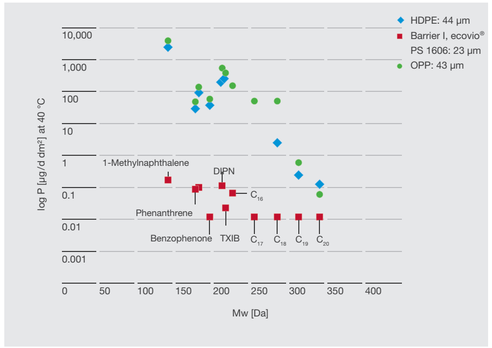

Contaminant	Average Content in Recycled Fiber [mg/kg]	Source of Contaminant
MOSH C_{16}–C_{24}	317	Newspaper
MOAH $<C_{24}$	90	Newspaper
Polycyclic aromatic hydrocarbons	0.3	Newspaper, journals
DiPN + Derivatives	20	Office paper, speciality paper, glued paper
DiBP	9	Office paper, speciality paper, glued paper
DBP	5	Office paper, speciality paper, glued paper
Bis(2-ethylhexyl)phthalate	9	Promotion prints, journals, decorative paper
Diethylenglycol benzoate	13	Promotion prints, journals, decorative paper
Benzophenone	3	Promotion prints, journals, decorative paper
Bis(2-ethylhexyl)maleate	2	Promotion prints, journals, decorative paper
2-Phenylmethoxynaphthaline	3	Thermopaper
Bisphenol A	10	Thermopaper
Average sum contaminants in recycled fiber:	**481.3**	

MOSH: mineral oil saturated hydrocarbons
MOAH: mineral oil aromatic hydrocarbons
DiPN: Di-isopropyl-naphthalene
DiBP: Di-isobutyl-phthalate
DBP: Di-n-butyl-phthalate

Source: "Ausmaß der Migration unerwünschter Stoffe aus Verpackungsmaterialen aus Altpapier in Lebensmitteln"; a BMELV Project.

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EP FL Migration Barrier Solutions 06/2016 V2

BASF
We create chemistry

Keeping food fresh and safe

Migration barrier solutions for paper packaging

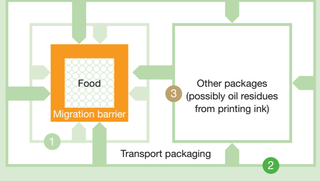
BASF
We create chemistry

KEEPING OIL RESIDUES OUT OF FOOD

The mineral oil barrier protects food

Food packaging is often made from recycled paper fibers. These fibers can contain residues from printing inks. Studies commissioned by the German Federal Ministry of Food & Agriculture (BMELV) and from Dr Konrad Grob, Swiss Safety Authority Zurich have shown that mineral oil constituents can be present in such papers as a result of the recycling process. There is a risk that such contaminants can migrate into foodstuff. These oil residues evaporate at room temperature and can migrate into the food.

Migration barrier solutions addressing the needs of a diverse range of packaging and manufacturing processes are available today. Such solutions can ensure that our food is reliably protected from mineral oil and other contaminants. Guaranteeing safety, providing freshness, and delivering information, our food packaging is increasingly sophisticated and plays an important role in our everyday lives.



Mineral oil residues can migrate from:

1. contaminated primary packaging
2. contaminated secondary packaging, for example, corrugated board packaging used during transportation
3. contaminated packages in close proximity, for example, on the supermarket shelf or in delivery trucks

Migration barrier solutions

Depending on available application equipment BASF offers three different barrier solutions.

BASF's **Ultramid®** (B27 or B33L grades) typically co-extruded with LDPE can be applied as a layer to the inside of cartons and papers to provide migration barrier properties. It is also suitable for use in protective inner pouches made of multilayer films.

ecovio® PS 1606, applied via extrusion coating offers excellent migration barrier functionality, combined with liquid, OGR and aroma barrier. The resulting film is carefully designed to allow the packaged food products to breathe, often important for shelf life considerations and food quality.

As a solution for dispersion coating or printing BASF offers the newly developed **Epotal® SP-101D**. This innovative water-based barrier coating not only offers excellent migration barrier performance, but also a superb barrier to OGR and aroma, and furthermore the resulting film is heat-sealable.

A series of tests, carried out by the Zurich Food Safety Authority, Fraunhofer IVV and Innoform, among others, have proven the effectiveness of the BASF migration barrier solutions.

Barrier design for food packaging