

NOVEL MULTIFUNCTIONAL POLYMERS

Minerals Technologies Inc is offering the opportunity to license or purchase technology to enhance bonding between fillers and fibers in the paper making industry.

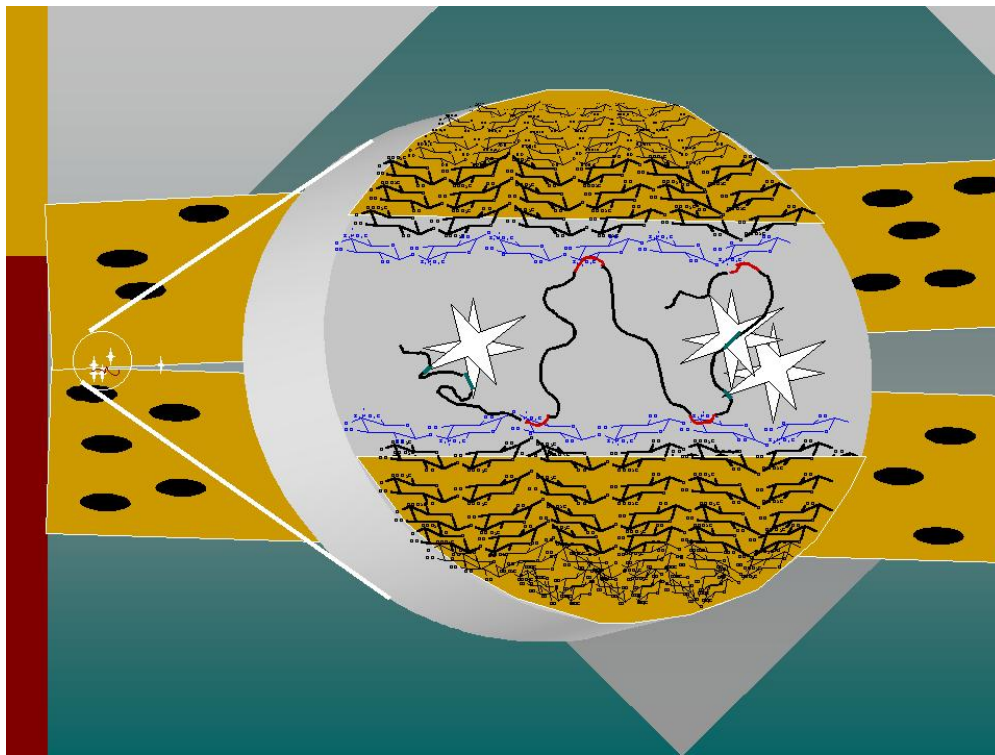
Background

Increasing the filler content of paper can provide papermakers with numerous benefits, including raw material savings, improved optics, and enhanced print quality. Historically, papermakers have been limited in their ability to replace expensive cellulosic fibers with high levels of minerals due to increased fiber debonding leading to reduced paper strength.

Minerals Technologies developed a number of novel multifunctional polymers that have been demonstrated to enhance bonding between fillers and fibers in the paper making process.

Benefits

- Filler level in paper can be doubled without a reduction in strength.
- Paper strength can be increased 50% at a given filler level.
- The polymer can be manufactured using standard polymerization techniques.
- The technology is flexible and can be optimized for specific applications.

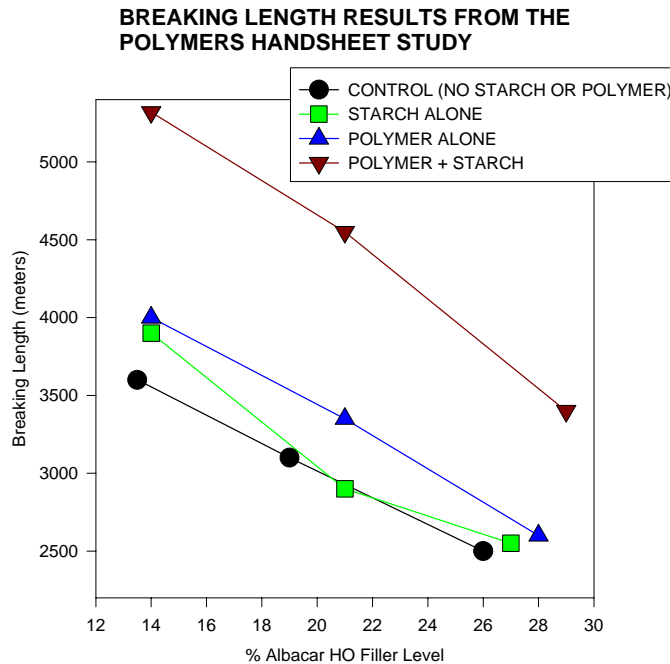


Novel Multifunctional Polymers (Cont'd.)

Technology Description

The multifunctional polymer can be described as having one or more phosphonate substituents, one or more sulfonate substituents, and one or more amide substituents. The phosphonate substituents effectively bond to inorganic materials. The sulfonate substituents effectively bond to polysaccharide materials, cellulose and starch. The amide substituents can reduce electrostatic charge density and improve hydrogen bonding. The drawing in the Benefits section shows the functionality of the polymer.

The following graph demonstrates the effect of the polymer addition on paper strength at various levels of precipitated calcium carbonate filler content.



Technology Status

The technology has been demonstrated in multiple laboratories confirming the improved strength of filled paper achieved through the use of the novel multifunctional polymers. The technology is patent protected.

