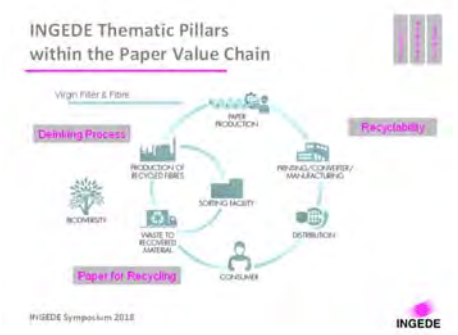
March 2018

INGEDE News

New Partners to Face old Challenges:

Paper Quality, Inkjet Printing, UV inks, and Paper Towels at the INGEDE Symposium

Recyclability, the availability of paper for recycling, and the improvement of the deinking process continue to be the **three main areas of INGEDE's work**. In his opening address at the INGEDE Symposium in Munich, **Thomas Krauthauf** identified the higher diversity of printing technologies and new converting technologies as increasing challenges for the deinking industry. Especially the increase of UV printing is met by a more intense discussion with the stakeholders such as ink manufacturers on various occasions.



Also the development of "mineral oil optimised inks" has to be monitored carefully as some vegetable oils, especially soybean oil, tend to polymerise and create problems in the deinking process. INGEDE faces the challenges also by improving and **standardisation of test methods** such as INGEDE Method 11, a standard for deinkability testing, and increasing involvement in ISO standardisation.

Decreasing brightness due to water soluble inks and **sticky contaminants** coming from adhesive applications still challenge the deinkers. A serious problem is also the **deliberate contamination** of paper bales with dirt by some paper merchants. Recently, over a longer period of time, plastic particles coming from shredded waste had led to optical defects in paper and prints in some mills. After identification of the supplier, he now faces criminal charges.

Working closer together is the best way to overcome many of these challenges. As an incentive for more cooperation, Krauthauf presented **INGEDE's new partnership program** (see separate article). Partners from the paper chain who commit themselves to support deinking and the deinkability of printed products, can participate in technical discussions within INGEDE, and are asked to provide a financial contribution for project funding.

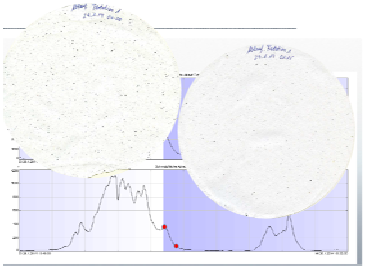
Ecolabels and problems with UV inks

How can printers, print customers, and publishers be educated to design their products more recycling friendly? An effective means is an ecolabel, some "soft legislation" to shepherd the willing into the right direction**. Andrea Rimkus** of RAL, the German competent body for ecolabelling, introduced the history and the new focus of the Blue Angels relevant for the paper and printing industry. In the future, RAL-UZ 195 will be the only Blue Angel for printed matter, with RAL-UZ 14 from 2019 being only applicable for recycled paper (14a) and products for office and school demand (14b). Recyclability and deinkability will continue to be a crucial condition for achieving the Blue Angel for printed products.

Lack of deinkability is yet the characteristic feature of almost all UV-curable printing inks. **Roland Schröder** of hubergroup, combining 40 ink manufacturers internationally, called the current status "from hubergroup's view not satisfactory". Despite a **continuous growth of UV applications** in all sectors of the printing industry, there is "too little pressure from outside" to support deinking and recycling – it is "not in the focus of brand owners and end customers", Schröder said. He compared the search for an improvement with a 100-meter run, currently still within the first meters.

Axel Fischer of INGEDE complemented Schröder's presentation with examples of problems created by prints with UV-cured inks – and of printers that advertise with false environmental claims, especially for "LE-UV" prints to be mineral oil free and therefore "green".

Crosslinked inks – real damage by UV



CALENDAR OF EVENTS

12 April 2018
Internationaler Altpapiertag
Düsseldorf, Germany

18–19 April 2018
INGEDE Working Group "Paper for Recycling"
Perlen/Bern, Switzerland
(only for INGEDE Members and INGEDE Partners)

24–25 April 2018
Altpapier im Focus
Dresden, Germany

26–29 June 2018
Zellcheming Expo
Frankfurt, Germany

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In this issue:

A long-time challenge for the deinkers is the reduction in brightness of paper for recycling, part of it caused by water soluble inkjet inks. But there are promising developments in this sector, some following a long cooperation between printer manufacturers and INGEDE.

Result: Océ ProStream with ColorGrip

David Croll of Océ Printing Systems, now a Canon Company, presented ways of a practical implementation of common ink and deinking studies. This knowledge has been integrated into the recipe design for some next generation pigment inks. Also, reports from some inkjet manufacturers claimed better deinkability due to some pretreatment. "What if we combine both strategies in one printing system?" Croll asked. The result is the latest generation of Océ's production printing inkjet machines. But, the work is not finally done, Croll says: "An installed base of inkjet systems with lower deinkability performance will still be in the market for years to come."

More ash, lower strength – can sorting and collection of paper be improved?

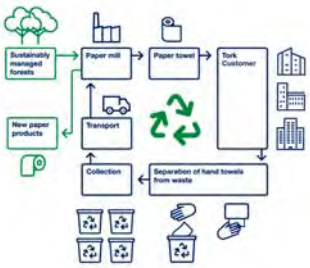
The **quality** of paper is not only important for deinking grades, also the **manufacturers of corrugated papers and board** face the challenge to meet the rising demand at an acceptable quality, mainly for the increasing need for all kinds of packaging. The presentation of **Andreas Faul** (INGEDE's Managing Director) dealt with a possible source for high quality paper for recycling – the fraction today known as **mixed paper**. How can, already by a more selective collection and sorting at the consumer, the yield be increased for the different grades, suitable for the different products? Here it is of some help to know the material flow: Where do the different fractions of paper for recycling end up that are so valuable for the different grades to be produced?

Faul identified several trends to be considered when looking into the future of paper recycling, also for the production of board: There is a shift towards less graphic and more packaging papers from households. As the fraction of newspaper goes down, especially within the graphic paper, the **ash levels increase**. There is also an increasing amount of white top liners based on paper for recycling. All this leads to decreasing strength properties in mixed and packaging grades, with OCC ("Old Corrugated Containers") being "not as strong as it used to be", Faul stated.

As a consequence, Faul sees sorting of paper for recycling to become less attractive, as there is a lower content of the fraction with the highest added value. In order to keep the desired qualities available, sorting efficiency might be improved, or already the collection: by partly substituting the separate paper and board collection by a selective collection of higher grades.

Why recycle hand towels?

Moving from a linear to a circular economy is the key to create a sustainable future. Recycling paper is common, but until now, paper hand towels have been an exception. That's why Essity and its brand Tork, have developed a unique service collecting used hand towels and recycling them locally into new tissue products. **Sara Lundström** presented how Essity intends to close the loop for what the tissue manufacturer puts on the market. Lundström wants to "lead the way toward more circularity in professional hygiene, while helping our customers deliver on key environmental targets such as waste reduction and carbon footprint reduction".



A major challenge has been to create a service that is hassle free and easy to participate in, as well as cost efficient, while still meeting the mill requirement of no more than 2% contaminations among the collected hand towels. This has been achieved by developing the service in close cooperation with customers, cleaning companies, recycling partners and Essity's mills. A particular challenge is to **educate washroom users** to keep used hand towels separate from any other waste by additional bins and instructive signage. The concept has been honoured with the **European Paper Recycling Award** in 2017.

All presentations of the INGEDE Symposium are available for downloading on INGEDE's website www.ingede.com/symposium.

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hubergroup and INGEDE Seek Deinkable UV Ink

As Most Cross-linked Inks Create Problems in the Recycling Process, new Ideas are in Demand

Other than traditional offset and gravure inks, most **cross-linked inks are difficult to remove** from the paper fibres in the deinking process: Liquid toner as in HP's Indigo ink, polymerised natural fatty acids in mineral-oil free inks or some dispersion varnishes form **large particles**, which for different reasons can lead to visible residues in the recycled paper. Such as **current UV-curable inks**.

With especially low-energy curing UV inks (LE-UV, LED-UV) gaining more and more market share, the problems caused by a former niche product reach new dimensions. **INGEDE** and **hubergroup** have jointly identified the necessity for further development and enhancement of UV inks and the UV printing process.

At the INGEDE Symposium end of February in Munich, INGEDE and hubergroup announced that they will together design a **research project to identify influencing factors and possibilities** for a sustained improvement of UV printing in terms of deinkability in the processing of paper for recycling or even to **achieve full recyclability**. The challenge is to achieve all this without compromising the printability.

hubergroup und INGEDE suchen deinkbare UV-Druckfarben

Da vernetzende Farben meist Probleme beim Papierrecycling bereiten, sind neue Ideen gefragt

Anders als die klassischen Offset- und Tiefdruckfarben lassen sich **vernetzende Druckfarben** beim Deinken oft kaum **von den Papierfasern trennen**: Flüssigtoner wie der von HP Indigo, polymerisierende Pflanzenöle in mineralölfreier Farbe oder der eine oder andere Dispersionslack führen zu großen Partikeln, die deutlich sichtbare Spuren im Recyclingpapier hinterlassen können. So wie die meisten UV-Farben heute.

Nachdem gerade die mit geringerer Energie aushärtenden UV-Farben (LE-UV, LED-UV) immer größere Marktanteile gewinnen, erreichen die vom einstigen Nischenprodukt UV-Farbe verursachten Probleme neue Größenordnungen. **INGEDE** und die **hubergroup** haben gemeinsam die Bedeutung die Notwendigkeit der Weiterentwicklung von UV-Farben und des UV-Druckprozesses erkannt.

Auf dem INGEDE-Symposium Ende Februar in München gaben INGEDE und die hubergroup Pläne für ein gemeinsames Projekt bekannt, in dem **Einflussfaktoren und Möglichkeiten** untersucht werden sollen, den **UV-Druck in Bezug auf Rezyklierbarkeit** in der Altpapieraufbereitung **nachhaltig zu verbessern** oder Rezyklierbarkeit zu erreichen. Dabei soll die Bedruckbarkeit nicht beeinträchtigt werden.

INGEDE Introduces Partner Programme

Already Five Partners for Closer Cooperation Within the Paper Chain

The fast developments in paper products composition and printing technologies require appropriate reactions by the paper industry, especially in the field of recycling and deinking – and therefore there is an increased need of project funding. The recyclability of old and new types of printed products has to be monitored, the collection and sorting of paper for recycling has to be improved and discussed wih the respective industries, and the deinking process itself has to be checked for possibilities to become automated and more efficient.

Partner INGEDE Gold

In order to achieve all this, closer cooperation by partners in the paper chain is neessary. INGEDE has decided to invite all members of the paper chain who commit themselves to support deinking and deinkability of paper products, to participate in the new INGEDE Partner Programme. Partners are welcome to participate in technical discussions within INGEDE, and in return provide some financial contribution for project funding. The partnership involves different levels of contribution and involvement (Gold, Silver, and Bronze levels).

Partner INGEDE Silver

At the INGEDE Symposium, INGEDE was able to welcome the first partners; in the meantime there are three Silver Partners (ROWE Gesellschaft für Rohstoffhandel, Wertstoffrecycling, Entsorgung mbH; Solenis Switzerland GmbH, and Voith Paper GmbH & Co. KG) and two Bronze Partners (Entsorgungstechnik Bavaria GmbH and PROPAKMA GmbH) who not only support common research but also e. g. have access to first-hand information in the meetings of INGEDE's Working Groups.

Partner INGEDE Bronze

Text: Axel Fischer

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Dirk Schwarze (Stora Enso) neu im INGEDE-Vorstand

Dennis Voß ist neuer Leiter der Arbeitsgruppe Rezyklierbarkeit

Die Arbeitsgruppe Rezyklierbarkeit widmet sich einem der drei Schwerpunkte in der Arbeit der INGEDE. Als Vorsitzender der Arbeitsgruppe folgt Dr. Dennis Voß (Perlen Papier, Schweiz) jetzt auf Peter Hengesbach (Stora Enso Research, Mönchengladbach), und nimmt damit gleichzeitig dessen Platz im INGEDE-Vorstand ein. Voß (34) schloss sein Studium an der TU Darmstadt 2012 mit der Promotion ab, begann zunächst in der Papierfabrik Utzenstorf (Schweiz) und wechselte nach der Schließung des Werkes als Leiter Halbstoffe zu Perlen Papier.

Weiterhin wählte die Mitgliederversammlung der INGEDE Anfang März Dirk Schwarze (49) in den INGEDE-Vorstand. Schwarze begann seine Laufbahn nach dem Studienabschluss als Papieringenieur in München 1994 bei Stora Reisholz. Fünf Jahre später wechselte er zu Lang Papier in Ettringen, damals Teil der Myllykoski-Gruppe. Es folgten weitere Positionen innerhalb der Gruppe, so bei Rhein-Papier und MD Plattling. Seit 2007 arbeitet er für die Stora Enso Sachsen GmbH in Eilenburg, wo er im April 2016 zum Geschäftsführer ernannt wurde.
Als Vorstandsmitglieder bestätigte die Mitgliederversammlung Dr. Volker Gehr (Steinbeis Papier), Manfred Geistbeck (UPM), Anne-Katrin Klar (Essity), Dr. Thomas Krauthauf (UPM), Dr. Johann Oberndorfer (UPM) und Christian Schürmann (Leipa). Der Vorstand bestätigte außerdem Dr. Thomas Krauthauf als Vorsitzenden und Dr. Volker Gehr als stellvertretenden Vorsitzenden der INGEDE.

Die INGEDE dankt Thomas Reibelt, der mit seinem Ausscheiden bei Norske Skog Bruck auch den INGEDE-Vorstand verließ, und Peter Hengesbach für die langjährige Leitung der Arbeitsgruppe Rezyklierbarkeit.

Picture: Dennis Voß (l), Dirk Schwarze (r)

Dirk Schwarze (Stora Enso) is new in the INGEDE Board

Dennis Voss Leads INGEDE Working Group Recyclablity

INGEDE's Working Group Recyclability is dedicated to one of the main focuses of the association. Dennis Voss (Perlen Papier, Switzerland) now succeeds Peter Hengesbach (Stora Enso) as leader of the Working Group and in the INGEDE Board. Voss (34) graduated from Darmstadt Technical University with his doctorate, and started working with Utzenstorf Paper (Switzerland). When the Utzenstorf mill shut down, he changed to Perlen Paper responsible for pulp production.

The General Assembly of INGEDE also elected Dirk Schwarze (49) to the INGEDE Board. Schwarze, after graduating as a paper engineer in Munich, started his career at Stora Reisholz in 1994. Five years later he joined Lang Papier in Ettringen, at that time part of Myllykoski. He held diverse positions within the group, at Rhein Papier in Hürth and at MD Plattling. Since 2007 he works for Stora Enso Sachsen in Eilenburg where he was appointed General Manager in April 2016.
INGEDE's General Assembly also confirmed Dr. Volker Gehr (Steinbeis Papier), Manfred Geistbeck (UPM), Anne-Katrin Klar (Essity), Dr. Thomas Krauthauf (UPM), Dr. Johann Oberndorfer (UPM), and Christian Schürmann (Leipa) as members of the Board. The Board confirmed Dr. Thomas Krauthauf as Chairman and Dr. Volker Gehr als Deputy Chairman of the INGEDE Board.
The members of INGEDE thank Thomas Reibelt, who after leaving Norske Skog Bruck also left the INGEDE Board, and Peter Hengesbach for his many years of leading the Working Group Recyclability.

Picture: INGEDE Member Symposium