

## **HIGHLIGHTS OF FINDINGS**

### **FROM PRINTER QUESTIONNAIRE FOR HEALTHY PRINTING**

Author. Sanne van den Dungen

Editor. Douglas Mulhall

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## Printer Questionnaire Introduction

As part of the Healthy Printing Initiative, in 2018 a printer questionnaire was sent to 30 Healthy Printing members using Lamapoll online questionnaire and filled in by 19 members active in Publication (53%), Packaging (26%) and both (21%). The questionnaire consisted of 51 questions varying between input, multi-choice, one only and multi-select multiple entries possible. Aim of the questionnaire was to get a better insight into the status-quo of the Healthy Printing members varying from an inventory of printing techniques to Best Available Techniques (BAT) and certifications.

The following are key messages and possible actions resulting from the answers.

### Overall Proposed Actions

The R&D areas identified through responses to this questionnaire could be provided to the European Commission as well as to national R&D funding agencies with a request that a Horizon2020 call and other national calls be developed or adapted in order to solve these challenges.

#### 1. No Consistent Industry Standard on Sustainability

Out of the 19 respondents, 74% mention to have Environmental Health and Safety (EHS) Policies in place for the inks that they order, 16% don't and 11% did not answer the question. For coatings and varnishes, 58% mention to have an EHS, 21% don't and 21% did not answer the question. For paper, 53% of the respondents mention to have an EHS, 26% don't and 21% did not answer the question. On the question to describe these

EHS policies, a wide variation in answers was given such as Blauer Engel RAL UZ 195 für Druckprodukte, Cradle to Cradle Certification, Mineral oil free, food safety, Safety Data Sheet (MSDS) or bio-ink outlining the wide variation of perceptions on EHS in inks, coatings and varnishes. In the context of EHS for paper, FSC, PEFC and Carbon Footprint were mentioned as well.

On the question which eco-labels the respondents have in place for their company and/or their products FSC is mentioned most (58%), followed by Cradle to Cradle (21%), ISO 50001 (21%) and PEFC (21%). Also mentioned were OHSAS 18001, Blauer Engel, Climate-Partner, DIN 15593 und ISO 9001, Klimaneutraler Druck, Nordic Swan, ISO 14001, GOTS, RAL UZ 195. Out of 19 respondents 37% have no eco-label on their company or products.

**Conclusion:** There is no broadly adopted industry standard on sustainable printing. The certification marketplace is fragmented. Supplier chain of custody certificates such as FSC and PEFC are limited to substrates and are perceived as Environmental Health and Safety policies rather than quality standards.

**Proposed Actions:** In response to this fragmentation, the Healthy Printing Initiative developed a Healthy Printing Charter, which specifies basic goals and criteria for healthy printing, and after considerable consultation at least 19 companies have signed the Charter.

EPEA also performed a label comparison study concluding that the Blue Angel and higher levels of C2C certification are the closest

methods on the way to Healthy Printing. The Charter and comparison study could be sent for example to the European Commission and ISO for further consideration in regulatory and official standards.

## 2. Most printing inks are not fully biodegradable, but when does this matter?

On the question if partially or 100% biodegradable inks are being used by the respondents only 16% answered yes, while 58% answered no and 26% did not answer. Barriers were perceived by 42% of the respondents (37% answered no perceived barriers and 21% did not answer). Of the respondents using partially or 100% biodegradable inks, one sees a barrier, rest of respondents are not using these inks. 26% see no barriers but are not using partially or 100% biodegradable inks. Perceived barriers by 7 of the respondents were technical difficulties, longer drying time, no pantones, specifications of colours not being met, more expensive and customer requirements. In addition, one respondent outlines that it is difficult to influence the choices of the printers.

Out of 19 respondents, 32% answer their printing products to be compostable in an industrial composting facility, 16% answer no, 26% don't know and 26% did not answer the question. Reasons given why the printed products were not compostable in industrial composting facilities were in the context of colorants not being degradable, paper ingredients not well enough known and it depending on individual product and finishing. One respondent mentioned that only their Cradle to Cradle certified products were compostable in an industrial composting plant.

**Conclusion:** Most printing inks are not fully biodegradable. They contain pigments that have to ensure certain ink resistances and do not decompose during the composting process. Nevertheless, printing inks can comply with the EU standard EN 13432 for biodegradable packaging if they are appropriately formulated and do not exceed a certain percentage of printed matter content. The basic prerequisite for compliance with the standard is that printing inks do not account for more than 1% of the packaging per colour; and for all colours together, not more than 5%. However, this tends to mask the non-biodegradability of the inks themselves, especially when taken cumulatively. It is possible to certify inks according to the OK COMPOST standard, if they do not exceed the prescribed limits for heavy metals, which in the case of packaging printing inks primarily entails a restriction of the copper-containing pigments blue PB 15:3 and green PG 7. The "OK Compost Home" certification guarantees that these prerequisites have been met.

**Proposed Actions:** It is a priority to identify where biodegradability really matters and where it is less important, according to the intended use of the printed materials. It is also important to distinguish between biodegradable and biologically inert, i.e. not degradable but still biocompatible. Industry associations seem to have taken the position that suitability for recycling has a higher priority than biodegradability, which could be true in the short term, but ultimately if the product ends up in the environment and in living organisms biodegradability & biocompatibility remain important aspects to take into account. A project that prioritizes where biodegradability counts most, and how biologically inert figures into that, could be undertaken to provide guidance for industry.

### 3. Digital is growing and with it recyclability challenges

74% of the respondents (out of 19) are mentioning Digital Printing in Question 4 (multiple answers) as one of the printing processes they make use of. Only offset-sheetfed with 84% is mentioned more frequently, followed by offset-webfed (32%), Flexo (26%), Gravure (5%) and Other – not specified (5%).

#### Conclusion:

Because there are few Healthy Printing solutions for digital printing, the challenges for recycling are growing as digital gains marketshare. This is well acknowledged in the industry especially by INGEDE. There is a significant potential to develop inks for digital printing that are optimized in terms of human health, recyclability and biocompatibility.

**Proposed Actions:** INGEDE has been attempting for years to engage the digital printing industry without much success. If the industry is not ready to optimise these products, it might face pressure from regulators. Further partnership with INGEDE and consumer groups could create incentives to get the digital printing industry involved in optimizing digital printing inks on human health, recyclability and biocompatibility. An approach would be to have a close look on the digital printing used in the textile industry and the possibilities to transfer this technology to packaging and publications. Another potential is to consider new technologies for on-site recovery and reprocessing of digitally printed office paper in a closed loop process, as one solution for that market segment. Follow up exploration is warranted to investigate those further.

### 4. Mixing of own inks, quality assurance in place

Out of 19 respondents 32% mix their own inks, 53% don't mix and 16% did not answer the question. Different printing inks are used by the respondents with CMYK (84%) and Pantones (84%) being mentioned the most in the multi-choice question 7. Followed by HKS (11%), food safe inks (5%), Metallic (5%), neon inks (5%) and RAL inks (5%).

**Conclusion:** Mixing of own inks can create challenges in terms of quality assurance mechanism for Healthy Printing such as using the predefined approved ingredients during mixing. However, some large ink suppliers do have quality assurance mechanisms in place that could be adapted to healthy printing.

**Proposed Actions:** Share insights of a Quality Assurance mechanism for Healthy Printing through ink suppliers in a non-competitive environment.

### 5. Opportunity for sharing BAT in a non-competitive environment

On the question which parameters the ink used by the respondents meets, giving an indication of Best Available Practises (BAT), *Mineral oil free* (50%) was mentioned most. Followed by *No use of (suspected) CMR substances* (44%), *Biologically compatible for manufacturing, use and recycling* (38%) together with *Does not contaminate deinking sludge or effluents in recycling processes* (38%). In addition, *Water based* (31%), *Mineral oil – free of aromatics (less than 1% hydrocarbons)* (31%), *Meets the ISEGA migration limits* (31%), *No use of organohalogens in pigments* (31%) were mentioned. Lastly *Vegetable oil* (25%), *Meets the Swiss Ordinance on Food Contact Materials and Articles* (19%), *Meets the (Draft)*

*German Printing Inks Ordinance* (13%) and *Bofood Organic (Epple)* with 6% (1 respondent). Out of 19 respondents 3 answered none of the above, while 16 were able to meet one or more of above parameters for the inks used.

In exploring additional BATs with respondents, most used an *isopropanol (IPA) free printing process* (53%), followed by the *use of solvent-free adhesives* (42%). Far less mentioned were *the control of solvent emissions* (total VOC-emission) (16%), *keeping IPA below 8% in the fountain solution* (16%). Two respondents answered to have *biodegradable adhesives* and one was *recovering the solvents where technically and economically feasible*.

**Conclusion:** This variation in parameters being met by the different members in the Healthy Printing community points at once to fragmentation of the marketplace in terms of priorities, but also to the possibility of sharing Best Available Techniques (BAT) in a non-competitive environment, thus accelerating uptake of a range of methods.

**Proposed Actions:** Sharing of Best Available Techniques (BATs) mentioned by the Healthy Printing members could be a focus of future activities of the Healthy Printing Initiative.

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