HARDWOOD CMP IN PAPER AND BOARD APPLICATIONS

The present report describes how bleached and unbleached CMP is used in paper and board manufacturing. The introduction of CMP or CTMP in the majority of paper and board grades is well consolidated since tenths of years: it allows to spare money in the papermaking process, giving several advantages to the paper quality at the same time.

What are CMP and CTMP?

CMP is Chemimechanical Pulp and CTMP is Chemitermomechanical pulp. Both of them are result of a high-yield production process. CMP can give very similar brightness and mechanical properties, when compared to hardwood chemical pulp. The reason is that CMP combines mechanical and chemical treatments, preventing the fibers degradation in the production plant.

CMP is produced at low T, while CTMP is manufactured at higher T. CMP and CTMP properties are almost the same, and the choice is often related to the wood species and the production process.

CMP can be made from hardwood (short fibers) or softwood (long fibers) trees. In the recent years, hardwood CMP has become more and more welcome by the paper makers, especially due to its better brightness properties and low shives content.

Sicem Saga CMP is manufactured 100% from Hardwood (Aspen) and is comparable to most of the Canadian or Scandinavian CTMP on the market today.

Why to use CMP in the papermaking process?

Several reasons suggest the use of CMP in the papermaking process. Some of them simply to reduce the cost of raw materials, others to improve quality. Here below the main arguments:

1. Cost reduction. Typical use is the cost reduction: CMP can replace a certain quantity of short fibers chemical pulp (such as Eucalyptus or birch). The cost of CMP is lower, and the quantity of short fibers to be replaced can be significative (8-10%).

2. Opacity and formation. CMP is not only a cost lowering tool. Mixed with hardwood pulp, it can give better opacity and good web formation. These properties are of capital importance, when you produce woodfree papers or the top layers of white testliner (WTTL, etc.).

3. Bulk improvement. CMP can be designed also with hi-bulk properties. This is very appreciated by many board makers or special paper producers.

4. Stiffness. This is another paper property that can be enhanced with CMP, together with high bulk.
CMP typical applications

CMP can be used in the majority of paper and board grades. However, the most common applications are the following:

1. Woodfree coated paper. These grades, typically for offset printing, are theoretically made from 100% chemical pulp. However, the international standards allow the presence of 5% of groundwood. By using CMP instead of groundwood, this % can be increased up to 10 %, with considerable advantages in terms of raw material cost. The reaction with “fluoroglucine” - used by paper buyers to tell between woodfree and woodcontaining papers- is reduced with CMP. For this reason, the quality control risk is also minimized.

2. Woodfree uncoated paper. The same principle can be applied to woodfree uncoated grades. For example, printing & writing, copy paper, newsprint. In all cases, a quantity of hardwood chemical pulp can be replaced by hardwood CMP.

3. White top testliner (WTTL). The top layer of WTTL is typically made of chemical pulp or selected waste paper. CMP can replace both of them, with an interesting cost reduction and coverage effect.

4. Hi-bulk board. Unbleached CMP with high bulk, can be used in the production of heavy board, to increase bulk and stiffness.

5. Tissue grades. CMP can replace hardwood chemical pulp, giving good opacity and bulk.

6. Panelboard, melamine fiberboard, gypsum board etc. are considered special applications of CMP, and widespread all over Europe.

Claudio Menzio, Export Manager, Sicem Saga, Italy