



**NCR BIOCHEMICAL -
SOFTNESS OF
HYGIENIC PAPERS**

Art. Nr 4/2021



NCR Biochemical – is an international company specializing in the production of process aids for paper production and water chemistry, as well as process fluids for the machinery industry. The company is UNI EN ISO 9001: 2000 No. 08997-2001 and 14000 certified. A few years ago NCR Biochemical purchased the European Tissue division of Houghton, the inventor of chemical coating technology sprayed directly into Yankee cylinders during paper production. Improving and development of new products that can cope with increased machine throughput is a priority for NCR. Their new generation of products typically combines just 2 ingredients: a base coating and a release agent, to create a layer with "variable" hardness - soft enough on the creping blade side (to produce soft paper), yet still providing adequate protection for the Yankee cylinder.

Softness is a peculiar parameter, almost impossible to measure, as it greatly depends upon the perception of the single user. Softness might not be perceived identical between different people or different markets.

Even though “soft tissue” varies from person to person, and country to country, softness is a strict market request for many specific tissue grades and premium quality productions, such as napkins, towels and hygienic paper. Tissuemakers around the world try to produce tissue paper in order to comply with the end-users feeling and requirements. In order to get the best performances in terms of softness, **there are several actions that tissuemakers typically perform:**

- Selection of the right cellulose fibers (eucalyptus and northern bleached softwood kraft)
- Selection of the correct ratio short/long fibers (usually 60-70% short, 30-40% long)
- Use of specific production machinery/systems
- Use of specific blade (such as ceramic) and creping angles
- Reduction of refining energy
- Use of specific lotions or additives to chemically modify the hand feeling of the tissue paper
- Use of enzymes

There is another key point which is often forgotten or underestimated: **Yankee Cylinder Additives**. NCR Biochemical has been studying for many years a combination of specific yankee creping agent, release agent and, if necessary, modifier. Package is able to increase the softness level of the paper produced by working on the sheet surface. The specific coating program does not affect the paper mechanical properties and it works in combination with any other action that tissue makers may take (listed above). Is easy-to-manage, it enhances the final result thanks to its synergic effect with other parameters, such as fibers, chemicals and mechanical actions. Our technicians collaborate with tissue makers to coordinate and sum the actions together, in order to obtain the best softness performances.

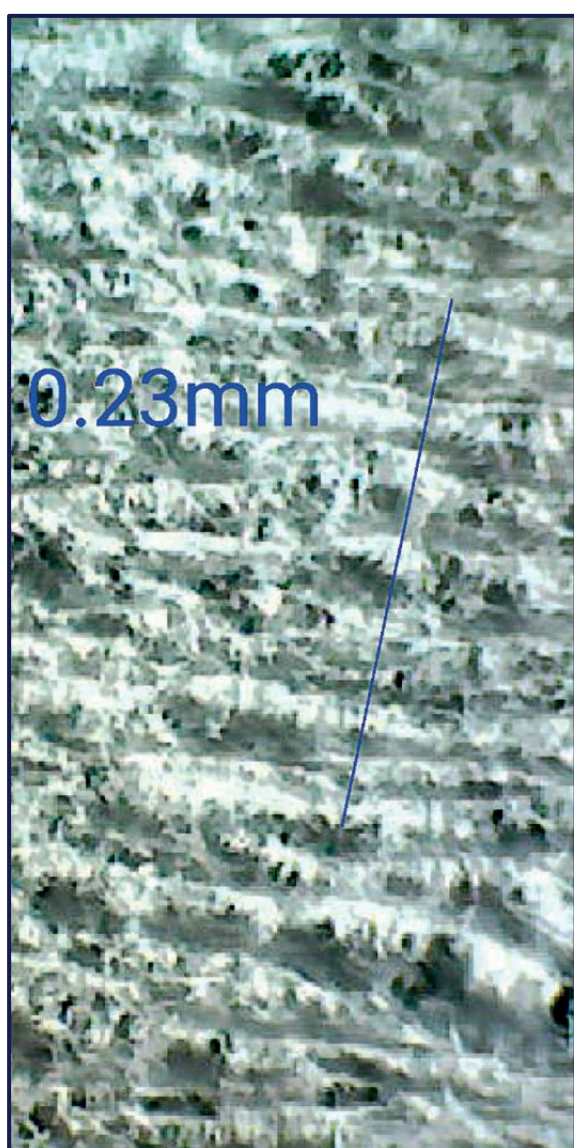
CASE STUDY

- Tissue machine speed 1380 m/min
- Toilet grade 21 gsm
- Crepe ratio 17%
- Target: to achieve very soft paper on toilet grade 21 gsm
- No dosage of softening agent in the mass during the test

The yankee coating program plans to use a brand new specific base coating additive (Biofilm 446) dosed at 2 mg/sqm and a new release agent (Biolube 885A) dosed at 9 mg/sqm. Only two products were used because, as it often happens with NCR's coatings, the modifier is already present inside the coating additive.

RESULTS

A significant increase of the paper softness was achieved by using the new coating package, comparable to the use of a specific softening additive inserted in the cycle, with a global reduced cost/ton of produced paper. Checking the paper with a microscope, we can notice that, in the paper of the first reel after the blade change, the number of “crepe” (or “waves”) is higher using the new combination of products (Biolube 885A and Biofilm 446) compared with previous standard treatment. Picture 1 and Picture 2 show what described above.

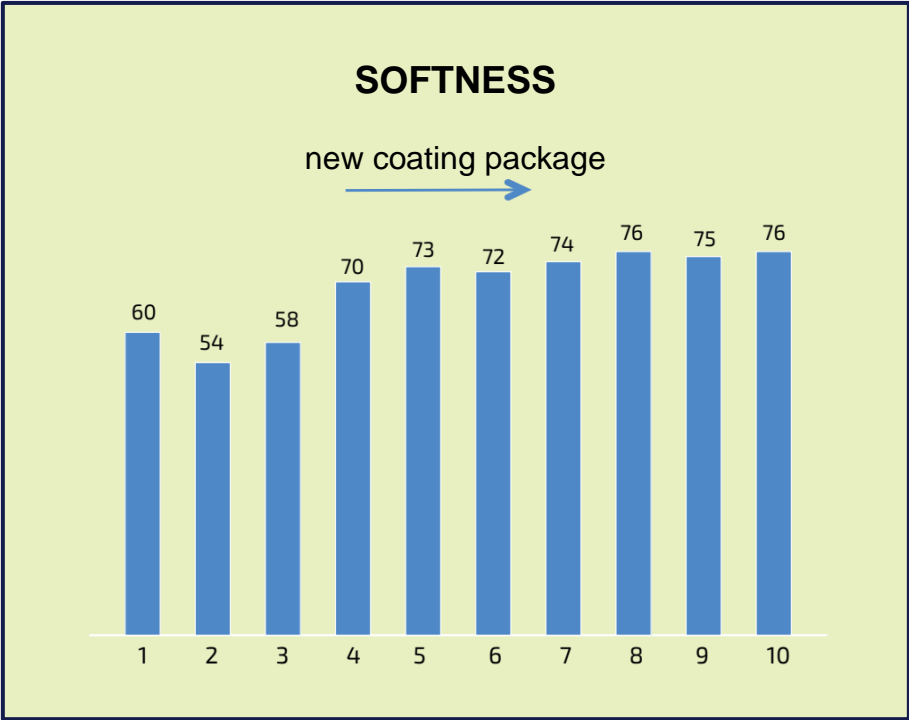


Img.1. Paper from first reel after blade change using the standard treatment.



Img.2. Paper from first reel after blade change using Biolube 885A plus Biofilm 446.

As shown on the picture, after using the new coating products, it's possible to get 10 creping waves in 0.20 millimetres. Using the standard products, 0.23 millimetres are necessary for the same number of waves.



Dwg.1. Change in softness on subsequent tambours.

OUR APPROACH TO THE YANKEE CYLINDER

We, at NCR Biochemical, are specialized in the production of tissue-making additives that match the latest mechanical innovations. We have been dedicating the last 15 years to develop technologies thus allowing our customers obtain high performances at convenient costs and lowest possible production losses. Thanks to a wide team of chemists, microbiologists, paper makers and engineers, we have developed an holistic and global method to help tissue producers increase their performances. NCR team studies every element of the cycle and finds out the best solutions combining four key factors: latest chemical technology, knowledge of our experts, in-depth know-how of the applications, innovative dosing equipment. The final and unique goal is to drive customers to success. Our specialized team will always manage the problems of Tissue mills like their own ones. Our passion for tissue paper brings us close to our customers and makes them satisfied and enthusiastic.

WE INVITE YOU TO COOPERATION!

