

List of undesirable substances and maximum allowed quantities for content thereof in feedingstuffs<sup>1</sup>

Regulation No. 66 of the Minister of Agriculture of 25 April 2007

RTL<sup>2</sup>, 10.05.07, 39, 665

Entered into force 13.05.07

The Regulation is established on the basis of subsection 4 (6) of the Feedingstuffs Act.

#### § 1. Scope of application

This Regulation establishes a list of undesirable substances and the maximum allowed quantities for the content thereof in feedingstuffs.

#### § 2. Conforming feedingstuffs

(1) The content of undesirable substances in feedingstuffs shall not exceed the maximum allowed quantities established in Annex 1 to the Regulation.

(2) The action threshold of the content of undesirable substances is specified in Annex 2 to the Regulation.

#### § 3. Content of undesirable substances in complementary feedingstuffs

Complementary feedingstuffs which contain undesirable substances concerning which no maximum content has been established may be used if the content of undesirable substances in the quantity of feedingstuffs sufficient for a daily ration does not exceed the maximum contents established for complete feedingstuffs.

#### § 4. Repeal of Regulation

Regulation No. 75 of the Minister of Agriculture of 27 April 2006 „List of undesirable substances and maximum allowed quantities for content thereof in feedingstuffs<sup>1</sup>” (RTL 2004, 53, 906; 2006, 79, 1463) is repealed.

<sup>1</sup> Directive 2002/32/EC of the European Parliament and of the Council on undesirable substances in animal feed (OJ L 140, 30.05.2002, pp. 10–21), last amended by Directive 2006/77/EC (OJ L 271, 30.9.2006, pp. 53–55).

<sup>2</sup> RTL = *Riigi Teataja Lisa* = *Appendix to the State Gazette*

Annex 1 to Regulation No. 66 of the Minister of Agriculture of 25 April 2007 „List of undesirable substances and maximum allowed quantities for content thereof in feedingstuffs<sup>1</sup>”

List of undesirable substances and maximum allowed quantities for content thereof in feedingstuffs

Undesirable substance	Feedingstuffs	Maximum content in mg/kg (ppm) relative to a feedingstuff with a moisture content of 12 %
1. Arsenic (As) (the maximum levels refer to total arsenic)	1.1. Feed materials, from which:  1.1.2. meal made from grass, from dried lucerne and from dried clover, and dried sugar beet pulp and dried molasses sugar beet pulp;	2  4

	1.1.3. palm kernel expeller;	4  (upon request of the supervisory authority, the result of analysis shall be published to demonstrate that the content of inorganic arsenic is lower than 2 ppm; the result of analysis must be submitted in case of the seaweed species <i>Hizikia fusiforme</i> )
	1.1.4. phosphates and calcareous marine algae;	10
	1.1.5. calcium carbonate;	15
	1.1.6. magnesium oxide;	20
	1.1.7. feedingstuffs obtained from the processing of fish or other marine animals;	15  (upon request of the supervisory authority, the result of analysis shall be published to demonstrate that the content of inorganic arsenic is lower than 2 ppm; the result of analysis must be submitted in case of the seaweed species <i>Hizikia fusiforme</i> )

	<p>1.1.8. seaweed meal and feed materials derived from seaweed.</p>	<p>40</p> <p>(upon request of the supervisory authority, the result of analysis shall be published to demonstrate that the content of inorganic arsenic is lower than 2 ppm; the result of analysis must be submitted in case of the seaweed species <i>Hizikia fusiforme</i>)</p>
	<p>1.2. Complete feedingstuffs,</p> <p>from which:</p> <p>1.2.1. complete feedingstuffs for fish and complete feedingstuffs for fur animals.</p>	<p>2</p> <p>6</p> <p>(upon request of the supervisory authority, the result of analysis shall be published to demonstrate that the content of inorganic arsenic is lower than 2 ppm; the result of analysis must be submitted in case of the seaweed species <i>Hizikia fusiforme</i>)</p>
	<p>1.3. Complementary feedingstuffs,</p> <p>from which:</p> <p>1.3.1. mineral feedingstuffs.</p>	<p>4</p> <p>12</p>

<p>2. Lead (Maximum levels refer to an analytical determination of lead, whereby extraction is performed in nitric acid (5 % w/w) for 30 minutes at boiling temperature. Equivalent extraction procedures can be applied for which it can be demonstrated that the used extraction procedure has an equal extraction efficiency.)</p>	<p>2.1. Feed materials,: from which:</p>	<p>10</p> <p>30<sup>(1)</sup></p>
	<p>2.1.1. green fodder (hay, silage, fresh grass etc.);</p>	<p>15</p>
	<p>2.1.2. phosphates and calcareous marine algae;</p>	<p>20</p>
	<p>2.1.3. calcium carbonate;</p>	<p>5</p>
	<p>2.1.4. yeasts.</p>	
	<p>2.2. Additives belonging to the functional group of compounds of trace elements, from which:</p>	<p>100</p> <p>400<sup>(1)</sup></p> <p>200<sup>(1)</sup></p>
	<p>2.2.1. zinc oxide;</p>	
	<p>2.2.2. manganous (II) oxide, iron carbonate, copper carbonate.</p>	
<p>2.3. Additives belonging to the functional groups of binders and anti-caking agents, from which:</p>	<p>30<sup>(1)</sup></p> <p>60<sup>(1)</sup></p>	
<p>2.3.1. clinoptilolite of volcanic origin.</p>		
<p>2.4. Premixtures</p>	<p>200<sup>(1)</sup></p>	
<p>2.5. Complementary feedingstuffs, from which:</p>	<p>10</p> <p>15</p>	
<p>2.5.1. mineral feedingstuffs.</p>		
<p>2.6. Complete feedingstuffs</p>	<p>5</p>	
<p>3. Fluorine</p>	<p>3.1. Feed materials</p>	<p>150</p>

<p>(Maximum levels refer to an analytical determination of fluorine, whereby extraction is performed with hydrochloric acid 1 N for 20 minutes at ambient temperature. Equivalent extraction procedures can be applied for which it can be demonstrated that the used extraction procedure has an equal extraction efficiency)</p>	<p>from which:</p>	
	3.1.1. feedingstuffs of animal origin with the exception of marine crustaceans such as marine krill;	500
	3.1.2. marine crustaceans such as marine krill;	3000
	3.1.3. phosphates;	2000
	3.1.4. calcium carbonate;	350
	3.1.5. magnesium oxide;	600
	3.1.6. calcareous marine algae.	1000
	3.2. Vermiculite (E 561)	3000 <sup>(1)</sup>
	3.3. Complementary feedingstuffs	
	3.3.1. containing $\leq 4\%$ phosphorus;	500
3.3.2. containing $> 4\%$ phosphorus.	125 per 1 % phosphorus	
3.4. Complete feedingstuffs,	150	
from which:		
3.4.1. complete feedingstuffs for cattle, sheep and goats:	30	
3.4.1.1. in lactation;	50	
3.4.1.2. other;	100	
3.4.2. complete feedingstuffs for pigs;	350	
3.4.3. complete feedingstuffs for poultry;	250	
3.4.4. complete feedingstuffs for chicks.		

4. Mercury (Hg)	4.1. Feed materials, from which:	0,1
	4.1.1. feedingstuffs produced by the processing of fish or other marine animals;	0,5
	4.1.2. calcium carbonate.	0,3
	4.2. Complete feedingstuffs, from which:	0,1
5. Nitrites (NO <sub>2</sub> )	4.2.1. complete feedingstuffs for dogs and cats.	0,4
	4.3. Complementary feedingstuffs, except complementary feedingstuffs for dogs and cats.	0,2
	5.1. Fish meal	60 (expressed as sodium nitrite)
6. Cadmium (Maximum levels refer to an analytical determination of cadmium, whereby extraction is performed	5.2. Complete feedingstuffs including feedingstuffs intended for birds and aquarium fish, except feedingstuffs intended for other pets.	15 (expressed as sodium nitrite)
	6.1. Feed materials of vegetable origin	1
6.2. Feed materials of animal origin	6.2. Feed materials of animal origin	2
	6.3. Feed materials of mineral origin, from which:	2
	6.3.1. phosphates.	10

<p>in nitric acid (5 % w/w) for 30 minutes at boiling temperature. Equivalent extraction procedures can be applied for which it can be demonstrated that the used extraction procedure has an equal extraction efficiency.)</p>	<p>6.4. Additives belonging to the functional group of compounds of trace elements, from which: 6.4.1. copper oxide, manganous (II) oxide, zinc oxide and manganous (II) sulphate monohydrate.</p>	<p>10  30<sup>(1)</sup></p>
	<p>6.5 Additives belonging to the functional groups of binders and anti-caking agents</p>	<p>2</p>
	<p>6.6. Premixtures</p>	<p>15<sup>(1)</sup></p>
	<p>6.7. Mineral feedingstuffs 6.7.1. containing &lt; 7 % phosphorus;  6.7.2. containing ≥ 7 % phosphorus.</p>	<p>5  0,75 per 1 % phosphorus, with a maximum of 7,5</p>
	<p>6.8. Complementary feedingstuffs for pet animals</p>	<p>2</p>
	<p>6.9. Other complementary feedingstuffs</p>	<p>0,5</p>

	6.10. Complete feedingstuffs for cattle, sheep and goats and feedingstuffs for fish, from which:	1
	6.10.1. complete feedingstuffs for pets;	2
	6.10.2. complete feedingstuffs for calves, lambs and kids and other complete feedingstuffs.	0,5
7. Aflatoxin B <sub>1</sub>	7.1. All feed materials	0,02
	7.2. Complete feedingstuffs for cattle, sheep and goats, from which:	0,02
	7.2.1. complete feedingstuffs for dairy animals;	0,005
	7.2.2. complete feedingstuffs for calves and lambs.	0,01
	7.3. Complete feedingstuffs for pigs and poultry, except young animals	0,02
	7.4. Other complete feedingstuffs	0,01
	7.5. Complementary feedingstuffs for cattle, sheep and goats, except complementary feedingstuffs for dairy animals, calves and lambs	0,02
	7.6. Complementary feedingstuffs for pigs and poultry, except young animals	0,02
7.7. Other complementary feedingstuffs	0,005	

8. Hydrocyanic acid	8.1. Feed materials, from which: 8.1.1. linseed; 8.1.2. linseed cakes; 8.1.3. manioc products and almond cakes.	50  250 350 100
	8.2. Complete feedingstuffs, from which: 8.2.1. complete feedingstuffs for chicks.	50  10
9. Free gossypol	9.1. Feed materials, from which: 9.1.1. cotton seed; 9.1.2. cotton-seed cakes and cottonseed meal.	20  5000 1200
	9.2. Complete feedingstuffs, from which: 9.2.1. complete feedingstuffs for cattle, sheep and goats; 9.2.2. complete feedingstuffs for poultry, except laying hens, and calves 9.2.3. complete feedingstuffs for rabbits and pigs, except piglets.	20  500 100 60
10. Theobromine	10.1. Complete feedingstuffs, from which: 10.1.1. complete feedingstuffs for adult cattle.	300  700

11. Volatile mustard oil	<p>11.1. Feed materials, from which:</p> <p>11.1.1. rapeseed cakes.</p> <p>11.2. Complete feedingstuffs, from which:</p> <p>11.2.1. complete feedingstuffs for cattle, sheep and goats, except young animals;</p> <p>11.2.2. complete feedingstuffs for pigs, except piglets, and poultry</p>	<p>100</p> <p>4000 (expressed as allyl isothiocyanate)</p> <p>150 (expressed as allyl isothiocyanate)</p> <p>1000 (expressed as allyl isothiocyanate)</p> <p>500 (expressed as allyl isothiocyanate)</p>
12. Vinal thioxazolidone (Vinyloxazolidine thione)	<p>12.1. Complete feedingstuffs for poultry, from which:</p> <p>12.1.1 complete feedingstuffs for laying hens</p>	<p>1000</p> <p>500</p>
13. Rye ergot (Claviceps purpurea)	13.1. All feedingstuffs containing unground cereals	1000

14. Weed seeds and unground and uncrushed fruits containing alkaloids, glucosides or other toxic substances separately or in combination including:	14.1. All feedingstuffs	3000
darnel ryegrass ( <i>Lolium temulentum</i> L.);		1000
hardy ryegrass ( <i>Lolium remotum</i> Schrank);		1000
jimsonweed ( <i>Datura stramonium</i> L.)		1000
15. Castor oil plant ( <i>Ricinus communis</i> L.)	15.1. All feedingstuffs	10 (expressed in terms of castor-oil plants husks)
16. Rattlebox ( <i>Crotalaria</i> spp.)	16.1. All feedingstuffs	100
17. Aldrin (singly or combined expressed as dieldrin)	17.1. All feedingstuffs, from which: 17.1.1. fats and oils; 17.1.2. fish feed.	0,01  0,1 0,02 (maximum level for aldrin and dieldrin, singly or combined, expressed as dieldrin)

18. Dieldrin (singly or combined expressed as dieldrin)	18.1. All feedingstuffs, from which: 18.1.1. fats and oils; 18.1.2. fish feed.	0,01  0,1 0,02 (maximum level for aldrin and dieldrin, singly or combined, expressed as dieldrin)
19. Camphechlor (toxaphene) — sum of indicator congeners CHB 26, 50 and 62 <sup>(2)</sup>	19.1. Fish, other aquatic animals, their products and by-products with the exception of fish oil. 19.1.1. Fish oil <sup>(1)</sup> 19.1.2. Fish feed <sup>(1)</sup>	0,02  0,2 0,05
20. Chlordane (sum of cis- and trans-isomers and of oxychlordane, expressed as chlordane)	20.1. All feedingstuffs, from which: 20.1.1. fats and oils.	0,02  0,05
21. DDT (sum of DDT-, TDE- and DDE-isomers, expressed as DDT)	21.1. All feedingstuffs from which: 21.1.1. fats and oils.	0,05  0,5
22. Endosulfan (sum of alpha- and beta-isomers and of endosulfansulphate expressed as endosulfan)	22.1. All feedingstuffs from which: 22.1.1. maize and maize products derived from the processing thereof; 22.1.2. oilseeds and products derived from the processing thereof with the exception of crude vegetable oil; 22.1.3. crude vegetable oil; 22.1.4. complete feedingstuffs for fish.	0,1  0,2  0,5  1,0  0,005

23. Endrin (sum of endrin and of delta-ketoi-endrin, expressed as endrin)	23.1. All feedingstuffs, from which: 23.1.1. fats and oils.	0,01  0,05
24. Heptachlor (sum of heptachlor and of heptachlorepoxyde, expressed as heptachlor)	24.1. All feedingstuffs, from which: 24.1.1. fats and oils.	0,01  0,2
25. Hexachlorobenzene (HCB)	25.1. All feedingstuffs from which: 25.1.1. fats and oils.	0,01  0,2
26. Hexachlorocyclohexane (HCH) 26.1 alpha-isomers	26.1.1. All feedingstuffs, from which: 26.1.1.1. fats and oils.	0,02  0,2
26.2. beta-isomers	26.2.1. All feedingstuffs, from which: 26.2.1.1. fats and oils. 26.2.2. All compound feedingstuffs, from which: 26.2.2.1. compound feedingstuffs for dairy cattle.	0,01  0,1 0,01 0,005
26.3. gamma-isomers	26.3.1. All feedingstuffs, from which: 26.3.1.1. fats and oils.	0,2  2
27.1. Dioxin (sum of polychlorinated dibenzo-para-dioxins (PCDDs))	27.1.1. All feed materials of plant origin excluding vegetable oils and by-products	0,75 ng WHO-PCDD/F-TEQ/kg <sup>(3)</sup> <sup>(4)</sup>

and polychlorinated dibenzofurans (PCDFs) expressed in World Health Organisation (WHO) toxic equivalents, using the WHO — TEFs (toxic equivalency factors, 1997) <sup>(5)</sup>	27.1.2. Vegetable oils and by-products	0,75 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )
	27.1.3. Feed materials of mineral origin	1,0 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )
	27.1.4. Animal fat, including milk fat and egg fat	2,0 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )
	27.1.5. Other land animal products including milk and milk products and eggs and egg products	0,75 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )
	27.1.6. Fish oil	6,0 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )
	27.1.7. Fish, other aquatic animals, their products and by-products with the exception of fish oil and fish protein hydrolysates containing more than 20 % fat <sup>(6)</sup>	1,25 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )
	27.1.8. Fish protein hydrolysates containing more than 20 % fat	2,25 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )
	27.1.9. The additives kaolinitic clay, calcium sulphate dihydrate, vermiculite, natrolitephonolite, synthetic calcium aluminates and clinoptilolite of sedimentary origin belonging to the functional groups of binders and anti-caking agents	0,75 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )

	27.1.10. Additives belonging to the functional group of compounds of trace elements	1,0 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )
	27.1.11. Premixtures	1,0 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )
	27.1.12. Compound feedingstuffs, with the exception of feedingstuffs for fur animals, pet foods and feedingstuffs for fish	0,75 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )
	27.1.13. Feedingstuffs for fish and pet foods	2,25 ng WHO-PCDD/F-TEQ/kg ( <sup>3</sup> ) ( <sup>4</sup> )
27.2. Sum of dioxins and dioxin-like PCBs (sum of polychlorinated dibenzo-para-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs) and polychlorinated biphenyls (PCBs) expressed in World Health Organisation (WHO) toxic equivalents, using the WHO-TEFs (toxic equivalency factors, 1997)( <sup>5</sup> )	27.2.1. Feed materials of plant origin with the exception of vegetable oils and their by-products	1,25 ng WHO-PCDD/F-PCB-TEQ/kg ( <sup>3</sup> )
	27.2.2. Vegetable oils and their by-products	1,5 ng WHO-PCDD/F-PCB-TEQ/kg ( <sup>3</sup> )
	27.2.3. Feed materials of mineral origin	1,5 ng WHO-PCDD/F-PCB-TEQ/kg ( <sup>3</sup> )
	27.2.4. Animal fat, including milk fat and egg fat	3,0 ng WHO-PCDD/F-PCB-TEQ/kg ( <sup>3</sup> )
	27.2.5. Other land animal products including milk and milk products and eggs and egg products	1,25 ng WHO-PCDD/F-PCB-TEQ/kg ( <sup>3</sup> )
	27.2.6. Fish oil	24,0 ng WHO-PCDD/F-PCB-TEQ/kg ( <sup>3</sup> )

	27.2.7. Fish, other aquatic animals, their products and by-products with the exception of fish oil and fish protein hydrolysates containing more than 20 % fat <sup>(6)</sup>	4,5 ng WHO-PCDD/F-PCB-TEQ/kg <sup>(3)</sup>
	27.2.8. Fish protein hydrolysates containing more than 20 % fat	11,0 ng WHO-PCDD/F-PCB-TEQ/kg <sup>(3)</sup>
	27.2.9. Additives belonging to the functional groups of binders and anti-caking agents	1,5 ng WHO-PCDD/F-PCB-TEQ/kg <sup>(3)</sup>
	27.2.10. Additives belonging to the functional group of compounds of trace elements	1,5 ng WHO-PCDD/F-PCB-TEQ/kg <sup>(3)</sup>
	27.2.11. Premixtures	1,5 ng WHO-PCDD/F-PCB-TEQ/kg <sup>(3)</sup>
	27.2.12. Compound feedingstuffs, with the exception of feed for fur animals, pet foods and feed for fish	1,5 ng WHO-PCDD/F-PCB-TEQ/kg <sup>(3)</sup>
	27.2.13. Feed for fish and pet foods	7,0 ng WHO-PCDD/F-PCB-TEQ/kg <sup>(3)</sup>
28. Apricots ( <i>Prunus armeniaca</i> L.)	28 - 39. All feedingstuffs	Seeds and fruit of the plant species listed in column 1 as well as their processed derivatives may only be present in feedingstuffs in trace amounts not
29. Bitter almond ( <i>Prunus dulcis</i> (Mill.) D.A. Webb var. <i>amara</i> (DC.) Focke (= <i>Prunus amygdalus</i> Batsch var. <i>amara</i> (DC.) Focke))		

30. Unhusked beech mast ( <i>Fagus silvatica</i> L)		quantitatively determinable
31. Camelina ( <i>Camelina sativa</i> (L.) Crantz)		
32. Mowrah, Bassia, Madhuca ( <i>Madhuca longifolia</i> (L.) Macbr. (= <i>Bassia longifolia</i> L. = <i>Illipe malabrorum</i> Engl.) <i>Madhuca indica</i> Gmelin (= <i>Bassia latifolia</i> (Roxb.) = <i>Illipe latifolia</i> (Roscb.) F. Mueller))		
33. Purghera ( <i>Jatropha curcas</i> L.)		
34. Croton ( <i>Croton tiglium</i> L.)		
35. Indian mustard ( <i>Brassica juncea</i> (L.) Czern. and Coss. ssp. <i>intergrifolia</i> (West.) Thell.		
36. Sareptian mustard ( <i>Brassica juncea</i> (L.) Czern. and Coss. ssp. <i>Juncea</i> )		
37. Chinese mustard ( <i>Brassica juncea</i> (L.) Czern. and Coss. ssp. <i>juncea</i> var. <i>lutea</i> Batalin)		

38. Black mustard ( <i>Brassica nigra</i> (L.) W. D. J. Koch)		
39. Ethiopian mustard ( <i>Brassica carinata</i> A. Braun)		

(<sup>1</sup>) The levels shall be reviewed by 31 December 2007 with the aim of reducing the maximum levels.

(<sup>2</sup>) Numbering system according to Parlar, prefixed by either “CHB” or “Parlar”

— CHB 26: 2-endo,3-exo,5-endo, 6-exo, 8,8,10,10-octochlorobornane

— CHB 50: 2-endo,3-exo,5-endo, 6-exo, 8,8,9,10,10-nonachlorobornane

— CHB 62: 2,2,5,5,8,9,9,10,10-nonachlorobornane

(<sup>3</sup>) Upper-bound concentrations; upper-bound concentrations are calculated on the assumption that all values of the different congeners below the limit of quantification are equal to the limit of quantification.

(<sup>4</sup>) The separate maximum level for dioxins (PCDD/F) remains applicable for a temporary period. The products intended for animal feed mentioned in point 27a have to comply both with the maximum levels for dioxins and with the maximum levels for the sum of dioxins and dioxin-like PCBs during that temporary period.

(<sup>5</sup>) Based on the conclusions of the World Health Organisation meeting (Van den Berg et al., 1998, Toxic Equivalency Factors (TEFs) for PCBs, PCDDs, PCDFs for Humans and for Wildlife. Environmental Health Perspectives, 106(12), 775)

Congener	TEF value	Congener	TEF value
Dibenzo-p-dioxins (PCDDs)	1	Dioxin-like PCBs:	
2,3,7,8-TCDD	1	Non-ortho PCBs +	
1,2,3,7,8-PeCDD	0,1	Mono-ortho PCBs	

1,2,3,4,7,8-HxCDD	0,1		0,0001
1,2,3,6,7,8-HxCDD	0,1	Non-ortho PCBs	0,0001
1,2,3,7,8,9-HxCDD	0,01	PCB 77	0,1
1,2,3,4,6,7,8-HpCDD	0,0001	PCB 81	0,01
OCDD		PCB 126	
	0,1	PCB 169	0,0001
Dibenzofurans (PCDFs)	0,05		0,0005
2,3,7,8-TCDF	0,5	Mono-ortho PCBs	0,0001
1,2,3,7,8-PeCDF	0,1	PCB 105	0,0001
2,3,4,7,8-PeCDF	0,1	PCB 114	0,0005
1,2,3,4,7,8-HxCDF	0,1	PCB 118	0,0005
1,2,3,6,7,8-HxCDF	0,1	PCB 123	0,00001
1,2,3,7,8,9-HxCDF	0,01	PCB156	0,0001
2,3,4,6,7,8-HxCDF	0,01	PCB 157	
1,2,3,4,6,7,8-HpCDF	0,0001	PCB 167	
1,2,3,4,7,8,9-HpCDF		PCB 189	
OCDF			
T = tetra; Pe = penta; Hx = hexa; Hp = hepta; O = octa; CDD = chlorodibenzo-p-dioxin; CDF = chlorodibenzofuran; CB = chlorobiphenyl.			

(<sup>6</sup>) Fresh fish directly delivered and used without intermediate processing for the production of feed for fur animals is not subject to the maximum levels, while maximum levels of 4,0 ng WHO-PCDD/F-TEQ/kg product and 8,0 ng WHO-PCDD/F-PCB-TEQ/kg product are applicable to fresh fish used for the direct feeding of pet animals, zoo and circus animals. The processed animal proteins produced from these animals (fur animals, pet animals, zoo and circus animals) cannot enter the food chain and cannot be fed to farmed animals which are kept, fattened or bred for the production of food. OJ No. L 32/48, 4.2.2006

Ants Noot  
Secretary General

Annex 2 to Regulation No. 66 of the Minister of Agriculture of 25 April 2007 „List of undesirable substances and maximum allowed quantities for content thereof in feedingstuffs<sup>1</sup>”

Action thresholds of undesirable substances in products intended for animal feed

Undesirable substance	Products intended for animal feed	Action threshold relative to a feedingstuff with a moisture content of 12 %	Comments and additional information
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<p>1. Dioxins (sum of polychlorinated dibenzo-para-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs) expressed in World Health Organisation (WHO) toxic equivalents, using the WHO-TEFs (toxic equivalency factors, 1997) <sup>(1)</sup>)</p>	<p>1.1. Feed materials of plant origin with the exception of vegetable oils and their by-products</p>	<p>0,5 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup></p>	<p>Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.</p>
	<p>1.2. Vegetable oils and their by-products</p>	<p>0,5 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup></p>	<p>Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.</p>
	<p>1.3. Feed materials of mineral origin</p>	<p>0,5 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup></p>	<p>Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.</p>
	<p>1.4. Animal fat, including milk fat and egg fat</p>	<p>1,0 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup></p>	<p>Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.</p>

	1.5. Other land animal products including milk and milk products and eggs and egg products	0,5 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup>	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.
	1.6. Fish oil	5,0 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup>	In many cases it might not be necessary to perform an investigation into the source of contamination as the background level in some areas is close to or above the action level. However, in cases where the action level is exceeded all information, such as sampling period, geographical origin, fish species etc., should be recorded with a view to future measures to manage the presence of dioxins and dioxin-like compounds in these materials for animal nutrition.

	<p>1.7. Fish, other aquatic animals their products and by-products with the exception of fish oil and fish protein hydrolysates containing more than 20 % fat</p>	<p>1,0 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup></p>	<p>In many cases it might not be necessary to perform an investigation into the source of contamination as the background level in some areas is close to or above the action level. However, in cases where the action level is exceeded all information, such as sampling period, geographical origin, fish species etc., should be recorded with a view to future measures to manage the presence of dioxins and dioxin-like compounds in these materials for animal nutrition.</p>
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	<p>1.8. Fish protein hydrolysates containing more than 20 % fat</p>	<p>1,75 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup></p>	<p>In many cases it might not be necessary to perform an investigation into the source of contamination as the background level in some areas is close to or above the action level. However, in cases where the action level is exceeded all information, such as sampling period, geographical origin, fish species etc., should be recorded with a view to future measures to manage the presence of dioxins and dioxin-like compounds in these materials for animal nutrition.</p>
	<p>1.9. Additives belonging to the functional groups of binders and anti-caking agents</p>	<p>0,5 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup></p>	<p>Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.</p>

	1.10. Additives belonging to the functional group of compounds of trace elements	0,5 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup>	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.
	1.11. Premixtures	0,5 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup>	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.
	1.12. Compound feedingstuffs, with the exception of feedingstuffs for fur animals, pet foods and feedingstuffs for fish	0,5 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup>	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.

	1.13. Feedingstuffs for fish and pet foods	1,75 ng WHO-PCDD/F-TEQ/kg <sup>(2)</sup> <sup>(3)</sup>	In many cases it might not be necessary to perform an investigation into the source of contamination as the background level in some areas is close to or above the action level. However, in cases where the action level is exceeded all information, such as sampling period, geographical origin, fish species etc., should be recorded with a view to future measures to manage the presence of dioxins and dioxin-like compounds in these materials for animal nutrition.
2. Dioxin like PCBs (sum of polychlorinated biphenyls (PCBs expressed in World Health Organisation (WHO) toxic equivalents, using the	2.1. Feed materials of plant origin with the exception of vegetable oils and their by-products	0,35 ng WHO-PCB-TEQ/kg <sup>(2)</sup> <sup>(3)</sup>	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.

WHO TEFs (toxic equivalency factors 1997) ( <sup>1</sup> )	2.2. Vegetable oils and their by-products	0,5 ng WHO-PCB-TEQ/kg ( <sup>2</sup> ) ( <sup>3</sup> )	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.
	2.4. Feed materials of mineral origin	0,35 ng WHO-PCB-TEQ/kg ( <sup>2</sup> ) ( <sup>3</sup> )	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.
	2.5. Animal fat, including milk fat and egg fat	0,75 ng WHO-PCB-TEQ/kg ( <sup>2</sup> ) ( <sup>3</sup> )	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.
	2.6. Other land animal products including milk and milk products and eggs and egg products	0,35 ng WHO-PCB-TEQ/kg ( <sup>2</sup> ) ( <sup>3</sup> )	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.

	2.7. Fish oil	14,0 ng WHO-PCB-TEQ/kg ( <sup>2</sup> ) ( <sup>3</sup> )	<p>In many cases it might not be necessary to perform an investigation into the source of contamination as the background level in some areas is close to or above the action level. However, in cases where the action level is exceeded all information, such as sampling period, geographical origin, fish species etc., should be recorded with a view to future measures to manage the presence of dioxins and dioxin-like compounds in these materials for animal nutrition.</p>
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	<p>2.8. Fish, other aquatic animals, their products and by-products with the exception of fish oil and fish protein hydrolysates containing more than 20 % fat</p>	<p>2,5 ng WHO-PCB-TEQ/kg (<sup>2</sup>) (<sup>3</sup>)</p>	<p>In many cases it might not be necessary to perform an investigation into the source of contamination as the background level in some areas is close to or above the action level. However, in cases where the action level is exceeded all information, such as sampling period, geographical origin, fish species etc., should be recorded with a view to future measures to manage the presence of dioxins and dioxin-like compounds in these materials for animal nutrition.</p>
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	<p>2.9. Fish protein hydrolysates containing more than 20 % fat</p>	<p>7,0 ng WHO-PCB-TEQ/kg (<sup>2</sup>) (<sup>3</sup>)</p>	<p>In many cases it might not be necessary to perform an investigation into the source of contamination as the background level in some areas is close to or above the action level. However, in cases where the action level is exceeded all information, such as sampling period, geographical origin, fish species etc., should be recorded with a view to future measures to manage the presence of dioxins and dioxin-like compounds in these materials for animal nutrition.</p>
	<p>2.10. Additives belonging to the functional groups of binders and anti-caking agents</p>	<p>0,5 ng WHO-PCB-TEQ/kg (<sup>2</sup>) (<sup>3</sup>)</p>	<p>Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.</p>

	2.11. Additives belonging to the functional group of compounds of trace elements	0,35 ng WHO-PCB-TEQ/kg ( <sup>3</sup> ) ( <sup>7</sup> )	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.
	2.12. Premixtures	0,35 ng WHO-PCB-TEQ/kg ( <sup>2</sup> ) ( <sup>3</sup> )	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.
	2.13. Compound feedingstuffs, with the exception of feedingstuffs for fur animals, pet foods and feedingstuffs for fish	0,5 ng WHO-PCB-TEQ/kg ( <sup>2</sup> ) ( <sup>3</sup> )	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination

	2.14. Feedingstuffs for fish and pet foods	3,5 ng WHO-PCB-TEQ/kg ( <sup>2</sup> ) ( <sup>3</sup> )	In many cases it might not be necessary to perform an investigation into the source of contamination as the background level in some areas is close to or above the action level. However, in cases where the action level is exceeded all information, such as sampling period, geographical origin, fish species etc., should be recorded with a view to future measures to manage the presence of dioxins and dioxin-like compounds in these materials for animal nutrition.
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(<sup>1</sup>) Based on the conclusions of the World Health Organisation meeting (Van den Berg et al., 1998, Toxic Equivalency Factors (TEFs) for PCBs, PCDDs, PCDFs for Humans and for Wildlife.

Environmental Health Perspectives, 106(12), 775)

Congener	TEF value	Congener	TEF value
Dibenzo-p-dioxins (PCDDs)	1	Dioxin-like PCBs:	
2,3,7,8-TCDD	1	Non-ortho PCBs +	
1,2,3,7,8-PeCDD	0,1	Mono-ortho PCBs	

1,2,3,4,7,8-HxCDD	0,1		0,0001
1,2,3,6,7,8-HxCDD	0,1	Non-ortho PCBs	0,0001
1,2,3,7,8,9-HxCDD	0,01	PCB 77	0,1
1,2,3,4,6,7,8-HpCDD	0,0001	PCB 81	0,01
OCDD		PCB 126	
	0,1	PCB 169	0,0001
Dibensofuraanid (PCDFd)	0,05		0,0005
2,3,7,8-TCDF	0,5	Mono-ortho PCBs	0,0001
1,2,3,7,8-PeCDF	0,1	PCB 105	0,0001
2,3,4,7,8-PeCDF	0,1	PCB 114	0,0005
1,2,3,4,7,8-HxCDF	0,1	PCB 118	0,0005
1,2,3,6,7,8-HxCDF	0,1	PCB 123	0,00001
1,2,3,7,8,9-HxCDF	0,01	PCB156	0,0001
2,3,4,6,7,8-HxCDF	0,01	PCB 157	
1,2,3,4,6,7,8-HpCDF	0,0001	PCB 167	
1,2,3,4,7,8,9-HpCDF		PCB 189	
OCDF			
T = tetra; Pe = penta; Hx = hexa; Hp = hepta; O = octa; CDD = chlorodibenzo-p-dioxin; CDF = chlorodibenzofuran; CB = chlorobiphenyl.			

(<sup>2</sup>) Upper-bound concentrations; upper-bound concentrations are calculated on the assumption that all values of the different congeners below the limit of quantification are equal to the limit of quantification.

(<sup>3</sup>) The Commission will review these action levels by 31 December 2008 at the latest at the same time as it reviews the maximum levels for the sum of dioxins and dioxin-like PCBs.

Ants Noot

Secretary General

