



## **PPA'S DEINKING AND RECYCLING GUIDELINES FOR MAGAZINES (OCTOBER 2015)**

### ***Deinking and recycling***

Magazines and inserts are a valuable feedstock for the UK's recycled paper mills, but some ways of printing, binding or adding special effects can make paper difficult or impossible to deink or recycle.

This document highlights the critical issues and gives practical guidance on how publishers can help.

It also summarises the treatments used for magazines or inserts that currently cause mills the greatest problems or have the potential to do so - some are only a problem if the items form a large proportion of the batch of paper for recycling

Magazines and inserts in office or household recycling (and standard office documents printed with some of the methods below) are usually part of a mixed batch, and so are rarely a problem. It is bulk overs from printers or unsold magazines that can cause problems. If they can't be deinked, that doesn't mean they can't be used at all – making board doesn't require deinking grades and they can safely be diverted into that recycling stream - but you need to separate them out. It does, however, mean a loss of valuable fibre from the magazines/newsprint recycling loop.

### ***What are the main problems?***

To make recycled paper, the fibres need to be mashed in water and the ink removed – normally a straightforward process. The problems are caused if the ink can't be removed, if there are sticky substances that remain in the pulp or if the fibres cannot be accessed. This can also increase process waste, to the detriment of the economics of the recycling loop.

Listed below are the main problem issues for the UK's newspaper and magazine recycling mills that publishers can help with (in no particular order). The next section of this document gives more detail.

- UV cured inks and varnishes on front covers
- Plastics – magazine wraps/polybags and laminates
- Some adhesives
- Certain types of covermount
- Certain digital and flexo inks

### ***Why are they problems?***

Deinking plants and recycled paper mills are vast, and few. Within the UK, there are only three places where magazines and newspapers (they are usually treated together) are deinked and recycled. With such tonnage going through them, operating speeds and efficiency need to be high.

Some of the issues listed above are problems because they prevent access to the paper fibres – sealed polywrap that doesn't break open during pulping, for example; others affect the quality of the final pulp, either visually or in its performance.

For the paper cycle to function effectively, products must be fit for purpose and economic to produce. This needs a process that is effective for all papers going into the mix, which, until fairly recently, had been the case.

The following sections go into more detail.

### ***What alternatives are there?***

There are a number of different ways to improve the recyclability, and therefore sustainability, of your magazines. As these involve changes to process specifications, it involves working in partnership with your



printers and mailing houses. For example, UV varnishes and adhesives can be substituted for coatings that are more easily removed; in some instances there may be trade-offs, which is why your printers' input is important.

Knowing how inserts supplied by your advertisers have been printed is helpful, allowing any large numbers of overs to be segregated if necessary to prevent risk to the deinked pulp. The following paragraphs look at the main issues one by one.

### ***In detail – digital printing***

Digital printing is a rapidly changing and growing part of the printing industry, and a great deal of work is underway with equipment, ink and paper manufacturers as well as the paper recycling community to manage its development sustainably. The information below is therefore subject to change as progress is made.

### ***Water-based inks***

Water-based inks, whether flexo or inkjet, tend to dissolve into the water and stain all the pulp, this is known as 'the red sock syndrome' as it has the same effect as putting a red sock into the washing machine with all the whites. The main problem inks are water-based flexo and inks using water-soluble dyes and pigments. Water-based inkjet inks using solid pigments with additional compounds can sometimes be deinked in using standard methods.

Mills can usually manage with flexo printed materials if there is a very low percentage in the batch – not more than 3 – 5%. Items most likely to be printed water-based flexo are the insides of envelopes and some newspapers (currently the Daily Mail).

For magazines, water-based inkjet is used for labelling, addressing or numbering, so coverage is so slight that it is not a magazines issue.

Other types of printed material are more of a concern: it takes as little as 2% of water-based inkjet in a batch of recovered paper to make the whole batch unusable for new paper, so be aware, this would be an issue in volume, for example for printing specialist inserts or marketing materials.

### ***What you can do about it?***

If your printer has a substantial number of supplied inserts over that have been printed using water-based inkjet, please ask them to:

- keep them on separate pallets for disposal
- advise the paper recycling contractor
- clearly label as being not suitable for deinking.

If you are considering using inkjet printing for inserts, marketing literature or your own publications, always ask your printers about the recyclability of printed material produced on the equipment they use and ask for evidence, such as manufacturer's test results (from INGEDE, for example).

### ***ElectroInks (HP Indigo)***

Indigo inks can't currently be removed by de-inking process used for recycling in the UK, and leave dirt specks in the paper made from deinked pulp. Even a small proportion in the mix can cause an entire batch of pulp to be unusable as recycled graphic paper.

Indigo printing is used for a wide range of shorter-run products, so may have been used to print inserts for the magazine.



### ***What you can do about it?***

Avoid using if possible.

If your printer has a substantial number of Indigo-printed inserts over ask them to:

- keep them on separate pallets for disposal
- advise the paper recycling contractor
- clearly label as not suitable for deinking.

### ***UV printing***

UV inks cause ink specks in the paper made from deinked pulp that can be seen by the naked eye.

Magazines do not generally use UV inks for the body of the magazine, but it is often used for covers and inserts.

### ***What you can do about it?***

Avoid using if possible.

If your printer has a substantial number of UV printed covers or inserts over ask them to:

- keep them on separate pallets for disposal
- advise the paper recycling contractor
- clearly label as not suitable for deinking.

### ***In detail – varnishes and laminates***

#### ***Laminating***

Laminating one side of a sheet of paper with plastic laminating film adds to the amount of waste produced during the recycling process. Laminating both sides completely prevents the water reaching the paper, so that it can't be turned back into pulp and just becomes waste.

Increasing process waste from recycling plants in this way adds cost to recycling, loses valuable fibre and detracts from the sustainability of magazines. (Any form of lamination uses additional energy and resources during your own production process.)

#### ***UV varnishes***

UV varnishes create similar problems to UV inks, leaving coloured flecks in the paper made from the deinked pulp.

### ***What you can do about it?***

Ideally, avoid any varnishing to be more resource- and energy-efficient if possible.

If you are considering using a different type of varnish, ask your printer the following questions:

- what types of varnish they can offer
- ask for evidence of its deinkability
- ask for samples of previous work and check fitness for purpose in case there are issues you need to take into account when making your decision.

If your printer has a substantial number of UV-varnished covers or inserts over for any reason, ask them to:

- keep them on separate pallets for disposal
- advise the paper-recycling contractor
- clearly label as not suitable for deinking.



### ***In detail – adhesives***

Certain adhesives can cause problems in the recycling process. Some adhesives intended for removal by separation may dissolve or break down into such small particles that they remain in the pulp during the screening process. Some water-dispersible adhesives may initially disperse in the pulp, but then regain their sticky form during papermaking. Either can cause breaks or defects in the paper, and even damage the machines. There are agreed methods for testing adhesives to ensure they can be removed as planned. Water-soluble adhesives are not generally considered a problem (although they can be).

#### ***What you can do about it?***

Ask your printer to find out if the adhesives they use are easily removed during recycling, including adhesives used for stick-ons. The manufacturer should be able to provide this information. The Nordic Swan and EU Ecolabels both provide guidance for this.

### ***In detail – other problems***

#### ***Polybags***

Magazines still sealed inside polybags are not pulped during the process, instead they create what is called 'boil in the bag' – a polybag full of boiled magazine.

#### ***What you can do about it?***

PPA is researching technology to help with this, such as adding a line of perforations along the bag during the bagging process. Lighter weights do help, but more work is needed to determine the balance between breaking open at the recycling plant but still providing the degree of protection needed.

#### ***Glitter***

Glitter is used primarily for inserts, stick-ons or covermounts.

#### ***What you can do about it?***

Avoid using glitter or covermounts containing glitter if possible.

If inserts supplied use glitter, please ask your printer, if they have a large number of overs, to separate them and label the pallet accordingly.

#### ***Covermounts***

Covermounts and tip-ins within a magazine can also get into the recycling process. Certain items cause more problems than others by disrupting the process or causing contamination.

#### ***What you can do about it?***

Follow the PPA best practice guidelines for covermounts which are available at [http://www.ppa.co.uk/knowledge/resources/ppa/?&page=2:](http://www.ppa.co.uk/knowledge/resources/ppa/?&page=2)



### **Questions to ask**

***It will help the magazine industry improve its sustainability if you talk to your printers and others in your supply chain to let them know you are concerned about recyclability, and give them a copy of this briefing.***

### **Particular questions to ask**

- What process is used to print inserts supplied?
- Are any varnishes or adhesives used in production easily removable for recycling? Can your printer provide evidence of this from the manufacturer? (for example, test results)
- Is the polywrapping or bagging process used such that the enclosed unsolds will break open during the pulping process? What information can your printer or mailing house provide to support this?

### **Looking ahead**

Deinking plants are designed to deink materials printed with the major printing processes – in other words, the bulk of magazines in circulation. The general mix of printed materials in Europe is 95% offset and gravure, so the technology used is designed for that. Materials printed by different processes can't always be readily deinked by the same method, and the different types of printed material are indistinguishable from each other so cannot be removed by mechanical or hand sorting.

Research is being carried out into paper coatings, different deinking processes and different digital inks and printing processes that can be deinked alongside offset- and gravure-printed materials. In the meantime, to be awarded the EU Ecolabel for printed materials they have to be deinkable using the standard processes; the Austrian national label and the new Blue Angel label for printed matter have recyclability requirements; Nordic Swan includes recyclability of finished products within its criteria and is planning further requirements. In Germany there is a law requiring anything that endangers an existing recycling system to be labelled. This type of requirement for recyclability is likely to become more wide spread across Europe.

These guidelines will be updated frequently to make sure they are applicable to the current publishing environment.