

**Selvol™ Polyvinyl Alcohol
Polymer Chemicals Technical Bulletin**

Using Selvol Polyvinyl Alcohol in the Production of High-Bulk Tissue and Towel Stock

- ▶ Excellent adhesion to cellulose and good adhesion to Yankee surfaces
- ▶ High tensile strength and controlled water sensitivity (controlled by the grade selected)
- ▶ Easy to spray in a uniform fashion onto Yankee rolls
- ▶ Non-blocking, flexible and easy to clean up



Traditional Creping Processes

The process of creping paper webs to provide softness and bulk is a complex and sensitive technology. At a minimum it involves web formation, adhesion to the Yankee dryer, drying, doctoring and converting. Add to this the known effects of fiber furnish, doctor blade parameters, web moisture at Yankee dryer entrance and exit, adhesive layer build-up on the Yankee dryer, and mill water chemistry, and it's clear just how complex this creping process is.

A number of diverse creping aids have been cited in the literature. Among these are starch, animal glue, wet-strength resins, polymeric retention aids, polymeric latex and polyvinyl alcohol.

Partially hydrolyzed Selvol Polyvinyl Alcohol (PVOH) grades have been claimed as particularly effective in U.S. patent 3,926,716. Selvol provides excellent adhesion to cellulose, good adhesion to Yankee surfaces, has a high tensile strength, and has controlled water sensitivity depending on the grade selected. Selvol is also easy to spray in a uniform fashion onto Yankee rolls, is non-blocking, flexible, and easy to clean up.

Through Air Drying (TAD) Technology

The driving force for even softer, bulkier, and more absorbent webs at higher production rates has led to new technological improvements. One recent advance is through-air-dryers (TAD). The ability of TAD to remove water without severe mechanical web compaction results in the formation of a much softer web.

In many instances, a TAD is used in conjunction with a Yankee drum, and in these cases the web enters the Yankee dryer with significantly lower moisture content than with the conventional tissue process. This reduces the wet tack of the web, reducing the natural adhesion of the web to the dryer compared to the conventional process. In these situations, an auxiliary adhesive agent is required. Selvol is an excellent adhesive for this purpose (as described in U.S. Patent 4,440,898).

An even newer implementation of TAD technology involves through-air-drying without any creping. This uncreped through air drying (UCTAD) process produces tissue with excellent softness and bulk. In these applications PVOH can also be used to adhere multiple plies of tissue very effectively. Multiple plies of tissue can be laminated together and used in multi-ply towels, packaging materials or building applications, for example.

Meeting the Unique Requirements of Tissue Applications

Sekisui Specialty Chemicals offers one of the most complete PVOH grade lines in the world. This is particularly important because every tissue application has its own unique requirements, as demonstrated by the number of different applications for PVOH in tissue described in the patent literature and industry publications.

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