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Research area: Process aims

Pulp production // recovered paper treatment

Key words:

Deinkability, mineral oil-free printing inks

Title:

Use of mineral oil-free, deinkable inks in (coldset) offset printing to reduce the amount of mineral oils introduced in recycling cycles

Background/Problem area

The fact that mineral oil components are present in measurable quantities in food packaging paper and board was first made public by Grob et al. For economic and ecological reasons, using 100% fresh fibres for packaging paper and board to eliminate all possible sources of mineral oil can be no option. What can be done – and has meanwhile been realized by most producers – is avoiding mineral oil-containing additives in papermaking. State-of-the-art cleaning methods are not capable of removing all mineral oil components from recycled fibres. Inner bags or barrier coatings are only short-term solutions. A study on mineral oil reduction performed in an INFOR project has demonstrated that substituting mineral oil-free offset inks for mineral oil-containing ones is the most effective measure by far. In Germany, this has become common practice in food packaging production.

“Preventing unwanted components like aromatic mineral oils from entering the paper cycle“ will soon become an award criterion of the Blue Angel for print products. Another requirement for the sustainability of print products is deinkability, i.e. the product must be made in such a way that its fibrous materials can be recycled and reused without problems.

In coldset web offset printing, mineral oil-free inks are being used in isolated cases and for test purposes only today. It is not certain if the products available on the market really represent the state of the art in terms of optimum deinkability, improved “rub-off” or optimum “runnability” on industrial printing machines.

Objectives/Research results

Aim of the project is to reduce the amount of mineral oils introduced in the recycling cycle by using deinkable, mineral oil-free news inks. Another aim is to ensure the compliance with the Blue Angel award criteria for print products.

Deinkable mineral-oil free news inks will be developed by optimising the ink composition for the use of mineral oil-free oils. The runnability of mineral oil-free inks in printing presses will be ensured by adapting the printing parameters to the composition of printing ink and paper.

Deinkability tests with mineral oil-free offset inks on different newspapers showed fair to good deinkability, with one exception. In this case the dirt specks area > 250 µm in the deinked pulp was too high. This leads to a negative evaluation.

Application/Economic benefits

The project results will help to enable the production of deinkable mineral oil-free printing products. For the printing industry, it is possible to obtain its “certificates” that underline a recyclability of the product.

Period of time: 01.04.2016 – 31.03.2018

Remarks

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