beyond
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CURRENT AWARENESS FROM STFI-PACKFORSK | #2/2004

STFI-Packforsk is steering the path in the EU Packaging Directive

Volvo Logistics go EU-approved, page 4

PHOTO: VOLVO TRUCKS

Co-operation strengthens research in the mechanical pulp field | Direct influence on research | Deeper understanding of runnability | Well-functioning internal control | Product safety | Optimising optimisations | Research on the royal agenda | Golden showers over the Goldstar winners | New prize-winning method for paper production

Co-operation strengthens research in the mechanical pulp field

PFI

Since the beginning of this year, STFI-Packforsk has strengthened its research resources within the fields of mechanical pulp and fibre characterisation through a co-operation with the Norwegian Paper and Fibre Research Institute, PFI, which is now a subsidiary of STFI-Packforsk.

"STFI-Packforsk and PFI complement each other within mechanical pulp research, and this co-operation creates a strong grouping which covers both basic and more applied questions around the refining of mechanical pulp", says Lennart Salmén.

In the mechanical pulping sector, research at PFI today is, to a high degree, directed towards fibre characterisation, for example what happens with the fibres, and how this knowledge can be exploited to improve the production processes. STFI-Packforsk, on the other hand, has acquired a considerable amount of knowledge about how the wood material and the properties of the fibres are influenced by the process and by the process conditions.

"We are co-operating within our respective fields", says Lennart Salmén, "and a concrete example is within the project Mechanisms of Low-consistency Refining."

In order to achieve the best integration effect, Oddbjörn Eriksen at PFI is the leader of this research project, while the practical work within the project is being carried out for the most part in STFI-Packforsk's pilot plant together with the researchers at STFI-Packforsk who have developed this new concept of how to render the refining process more effective.

"This is one of the fields in which we are strong and this is one aspect of our overall efforts to make the TMP-process more efficient from an energy viewpoint", says Lennart Salmén.

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STFI-Packforsk har under året stärkt sina forskningsresurser inom mekanisk massa och fiberkaraktärisering. Detta genom samarbetet med norska PFI, Papir- og fiberinstituttet AS som nu är ett dotterbolag till STFI-Packforsk.

– STFI-Packforsk och PFI kompletterar varandra inom mekanisk massaforskning och bildar genom detta samarbete en stark gruppering som täcker både grundläggande och mer tillämpade frågor kring raffinering av mekanisk massa, säger Lennart Salmén.

– Vi samarbetar inom respektive områden och ett exempel är inom projektet Raffineringsmekanismer vid lågkoncentrationsmalning, säger Lennart Salmén.

Direct influence on research

"Curious to learn what I don't know." "Fun to see what's going on at your place." "Nice to meet old friends from the industry." "Good to know what we get for our money." The comments from participants at the research seminar held on September 21 for STFI-Packforsk's partner customers were all very appreciative.

All employees of our partner customers are invited to this annual meeting. Some 70 representatives from the 18 companies came to get information about the long-term research programme. Some of them participate themselves in various research areas and were anxious to learn about other research connected to their activities while others were hoping for a more general presentation and also for an opportunity to establish new contacts.

This year's seminar offered summaries of STFI-Packforsk's major research projects including those financed by EU. After a "mingle-lunch", the participants could follow presentations of results within specific areas in either of three parallel sessions.

STFI-Packforsk's core areas are pulp, paper, print & media and packaging & logistics. Being a partner customer makes it possible for a company to influence the direction of the research programme and, thanks to close and continuous contacts, always to be up-dated on the latest findings.

STFI-Packforsk is pleased to welcome Klabin as a new partner customer among the eighten present partners. As a partner customer you take part in our extensive research programme. Klabin is a Brazilian company in the integrated production of market pulp and paper. Klabin produces packaging paper and cardboards, corrugated boxes, multiwall sacks and envelopes. Its yearly production amounts to 1.5 million tons.

FOR INFORMATION ON PARTNER CUSTOMER RELATIONS, PLEASE CONTACT:
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"Nyfiken på det jag inte vet" och "Bra att veta vad vi får för pengarna" var några av kommentarerna på det forskningsseminarium som hölls den 21 september för STFI-Packforsks avtalskunder. Ett 70-tal representanter från de 18 företagen fick en samlad information om det långsiktiga forskningsprogrammet och den EU-finansierade forskningen samt presentationer inom specifika områden i tre parallella sessioner. Som avtalskund kan företagen påverka inriktningen av forskningsprogrammet och genom en kontinuerlig kontakt alltid vara uppdaterad på de senaste rönen.

Per Carlesson at the DNEX printing house in Akalla, Stockholm, has together with STFI-Packforsk developed a new way of testing how paper properties are related to press runnability in web offset.

Deeper understanding of runnability

Together, the DNEX printing house in Akalla and STFI-Packforsk have developed a new way of testing how the properties of the paper are related to press runnability in the full-scale web offset process. This method provides both the printer and the papermaker with relevant information about how the latest paper delivery will influence the runnability in the printing press.

The pilot machine LINDA at STFI-Packforsk for dynamic testing of paper webs.

During the last year, STFI-Packforsk and DNEX have compared results obtained with the new test method with the results of printing in the DNEX printing house.

"The measurement data which the mills have traditionally given us unfortunately provide no indication of how the paper will behave in the printing press", says Per Carleson of the DNEX printing house. "In the offset-process, water is applied to the paper and this is one of the factors which most clearly influences the paper."

"We have therefore worked together to develop a method which corresponds to the real conditions existing in printing", says Mattias Drotz of STFI-Packforsk. "We are now going further and it is our hope that the printers and the paper industry will see this as an opportunity to standardize and test the runnability of the paper in advance before it reaches the printing press."

Testing runnability

The specifications and measurement values which the papermakers supply together with the paper deliveries today do not give the printers the information which they need for their printing production.

For many printing houses, the testing of the paper's runnability in the web offset process is both expensive and often fairly complicated to evaluate. In order to evaluate the runnability of different paper grades, each printer carries out his own full-scale printing. The disadvantage of a full-scale printing is that many tons of paper are usually consumed, and this means that it is expensive.

With the new developed test method which shows for instance how the paper is influenced by the fountain solution, STFI-Packforsk can now both measure and document the properties of the paper on a pilot scale before the paper is delivered to the printer.

"In our pilot machine, LINDA, we can apply relevant amounts of water and record how much the paper moves in the longitudinal and lateral directions after a given time and under a given web tension", says Mattias Drotz. "In other words, we have an excellent tool for simulating what happens under real press conditions."

Good results

The method functions well and the results have met with a great interest from the offset sector, which means that papermakers, printers and researchers will continue to work together in a joint project.

"So far, we have found good agreement between the results presented by STFI-Packforsk and the full-scale printings at our printing house in Akalla and Borås, and this means that this is an interesting method to explore further", says Per Carleson of DNEX.

"We are now going further and extending the work to the testing of print quality on paper", says Mattias Drotz. The web-offset sector is showing a great interest and we are now planning a continuation in a project where we shall invest in a printing unit on LINDA. This means that we shall be able to simulate the conditions in any given printing house by using the same printing ink, the same fountain solution etc."

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Utvärdering av papperets körbarhet i rulloffset är både dyrt och komplicerat. STFI-Packforsk och tryckeriet DNEX i Akalla har tagit fram en metod att testa papperets egenskaper. Nu kan tryckerier och pappersleverantörer få relevant information om hur pappersleveransen påverkar körbarheten i tryckpressen.

– De mätvärden som bruken enligt tradition har givit oss ger oss tyvärr inte någon kunskap om hur papperet kommer att reagera i tryckpressen, säger Per Carleson på DNEX tryckeriet.

Metoden som simulerar och mäter vad som händer vid verkliga förhållanden har mött stort intresse från branschen vilket innebär att pappersbruk, tryckerier och forskare kommer att fortsätta i ett gemensamt projekt.

Volvo Logistics go EU-approved

Packaging made and used within Europe must comply with a number of demands stated in the EU Packaging and Packaging Waste Directive. It shall be optimised as to weight and volume, hazardous substances in the material shall be minimised, and the packaging shall be recoverable.

"These rules are not so well known by European companies despite the fact that they are already in force", says Ann Lorentzon, researcher at STFI-Packforsk and the secretary of the trade and industry group Miljöpack (see also the adjoining article).

"The Miljöpack group works to spread information and help companies not to have their packaging questioned and banned for trade within EU. Swedish companies now have started to assess their packaging according to the six European standards showing how to be able to guarantee that their packaging comply with the requirements."

Reading the regulations, you get the impression that they mainly refer to consumer packaging. But what about companies who have shop packaging or transport packaging as their main business? They, too, must fulfil the requirements and be able to prove that they do.

Volvo Logistics, a member of the trade and industry group Miljöpack, asked Ann Lorentzon for help.

"Since we are members of Miljöpack and get our information from that group it was natural to place the assignment at STFI-Packforsk as we did not have enough in-house resources", says Aase Johansson, Quality and Environment co-ordinator at the Packaging unit of Volvo Logistics.

As flexible as Lego blocks

The company is active globally providing the motor industry and the manufacturing industry with overall packaging solutions. What started as a flexible and efficient system for the transport of components within Volvo and between Volvo's sub-contractors and the assembly plants has expanded to covering also the flows between other companies.

The packaging system is very extensive and comprises transport packaging, composed of various components to suit the shapes of a wide range of products and their individual demands for protection. A typical solution could be a pallet combined with collars, inserts, lid and plastic cover. Also plastic boxes that can be stacked in and on each other, folding plastic containers and corrugated board boxes of various sizes are part of the system. Altogether, there are close to one hundred different packaging types in the system, both one-way and returnable solutions.

Ann Lorentzon compares the system to building with Lego blocks. In the hands of children, these blocks can become both moon rockets, fortresses and doll's prams.

She soon realised that a new approach was necessary to make the assessment.

"The basic idea with the Volvo Logistics packaging system – to use the same packaging system for many different products – means that the assessment could not be made for the individual components since the demand for flexibility had to be considered. The standard states that when optimising the amount of packaging material, the entire packaging system shall be considered."

"An initial problem therefore was to create the correct groups to assess."

Ann Lorentzon, in co-operation with Aase Johansson, began to outline a structure and group the components. This work only, took many hours and discussions despite the fact that they had Volvo Logistics' excellent quality assurance system as a basis. In parallel they discussed what requirements and standards to use for the assessment.

Logistics were determining

For the assessment of material optimisation Ann Lorentzon choose to group by pallet size, which resulted in just over ten groups. She then studied group by group. The information was completed with performance criteria, requirements, critical functional demands and references to Volvo's various quality assurance systems.

"Considering the company's business, it came as no surprise that logistics is the critical functional demand in material

Aase Johansson, Volvo Logistics, commissioned the Trade and Industry Group Miljöpack to assess the company's packaging system according to EU's Packaging Directive.

optimisation", says Ann Lorentzon.

New groupings were made to assess, in an efficient way, how the demands on material contents, recovery and recycling were complied with.

All the studied packages pass the demands investigated. The fact that Volvo Logistics have had this study carried out and now have the results documented is, according to Ann Lorentzon, a necessity and practically self evident for such a big company.

A satisfied customer is the reward

Aase Johansson is satisfied with the results.

"It is difficult to familiarize oneself with the interpretations of the EU directive and the standards, but we have been helped immensely. The communication between Ann and myself has worked splendidly."

"We are well on the way in our efforts to make a minimum impact on the environment and to contribute to a sustainable development. The report with appurtenant certificates drawn up with the help of STFI-Packforsk gives us security, should the authorities ask us to show how our company complies with the EU Packaging and Packaging Waste Directive."

"We are also getting questions from our European customers and it feels very good to be able to show that we have done what we are supposed to. Now I also hope that we will have the opportunity to educate ourselves to handle the tools of the investigation to be able to continue our work with quality."

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Förpackningar som tillverkas och används inom Europa måste uppfylla ett antal krav som finns angivna i EUs Förpackningsdirektiv. Svenska företag har börjat utvärdera sina förpackningar enligt sex Europastandarder. Volvo Logistics tog hjälp i arbetet av Ann Lorentzon, STFI-Packforsk och sekreterare i Näringslivsgruppen Miljöpack.

Volvo Logistics arbetar globalt med att förse fordons- och tillverkningsindustrin med totala emballagelösningar, sammansatta av olika komponenter för att tillgodose former och skyddskrav för ett brett sortiment av produkter.

Utvärderingen kunde inte göras på enskilda komponenter utan hänsyn måste tas till kravet på flexibilitet. En struktur upprättades varefter komponenterna grupperades. Informationen kompletterades med prestationskriterier, krav, kritiska funktionskrav och grund för besluten.

– Det är svårt att sätta sig in i tolkningarna av direktivet och standarderna, och vi har fått god hjälp. Rapporten med tillhörande intyg ger oss en trygghet om myndigheterna skulle be oss redogöra för hur vårt företag uppfyller EUs förpackningsdirektiv, säger Aase Johansson, Kvalitets- och Miljösamordnare inom Emballageverksamheten på Volvo Logistics.

Well-functioning internal control

Products stopped at borders, packages that producers have been forced to recall, fines, questions. The problems are emerging in Europe for packaging that do not comply with EU's environmental requirements.

All companies selling packaging or packaged products within Europe are affected by the EU Packaging and Packaging Waste Directive. It concerns both multinational packaging groups as well as one-man companies selling jam. They must all be able to declare their packaging according to at least three out of six European standards.

Already in 1994 EU introduced a directive that says that member countries shall ensure that only packaging that comply with the essential requirements in the directive are put on the market. The background is resource economy and environmental adaptation.

In Sweden the ordinance on producer responsibility for packaging was adapted a few years later, and as from 2000 we have standards describing how to comply with the environmental requirements. This year both the EU directive and the European standards have been revised, and next year the Swedish ordinance will be updated. The standards cover:

- User guide
- Material optimisation
- Re-usable packaging
- Material recoverable packaging
- Energy recoverable packaging
- Compostable packaging

The way of regulating the compliance varies among the EU countries. In Sweden we have a system where the industry voluntarily – through an internal control system – shows that the used packaging complies with the requirements. This system, based on the European standards, has been developed by the Trade and Industry Group Miljöpack, whose secretariat is found at STFI-Packforsk.

Standards lay down the methods

To find out whether a package complies with the requirement regarding material optimisation for instance a checklist found in that specific standard is used. It specifies a number of performance criteria, for example product protection and logistics. The company has to determine relevant functional requirements for the individual criteria. Then it is time to define the critical functional requirement, that is, the one that makes it impossible to make the package smaller or lighter. The grounds for the decision must also be specified.

The standard gives an example of fresh juice in a glass bottle. To protect the product, the bottle must have a layer protecting against UV and oxygen. However, the critical functional demand is impact resistance and mechanical stability, which thus determine the design of the packaging.

Today Miljöpack has around forty member companies who all declare that they, by using internal control systems, ensure that they follow the methods prescribed by the standards and the Miljöpack guide-lines and thus assess their packaging in accordance with the essential requirements of the directive.

The Swedish National Environmental Protection Agency is the supervising authority. The Agency has stated its confidence in Miljöpack's work and expects an increasingly larger number of members as well as a continued charting of the companies' observance of the directive.

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Alla företag som säljer förpackningar eller förpackade produkter inom Europa berörs av EUs Förpackningsdirektiv. De ska kunna deklarera sina förpackningar för minst tre av sex Europastandarder. Standarderna gäller användarhandledning, materialoptimering, återanvändbara förpackningar, materialåtervinningsbara förpackningar, energiutvinningsbara förpackningar, komposterbara förpackningar. I Sverige verkar man för att industrin på frivillig väg – genom ett egenkontrollsystem utvecklat av Näringslivsgruppen Miljöpack med sekretariatet hos STFI-Packforsk – visar att förpackningar uppfyller kraven. Miljöpack har idag ett fyrtiotal medlemmar. Naturvårdsverket är tillsynsmyndighet. Verket har uttalat sitt förtroende för Miljöpacks arbete och förväntar sig en allt bredare anslutning av företag och att en fortlöpande kartläggning av företagens efterlevnad sker.

Pierre Ljungquist analyses volatile compounds with headspace GC/MS.

Product safety

Materials intended for contact with foodstuffs must fulfil very high requirements on the content of impurities in accordance with current legislation. In addition, the materials are not allowed to affect the smell or taste of foodstuffs.

As a result of the merging of personnel and equipment of the former STFI and Packforsk, the chemical analysis group has expanded, especially in the analysis field Product Safety.

The chemical analysis laboratory at STFI-Packforsk is involved in the European standardisation work to find suitable analytical methods for materials in contact with foodstuffs, and is thus well up-dated concerning future legislation. Today, testing is offered in compliance with:

- National regulations (BfR, FDA, Warenwet)
- Council of Europe (Guidelines for Recycled Fibres)
- European directives (e g Safety of Toys, Migration testing 97/48/EC)

"Our laboratory frequently takes part in round robin tests and we are accredited for a number of chemical analyses ensuring a professional handling of product safety assignments", says the research manager Elisabeth Sjöholm.

According to her, analysis on many different compounds, e g chlorinated compounds, metals, water extractable substances, volatile compounds and other contaminants can be performed at the laboratory. Both overall and specific migration tests are performed using olive oil or aqueous simulants. In addition, STFI-Packforsk offers microbiological analysis and permeability tests.

"STFI-Packforsk has today the wide experience and advanced equipment to perform the complete chemical analyses that are necessary for product safety. In order to be competitive, we have also reduced the prices both on the individual analyses and the package product safety analyses", concludes Elisabeth Sjöholm. ●

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Kemiska analyser för produktsäkerhet är av stor betydelse, inte minst i fråga om material som kommer i kontakt med livsmedel. Tack vare samgåendet mellan STFI och Packforsk med erfaren personal och avancerad utrustning kan STFI-Packforsk idag erbjuda komplett kemisk analys inom produktsäkerhetsområdet. Laboratoriet utför analyser av material avsedda för livsmedelskontakt och är väl insatt i kommande krav och lagar genom aktivt deltagande i det europeiska standardiseringsarbetet. Enligt forskningsledare Elisabeth Sjöholm kan man idag utföra kemiska analyser på ett stort antal föreningar och kan dessutom erbjuda mikrobiologiska tester och permeabilitetstester. Under hösten har laboratoriet även konkurrensanpassat priserna.

Optimising optimisations

It is important that processes are as resource-saving as possible, important both for the environment and for the economy. To optimise processes in papermaking, there are many different optimisation methods. The DOTS Toolset is used to configure and find efficient optimisation methods for processes in paper manufacturing.

DOTS Toolset är ett verktyg för att konfigurera och hitta effektiva optimeringsmetoder för processer i pappersframställningen. Programverktyget har nu testkörts i några applikationer. Utvecklingen sker inom det stora EU-projektet Flexible and Eco-efficient Paper Production through Dynamic Optimisation of Operation Tests and Scenarios. Projektet på knappa 5 miljoner Euro pågår till 28 februari 2005.

STFI-Packforsks roll är att dels utveckla en metod att uppskatta pappersmassans sammansättning, vilket har skett vid ett pappersbruk i Frankrike med hjälp av STFI FiberMaster, dels utvärdera fallstudierna i en workshop som hölls i Stockholm 28-30/9. Där diskuterades hur DOTS Toolset fungerar med avseende på användarvänlighet, behov och utfall.

It should be possible for the operator to get clear information on when and how to adjust the process in order to optimise the fresh water consumption, for example.

The DOTS toolset has reached the final development stage and has been tested in a few applications. The work has been done in a large EU-project, titled "Flexible and Eco-Efficient Paper Production through Dynamic Optimisation of Operation Tests and Scenarios". The project started in 2002. It has eleven participating European organisations and is coordinated by KCL in Finland. The budget is nearly □ 5 million and the project will be concluded on February 28, 2005.

One role of STFI-Packforsk is to develop a method for estimating the pulp composition, which has been done with the help of STFI FiberMaster at a papermill in France. Another role is to evaluate the case studies which was done at a workshop held in Stockholm on September 28–30. The workshop discussed how the DOTS Toolset performs when it comes to user-friendliness, user demands and results. The conclusions from the workshop are then sent to the software developers for improvements.

The STFI-Packforsk researchers Elisabeth Björk, Lars Granlöf, Åke Hansson and Hans Nordström.

"It is of immense value to cooperate with researchers and users in other countries", says Elisabeth Björk, researcher in the Measurement & IT group and the project manager for the STFI-Packforsk work in the project.

"The ways of thinking and the work methods differ and it is important to see what other institutes and companies are doing and who is involved." ●

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UPCOMING EVENTS

DECEMBER

7	Workshop SUSTAINPACK
10	Licentiate seminar: "Customized information on packaging – driving forces and logistical aspects" by Magnus Viström
10	Licentiate seminar: "An experimental study of inkjet receptive coatings – effects of poly(vinyl alcohol) and silica on printability" by Erik Svanholm
14–15	Kick-off for the EU-project ECOTARGET

JANUARY

12	Nordic Biofibre Conference 2004/2005: "From fibre modification to biofibre composite products". For further information, see www.stfi-packforsk.se
18–19	Advanced Training: Effects of moisture and water on paper properties
31–3/2	Packaging Diploma Course, session I

FEBRUARY

15–16	Advanced Training: Microbiology in papermaking
21–24	Advanced Training: Paper surface chemistry and offset printability

MARCH

9–10	Annual meeting Normpack
14–17	Packaging Diploma Course, session II
15	Information day – Chemical pulp
16–17	Advanced Training: Pulp producers' possibilities to influence the fibre properties – chemical pulp

Events beyond the near future

Seminar in Stockholm: Future Role of Print & Media

September 20–21, 2005
The seminar will take place in connection with GRAFEX 2005, a joint arrangement with the GFF and SPCI.

6th International Paper and Coating Chemistry Symposium

June 7–9, 2006
For information, see circular and call for papers on www.stfi-packforsk.se or contact pccs2006@stfi.se.

Research on the royal agenda

At the annual meeting of IVA – The Royal Swedish Academy of Engineering Sciences – on October 29, Catharina Ottestam, STFI-Packforsk, was invited to talk about the Swedish successes within the EU research programme. Among the audience gathered at the Stockholm Concert Hall were the Swedish minister of industry and trade, Thomas Östros, and HRH Princess Lilian.

Catharina Ottestam is the project coordinator of Ecotarget, one of two large Integrated projects that the EU commission has trusted STFI-Packforsk to lead and coordinate. Ecotarget aims at creating radical improvements of the processes used in the paper industry with respect to their sustainability. The targets are to reduce the energy, fresh water and raw material consumption by 20 to 30 % and the solid waste deposition by similar amounts.

The research project TESS II described in this issue of Beyond is partly financed by Ecotarget. Read more on page 8.

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Catharina Ottestam demonstrates the ideas and goals of Ecotarget to the president of IVA, professor Lena Torell, and the audience.
PHOTO ANDERS KOLLBERG

Golden showers over the Gold-star winners

At the end of September, the jury members gathered at STFI-Packforsk in Kista to pick out the winners of this year's Scanstar competition. 32 entries had come from Norway, Denmark, Finland and Sweden and the jury considered six of them to be something extra by their high innovative level and new ideas regarding both shape and material. The winning packaging solutions have entered the 2004 Worldstar Competition.

In connection with the conference Förpackningsdagarna in Gothenburg in October the happy winners gathered on the 18th floor of Hotel Gothia Towers to receive their distinction in the form of a diploma. But most of all they got immense honour in reward for well carried out target-oriented work on their respective winning packages.

Anders Sörås, vice president of STFI-Packforsk and also chairman of the Scanstar jury, welcomed the participants in the bar where the winning entries were exhibited on a golden dais and at the same time a multi-slide presentation showed the packages and the jury motivations.

Then finally, the moment had come to hand out the well-deserved diplomas. They were passed over in real Nobel prize style by the entertainer Jan Wolfhagen, acting as H M Carl XVI Gustaf. The winners were visibly proud and appreciated their prizes as an acknowledgement of their hard work, new ideas and fantasy.

Next year the Scanstar competition will be arranged by Denmark.

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Do you have a new address?

Please inform us by sending an e-mail to info@stfi.se.

B

SVERIGE

PORTO BETALT

New prize-winning method for paper production

The possibility to produce multi-layered paper sheets without using complicated machine layouts with several forming units has been a dream for many papermakers. A new production method will make their dream come true.

Marco Lucisano and Daniel Söderberg, researchers at STFI-Packforsk, receiving the golden trophy by ATIP for the new method for multi-layer paper production.

STFI-Packforsk has been awarded ATIP's, Association Technique de l'Industrie Papetière, golden trophy 2004 for the best innovation within paper technology. The prize was handed over at the ATIP's 57th congress in Bordeaux on 19–21 October. Daniel Söderberg and Marco Lucisano, researchers at STFI-Packforsk, were awarded the prize for a new technical solution to the old dream of producing multi-layer papers in a simple way. This distinction is conferred in three values annually – gold, silver and bronze – upon technical innovations deemed to be of the greatest importance for the development of the paper industry. The possibility to easily put the innovation into industrial production is a contributing factor of great importance.

The innovation is based on a new, patented method for the production of multi-layer papers developed in co-operation with the Royal Institute of Technology. The multi-layer paper is produced in a single-step operation. It is like producing ready-made cheese-sandwiches in one machine instead of making bread, butter and cheese separately.

A layered sheet of paper could present a perfect printing surface, be rigid and yet require a considerably smaller amount of raw material. These could, for instance, be daily papers that do not collapse, have a perfect print at the same time as they weigh less than dailies of today. The new method for producing multi-layer paper will considerably reduce the consumption of water, energy and raw materials in production.

"The production method will be industrialised in a large project in which a number of the world's leading paper producers and paper machine manufacturers participate. When we now take the step from developed idea to industrialisation, a process, which is estimated to take at least another four years, a number of foreign companies have decided to contribute financially to get first-hand information about the research results", says Thomas Johannesson, president of STFI-Packforsk.

The industrial representatives of this recently started project, named TESS II – The Engineered Sheet Structure, had their first meeting in October.

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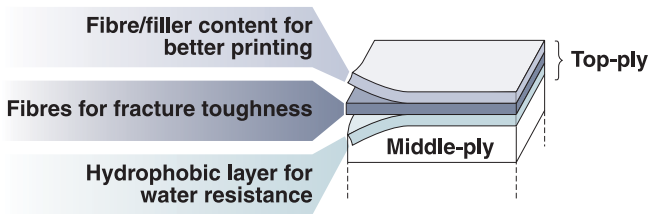

One example of how the new technique can be used for new functions in paperboard.

Forskarna Daniel Söderberg och Marco Lucisano vid STFI-Packforsk har mottagit ATIPs, Association Technique de l'Industrie Papetière, guldtrofé 2004 för en ny teknisk lösning till en gammal dröm att enkelt kunna tillverka papper i flera skikt. Innovationen bygger på en ny patenterad produktionsmetod som har utvecklats i samarbete med KTH. Förutom förbättrade produktegenskaper kan den nya lösningen till produktion av skiktat papper i ett steg väsentligt komma att reducera förbrukningen av vatten, energi och råvara vid tillverkningen. Metoden kommer nu att industrialiseras i ett stort projekt där flera av världens ledande pappers- och pappersmaskintillverkare deltar.

STFI-Packforsk wishes you a merry Christmas and a happy new year!

STFI-PACKFORSK

Beyond is published by STFI-Packforsk AB
Legally responsible for the publication: Thomas Johannesson (thomas.johannesson@stfi.se)
Editor: Veronica Rudheim (veronica.rudheim@stfi.se)
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ISSN: 1652-6503
Print: SIB-Tryck, Norsborg

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