

## AIRLAID NONWOVENS

**Pankaj Patel**  
**Wyant Health Care**  
**Sommerville, NJ**

In 1967, the first airlaid nonwoven process was invented by Karl Kroyer in Europe. He attempted to make single-ply facial tissue. But this process could not compete economically with the wet process and therefore, was abandoned. Then in 1977, Fort Howard modified the Kroyer process and began production using a full-sized Airlaid Kroyer machine. In 1986, Dan Web introduced the drum former concept to make airlaid paper.

The primary difference between the Kroyer method and the Dan-Web method is the dry forming process. The Kroyer process has fixed vertical drums and breaker bar. The Dan Web process has horizontal rotating drums with a rotating pin wheel inside.

In 1986, Wyant Health Care then known as hosposable products purchased Dan Web equipment for the commercial production of an airlaid paper. The benefits of this method are, it is predominantly cost effective, environmentally friendly, and it uses consumer friendly wood pulp.

The following outlines the process by which Wyant Health Care produces dry airlaid paper using the Dan-Web equipment as shown in figure.

The primary raw material is wood pulp. There are many types of wood pulp available in the market, but Wyant Health Care use only U.S. Sulfate (kraft) southern pine wood pulp. Its fiber length is 2.70 mm., Coarseness 45.6MG/100 M., And 2.6x10 fibers/gm. This wood pulp is received in roll form, and is defiberized in a hammermill. These fibers are then dispersed into an airstream. The airstream of fibers lead into two formers then through the use of a vacuum forms two homogeneous layers of web onto a moving belt. After the web is formed, it is compacted and embossed with hot rollers. The web is then sprayed with binder solution consisting of latex polymers, wetting agent, and cross linking acrylates. The web is then dried and cured through the use of hot air ovens. At this point the fibers and binder solution forms a crosslink and impart strength to web. Web is then slit and wound on a roll to create the finished product.

There are points in this process at which the introduction of other materials is possible:

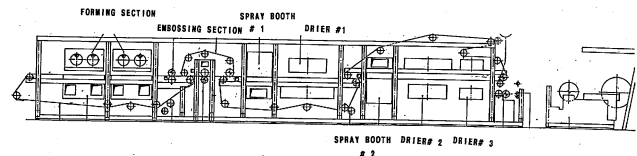
1. Blended within the fiber.

2. A separate layer/ either between, below or above.
3. Some liquid treatment introduced at the binder spray stage.
4. Web can be laminated.

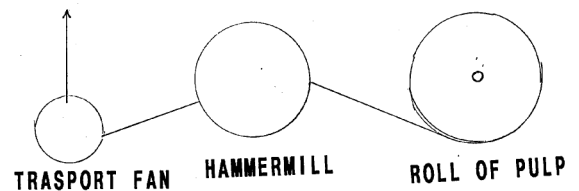
Looking at each possibilities in turn:

1. Various fibers can be introduced into the airstream to create blends of varying strength, softness and, absorbency. ( i.e. Cotton fibers, thermoplastics or recycled fibers).
2. As shown in figure our Dan-Web airlaid system has two formers, that form two homogeneous layers. Between two layers there exists the opportunity to add layers of solids (i.e. Super absorbent, odor inhibitors and, fillers).
3. When the embossed web is sprayed with binder solution, substances such as antimicrobials can be added.
4. Additionally this product can be laminated on plastics, cardboard by applying hotmelt or cold glue.

The end use of these products are industrials wipes, baby wipes, paper towels and napkins, feminine hygiene composites with sap, adult incontinence products disposables and various medical composites, packaging materials.

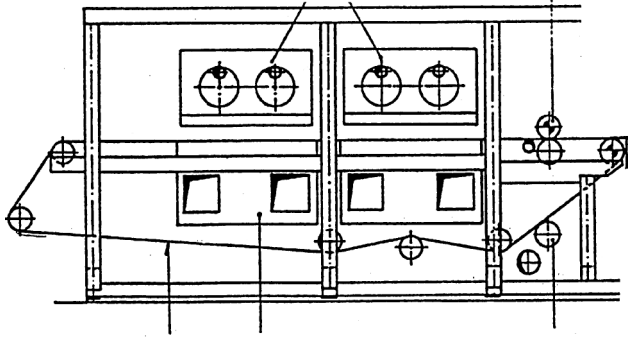


### AIRSTREAM OF FIBER



# FORMING SECTION

## ROTATING DRUMS



FORMING WIRE

## DAN-WEBFORMING SYSTEM

