Aqueous Superabsorbent Coating

Aqueous Superabsorbent Coating (ASC) technology is a liquid polymer solution developed by Kimberly-Clark Corporation that dries to form an absorbent film. ASC can be applied using various techniques to a range of materials and substrates to absorb condensed or evaporated fluids. ASC is delivered as a liquid suspension that when dried, self-crosslinks to form a superabsorbent film coating that can absorb many times its own weight of water. Water vapor, bodily fluids, and other aqueous solutions may also be absorbed by the coating. Tests show good adhesion to a wide range of substrates, such as glass, metals and cellulosics. A range of related coating chemistries have been reduced to practice, including cationic and anionic. We envision potential uses for the coating in a wide range of applications including health care, wound care, packaging, textiles, pharmaceuticals, dehumidification, desiccation, fluid handling, engineering, agricultural, tapes/adhesives and construction.

Other benefits of this material include:

- May be applied from an aqueous solution and cured at ambient/room temperatures, or, accelerated with heat or microwave energy with low VOC.
- May be applied using various methods including spray, printing, roll-to-roll, screen, slot or dip coating techniques.
- May be used as a lubricious coatings at higher coatweights.
- Particles (such as silica gel), fibers, and other materials may be bound into place using ASC to increase absorbency or other properties.
- May bind to skin and be non-irritating.
- Range of chemistries potentially available, from anionic to cationic.
- Cationic chemistries may offer an opportunity for anti-microbial coatings.

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ASC Market Applications

- Adhesive Tapes and Mastics - ASC may be used in paint-blocking tapes or mastics.
- Agricultural, Crop & Soil Management - ASC may provide binding, absorptive or delivery properties.
- Civil Engineering: Geotextiles - ASC may be incorporated to provide moisture retention/control.
- Civil Engineering: Mortar, Cement and Concrete - Potential application as a concrete or mortar additive.
- Filtering - ASC may separate water from hydrocarbons such as oil, diesel, gasoline, hydraulic and brake fluids.
- Fluid Handling - HVAC uses for humidity control or moisture scavenging.
- Health Care: Trauma & wound dressings - ASC may be incorporated to enhance wound care products.
- Hydrogel Delivery Vehicle - ASC may function as a swellable coating to release actives upon addition of water.
- Packaging: Cold-chain - ASC may be used as a humidity control agent to prevent ice crystal build up.
- Packaging: Pharmaceutical - ASC may be used as a desiccant for bottles or in modified atmosphere packaging.
- Wovens and Non-wovens - ASC may bind with various materials to enhance absorbency or scavenge moisture.

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