

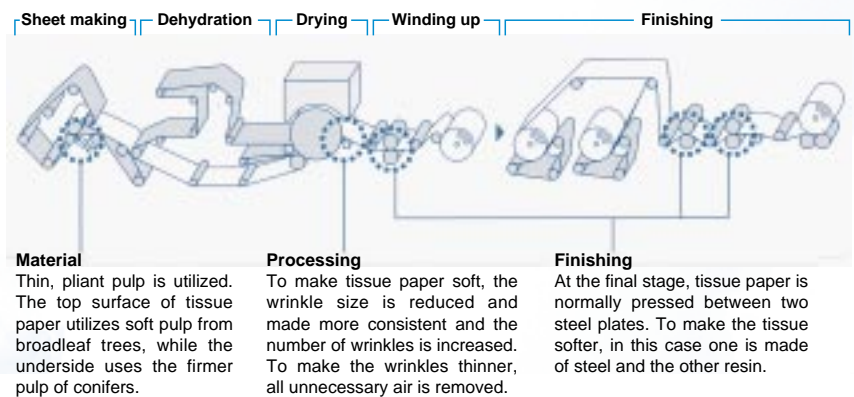
Tissue Paper

The idea of tissue paper was originally inspired by beehives. In the first half of the 18th century, the French scientist Réaumur was walking through the forest and came upon a beehive. He observed bees making their hive out of a decaying tree, biting small twigs and rubbing the various materials into the hive. It then occurred to that perhaps paper could be made from trees. At that time, paper was only made from cotton or hemp.

The process of making tissue paper begins with expanding wood fibers by beating them under water. It is the surface tension provided by the water that allows them to easily adhere to one another. Next comes dehydration, and then drying. During the drying process, cellulose, the main ingredient in wood fiber, undergoes a chemical change that involves hydrogen bonding. This connects the fibers more strongly and turns them into tissue paper. If you use lighter, stronger, more pliant fibers, you end up with thinner, finer quality tissue paper that is still quite strong.

“Today we sell a product called ‘Nepia Tissue Slim’ that has just these characteristics. By selecting trees that have lighter, stronger, more pliant fibers, we can make thinner tissue paper without sacrificing overall quality. The top surface of tissue paper utilizes soft pulp from broadleaf trees, while the underside uses the firmer pulp of conifer—a technique that results in soft, yet strong, tissue paper.”—Hisashi Tanaka, Group Manager of Oji Paper Co., Ltd., Household Products Company.

To make thinner tissue paper, the thickness of the wrinkles in the paper must be reduced in order to minimize trapped air. To make sure it remains soft, however, the number of wrinkles is increased while their sizes are decreased and the wrinkles



themselves are made more consistent. During final processing, tissue paper is normally pressed between two steel plates. But in this case, one plate is made of steel and the other resin. By using the right materials, processing and finishing, the tissues were made thinner and the box height reduced from 65 mm to 50 mm. Mr. Tanaka told us about a happening that occurred during the process to get to this point.

“Tissue paper has the characteristic of returning to its original volume after you compress it, and this is factored into the design of the package height. But because we had no experience such ultra-thin tissue paper, we were unable to estimate the proper box size and after a couple of days, our box of tissue paper was ready to explode.”

Will future tissue paper just keep getting thinner?

“Probably not,” explained Noboru Watanabe, General Manager of Household Product Marketing at Nepia Co., Ltd.

“I think most people would prefer variety over thinness. If you consider annual per capita tissue consumption, America weighs in at 1.33 kg compared to Japan’s

3.16 kg. In other words, Japanese use 2.5 times more tissue than Americans. In America, the type of paper that is used depends on the place it is used and its function. Of course, this is also true in Japan and soon the demand for products tailored for specific needs is expected to increase. Recently our company created a wet-tissue cosmetic product using deep-sea water in the Pacific Ocean near Muroto (near Japan’s south-central island of Shikoku).”

Tissue paper is no longer just tissue paper. In fact, soon a day may come when tissue paper is used in every facet of our daily lives.

Special thanks for cooperation from Nepia Co., Ltd. (<http://www.nepia.co.jp/>) and Oji Paper Co., Ltd.