Compliance in food labelling — simplified

Avery Dennison
Labels and Packaging Materials +
Eurofins

September 2019

AVERY DENNISON

eurofins | Product Testing

Presenters

John van Bruchem
Product Regulatory Compliance Specialist

john.van.bruchem@eu.averydennison.com

Brian Jensen
Senior Consultant, Eurofins

BrianJensen@eurofins.com

Sander Aalders
Sales Manager — Packaging BNL, Eurofins

SanderAalders@eurofins.com

Avery Dennison and Eurofins — a valuable partnership

Compliance in Food Labeling, Simplified

YOUR PRODUCTS DELIVER WHAT WE PROMISE

Labelexpo 2019 - Avery Dennison seminar
Brian Jensen, Senior Consultant - Eurofins Product Testing

eurofins | Product Testing

AVERY DENNISON

Eurofins Scientific

- Independent third party testing laboratory
- Founded in 1987
- 800 laboratories across 47 countries
- 45,000 employees

Food contact materials consultancy and testing

Food

Environment

Pharmaceuticals

Consumer products

Why focus on FCM?

- ITX, benzophenone, 4-methylbenzophenone — printing inks
- Mineral oil — recycled paper
- Fluorinated substances in coated paper
- Phthalates — plastic
- Bisphenol A — plastic
- NIAS

Contaminated chocolate Easter bunnies sold in Netherlands

Posted: March 25, 2016 — Author: Janene Pieters

Denmark just became the first country to ban PFAS ‘forever chemicals’ from food packaging

September 4, 2019

Importance of compliance for each FCM

?

Framework-Regulation (EC) No. 1935/2004

GMP-Regulation (EC) No. 2023/2006

Adhesives	Metals	Silicones	Printing Inks	Paper	Lacquers

Plastics

(EU) No. 10/2011

Ceramics

84/500/EEC
2005/31/EG

(Limit for release of lead (Pb) and cadmium (Cd) from ceramics)

Elastomeres

93/11/EEC

(Limit for nitrosamines)

Coatings

(EC) No. 1895/2005

(Limit for crosslinker BADGE and its degradation products; Ban on NOGE und BFDGE)

Cellulose

2007/42/EC

Cap-Sealing

(EC) No. 372/2007
597/2008
old

Today in the scope of Reg. No. 10/2011)

Aktv. + Intlg. Materials

(EC) No. 450/2009

Recycled Plastics

(EC) No. 282/2008

Framework regulation

EU 10/2011 article 14 on ‘Multi-material multi-layer materials and articles’

- Composition of each plastic layer shall comply with regulation (EU) 10/2011:
  - plastic layers not in direct contact ***and*** behind a functional barrier may contain substances not listed in the positive list
  - such ‘not listed substances’ may not be in nanoform or be categorized as CMR substances
- Overall and specific migration limits do not apply to individual plastic layers:
  - can however be established for plastic layers and for the final material or article by national law

Framework Regulation (EC) No. 1935/2004

FCM should NOT:

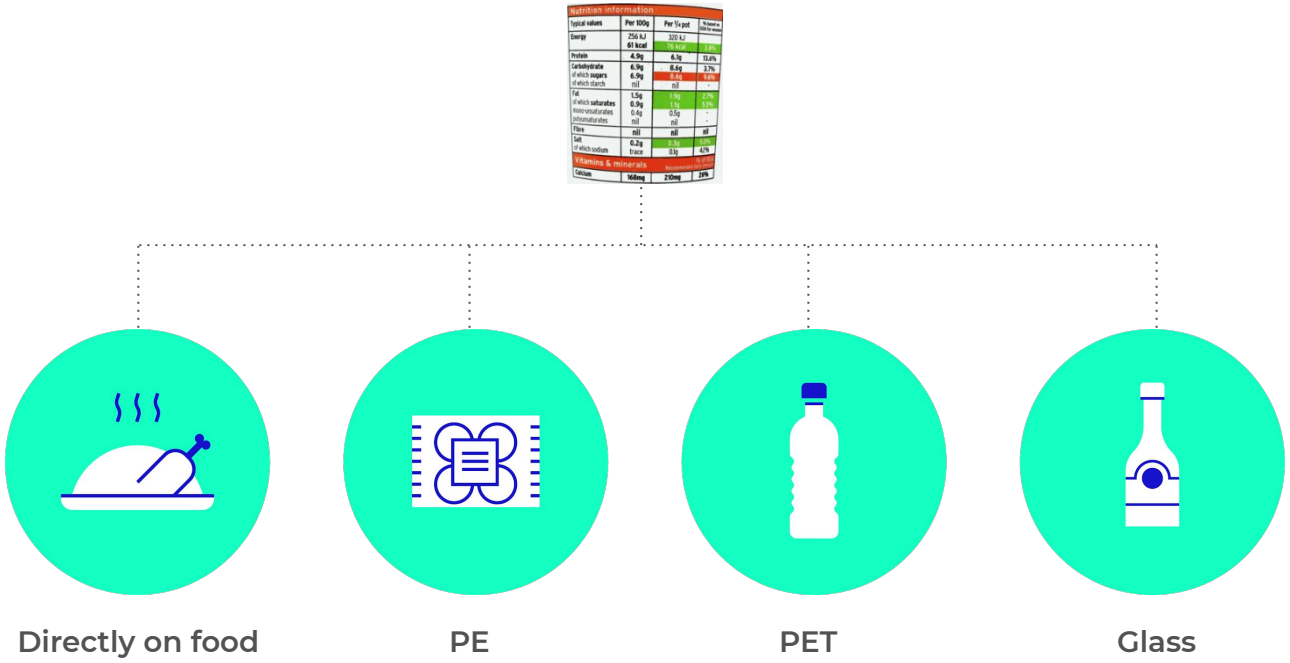
A. Endanger human health

B. Bring about an unacceptable change in the composition of the food

C. Bring about a deterioration in the organoleptic characteristics thereof

Risk assessment — barrier properties

Within packaging:

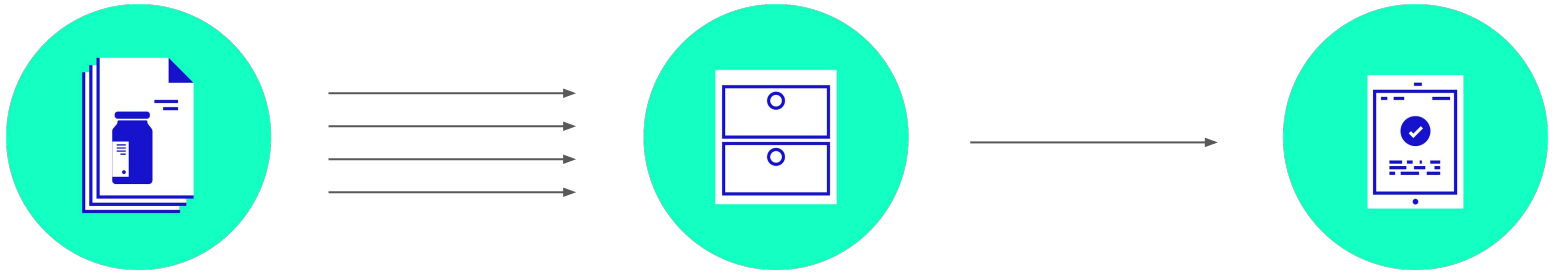


Within label:

(Possible)
Functional barrier

Consider a possible set-off by stacking or rolls

What is a DoC?



Suppliers:

- Raw material info
- Test reports
- DoC´s
- Toxicological info

You:

- What is relevant?
- What is required?
- What can you guarantee?

Customers:

- Can they actually use the product?

Why do we need a DoC?

A way to ensure that your product is being used as intended

Flow of information — declaration of compliance (DoC)

Applies to all parts of the supply chain
Different types of information in the different parts of the chain

Chain of business operators

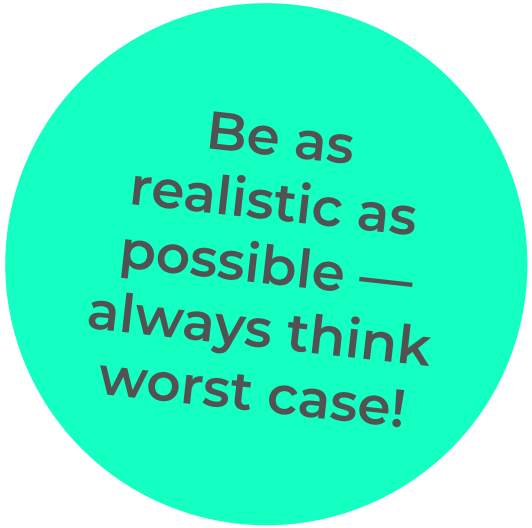
<-  <-  <- 

Increasing knowledge of materials in use

Decreasing responsibility for food

Test plan — make it simple!

- Group products
- Type of food and choice of food simulants
- Storage time and temperature
- Substances with specific restrictions
- Identify calculation possibilities instead of testing.
- Can the product physically stand the test conditions?
- Is consultancy from a third party needed or even an advantage?



Test plan — a multi-layer material

Folie 1			
Lag	SML-stof	SML-grænse	DU
Topfolie	Cas no. 107-21-1, Ethylene glycol	30 mg/kg (SML(T)	Bedt om info
Topfolie	Cas no. 100-21-0, Terephthalic acid	7,5 mg/kg	
Topfolie	Cas no. 121-91-5, Isophthalic acid	5 mg/kg	
Topfolie	Cas no. 75-07-0, Acetaldehyde	6 mg/kg	
Topfolie	Cas no. 1309-64-4, antimon	0,04 mg/kg	
Topfolie	Primary aromatic amines		
Indvendig folie	Cas no. 2082-79-3, octadecyl 3-(3,5-di-tert-butyl-4- hydroxyphenyl)propionate	6 mg/kg	5 stk listet i DoC
Indvendig folie	Ref no. 39090, N,N-bis(2-hydroxyethyl)alkyl(C 8- C 18)amine	1,2 mg/kg	
Indvendig folie	Cas no. 38613-77-3, tetrakis(2,4-di-tert-butyl-phenyl)- 4,4'-biphenylylene diphosphonite	18 mg/kg	
Indvendig folie	Cas no. 128-37-0, 2,6-di-tert-butyl-p-cresol	3 mg/kg	
Indvendig folie	Cas no. 40601-76-1, 1,3,5-tris(4-tert-butyl-3-hydroxy- 2,6-dimethylbenzyl)-1,3,5- triazine-2,4,6(1H,3H,5H)-trione	6 mg/kg	
Indvendig folie	Cas no. 27676-62-6, 1,3,5-tris(3,5-di-tert-butyl-4- hydroxybenzyl)-1,3,5-triazine- 2,4,6(1H,3H,5H)-trione	5 mg/kg	
Indvendig folie	Cas no. 122-20-3, Triisopropanolamine	5 mg/kg	
Indvendig folie	Cas no. 26741-53-7, bis(2,4-di-tert-butylphenyl) pentaerythritol diphosphite	0,6 mg/kg	
Indvendig folie	Zink - fanges i Annex II metaller		
Farver	Cas no. 128-37-0, 2,6-di-tert-butyl-p-cresol	3 mg/kg	
Farver	Cas no. 119327-83-2, Modified polyetherplyol acrylate	0,01 mg/kg	Ikke vurd.
Farver	Cas no. 51827-26-8, Pnetaerythritol, ethoxylated, esters with acrylic acid	0,01 mg/kg	SR - not assessed
Farver	Cas no. 28961-43-5, Ethoxylated Trimethylolpropane triacrylate	0,01 mg/kg	SR - not assessed
Farver	Cas no. 188012-57-9, Tetrafunctional polyether acrylate	0,01 mg/kg	SR - not assessed
Farver	Benzoylbenzoate, esters with branced polyols	0,01 mg/kg	
Farver	Cas no. 272460-97-6, 1-(4-(4-benzoylphenylsulfanyl)phenyl)-2-methyl-2-(4-methylphenylsulfonyl)propan-1-one	0,05 mg/kg	SR
Farver	Cas no. 68458-48-0, Polyphosphoric acids, esters with polyethylene glycol decyl ether	0,01 mg/kg	SR - not assessed
Farver	Cas no. 162881-26-7, Phenylbis (2,4,6-trimethylbenzoyl)phosphinoxide	3,3 mg/kg	SR
Farver	Cas no. 141-43-5, 2-aminoethanol	0,05 mg/kg	10/2011/EC
Farver	Cas no. 150-76-5, 4-methoxyphenol	0,01 mg/kg	SR - not assessed
Farver	Cas no. 92-84-2, Phenothiazine	0,01 mg/kg	SR - not assessed
Farver	Cas no. 15625-89-5, Trimethylolpropane triacrylate	0,05 mg/kg	SR
Farver	Cas no. 101-02-0, Triphenyl phosphite	0,01 mg/kg	SR - not assessed
Farver	Cas no. 606-28-0, Methyl-2-benzoylbenzoate	0,05 mg/kg	SR
Farver	Cas no. 15305-07-4, Tris(N-hydroxy-N-nitrosophenylaminato-O,O')aluminium	0,01 mg/kg	SR - not assessed
Farver	Cas no. 480-63-7, 2,4,6-Trimethylbenzoic acid	NIAS	
Farver	Cas no. 487-68-3, 2,4,6-Trimethylbenzaldehyde	NIAS	
Farver	Cas no. 85-52-9, 2-Benzoylbenzoic acid	NIAS	
Farver	Polymeric aminobenzoate derivative		
Farver	Cas no. 21245-02-3, 2-ethylhexyl 4-(dimethylamino)benzoate	2,4 mg/kg	SR
Farver	Cas no. 64194-22-5, Acrylic acid, 3-methyl-1,5-pentanediyl ester		SR - not assessed
Farver	Cas no. 119313-12-1, 2-benzyl-2-dimethylamino-4'-morpholino-butyrophenone	0,15 mg/kg	SR
Farver	Cas no. 174254-24-1, 2-propenoic acid, methyl ester, telomer with 1-dodecanethiol, C16-18-alkenyl esters (3% below 1000 Da)		SR - not assessed
Farver	Cas no. 10287-53-3, Ethyl-4-dimethylaminobenzoate	0,05 mg/kg	SR
Farver	Cas no. 1204-86-0, 4-morpholinobenzaldehyde	NIAS	SR - not assessed
Farver	Cas no. 1007-32-5, 1-phenyl-2-butanone	NIAS	SR - not assessed
Lim	Cas no. 101-68-8, Diphenylmethane-4,4'-diisocyanate	ND or QM 1 mg/kg	
Lim	Cas no. 584-84-9, 2,4-Tolyene diisocyanate	ND or QM 1 mg/kg	
Lim	Cas no. 91-08-7, 2,6-Toluene diisocyanate	ND or QM 1 mg/kg	
Lim	Cas no. 2082-79-3, octadecyl 3-(3,5-di-tert-butyl-4- hydroxyphenyl)propionate	6 mg/kg	

Already tested by the supplier

Would it make sense to check for another ink with fewer SMLs?

Testing — overall migration

Definition:

(11) 'overall migration limit' (OML) means the maximum permitted amount of non-volatile substances released from a material or article into food stimulants;

Hygienic parameter limit value = 10 mg/dm²

Testing according to EN 1186:2002:

- Immersion
- Cell
- Pouch
- Filling

Aqueous food simulants: Evaporation residue
Vegetable oil: Weight loss of sample

Testing — specific migration

Definition:

(13) 'specific migration limit' (SML) means the maximum permitted amount of given substance released from a material or article into food or food stimulants;

Toxicological parameter limit value depending on specific restriction (0.01 – 60 mg/kg of food)

Testing according to EN 13130:2004:

- Worst case food simulant
- Use of replacement simulants (LOD vs. limit value)
- Specific analysis — eg. GC/MS, LC/MS, ICP/MS etc.
- Quantification against calibration curve with reference chemical

Summary

1. Be aware of 1935/2004

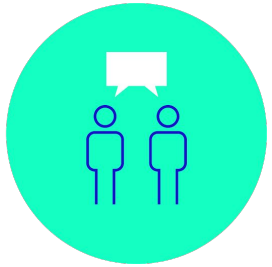
- Framework Regulation for all FCM
- Requires flow of information on compliance

2. Gain Knowledge

- Collecte data
- Consider actual use product (type of food, barrier properties, storage and temperature)

3. Assess & test

- Assess Data collected
- Perform risk assessments
- Group products when possible
- Carry out necessary testing



4. Document & Communicate

- Combine all data in a DoC
- Clearly communicate intended use to customers

Simplify by making the right plan with the right partner

Thank You

label.averydennison.com/labelexpo

eurofins | Product Testing

AVERY DENNISON