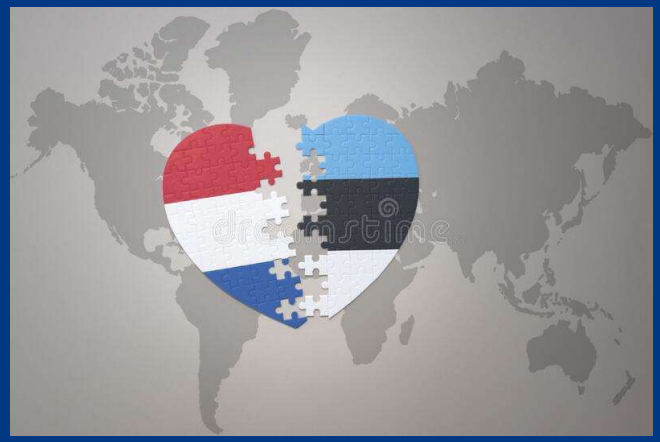
Risks of contaminants and additive's in food



Ruben Thomaes | Date: 22 March 2023

Eurofins Food, Feed, Water Benelux

Euroopa Maaelu Arengu Põllumajandusfond: Euroopa investeeringud maapiirkondadesse

Agenda presentation

1. General overview EF Food, Feed & Water BeNeLux
2. Contaminants
3. Additives
4. Conclusions

General overview BeNeLux

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Eurofins | LabCo (Niels/Jaap)

(Near the port of Rotterdam)

Mycotoxins

Organoleptic

Oil and grain related tests

Survey

Eurofins | LZV(Niels/Stijn/Remko)

Contaminants:

Pesticides

Dioxins

MOSH MOAH

Metals

MCPD

Eurofins Food Testing NL (Heerenveen) (Wietske/Michel)

Chemistry food testing:

- Dietary fibers
- Organic acids
- Sugars
- Phospholipids

Carbohydrate testing

Microbiology

C-mark (Deventer) Food & Water Solutions (Michel/Max)

Consultancy

Sample taking

Inspections

Food Safety Solutions

Eurofins Food Testing BE (Steven)

Microbiology

Supporting and unburdening the whole food chain

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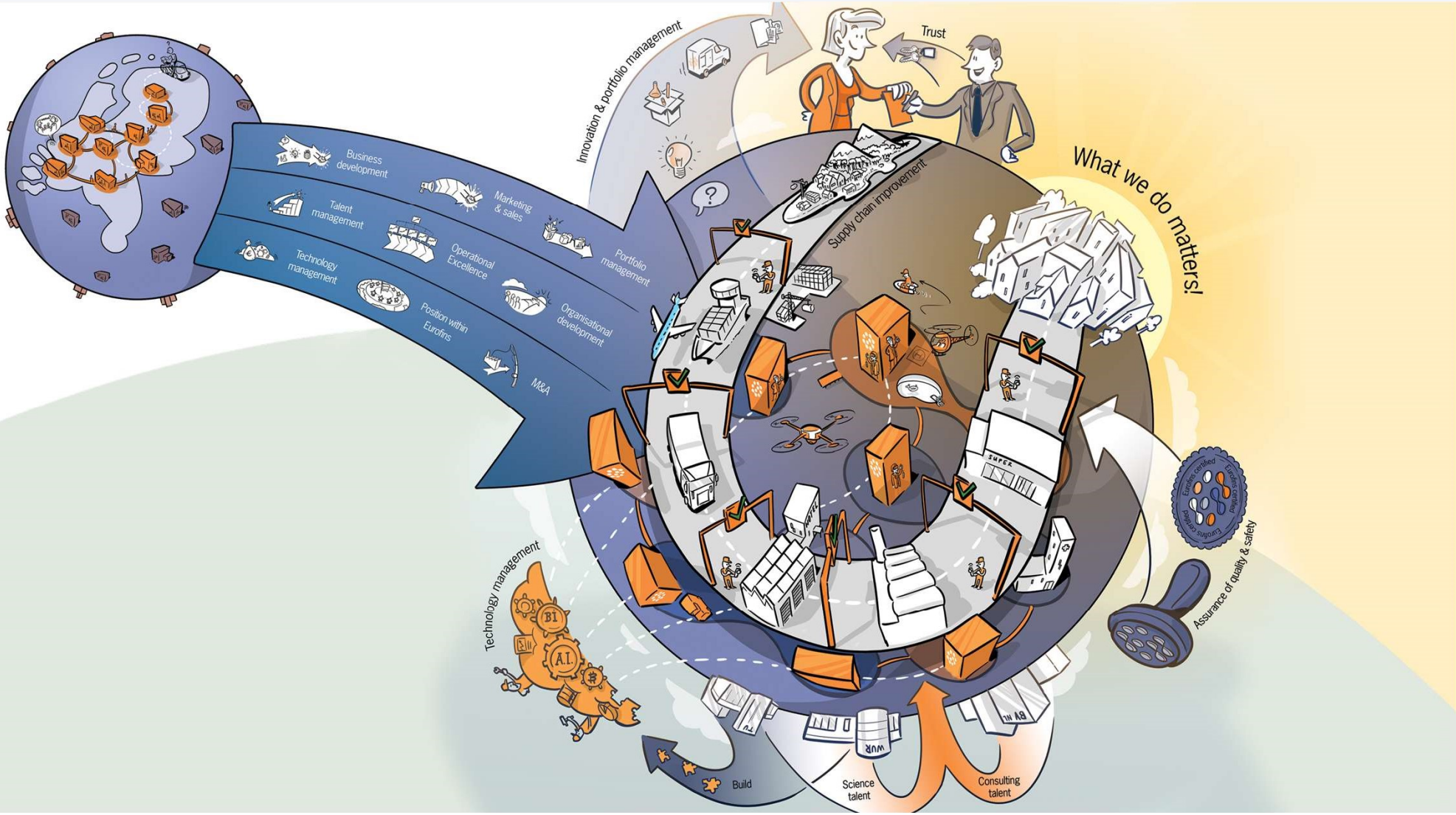

Contaminants

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20.12.2006 EN Official Journal of the European Union L 364/5

COMMISSION REGULATION (EC) No 1881/2006

of 19 December 2006

setting maximum levels for certain contaminants in foodstuffs

(Text with EEA relevance)

Section 2: Mycotoxins

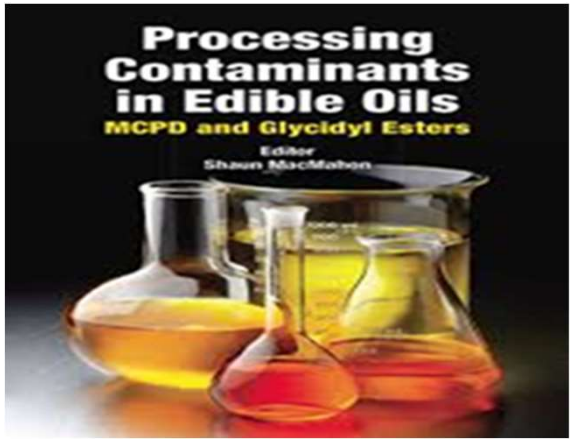
Foodstuffs [1]		Maximum levels (µg/kg)		
2.1	**Aflatoxins**	B_1	Sum of B_1, B_2, G_1 and G_2	M_1
2.1.1	Groundnuts to be subjected to sorting, or other physical treatment, before human consumption or use as an ingredient in foodstuffs	8,0 [5]	15,0 [5]	—
2.1.2	Nuts to be subjected to sorting, or other physical treatment, before human consumption or use as an ingredient in foodstuffs	5,0 [5]	10,0 [5]	—
2.1.3	Groundnuts and nuts and processed products thereof, intended for direct human consumption or use as an ingredient in foodstuffs	2,0 [5]	4,0 [5]	—
2.1.4	Dried fruit to be subjected to sorting, or other physical treatment, before human consumption or use as an ingredient in foodstuffs	5,0	10,0	—
2.1.5	Dried fruit and processed products thereof, intended for direct human consumption or use as an ingredient in foodstuffs	2,0	4,0	—
2.1.6	All cereals and all products derived from cereals, including processed cereal products, with the exception of foodstuffs listed in 2.1.7, 2.1.10 and 2.1.12	2,0	4,0	—
2.1.7	Maize to be subjected to sorting or other physical treatment before human consumption or use as an ingredient in foodstuffs	5,0	10,0	—
2.1.8	Raw milk [6], heat-treated milk and milk for the manufacture of milk-based products	—	—	0,050

Section 3: Metals

Foodstuffs [1]		Maximum levels (mg/kg wet weight)
3.1	**Lead**	
3.1.1	Raw milk [6], heat-treated milk and milk for the manufacture of milk-based products	0,020
3.1.2	Infant formulae and follow-on formulae [4] [8]	0,020
3.1.3	Meat (excluding offal) of bovine animals, sheep, pig and poultry [6]	0,10
3.1.4	Offal of bovine animals, sheep, pig and poultry [6]	0,50
3.1.5	Muscle meat of fish [24] [25]	0,30
3.1.6	Crustaceans, excluding brown meat of crab and excluding head and thorax meat of lobster and similar large crustaceans (*Nephropidae* and *Palinuridae*) [26]	0,50
3.1.7	Bivalve molluscs [26]	1,5
3.1.8	Cephalopods (without viscera) [26]	1,0
3.1.9	Cereals, legumes and pulses	0,20
3.1.10	Vegetables, excluding brassica vegetables, leaf vegetables, fresh herbs and fungi [27]. For potatoes the maximum level applies to peeled potatoes	0,10

Contaminants

- Used Contaminants (pesticides)
- Undesirable Contaminants (dioxins)
- Process Contaminants (MCPD)
- “New born” Contaminants (PFAS)



Contaminants

	SUPER-MARKET	Max MRL % / Active compound	Max sum MRL % / Product	Max ARfD % / Active compound	Max sum ARfD % / Product	Max number of active ingredients / Product	Blacklist	PRP-UL	ADI % AS (orien-tation value)	A.I. of critical list > 25% EU MRL
NL	AH	50	-	50	-	-	No			
NL	Aldi NL	70	80	80	80	3-5	Yes			
NL	JUMBO NL	50	-	50	-	-	Yes			
NL	Lidl NL	33.34	80	100	-	5	Yes			
NL	Superunie	50	-	-	-	-	Yes			
BE	Delhaize	50	-	50	-	-	No			
DE	Aldi North / BE / DK	70	80	80	80	3-5 (product specific)	Yes			
DE	Aldi South	70	80	80	80	3-5 (product specific)	Yes			
DE	Dohle	70	-	100	-	3-5 (product specific)	No			
DE	Edeka	70	-	100	-	5	No			
DE	Glob-al2000	100	-	70	-	-	No	100		
DE	Globus	70	-	100	-	5	Yes			
DE	Hofer	70	80	80	80	3-5 (product specific)	No			
DE	Kaufland	33.33	80	50	50	5	No			
DE	Lidl DE	33.33	80	100	-	5	Yes			
DE	Metro	50	80	100	100	5	No			
DE	Norma	-	70	100	70	5	Yes			
DE	Rewe	50	100	70	100	5	Yes		Yes	25
DE	Tegut	70	-	70	-	4	No			

Not included in this overview:

- Requirements for organic samples (legal and retail specific)
- Requirements for contaminants (nitrate, sulphite et cetera)
- National authorizations of active substances

Additives

- Why would additives be uses:
  - Keeping food longer fresh (organic acids)
  - Emulsifier (mayonnaise)
  - Nicer colors (meat products)
  - Better taste (all types of products)
  - Flavor enhancer (shampoo)
  - Anti binding agent (pasta)

Additives

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II

(Non-legislative acts)

REGULATIONS

COMMISSION REGULATION (EU) No 1129/2011

of 11 November 2011

amending Annex II to Regulation (EC) No 1333/2008 of the European Parliament and of the Council by establishing a Union list of food additives

(Text with EEA relevance)

Category number	E-number	Name	Maximum level (mg/l or mg/kg as appropriate)	Footnotes	Restrictions/exceptions
	E 363	Succinic acid	6 000		
	E 416	Karaya gum	6 000		
	E 427	Cassia gum	2 500		
	E 432-436	Polysorbates	1 000		
	E 473-474	Sucrose esters of fatty acids — sucroglycerides	5 000		
	E 475	Polyglycerol esters of fatty acids	2 000		
	E 477	Propane-1,2-diol esters of fatty acids	5 000		
	E 481-482	Stearoyl-2-lactylates	5 000		
	E 483	Stearyl tartrate	5 000		
	E 491-495	Sorbitan esters	5 000		
	E 950	Acesulfame K	350		only energy-reduced products or with no added sugar
	E 951	Aspartame	1 000		only energy-reduced products or with no added sugar
	E 952	Cyclamic acid and its Na and Ca salts	250	(51)	only energy-reduced products or with no added sugar
	E 954	Saccharin and its Na, K and Ca salts	100	(52)	only energy-reduced products or with no added sugar
	E 955	Sucralose	400		only energy-reduced products or with no added sugar
	E 957	Thaumatin	5		only as flavour enhancer
	E 959	Neohesperidine DC	50		only energy-reduced products or with no added sugar
	E 962	Salt of aspartame-acesulfame	350	(11)a (49) (50)	only energy-reduced products or with no added sugar
	E 961	Neotame	32		only energy-reduced products or with no added sugar
		(1): The additives may be added individually or in combination			
		(2): The maximum level is applicable to the sum and the levels are expressed as the free acid			

Additives

- Titanium Dioxide

- Corn Flour

Additives

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No specific concerns, but data are needed

Scientific data on sulfites and what happens to them inside the body are limited. When consumed in food they may trigger intolerant reactions and some consumers may be sensitive to sulfites in food.

The seven food additives (sulphur dioxide and six sulfites) are considered together since they behave similarly following ingestion. They occur naturally in wine-making and are also added to many wines to halt fermentation and act as preservatives. The sulfite content in white and sweet wines is generally higher than in rosé, red and dry wines.

They are also used in cider, fruit and vegetable juices (for example, to stop grape juice turning into vinegar) and in dried fruit and vegetables, particularly radish and potato-based products.

Wine type – Categories as in Regulation (EC) No 606/2009	SO_2 limits for conventional wine as in Regulation (EC) No 606/2009	SO_2 limits for organic wine as in Regulation (EU) No 203/2012	SO_2 reduction in organic wine	
			Absolute	Relative (%)
Red wines [Annex I B - A] paragraph 1a – ***residual sugar* < 5g/L***	150 mg/L	100 mg/L ***residual sugar* <2g/L*** 120 mg/L ***residual sugar* >2g/L and < 5g/L***	-50 mg/L -30 mg/L	-33% -20%
Red wines [Annex I B - A] paragraph 2a – ***residual sugar* ≥ 5g/L***	200 mg/L	170 mg/L	-30 mg/L	-15%
White & rosé wines [Annex I B - A] paragraph 1b – ***residual sugar* < 5g/L***	200 mg/L	150 mg/L ***residual sugar* <2g/L*** 170 mg/L ***residual sugar* >2g/L and < 5g/L***	-50 mg/L -30 mg/L	-25% -15%
White & rosé wines [Annex I B - A] paragraph 2b – ***residual sugar* ≥ 5g/L***	250 mg/L	220 mg/L	-30 mg/L	-12%
Special wines [Annex I B - A] (List by country**) paragraph 2 c paragraph 2 d paragraph 2 e paragraph 4 – weather conditions***	 300 mg/L 350 mg/L 400 mg/L + 50 mg/L	 270 mg/L 320 mg/L 370 mg/L (the same as CMO + 50 mg/L)	 -30 mg/L -30 mg/L -30 mg/L	 -10% -8.5% -7.5%
Liqueur wines [Annex I B - B] ***residual sugar* < 5g/L**	150 mg/L	120 mg/L	-30 mg/L	-20%
Liqueur wines [Annex I B - B] ***residual sugar* ≥ 5g/L**	200 mg/L	170 mg/L	-30 mg/L	-15%
sparkling wines [Annex I B - C] paragraph 1a – quality sparkling wines paragraph 1b – other sparkling wines paragraph 2 – weather conditions***	 185 mg/L 235 mg/L +40 mg/L	 155mg/L 205mg/L (the same as CMO + 40 mg/L)	 -30 mg/L -30 mg/L	 -16% -13%

* Residual sugar = sum of glucose & fructose; ** Provided by member states; *** Referred to in art. 113(2) of EC No 479/2008

Conclusions

- Contaminants like pesticides, mycotoxins, metals, dioxins, etc will always be there so it is about how we are going to deal with them.

- Additives are substances approved by the EU but additional research and new insights can lead to a ban of the use of certain additives in food.

Thanks for your attention!

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