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The new looks of paper

Paper industry representatives present their new products and reveal trends about the various segments

One does not need to go way back in time and reminisce about the historical milestones of paper in China to see the countless changes the product has undergone. It is easy to identify that, with each passing decade, the millenary invention perfects itself and overcomes rumors and forecasts about its end.

Nowadays, its use is on the rise in places where many people don't even notice. A famous American coffeehouse chain, for example, made the act of drinking coffee out of paper cups a popular habit. Also within its pursuit of sustainability in different day-to-day situations, paper bags promise to retake their space in Brazilian supermarkets, together with cardboard boxes, based on a bill prohibiting the use of plastic bags.

As such, who could dare risk defining a date for the end of the useful life of paper and its plethora of applications? Should there be such a person, certainly he or she is not up to date on the pulp and paper industry's efforts in seeking innovations or its cases of success.

An application that recently arrived in Brazil is an example of these noteworthy innovations. With the objective of minimizing contamination risks of paper bills, Arjowiggins Security developed Bioguard® V, a specific treatment that makes paper resistant to contaminating microorganisms. In practice, the paper receives the treatment on the production line and maintains its properties throughout its entire useful life.

Makers of special papers are responsible for other product launchings: Opalina Lisa Digital and Markatto Stile Digital papers for printing on HP Indigo. The products grant the company the merit of being the first South American plant to approve fine papers for printing on such equipment.

The proposal is to expand the number of options for designers and printers, allowing them to achieve their digital printing ideas without having to give up using fine papers. "This is another example that reflects our commitment to permanently seek innovation and differentiation. The next step is to make available in the market. And we will soon have other products approved", informs Ronald Carvalho Dutton, Commercial Director of Arjowiggins Security's Fine Papers Division.

Another company offering a wide array of special papers and that makes value-added its cash cow is MD Papéis. The list of products it markets to different industry segments includes papers for decorative laminated, adhesive tape, flexible packaging, coffee filters, printing and writing paper, paperboard and for automobile filters. In view of the diversification of these product lines, MD's Industrial Director Lino Di Piero Jr. says that the pursuit of innovation is a constant and mutually contagious aspect among all members of the MD team.

In the tissue segment, Kimberly-Clark Brazil stands out with Brazil first three-ply toilet paper. As the leader in two-ply, the company is betting on the exclusive three-ply technology used with Neve Supreme to offer better performance and a velvety feeling to consumers.

Also with an eye on end user expectations, Kimberly introduced Scott® Compacto. This new product, as the name indicates, is packaged in a compact manner, resulting in a 45% reduction in space occupation in relation to the traditional version. This application is made possible thanks to a technology that compresses the rolls of toilet paper when the product is packaged. When the time comes for it to be used, one simply has to press the roll for it to go back to the original size consumers are accustomed to.

Also known for its innovative character, Suzano Papel e Celulose offers new versions of its Alta Alvura®, Paperfect®, Symetrique® and Report® Multiuso papers, now with their Carbon Footprint. In using the PAS2050 methodology to quantify the carbon footprint of its production, the company received Carbon Reduction Label certification from Carbon Trust.

The basic difference between the carbon footprint of a product and the Corporate Emissions Inventory resides in the calculation method that defines each approach. While the Emissions Inventory quantifies emissions of a given stage in the production chain, the Carbon Footprint quantifies the GHG emissions associated to all stages in the lifecycle of a product.

"In submitting the carbon footprint of our products for auditing by Carbon Trust, we sought not only a seal stating precisely our carbon footprints, but also a way to demonstrate our commitment to reducing the emissions of these footprints", says Adriano Canela, Executive Manager of Strategy and Marketing for the company's Paper unit.

Establishing more solid ties between the scientific and technological academy's installed capacity and demands of business sectors is paramount for Brazil to advance in innovation

In the handmade paper niche, sustainable practices are bountiful. A recent example is becoming quite popular in the segment: Seed Paper. Developed since the beginning of 2008, the product possesses the same characteristics as recycled paper, but includes seeds in various stages of its production, allowing plants and flowers to germinate from it.

Sérgio Martinho, Managing Partner of the company that carries the same name as the product, says that the paper is being used to make gifts and ecological products, like envelopes, boxes, packaging, cards, ID tags and invitations. "Our monthly production average amounts to 5 thousand 66x96cm sheets of paper", he says.

The businessman's expectations are of growth and diversification. "On account of his customers' needs, printing companies are looking to adapt to the printing peculiarities of seed paper on an increasing basis. We hope to grow sales significantly in the next few months."

Although the use of alternative fibers makes us think about handmade papers, the reality observed is already different. Four years ago the first printing paper in A4 format produced from sugarcane bagasse appeared in the Brazilian market. "Ecoquality® is a paper produced on an industrial scale and guaranteed to be produced on a regular basis", says the Commercial Director of GCE Papéis, Luiz Machado.

The fact that it's produced from the waste of another industrial activity is not Ecoquality's® only difference. "While recycled products made from wastepaper has a whiteness of around 48 degrees, our paper has a high whiteness level of between 89 and 93 degrees. In other

words, it's a recycled product in white and extra white versions, available in A4 and letter format", says Machado.

The path of innovation

The creation process of products varies according to the policy of each company. Arjowiggins Security's Fine Papers area, for example, works two ways: in one of them, the company's laboratory focuses on developing new products, while in the other, the company focuses on satisfying market demands. "Many times, the demand for innovative products stems from market research", says Dutton, Commercial Director of the Fine Papers Division.

Also according to the executive, stages of the creative process begin with ideas from all sorts of places, such as the fashion, civil construction and jewelry sectors. "The suggestions are analyzed by the marketing department, discussed with the industrial area in order to then be developed in the laboratory. When viable, they undergo industrial tests", he says.

Throughout the stages, Arjowiggins Security's creations still pass through a group called the Paper Council, which encompasses professionals from areas like design, advertising, printing, processing and paper sales. "New products are submitted to this group for purposes of validating their marketing feasibility", says Dutton.

Arjo's Security Solutions unit also concentrates efforts on customer demands. "With each new project for our clients, we develop or adapt solutions. The clearest example of this participation resides in our Brand Protection division. Each product to be protected possesses distinct needs, so we carefully analyze it to arrive at an efficient solution", says Cristiano Gonçalves da Luz, Marketing Manager of Security Solutions.

According to the executive, innovation is important for any segment in the paper industry, however, for companies that develop security solutions, this is a key aspect. "The market continuously calls for innovative products", he believes.

In terms of market trends, Luz mentions Brazil's new money bills. "Brazil has been adopting security solutions for its official documents, keeping up-to-date with trends in more developed countries, such as the new civil registration certificate, ID card and passport.

MD Papéis is another company that listens to its

LPC conducts tests, analyses and other services directed at the different types of paper



SÉRGIO BRITO

customers when it comes to innovating. “We have a formally constituted R&D area with our own team of professionals. And, since our business is predominantly business to business oriented, we need to work with the links in the chain in which do business is to ensure the success of our actions”, says the Industrial Director.

Di Piero Jr. also points out that the processes of adapting existing products, incorporating new technologies or improving their functional properties, has the same importance as the development of new products. “They generate solutions that anticipate customer needs, increasing the useful lifecycle of products.”

In turn, the focus at Kimberly-Clark tends to be end users. “The stages of project initially comprise research with consumers, then development of the entire mix and, lastly, implementation at mills”, says Priya Patel, Director of Family Care.

The generating of ideas aimed at launchings focuses not only on market growth, but also on the competitiveness of today’s markets. Priya says that the company believes in innovation in various fronts: new products, new sizes or formats of existing products; and improvements that offer benefits to consumers. “Considering all these innovation angles, we have an average of ten new launchings that reach the market annually”, she says.

To produce these new launchings, the company has an R&D area that invests heavily in new technologies, as well as in renewing current products in the toilet paper, tissue paper, paper towel and napkin segments. The R&D team is composed of engineers and chemists, which, in Priya’s opinion, provides the ideal balance in innovating production processes, products and packaging. “Additionally, we count on several partners such as universities, suppliers and outsourced laboratories.”

In terms of trends in the tissue segment, Priya points out the transition in the Brazilian market from single-ply to two-ply toilet paper. “Consumers are seeking products with greater softness and absorption power. We also note a trend in product compacting and the increased popularity of eco-friendly products”, says Kimberly’s executive.

At Suzano, innovation is perceived as a commitment. In order for the practical implementation to be agile and be used in various fields, the company adopts the Open Innovation concept. In other words, Suzano bets

on partnerships with clients, suppliers and universities to generate new products, processes and knowledge. “Joining all links in the chain to exchange ideas and talk about needs and obstacles, reduces innovation costs while also making the process more efficient”, says the Executive Manager of Strategy and Marketing for the Paper Unit.

Along this same line, the revenues stemming Suzano launchings jumped from 5% to 20% in the last two years. Another important fact is that the company has 35 partnership projects underway.

According to Canela, the greater share of new products is due to a series of factors, including tools like technological roadmapping, directed meetings with the company’s value chain, patent banks and other important stakeholders. “This allows Suzano to anticipate market demands, showing customers better quality, lower cost products, greater competitiveness or technological advantages”, lists the executive.

Also according to the manager, sustainability has stood out as a trend in various Suzano product lines. One new feature that the company can reveal is the expansion of the Carbon Footprint certified by Carbon Trust for the entire paper line. “Additionally, characteristics like better print quality and increased speed lend more competitiveness to the portfolio”, says the manager when talking about the goals pursued by the company.

Theory and practical assistance

Regardless of the strategies each company adopts to put innovation into practice, the partnerships established with universities and research centers play an unquestionable key role. Within this context, The Institute of Technological Research (IPT) stands out for its performance. Associated to the Department of



“Companies that are losing part of their productive process are unable to apply innovation”, regrets Nicolsky

TRENDS PROJECTED FOR THE SECTOR

Head of IPT's Pulp and Paper Laboratory, Maria Luiza Otero D'Almeida characterizes the paper sector as a tuned-in industry, always seeking improvements to the productive process in order to become more competitive. But today the challenge of presenting competitive advantages is even greater. "There exists a permanent movement in the sense of creating products, services, processes and managerial systems. In other words: to innovate", she says.

Also according to her, Brazil's economic situation also favors investments. "Overall, requests for research and services have increased substantially in recent years", she says.

For the next couple of years, Maria Luiza points out a few differences among the paper segments. For being a commodity, the production of printing and writing paper shall focus on increasing production and improving processes in order to achieve more competitive prices. "Developments have been made in the paper for digital printing area, but the main technological advancements will be in print machinery and inks for printing", she bets.

In the case of tissue papers, it is important to point out their leap in quality and growing pursuit of technological innovation underway. "Five years ago, the amount of specks (dirt) on single-ply toilet paper exceeded 400 mm²/m². Today, this figure has dropped to around 50 mm²/m²", compares LPC's Head.

The improved standard of living of Brazilians has led consumers not only stop using this type of paper but also value quality. "They are also more aware in terms of caring for the environment. Requirements from the population are driving the industry and, by improving the quality of a product, you end up resorting to innovation."

When talking about specialty papers, Maria Luiza classifies them as the segment that demands technological development the most, since they are higher value-added products. However, investments are well below expected. "In Brazil, there still lacks the habit of investing in research and this doesn't change from one day to the next. But I believe it's already occurring, little by little because in today's open market, one needs to be competitive", she said.

The developments made in thermal paper for tax receipts are pointed out as important by Maria Luiza. "LPC is the only Brazilian laboratory licensed by the National Council of Fiscal Policy (CONFAZ) to conduct technical analysis of thermal paper as stipulated in articles 6 and 9 of COTEPE Act 04/10", says the head of the laboratory.

At present, a study regarding the permanence of print on thermal paper over time, applying the principle of Arrhenius, joins four other projects at LPC: control over the quality of educational books purchased by the National Education Development Fund and distributed to municipal and state elementary and high schools; study about recycling paper from educational books, applying a flotation cell in the deinking process; study of absorption kinetics involving ink and paper in digital printing and the influence of the sterilization process by gamma radiation on paper packaging for healthcare products.

Economic, Scientific and Technological Development of the State of São Paulo, the century-old institute contributes to the development of various sectors in Brazil. IPT encompasses a total of 12 technological centers and 39 laboratory complexes.

The execution of tests, analyses and other services directed at the different types of paper is conducted by the Pulp and Paper Laboratory (LPC). Maria Luiza Otero D'Almeida, head of LPC, mentions the Interlaboratorial Programs (PIs) as a service provided to the paper industry. "They are aimed at verifying the performance of individual laboratories and are broken down into three rounds per year", she says. "The PI for corrugated paperboard sheets is in the process of obtaining INMETRO accreditation. We will then go ahead with the accreditation process for the paper and cellulosic pulp PIs", she said.

Maria Luiza says that LPC's interaction with the private sector is considerable. According to her, almost all domestic plants in the sector participate in programs offered by the laboratory. This participation also extends to plants and universities in other Latin American countries. "Not only paper production companies interested in researching production methods or making a new product or improving an existing one can work with LPC; raw material makers, paper product importers or any individual who has paper as his or her focus of studies may contact LPC", she said.

The Brazilian Society for Technological Innovation (Protec) is another entity dedicated to boosting the country's technological innovation. Founded in 2002, the nonprofit civil association aims to encourage institutional representatives of the productive sector and companies to continuously seek improvement of innovation development public policies.

"When Protec was created, there wasn't a single law that promoted Brazil's technological development. So, this became its mission: to create legislation that would transform the innovation process not into an isolated action of visionary companies, but rather a systemic process that encompassed the entire productive sector", recalls the entity's Managing Director Roberto Nicolsky.

Since then, the goals have been achieved. Protec played an active role in building the current Legal Framework for

Innovation Support, having contributed to the creation of the Law of Innovation (10.973/2004), formulation of Law #10,637/2002, which served as the basis for Chapter III of the Law #11,196/2005 and Law #10,637/2002.

However, Nicolsky points out that there is still a lot to be done in favor of innovation. According to him, the country is undergoing a disarticulation process of productive chains, which hinders technological development. "Brazil's industry is substituting products that were previously produced for imported components, or even, imported end products. Companies that are losing a part of their productive process do not have conditions to apply innovation. This is incoherent", he says.

The exchange rate is another obstacle pointed out by Protec's Managing Director. "With the US dollar continuing to drop, Brazilian products will never reach a competitive level, particularly in relation to Chinese products." According to him, the State should come up with ways to block the exchange rate, be it through

monetary reserves or establishing customs barriers. "In addition to a truly definitive policy that's bold and willing to stimulate innovations in Brazil's entire productive sector, we need tougher macroeconomic measures for the stage Brazil has reached", he says.

Ronaldo Mota, Secretary of Technological Development and Innovation of the Ministry of Science and Technology (MCT) agrees that innovation is a fundamental tool for sustainable development, economic growth, job and income generation, and the democratization of opportunities in today's global scenario.

According to the Secretary, a series of aspects needs to be improved in order for Brazil to advance in this sense, particularly with regards to establishing more solid ties between the scientific and technological academy's installed capacity and demands of business sectors.

"Historically, it is possible to point out three major bottlenecks in promoting innovation in

Consumers are more aware in terms of caring for the environment, which factor leads to improvements in the paper production process

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Brazil: lack of an innovation culture in the business community and the scientific and technological community; little synchronicity between public policies and research and development activities and policies and strategic programs for economic and social development, and the lack of human resources apt for today's innovation scenario."

Mota also says that various actions are being implemented in search of a more consistent connection between academic centers and the business community. CAPES' new Post-Graduate National Plan (PNPG 2011-2020) is mentioned by the Secretary as an example. Among its priorities is the qualification of human resources for the productive sector, placing emphasis to this specific training.

"Another important action is the RHAE Program – Researcher in the Company –, a CNPq initiative in conjunction with SETEC/MCT, to provide scholarships to researchers, master's and PhD students to work in companies", exemplifies Mota. He reveals that

from 2008 to 2010, the resources earmarked for the program amounted to R\$ 76 million. This year, another R\$ 40 million is projected.

In the business environment, movements like MEI (Mobilization of Businessmen in Favor of Innovation), spearheaded by CNI (National Confederation of Industries), are improving perspectives and awareness of businesspeople regarding the importance of innovation for the survival and growth of companies.

"To boost quality, academia and the business community need to bet on their interfaces and connections, but this phenomenon is still recent, particularly in the industrial sector", says Mota. "In addition to the significant and necessary experience in basic sciences, professionals need to know how to work as teams and have had experience in start-up companies while in school. Lastly, they should be prepared for the new, always treating the present and future scenario naturally and exercising the power of collectivity in dealing with challenges", he said. ■

Innovate in the sector is...

"Innovations bring growth to the company, as they are designed to satisfy market and consumer needs".
Priya Patel, Director of Family Care at Kimberly-Clark

"Innovation is important in any segment, especially when referring to the reutilization of materials."
Sérgio Martinho, Managing Partner at Seed Paper

"Technological demand and the need for innovation have such a powerful force in our business that, in addition to being part of all of our discussions involving continuous improvement, they are treated as strategic themes in the pursuit of competitiveness".
Lino Di Piero Jr., Industrial Director at MD Papéis

"Globalization, coupled with economic stability, has led the Brazilian market to high levels of requirement. Our survival depends on mastering and offering new products, be it a new color, new texture or a whole new line."
Ronald Carvalho Dutton, Commercial & Marketing Director of Fine Papers at Arjowiggins Security

"The demand for innovation has increased not only in the paper industry, but in other sectors of the economy too. If the paper company does not keep up with this rhythm, it runs the risk of losing market share. Innovation is a competitive advantage."
Adriano Canela, Executive Manager of Strategy and Marketing at Suzano

