

**Research Institute:**

PTS Heidenau  
Pirnaer Str. 37  
01809 Heidenau

**Head of the research institute:**

Prof. Dr. Frank Miletzky

**Project leader:**

Dr. Antje Harling  
Tel: 03529 / 551-663  
Fax: 03529 / 551-889  
E-Mail: [antje.harling@ptspaper.de](mailto:antje.harling@ptspaper.de)

Internet: [www.ptspaper.de](http://www.ptspaper.de)

**Research area: Product aims**

End products made of paper, paperboard and board //carton products

**Key words:**

Barrier efficiency, analytics, fast test method

**TITLE:**

**BarriereFIT- Fast Innovative Testing - Fast and universal test method of barrier layers against migrating substances from food packing papers made of recycled paper**

**Background/Problem area**

About 2,3 million tons of food packing material are made from recovered fibers. 60% of folding boxes are used in food contact. About 60% of them are produced with addition of recovered fibers.

According to article 3 of regulation no 1935/2004 for food contact materials substances may not migrate into foodstuff in amounts that may endanger human health, bring about an unacceptable change in the composition of the food or bring about a deterioration in the organoleptic characteristics thereof.

To show compliance with food law requirements, migration from paper needs to be analyzed. Different substances or substance groups, such as mineral oil (MOSH/MOAH), phthalates (e.g. DBP, DiBP, DEHP) or benzophenone (BzP) have to be analyzed to proof conformity with specific migration limits. Furthermore many not identified contaminants are present in recovered paper raw materials. Analyses of all present and potential migrating substances by instrumental analysis is not feasible. The proof of an efficient universal migration barrier is the best possible way to provide confidence in the product's performances. This is of great importance in order to strengthen the market share of recovered paper and board within the packaging segment.

**Objectives/Research results**

With the developed method the efficiency of barriers for food packing materials made from recovered paper and board materials towards a wide range of migrating substances can be determined.

Evaluation of the results is done by comparison with real occurring migration into food (stored in contact with barrier materials). The acceptance of the proposed test method as kind of an industrial standard and convention agreement needs to be addressed.

**Application/Economic benefits**

As stated by the German corrugated board association ("Wellpappenverband" VDW):

„...Regarding the complex physical relations between filling and packing material [...] no general working barrier-material can be explicitly recommended. Barrier efficiency always depends on filling, film thickness, conditions of filling and storage, contaminants etc. and has to be checked in every single case.

An official list with registered materials with barrier effect is missing as well as definitions and analytical methods to evaluate barrier efficiency of barrier layer. Also practical tests for influence on filling material (e.g. water- and steam permeability, migration behaviour) are needed.“

The need for an universal and reliable test method for barrier efficiency against migration of distinct as well as unknown substances of recovered paper and board that may cause trouble in the future is obvious - especially for SME. The economic benefit is evident due to saving of analytical costs as well as avoiding customer complaints.

**Period of time:** 01.01.2016 -30.06.2018

**Remarks**

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