Packaging and migration
Avoiding controversy

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BRC Global Standards
Advent Calendar with chocolate filling: mineral oil in chocolate

More anticipation for Christmas - because The Stiftung Warentest has detected residues of mineral oils and similar substances in chocolate advent calendars for children. Some of the mineral oil components may be carcinogenic. They should primarily come from the cardboard packaging, made from recycled waste paper. One of the other mineral sources: oils from the production chain.
Cornflakes cancer scare: Cereal makers drop recycled cardboard boxes containing deadly oils

By SEAN POULTER FOR THE DAILY MAIL
UPDATED: 02:00, 9 March 2011

- Tests found mineral oils could even leak through plastic inner packaging

Breakfast cereals, pasta, rice and other foods packed in cardboard boxes could be tainted with toxic chemicals, researchers warn.
The substances appear to be leaching from the recycled paper used to make most cardboard boxes.
Studies in Germany and Switzerland found the levels to be up to 100 times the agreed safe limit in products sold in supermarkets.
The chemicals – mineral oil hydrocarbons – are said to cause inflammation of internal organs.
Cereal box health warning after recycled cardboard study

Breakfast cereal manufacturers are to stop using recycled cardboard in packaging after a study indicated that current boxes could pose a cancer risk.

8:25AM GMT 08 Mar 2011

Jordans - whose brands include Country Crisp and Crunchy Oats - has already stopped using recycled cardboard, while Kellogg's and Weetabix say they are taking steps to reduce the risk to human health.

The alert was sparked when researchers in Switzerland found that mineral oils in printing ink from recycled newspapers used in cardboard can get into foods - even passing through protective inner plastic bags.

Brands of pasta and rice which are packaged in recycled cardboard could also pose a risk.

Dr Koni Grob, of the Food Safety Laboratory in Zurich, said toxicologists had linked the oils to inflammation of internal organs and even cancer, though he stressed that individual meals would contain only a tiny dose of the chemicals.

The BBC reported that cereal firm Jordans has stopped using recycled cardboard while other manufacturers are reducing levels of mineral oils in packaging.
Types of Migration
Factors

- Time
- Temperature
- Molecular size
- Composition of food
- Packaging materials
Contact migration

![Diagram showing packaging substrate and food with arrows indicating migration](image)
Gas phase migration
Penetration migration

- INK OR COATING
- PACKAGING SUBSTRATE
- FOOD (OR AIR GAP)
“Set off” migration
Condensation/distillation
Migration modelling

• Assumes worst case scenario
  – Based on total of all possible extractables
  – Based on laws of diffusion, molecular weight and partition coefficients

• Caution!
  – Data must be robust and defendable
  – Methodology generally over-estimates migration
Migration testing

- Conducted with simulants
- Under laboratory conditions
- Some standardised testing exists
- Many substances have no standardised testing methodologies agreed
The Law

EU regulation 10/2011
1935/2011

• Three key elements to not transfer constituents that would
  – Endanger human health
  – Change composition of the food
  – Bring an organoleptic characteristic change
• Specific only to **plastic** materials intended to come into contact with food

• Migration 82/711/EEC (as amended)
  – Contains specifics on migration
  – Permits migration modelling

• Recycled plastics
  – 282/2008
However...

- Where materials are not addressed directly, other materials may fit into the framework legislation.
Overview of EU legislation (last update 08/02/2012)

(EU) No 10/2011 and its amendment as regards the restriction of use of Bisphenol A in plastic infant feeding bottles will be applicable as of 1 May 2011.

As of 1 January 2013 the rules provided by the legislations in the right green double frame will be replaced by the provisions on migration testing and simulants in (EU) No 10/2011.
Evidence of compliance

• Declaration of Compliance
  – Purpose is to share information on compatibility
  – Also a formal requirement in the Standard for all materials

• BRC Global Standards
  – Food Safety
  – Packaging and Packaging Materials
  – Agents and Brokers
About the Standards

- Independent third party audits
- Internationally accredited
- GFSI benchmarked
- Stakeholder engagement
- Global applicability
- Innovative audit approaches
- Site specific certification
- Trained and competent auditors
- Most mature and well-known product safety and quality management scheme
BRC Global Standards Certificates

24,642 certificated sites
In 134 countries

- Food; 19047; 77.3%
- Packaging; 3441; 14%
- Storage & Distribution; 1389; 5.6%
- Consumer Products; 589; 2.4%
- Agents & Brokers; 176; 0.7%

Submitted by 71 Certification Bodies

October 2016 data
Distribution of Packaging Sites

- North America 4.2%
- South America 1%
- Africa 4.1%
- Asia 13.3%
- Europe 77.1%
- Oceania 0.3%
## Certificates and Growth 2015-2016

### Top 10 growth Country

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<thead>
<tr>
<th>Country</th>
<th>Total</th>
<th>% YOY growth</th>
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### Top 12 Countries

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Good practice

How can industry avoid migration controversy?
Good Practice

• Starts with product development
• Liaise with packaging manufacturers as early as possible
  – Work together
  – Collaborative effort
• Outcome is consumer safety and brand integrity
Ultimately...

Responsibility for compliance rests with the food manufacturer or packer
NPD and change control

• Changing the product?
  – Tell the packaging manufacturer

• Considering a new product?
  – Work with packaging manufacturers as early as possible

• Changing shelf-life or other product aspects?
  – Think about how the packaging can help
Thank you

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