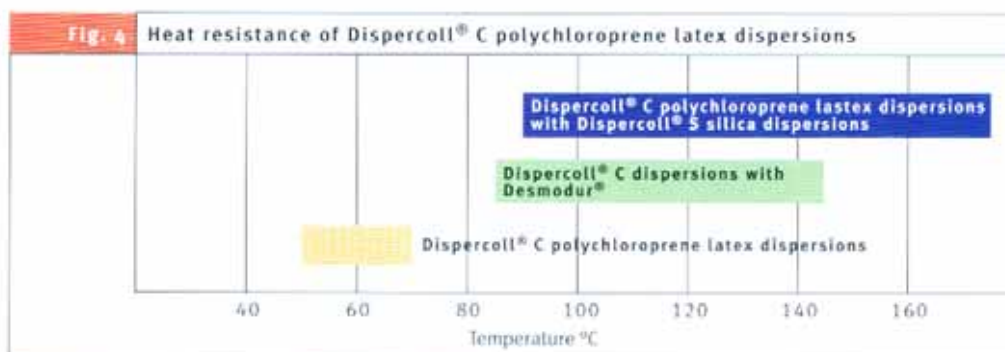
Excellent application properties

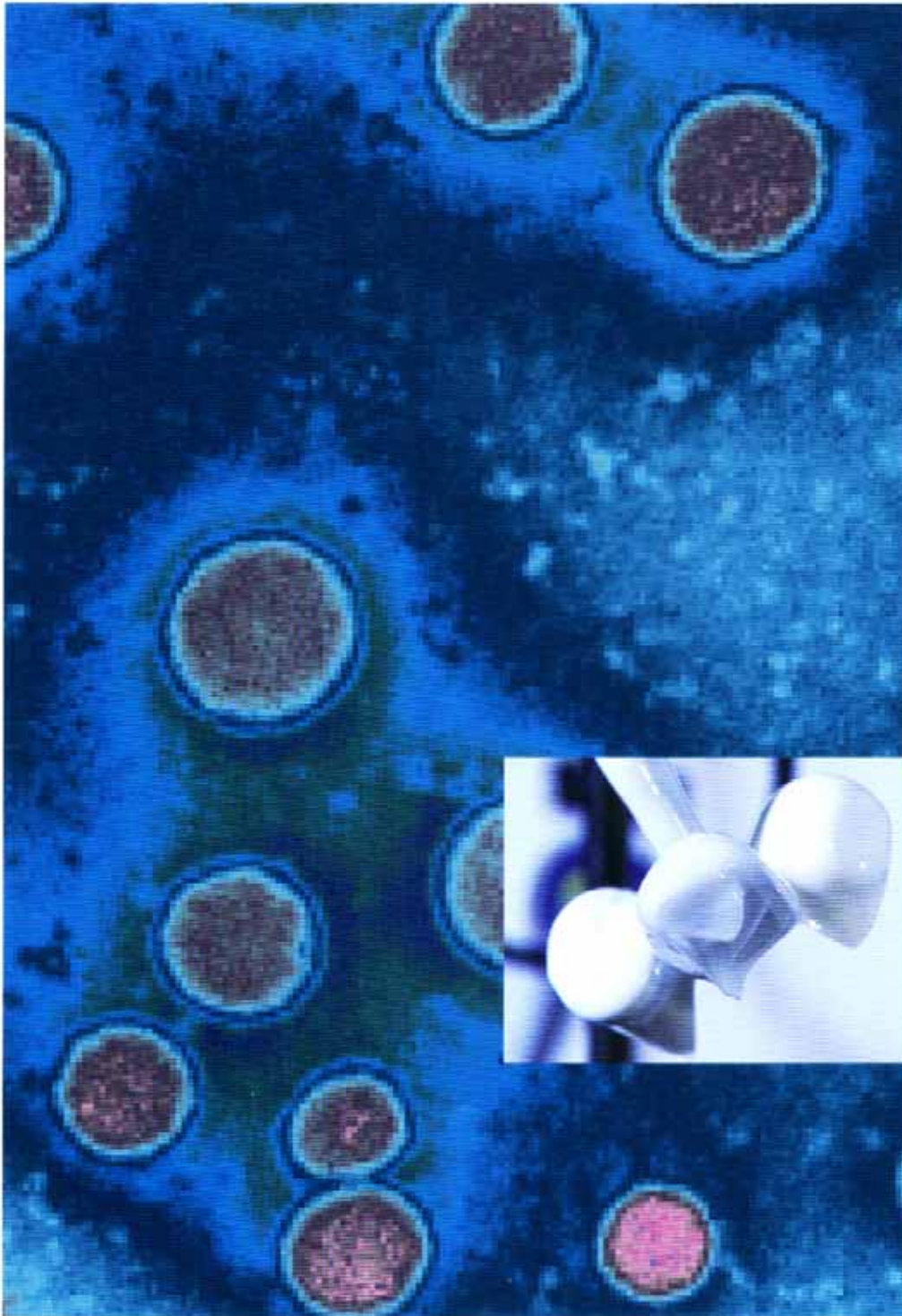
Because the viscosity of these adhesives can be adjusted to suit the particular end-use and because of their pronounced structural viscosity, Dispercoll® S silica dispersions are very easy to apply, even to vertical surfaces.



Superior heat resistance of the bonded substrates

Using Dispercoll® C polychloroprene latex dispersion with high hydroxyl contents like Dispercoll® C 2325 dispersions together with Dispercoll® S silica dispersions produces adhesive formulations with a level of heat resistance that has up to now only been achieved using two-component technology. This makes Dispercoll® S silica dispersions an ideal choice for applications where high heat resistance is included in the specifications for one-component systems.





Laboratory stirrer

The viscosity of formulations with Dispercoll® S Silica dispersions is readily adjustable so that the adhesives can also be applied to vertical surfaces.