

Research Institute:

PTS Heidenau
Pirnaer Str. 37
01809 Heidenau

Head of the research institute:

Dr. Frank Miletzky

Project leader:

Dr. Rainer Spörl
Tel: 03529 / 551-642
Fax: 03529 / 551-889
E-Mail: rainer.spoerl@ptspaper.de

Internet: www.ptspaper.de

Research area: e.g. Product aims

Raw materials // paper of recycling

Key words:

Mineral oil removal, food packaging paper, recovered paper treatment

TITLE:**Mineral oil removal by chemical mechanical treatment of recovered paper suspension in combination with surfactants and selective absorbents****Background/Problem area**

Since more than two years, mineral oil contents in recycled paper and their toxicological relevance were discussed intensively in many workshops, conferences, seminars, and working groups. Even if the most favorable solution against mineral oil contamination was a substitution of mineral oil based inks it has become clear that significant improvements are not to be expected in the near future. All in all, experts agree that the reduction of mineral oils in recovered paper will follow a decay curve which is why producers of recycling paper and board are requested to think about technologically and economically reasonable solutions to influence and reduce directly the mineral oils during food packaging paper production. Especially, as mandatory values for MOSH and MOAH concentrations are under discussion.

In view of the extensive discussion about mineral oil components and other contaminants that may migrate from recycled packaging into foodstuffs, paper industry is requested to make an active contribution to reduce these substances during paper production. Especially in concurrence with fresh fibre products and plastic packaging, the safe use of recycled paper is becoming more and more an essential sales argument. In this regard, it is particularly important to find economical and reasonable solutions to remove mineral oils.

Objectives/Research results

The objective of the project is to evaluate different processes for mineral oil removal from recycled fibre suspensions in laboratory scale and to evaluate the potential for an industrial application.

The approach is divided into the processes supporting the desorption of the mineral oils from the components in the recycled pulp suspension, the stabilization or adsorption of the desorbed hydrophobic mineral oils and the effluent of the stabilized or adsorbed mineral oil components.

Mineral oils are accumulated in the fine fraction. Selective flotation of ink particles can reduce the mineral oil content by 70%. In the flotation accept, 20% of the mineral content was determined in the fiber fraction and 80% in the fine fraction.

By the use of surfactants in pulping and washing the mineral oil content can be reduced in the long-fiber and fine fraction. No or even a negative effect on removal are the use of soap without subsequent flotation, and a mechanical treatment.

An effective reduction in the mineral content in the paper for recycling can be achieved by heat treatment and are further supported with the use of a vacuum.

Application/Economic benefits

As part of the research project process solutions are developed for mineral oil removal from recovered paper and recovered paper suspension. A successful removal in paper recycling process for use in packaging papers and cardboard can contribute to containing recycled packaging papers may continue to be used for food packaging.

Period of time: e.g. 01.07.2014 – 31.06.2016

Remarks

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