



Packaging and migration

Avoiding controversy

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Adventskalender mit Schokoladenfüllung: Mineralöl in der Schokolade

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.



Daily



Mail

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.



The Telegraph

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

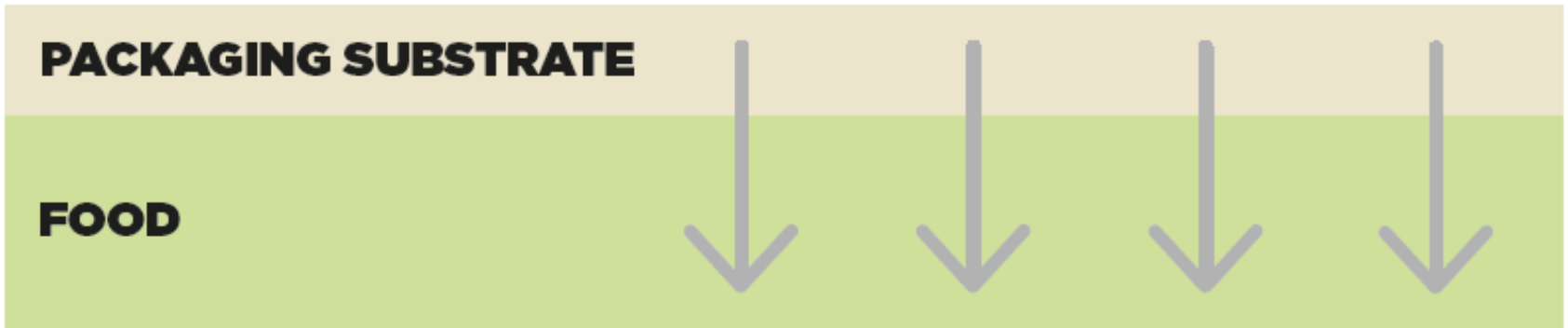
Temperature

Molecular size

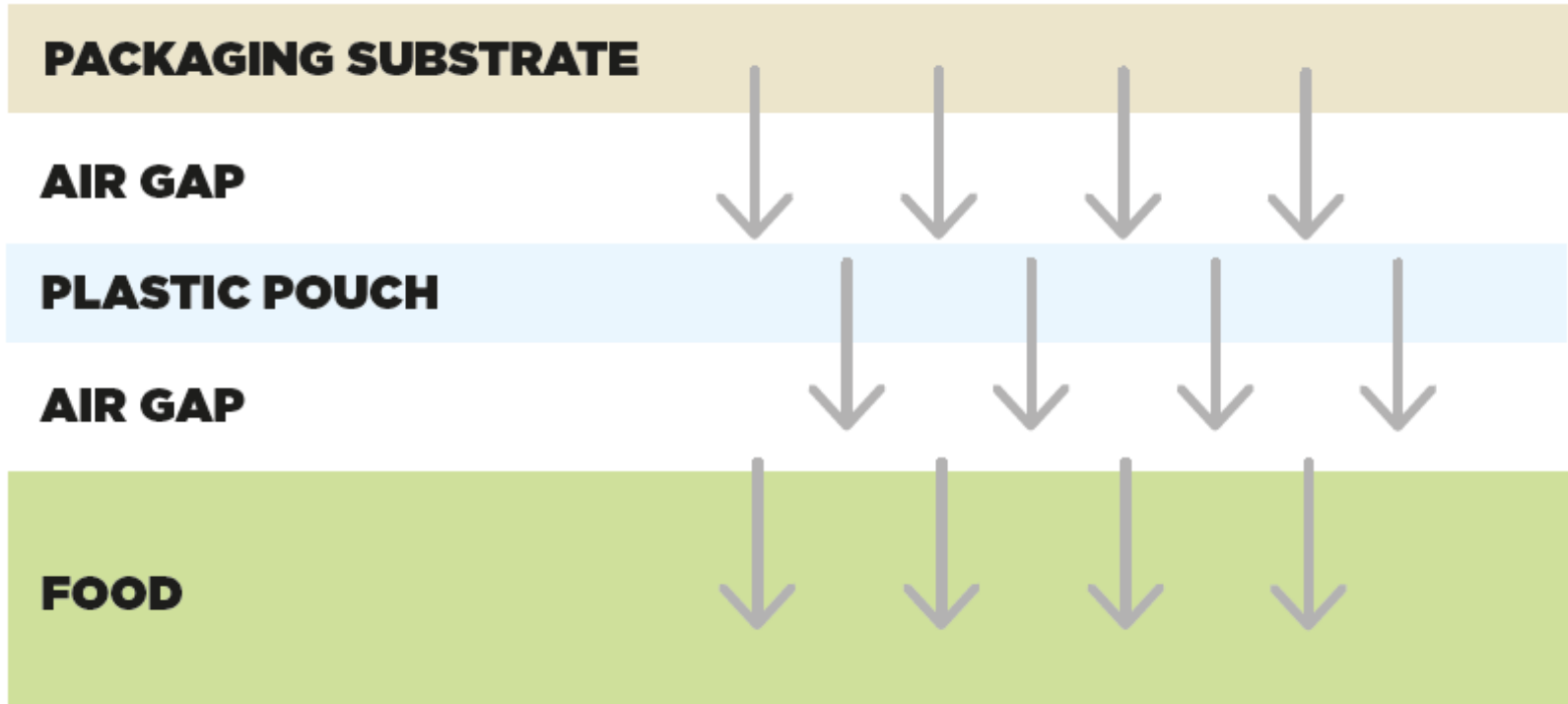
Composition of food

Packaging materials

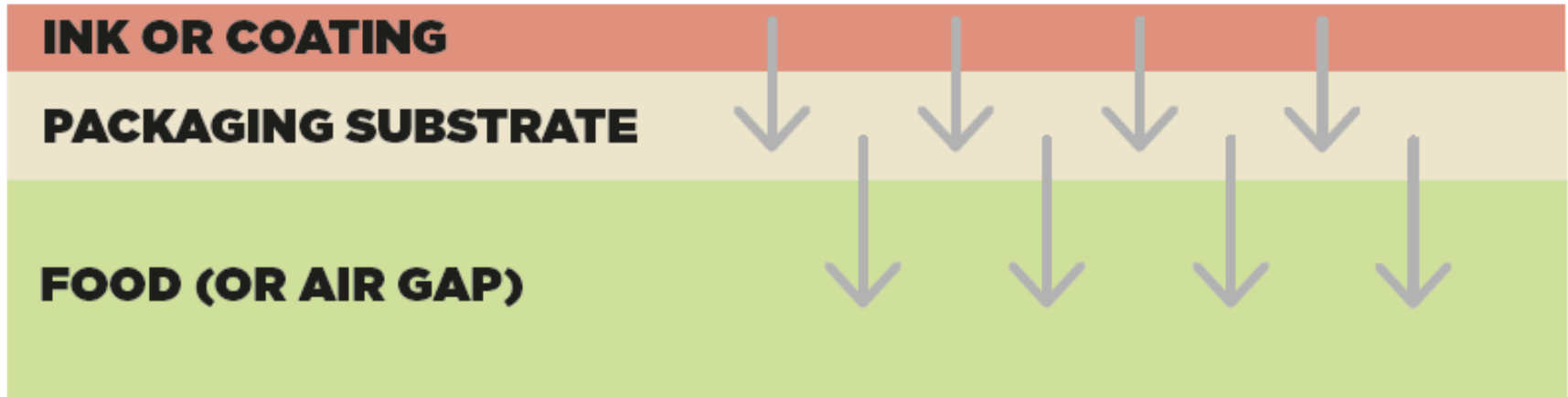
Contact migration



Gas phase migration



Penetration migration



“Set off” migration



STACK OR REEL

INK OR COATING

PACKAGING SUBSTRATE

FOOD CONTACT SIDE

NON FOOD CONTACT SIDE

INK OR COATING

PACKAGING SUBSTRATE



Condensation/distillation

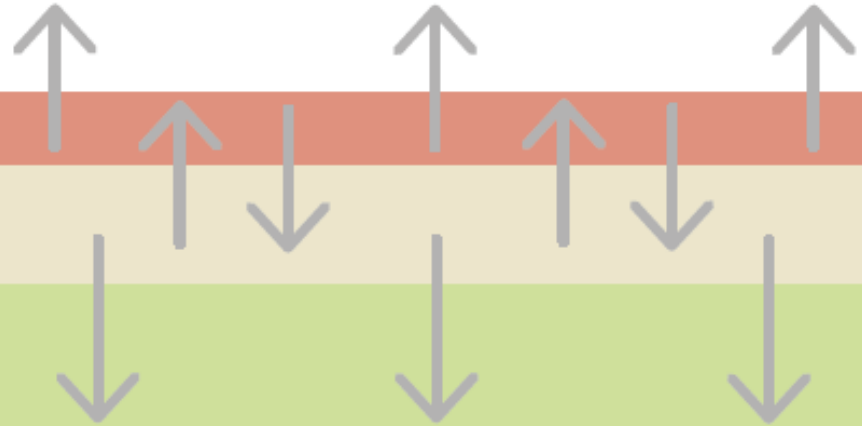


HEAT (OR STEAM)

INK OR COATING

PACKAGING SUBSTRATE

FOOD (OR AIR GAP)



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 defensible
 - 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



10/2011



- 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...

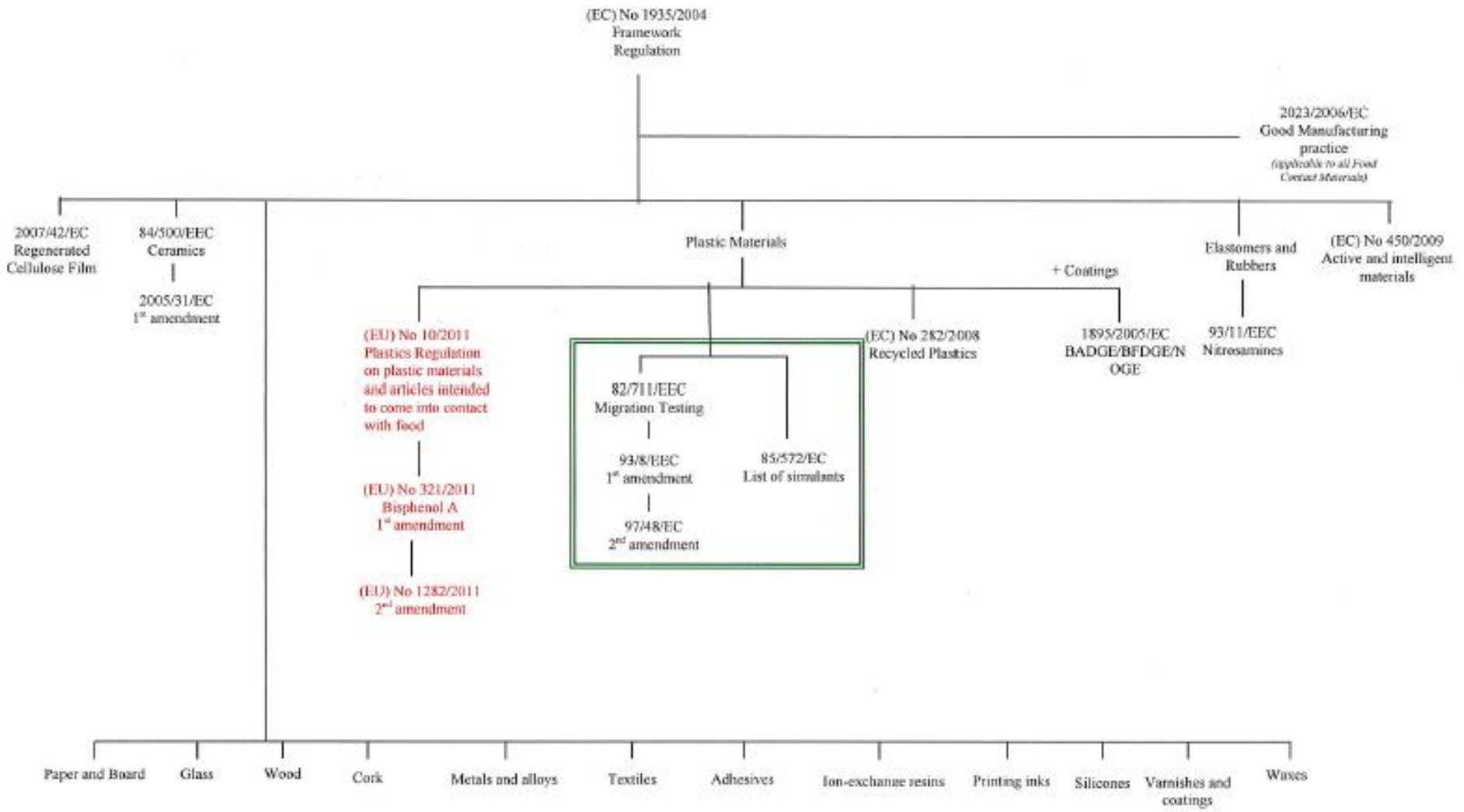


- Where materials are not addressed directly, other materials may fit into the framework legislation

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

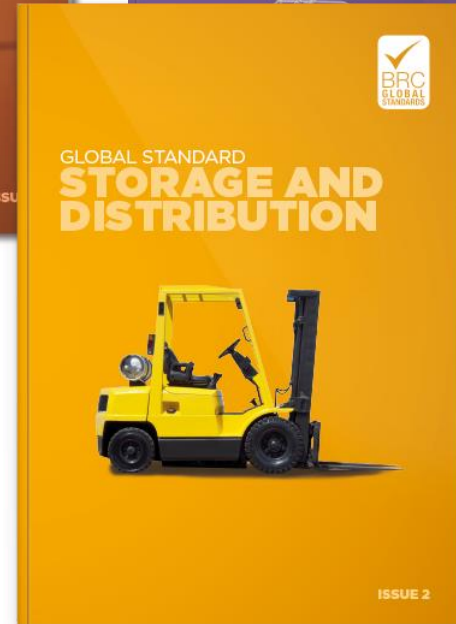
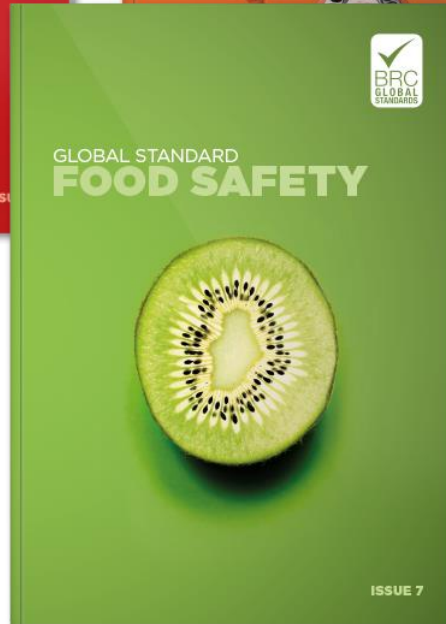
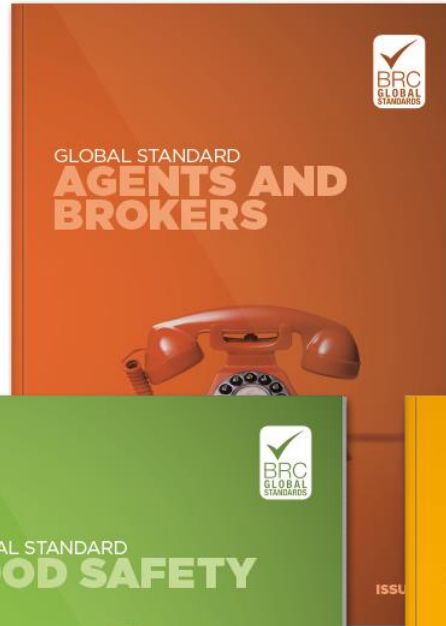
- BRC Global Standards
 - Food Safety
 - Packaging and Packaging Materials
 - Agents and Brokers

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

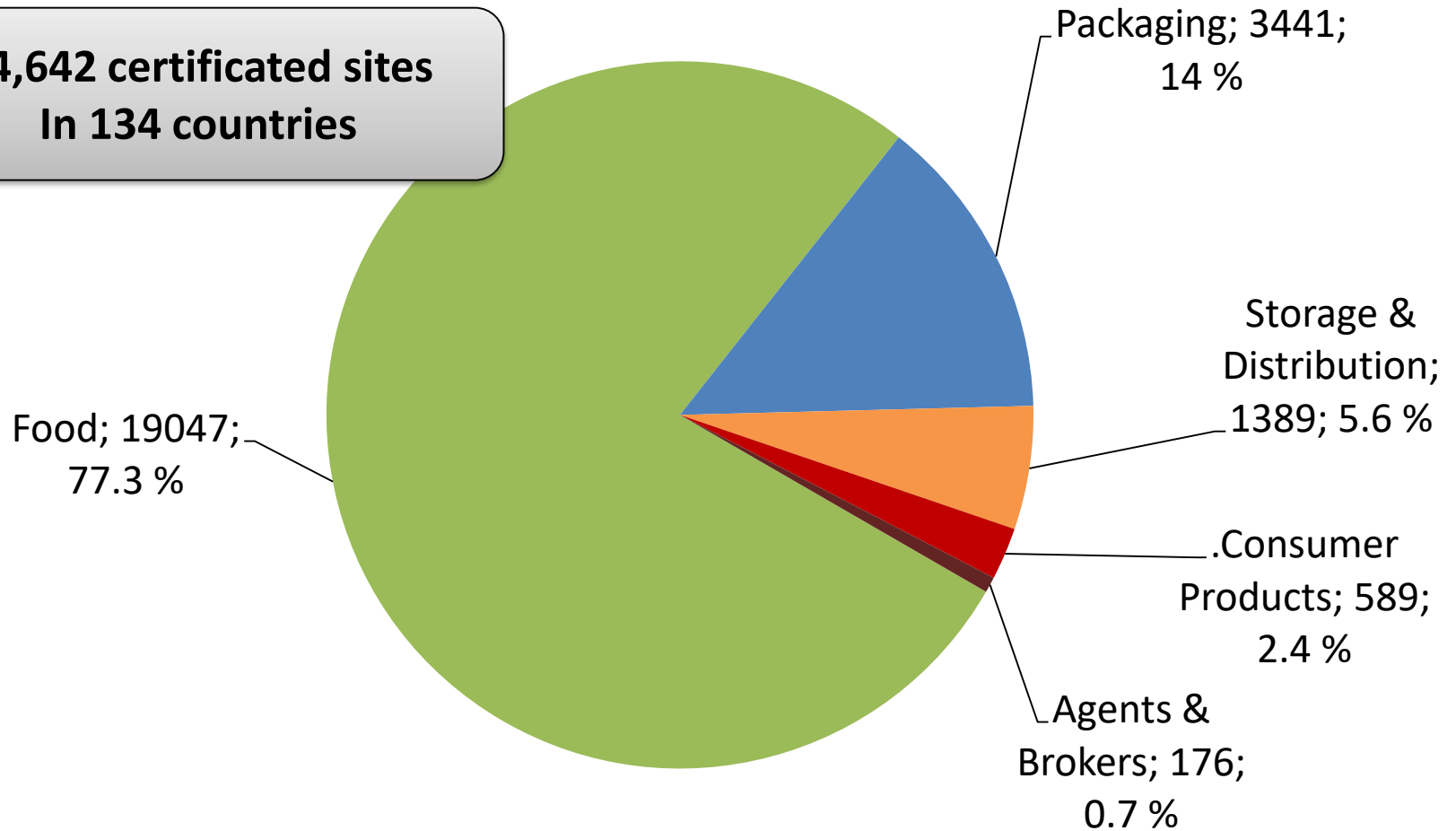
BRC Global Standards



BRC Global Standards Certificates



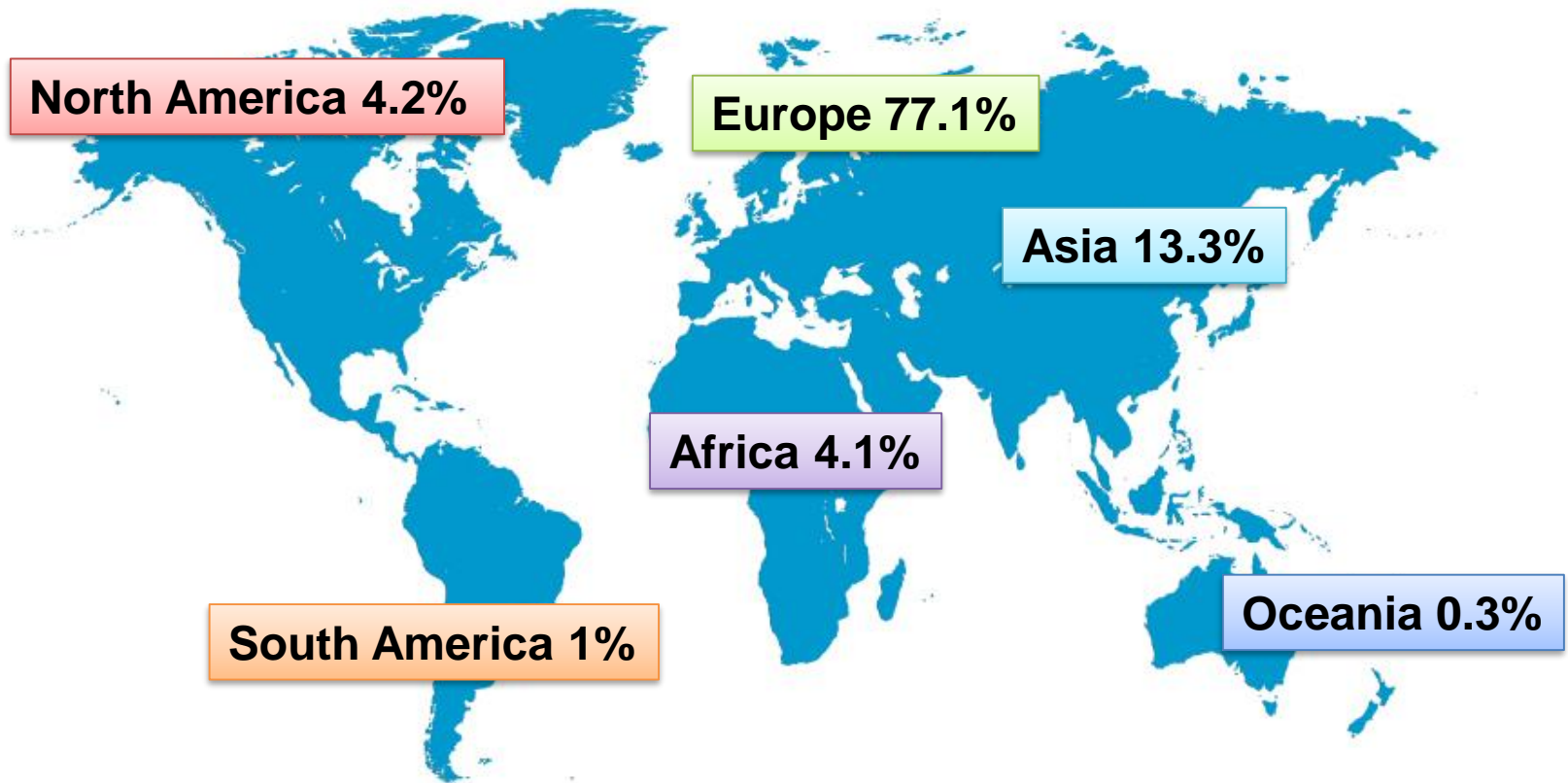
**24,642 certificated sites
In 134 countries**



Submitted by 71 Certification Bodies

October 2016 data

Distribution of Packaging Sites



Certificates and Growth 2015-2016



Top 12 Countries	Total Sites
UNITED KINGDOM	644
CHINA	259
GERMANY	234
ITALY	225
SPAIN	187
NETHERLANDS	175
UNITED STATES	165
TURKEY	156
INDIA	154
POLAND	152
FRANCE	137
BELGIUM	86

Top 10 growth Country	Total	% YOY growth
CHINA	259	46.3
UNITED STATES	165	33.1
EGYPT	29	26.1
SAUDI ARABIA	23	21.1
HUNGARY	29	20.8
SPAIN	187	20.6
THAILAND	66	17.9
POLAND	152	17.8
PORTUGAL	20	17.6
VIETNAM	29	16.0
INDIA	154	15.8
TURKEY	156	14.7



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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