[F1ANNEX I

Textual Amendments

F1 Substituted by Commission Regulation (EU) No 574/2011 of 16 June 2011 amending Annex I to Directive 2002/32/EC of the European Parliament and of the Council as regards maximum levels for nitrite, melamine, Ambrosia spp. and carry-over of certain coccidiostats and histomonostats and consolidating Annexes I and II thereto (Text with EEA relevance).

MAXIMUM LEVELS OF UNDESIRABLE SUBSTANCES, AS REFERRED TO IN ARTICLE 3(2)

SECTION I:INORGANIC CONTAMINANTS AND NITROGENOUS COMPOUNDS		
Undesirable substance	**Products intended for animal feed**	**Maximum content in mg/kg (ppm) relative to a feed with a moisture content of 12 %**
[F6 1. Arsenic[a]	Feed materials	2
	with the exception of: — meal made from grass, from dried lucerne and from dried clover, and dried sugar beet pulp and dried molasses sugar beet pulp;	4
	— palm kernel expeller;	4[b]
	— peat; leonardite;	5[b]
	— phosphates, calcareous marine algae;	10
	— calcium carbonate; calcium and magnesium carbonate[i]; calcareous marine shells;	15
	— magnesium oxide; magnesium carbonate;	20

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	— fish, other aquatic animals and products derived thereof;	25[b]
	— seaweed meal and feed materials derived from seaweed.	40[b]
	Iron particles used as tracer.	50
	Feed additives belonging to the functional group of compounds of trace elements	30
	with the exception of: — cupric sulphate pentahydrate; cupric carbonate; dicopper chloride trihydroxide; ferrous carbonate; dimanganese chloride trihydroxide	50
	— zinc oxide; manganous oxide; cupric oxide.	100
	Complementary feed	4
	with the exception of: — mineral feed;	12
	— complementary feed for pet animals containing fish, other aquatic animals and products derived thereof and/or seaweed meal and feed materials derived from seaweed;	10[b]
	— long-term supply formulations of	30

SECTION I:INORGANIC CONTAMINANTS AND NITROGENOUS COMPOUNDS		
	feed for particular nutritional purposes with a concentration of trace elements higher than 100 times the established maximum content in complete feed;	
	Complete feed	2
	with the exception of: — complete feed for fish and fur animals;	10[b]
	— complete feed for pet animals containing fish, other aquatic animals and products derived thereof and/or seaweed meal and feed materials derived from seaweed.	10][b]
[F7 2. Cadmium	Feed materials of vegetable origin	1
	Feed materials of animal origin	2
	Feed materials of mineral origin	2
	with the exception of:	
	— phosphates.	10
	Feed additives belonging to the functional group of compounds of trace elements	10
	with the exception of:	
	— cupric oxide, manganous oxide, zinc oxide and manganous sulphate monohydrate.	30

SECTION I:INORGANIC CONTAMINANTS AND NITROGENOUS COMPOUNDS		
	Feed additives belonging to the functional groups of binders and anti-caking agents	2
	Premixtures[f]	15
	Complementary feed	0,5
	with the exception of:	
	— mineral feed	
	– – containing < 7 % phosphorus[h]	5
	– – containing ≥ 7 % phosphorus[h]	0,75 per 1 % phosphorus[h], with a maximum of 7,5
	— complementary feed for pet animals	2
	— long-term supply formulations of feed for particular nutritional purposes with a concentration of trace elements higher than 100 times the established maximum content in complete feed;	15
	Complete feed	0,5
	with the exception of:	
	— complete feed for cattle (except calves), sheep (except lambs), goats (except kids) and fish;	1
	— complete feed for pet animals.	2]
[F8 3. Fluorine[g]	Feed materials with the exception of:	150

SECTION I:INORGANIC CONTAMINANTS AND NITROGENOUS COMPOUNDS

— feed materials of animal origin except marine crustaceans such as marine krill; calcareous marine shells;	500
— marine crustaceans such as marine krill;	3 000
— phosphates;	2 000
— calcium carbonate; calcium and magnesium carbonate[j]	350
— magnesium oxide;	600
— calcareous marine algae.	[F6 1 250]
Vermiculite (E 561).	3 000
Complementary feed:	
— containing ≤ 4 % phosphorus[h];	500
— containing > 4 % phosphorus[h].	125 per 1 % phosphorus[h]
Complete feed with the exception of:	150
— complete feed for pigs;	100
— complete feed for poultry (except chicks) and fish;	350
— complete feed for chicks;	250
— complete feed for cattle, sheep and goats	

SECTION I:INORGANIC CONTAMINANTS AND NITROGENOUS COMPOUNDS		
	– – in lactation;	30
	– – other.	50
[F6 4. Lead[l]	Feed materials	10
	with the exception of: — forage[c];	30
	— phosphates, calcareous marine algae and calcareous marine shells;	15
	— calcium carbonate; calcium and magnesium carbonate[j];	20
	— yeasts.	5
	Feed additives belonging to the functional group of compounds of trace elements	100
	with the exception of: — zinc oxide;	400
	— manganous oxide, ferrous carbonate, cupric carbonate, copper (I) oxide.	200
	Feed additives belonging to the functional groups of binders and anti-caking agents	30
	with the exception of: — clinoptilolite of volcanic origin; natrolite-phonolite.	60
	Premixtures[f]	200
	Complementary feed	10
	with the exception of:	15

SECTION I:INORGANIC CONTAMINANTS AND NITROGENOUS COMPOUNDS		
	— mineral feed;	
	— long-term supply formulations of feed for particular nutritional purposes with a concentration of trace elements higher than 100 times the established maximum content in complete feed.	60
	Complete feed.	5**]**
[F6 5. Mercury[d]	Feed materials	0,1
	with the exception of: — fish, other aquatic animals and products derived thereof intended for the production of compound feed for food producing animals;	0,5
	— fish, other aquatic animals and products derived thereof intended for the production of compound feed for dogs, cats, ornamental fish and fur animals;	1,0[m]
	— fish, other aquatic animals and products derived thereof as canned wet feed material for direct feeding of dogs and cats	0,3
	— calcium carbonate; calcium and	0,3

SECTION I:INORGANIC CONTAMINANTS AND NITROGENOUS COMPOUNDS		
	magnesium carbonate[j].	
	Compound feed	0,1
	with the exception of:	0,2
	— mineral feed;	
	— compound feed for fish;	0,2
	— compound feed for dogs, cats, ornamental fish and fur animals.	0,3**]]**
[[F7]6. Nitrite[e]	Feed materials	15
	with the exception of:	
	— fishmeal;	30
	— silage;	—
	— products and by-products from sugar beet and sugarcane and from starch and alcoholic drink production.	—
	Complete feed	15
	with the exception of:	
	— complete feed for dogs and cats with a moisture content exceeding 20 %.	—**]**
[[F5]7. Melamine[i]	Feed with the exception of:	2,5
	— canned pet food	2,5[k]
	— the following feed additives:	
	— guanidino acetic acid (GAA);	20

SECTION I:INORGANIC CONTAMINANTS AND NITROGENOUS COMPOUNDS

	— urea;	—
	— biuret.	—]

a	The maximum levels refer to total arsenic.
b	Upon request of the competent authorities, the responsible operator must perform an analysis to demonstrate that the content of inorganic arsenic is lower than 2 ppm. This analysis is of particular importance for the seaweed species *Hizikia fusiforme*.
c	Forage includes products intended for animal feed such as hay, silage, fresh grass, etc.
d	The maximum levels refer to total mercury.
e	The maximum levels are expressed as sodium nitrite.
f	The maximum level established for premixtures takes into account the additives with the highest level of lead and cadmium and not the sensitivity of the different animal species to lead and cadmium. As provided in Article 16 of Regulation (EC) No 1831/2003 of the European Parliament and of the Council of 22 September 2003 on additives for use in animal nutrition (OJ L 268, 18.10.2003, p. 29), in order to protect animal and public health, it is the responsibility of the producer of premixtures to ensure that, in addition to compliance with the maximum levels for premixtures, the instructions for use on the premixture are in accordance with the maximum levels for complementary and complete feed.
g	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.
h	The % of phosphorus is relative to a feed with a moisture content of 12 %.
i	The maximum level refers to melamine only. The inclusion of the structurally related compounds cyanuric acid, ammeline and ammelide in the maximum level will be considered at a later stage.
j	**[**[F2]Calcium and magnesium carbonate refers to the natural mixture of calcium carbonate and magnesium carbonate as described in Commission Regulation (EU) No 575/2011 of 16 June 2011 on the Catalogue of feed materials (OJ L 159, 17.6.2011, p. 25).**]**
k	**[**[F3]The maximum level is applicable to canned pet food as sold.**]**
l	**[**[F4]For the determination of lead in kaolinitic clay and in feed containing kaolinitic clay, the maximum level refers 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.**]**
m	**[**[F5]The maximum level is applicable on wet weight basis.**]**

SECTION II:MYCOTOXINS

Undesirable substance	**Products intended for animal feed**	**Maximum content in mg/kg (ppm) relative to a feed with a moisture content of 12 %**
1. Aflatoxin B_1	Feed materials	0,02
	Complementary and complete feed	0,01
	with the exception of:	
	— compound feed for dairy cattle and calves, dairy sheep and lambs, dairy goats and kids,	0,005

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	piglets and young poultry animals,	
	— compound feed for cattle (except dairy cattle and calves), sheep (except dairy sheep and lambs), goats (except dairy goats and kids), pigs (except piglets) and poultry (except young animals).	0,02
2. Rye ergot (*Claviceps purpurea)*	Feed materials and compound feed containing unground cereals.	1 000
SECTION III:INHERENT PLANT TOXINS		
Undesirable substance	**Products intended for animal feed**	**Maximum content in mg/kg (ppm) relative to a feed with a moisture content of 12 %**
1. Free gossypol	Feed materials	20
	with the exception of:	
	— cottonseed,	**[**[F6]6 000**]**
	— cottonseed cakes and cottonseed meal.	1 200
	Complete feed	20
	with the exception of:	
	— complete feed for cattle (except calves),	500
	— complete feed for sheep (except lambs) and goats (except kids),	300
	— complete feed for poultry (except	100

a The maximum levels are expressed as allyl isothiocyanate.

b **[**[F4]Upon request of the competent authorities, the responsible operator must perform an analysis to demonstrate that the content of total glucosinolates is lower than 30 mmol/kg. The method of analysis of reference is EN-ISO 9167-1:1995.**]**

SECTION III:INHERENT PLANT TOXINS

		laying hens) and calves,	
		— complete feed for rabbits, lambs, kids and pigs (except piglets).	60
2.	Hydrocyanic acid	Feed materials	50
		with the exception of:	
		— linseed,	250
		— linseed cakes,	350
		— manioc products and almond cakes.	100
		Complete feed	50
		with the exception of:	
		— complete feed for young chickens (< 6 weeks).	10
3.	Theobromine	Complete feed	300
		with the exception of:	
		— complete feed for pigs,	200
		— complete feed for dogs, rabbits, horses and fur animals.	50
4.	vinyl thiooxazolidone (5-vinyloxazolidine-2-thione)	Complete feed for poultry	1 000
		with the exception of:	
		— complete feed for laying hens.	500
[F7 5.	Volatile mustard oil[a]	Feed materials	100
		with the exception of:	
		— Camelina seed and products derived	4 000

a The maximum levels are expressed as allyl isothiocyanate.

b **[**F4Upon request of the competent authorities, the responsible operator must perform an analysis to demonstrate that the content of total glucosinolates is lower than 30 mmol/kg. The method of analysis of reference is EN-ISO 9167-1:1995.**]**

SECTION III:INHERENT PLANT TOXINS

	thereof[b], products derived from mustard seed[b], rape seed and products derived thereof.	
	Complete feed	150
	with the exception of:	
	— complete feed for cattle (except calves), sheep (except lambs) and goats (except kids);	1 000
	— complete feed for pigs (except piglets) and poultry.	500]

a The maximum levels are expressed as allyl isothiocyanate.

b [F4Upon request of the competent authorities, the responsible operator must perform an analysis to demonstrate that the content of total glucosinolates is lower than 30 mmol/kg. The method of analysis of reference is EN-ISO 9167-1:1995.]

SECTION IV:ORGANOCHLORINE COMPOUNDS (EXCEPT DIOXINS AND PCBs)

	Undesirable substance	**Products intended for animal feed**	**Maximum content in mg/kg (ppm) relative to a feed with a moisture content of 12 %**
1.	Aldrin[a]	Feed materials and compound feed	0,01[b]
2.	Dieldrin[a]	with the exception of:	
		— fats and oils,	0,1[b]
		— compound feed for fish.	0,02[b]
3.	Camphechlor (toxaphene) – sum of indicator congeners CHB 26, 50 and 62[c]	Fish, other aquatic animals and products derived thereof	0,02
		with the exception of	
		— fish oil.	0,2
		Complete feed for fish.	0,05

a Singly or combined expressed as dieldrin.

b Maximum level for aldrin and dieldrin, singly or combined, expressed as dieldrin.

c 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.

SECTION IV:ORGANOCHLORINE COMPOUNDS (EXCEPT DIOXINS AND PCBs)			
4.	Chlordane (sum of cis- and trans-isomers and of oxychlordane, expressed as chlordane)	Feed materials and compound feed	0,02
		with the exception of:	
		— fats and oils.	0,05
5.	DDT (sum of DDT-, DDD- (or TDE-) and DDE-isomers, expressed as DDT)	Feed materials and compound feed	0,05
		with the exception of:	
		— fats and oils.	0,5
[F8 6.	Endosulfan (sum of alpha- and beta-isomers and of endosulfansulphate expressed as endosulfan)	Feed materials and compound feed with the exception of:	0,1
		— cotton seed and products derived from the processing thereof, except crude cotton seed oil	0,3
		— soybean and products derived from the processing thereof, except crude soybean oil	0,5
		— crude vegetable oil	1,0
		— complete feed for fish except for *Salmonids*	0,005
		— complete feed for *Salmonids*	0,05]
7.	Endrin (sum of endrin and of delta-ketoi-endrin, expressed as endrin)	Feed materials and compound feed	0,01
		with the exception of:	

a Singly or combined expressed as dieldrin.

b Maximum level for aldrin and dieldrin, singly or combined, expressed as dieldrin.

c 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.

SECTION IV:ORGANOCHLORINE COMPOUNDS (EXCEPT DIOXINS AND PCBs)

	— fats and oils.	0,05
8. Heptachlor (sum of heptachlor and of heptachlorepoxide, expressed as heptachlor)	Feed materials and compound feed	0,01
	with the exception of:	
	— fats and oils.	0,2
9. Hexachlorobenzene (HCB)	Feed materials and compound feed	0,01
	with the exception of:	
	— fats and oils.	0,2
10.Hexachlorocyclohexane (HCH)		
— alpha-isomers	Feed materials and compound feed	0,02
	with the exception of:	
	— fats and oils.	0,2
— beta-isomers	Feed materials	0,01
	with the exception of:	
	— fats and oils.	0,1
	Compound feed	0,01
	with the exception of:	
	— compound feed for dairy cattle.	0,005
— gamma-isomers	Feed materials and compound feed	0,2
	with the exception of:	
	— fats and oils.	2,0

a Singly or combined expressed as dieldrin.

b Maximum level for aldrin and dieldrin, singly or combined, expressed as dieldrin.

c 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.

[F9SECTION V:DIOXINS AND PCBs

Undesirable substance	Products intended for animal feed	Maximum content in ng WHO-PCDD/F-TEQ/kg

[F9SECTION V:DIOXINS AND PCBs

			(ppt)[a] relative to a feed with a moisture content of 12 %
[F111.	Dioxins [sum of polychlorinated dibenzo-*para*-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) expressed in World Health Organisation (WHO) toxic equivalents, using the WHO-TEFs (toxic equivalency factors, 2005)[b]]	Feed materials of plant origin	0,75
		with the exception of:	
		— vegetable oils and their by-products.	0,75
		Feed materials of mineral origin	0,75
		Feed materials of animal origin:	
		— Animal fat, including milk fat and egg fat,	1,5
		— Other land animal products including milk and milk products and eggs and egg products.	0,75
		— Fish oil,	5,0
		— Fish, other aquatic animals, and products derived thereof with the exception of fish oil, hydrolysed fish protein containing more than 20 % fat[c] and crustacea meal,	1,25
		— Hydrolysed fish protein containing more than 20 % fat; crustacea meal.	1,75
		[F6 Feed additives belonging to the functional groups of binders and anti-caking agents**]**[e]	0,75
		Feed additives belonging to the functional group of compounds of trace elements.	1,0

[F9SECTION V:DIOXINS AND PCBs		
	Premixtures	1,0
	Compound feed	0,75
	with the exception of:	
	— compound feed for pet animals and fish,	1,75
	— compound feed for fur animals.	—]
Undesirable substance	**Products intended for animal feed**	**Maximum content in ng WHO-PCDD/F-PCB-TEQ/kg (ppt)[a] relative to a feed with a moisture content of 12 %**
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), 2005[b])	Feed materials of plant origin with the exception of:	1,25
	— vegetable oils and their by-products	1,5
	Feed materials of mineral origin	1,0
	Feed materials of animal origin:	
	— Animal fat, including milk fat and egg fat	2,0
	— Other land animal products including milk and milk products and eggs and egg products	1,25
	— Fish oil	20,0
	— Fish, other aquatic animals, and products derived thereof with the exception of fish oil and fish protein, hydrolysed, containing more than 20 % fat[c]	4,0

[F9SECTION V:DIOXINS AND PCBs		
	— Fish protein, hydrolysed, containing more than 20 % fat	9,0
	[F6Feed additives belonging to the functional groups of binders and anti-caking agents]e	1,5
	Feed additives belonging to the functional group of compounds of trace elements	1,5
	Premixtures	1,5
	Compound feed with the exception of:	1,5
	— compound feed for pet animals and fish	5,5
	— compound feed for fur animals	—
Undesirable substance	**Products intended for animal feed**	**Maximum content in µg/kg (ppb) relative to a feed with a moisture content of 12 %[a]**
3. Non-dioxin-like PCBs (sum of PCB 28, PCB 52, PCB 101, PCB 138, PCB 153 and PCB 180 (ICES – 6)[a])	Feed materials of plant origin	10
	Feed materials of mineral origin	10
	Feed materials of animal origin:	
	— Animal fat, including milk fat and egg fat	10
	— Other land animal products including milk and milk products and eggs and egg products	10
	— Fish oil	175
	— Fish, other aquatic animals and products derived	30

[F9SECTION V:DIOXINS AND PCBs

	thereof with the exception of fish oil and fish protein, hydrolysed, containing more than 20 % fat[d]	
	— Fish protein, hydrolysed, containing more than 20 % fat	50
	[F6Feed additives belonging to the functional groups of binders and anti-caking agents][e]	10
	Feed additives belonging to the functional group of compounds of trace elements	10
	Premixtures	10
	Compound feed with the exception of:	10
	— compound feed for pet animals and fish	40
	— compound feed for fur animals	—

a 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.

b Table of TEF (= toxic equivalency factors) for dioxins, furans and dioxin-like PCBs:
WHO-TEFs for human risk assessment based on the conclusions of the World Health Organisation (WHO) – International Programme on Chemical Safety (IPCS) expert meeting which was held in Geneva in June 2005 (Martin van den Berg et al., The 2005 World Health Organisation Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds. Toxicological Sciences 93(2), 223–241 (2006))

Congener	**TEF value**
Dibenzo-para-dioxins (‘PCDDs’) and Dibenzo-para-furans (PCDFs)	
2,3,7,8-TCDD	1
1,2,3,7,8-PeCDD	1
1,2,3,4,7,8-HxCDD	0,1
1,2,3,6,7,8-HxCDD	0,1
1,2,3,7,8,9-HxCDD	0,1
1,2,3,4,6,7,8-HpCDD	0,01
OCDD	0,0003

Abbreviations used: ‘T’ = tetra; ‘Pe’ = penta; ‘Hx’ = hexa; ‘Hp’ = hepta; ‘O’ = octa; ‘CDD’ = chlorodibenzodioxin; ‘CDF’ = chlorodibenzofuran; ‘CB’ = chlorobiphenyl.

2,3,7,8-TCDF	0,1
1,2,3,7,8-PeCDF	0,03
2,3,4,7,8-PeCDF	0,3
1,2,3,4,7,8-HxCDF	0,1
1,2,3,6,7,8-HxCDF	0,1
1,2,3,7,8,9-HxCDF	0,1
2,3,4,6,7,8-HxCDF	0,1
1,2,3,4,6,7,8-HpCDF	0,01
1,2,3,4,7,8,9-HpCDF	0,01
OCDF	0,0003
‘Dioxin-like’ PCBs: Non-ortho PCBs + Mono-ortho PCBs	
Non-ortho PCBs	
PCB 77	0,0001
PCB 81	0,0003
PCB 126	0,1
PCB 169	0,03
Mono-ortho PCBs	
PCB 105	0,00003
PCB 114	0,00003
PCB 118	0,00003
PCB 123	0,00003
PCB 156	0,00003
PCB 157	0,00003
PCB 167	0,00003
PCB 189	0,00003
Abbreviations used: ‘T’ = tetra; ‘Pe’ = penta; ‘Hx’ = hexa; ‘Hp’ = hepta; ‘O’ = octa; ‘CDD’ = chlorodibenzodioxin; ‘CDF’ = chlorodibenzofuran; ‘CB’ = chlorobiphenyl.	

c Fresh fish and other aquatic animals directly delivered and used without intermediate processing for the production of feed for fur animals are not subject to the maximum levels, while maximum levels of 3,5 ng WHO-PCDD/F-TEQ/kg product and 6,5 ng WHO-PCDD/F-PCB-TEQ/kg product are applicable to fresh fish and 20,0 ng WHO-PCDD/F-PCB-TEQ/kg product is applicable to fish liver used for the direct feeding of pet animals, zoo and circus animals or used as feed material for the production of pet food. The products or 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.

d Fresh fish and other aquatic animals directly delivered and used without intermediate processing for the production of feed for fur animals are not subject to the maximum levels, while maximum levels of 75 µg/kg product are applicable to fresh fish and 200 µg/kg product are applicable to fish liver used for the direct feeding of pet animals, zoo and circus animals or used as feed material for the production of pet food. The products or 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.

e **[**[F10]The maximum level is also applicable to the feed additives belonging to the functional groups of substances for the control of radionuclide contamination and substances for reduction of the contamination of feed by mycotoxins which are also belonging to the functional groups of binders and anti-caking agents.**]]**

[F8SECTION VI:HARMFUL BOTANICAL IMPURITIES

Undesirable substance		Products intended for animal feed	Maximum content in mg/kg (ppm) relative to a feed with a moisture content of 12 %
1.	Weed seeds and unground and uncrushed fruits containing alkaloids, glucosides or other toxic substances separately or in combination including	Feed materials and compound feed	3 000
—	*Datura* sp.		1 000
2.	*Crotalaria* spp.	Feed materials and compound feed	100
3.	Seeds and husks from *Ricinus communis* L., *Croton tiglium* L. and *Abrus precatorius* L. as well as their processed derivatives[a], separately or in combination	Feed materials and compound feed	10[b]
4.	Unhusked beech mast — *Fagus sylvatica* L.	Feed materials and compound feed	Seeds and fruit as well as their processed derivatives may only be present in feed in trace amounts not quantitatively determinable
5.	Purghera — *Jatropha curcas* L.	Feed materials and compound feed	Seeds and fruit as well as their processed derivatives may only be present in feed in trace amounts not quantitatively determinable
6.	Seeds from *Ambrosia* spp.	Feed materials[c] with the exception of	50
		– Millet (grains of *Panicum miliaceum* L.) and sorghum (grains of *Sorghum*	200

[F8SECTION VI:HARMFUL BOTANICAL IMPURITIES

	bicolor (L) Moench s.l.) not directly fed to animals[c]	
	Compound feed containing unground grains and seeds	50
7. — Seeds from Indian mustard — *Brassica juncea* (L.) Czern. and Coss. ssp. *integrifolia* (West.) Thell. — Sareptian mustard — *Brassica juncea* (L.) Czern. and Coss. ssp. juncea — Chinese mustard — *Brassica juncea* (L.) Czern. and Coss. ssp. *juncea* var. *lutea* Batalin — Black mustard — *Brassica nigra* (L.) Koch — Ethiopian mustard — *Brassica carinata* A. Braun	Feed materials and compound feed	Seeds may only be present in feed in trace amounts not quantitatively determinable

a In so far determinable by analytical microscopy.

b Includes also seed husk fragments.

c In case unequivocal evidence is provided that the grains and seeds are intended for milling or crushing, there is no need to perform a cleaning of the grains and seeds containing con-compliant levels of seeds of *Ambrosia* spp. before milling or crushing on the condition that:
- — the consignment is transported as a whole to the milling or crushing plant, and — the milling or crushing plant is informed in advance of the presence of high level of *Ambrosia* spp. seeds in order take additional prevention measures to avoid dissemination into the environment, and
- — solid evidence is provided that prevention measures are taken to avoid dissemination of *Ambrosia* spp. seeds into the environment during transport to the crushing or milling plant, and
- — the competent authority agrees to the transport, after having ensured that the abovementioned conditions are fulfilled.

In case these conditions are not fulfilled, the consignment must be cleaned before any transport into the EU and the screenings must be appropriately destroyed.**]**

SECTION VII:AUTHORISED FEED ADDITIVES IN NON-TARGET FEED FOLLOWING UNAVOIDABLE CARRY-OVER

Coccidiostat	**Products intended for animal feed**[a]	**Maximum content in mg/kg (ppm) relative to a feed with a moisture content of 12 %**
[F5 1. Decoquinate	Feed materials	0,4
	Compound feed for	
	— laying birds and chickens reared for laying (> 16 weeks);	0,4
	— other animal species	1,2
	Premixtures for use in feed in which the use of decoquinate is not authorised.]	[b]
[F11 2. Diclazuril	Feed materials	0,01
	Compound feed for	
	— laying birds and chickens reared for laying (> 16 weeks),	0,01
	— rabbits for fattening and breeding for the period before slaughter in which the use of diclazuril is prohibited (withdrawal feed),	0,01
	— other animal species other than chickens reared for laying (< 16 weeks), chickens for fattening, guinea fowl and turkeys for fattening.	0,03

a Without prejudice to the authorised levels in the frame of Regulation (EC) No 1831/2003 of the European Parliament and of the Council (OJ L 268, 18.10.2003, p. 29).

b The maximum level of the substance in the premixture is the concentration which shall not result in a level of the substance higher than 50 % of the maximum levels established in the feed when the instructions for use of the premixture are followed.

SECTION VII:AUTHORISED FEED ADDITIVES IN NON-TARGET FEED FOLLOWING UNAVOIDABLE CARRY-OVER

		Premixtures for use in feed in which the use of diclazuril is not authorised.]	[b]
3.	Halofuginone hydrobromide	Feed materials	0,03
		Compound feed for	
		— laying birds, chickens reared for laying and turkeys (> 12 weeks),	0,03
		— chickens for fattening and turkeys (< 12 weeks) for the period before slaughter in which the use of halofuginone hydrobromide is prohibited (withdrawal feed),	0,03
		— other animal species.	0,09
		Premixtures for use in feed in which the use of halofuginone hydrobromide is not authorised.	[b]
[F11 4.	Lasalocid A sodium	Feed materials	1,25
		Compound feed for	
		— dogs, calves, rabbits, equine species, dairy animals, laying birds, turkeys (> 16 weeks) and chickens reared for laying (> 16 weeks),	1,25

a Without prejudice to the authorised levels in the frame of Regulation (EC) No 1831/2003 of the European Parliament and of the Council (OJ L 268, 18.10.2003, p. 29).

b The maximum level of the substance in the premixture is the concentration which shall not result in a level of the substance higher than 50 % of the maximum levels established in the feed when the instructions for use of the premixture are followed.

SECTION VII:AUTHORISED FEED ADDITIVES IN NON-TARGET FEED FOLLOWING UNAVOIDABLE CARRY-OVER

		— chickens for fattening, chickens reared for laying (< 16 weeks) and turkeys (< 16 weeks) for the period before slaughter in which the use of lasalocid A sodium is prohibited (withdrawal feed),	1,25
		— pheasants, guinea fowl, quails and partridges (except laying birds) for the period before slaughter in which the use of lasalocid A sodium is prohibited (withdrawal feed),	1,25
		— other animal species.	3,75
		Premixtures for use in feed in which the use of lasalocid A sodium is not authorised.]	[b]
5.	Maduramicin ammonium alpha	Feed materials	0,05
		Compound feed for	
		— equine species, rabbits, turkeys (> 16 weeks), laying birds and chickens reared for laying (> 16 weeks),	0,05
		— chickens for fattening and turkeys (< 16	0,05

a Without prejudice to the authorised levels in the frame of Regulation (EC) No 1831/2003 of the European Parliament and of the Council (OJ L 268, 18.10.2003, p. 29).

b The maximum level of the substance in the premixture is the concentration which shall not result in a level of the substance higher than 50 % of the maximum levels established in the feed when the instructions for use of the premixture are followed.

SECTION VII:AUTHORISED FEED ADDITIVES IN NON-TARGET FEED FOLLOWING UNAVOIDABLE CARRY-OVER

	weeks) for the period before slaughter in which the use of maduramicin ammonium alpha is prohibited (withdrawal feed),	
	— other animal species.	0,15
	Premixtures for use in feed in which the use of maduramicin ammonium alpha is not authorised.	[b]
6. Monensin sodium	Feed materials	1,25
	Compound feed for	
	— equine species, dogs, small ruminants (sheep and goat), ducks, bovine, dairy cattle, laying birds, chickens reared for laying (> 16 weeks) and turkeys (> 16 weeks),	1,25
	— chickens for fattening, chickens reared for laying (< 16 weeks) and turkeys (< 16 weeks) for the period before slaughter in which the use of monensin sodium is prohibited (withdrawal feed),	1,25

a Without prejudice to the authorised levels in the frame of Regulation (EC) No 1831/2003 of the European Parliament and of the Council (OJ L 268, 18.10.2003, p. 29).

b The maximum level of the substance in the premixture is the concentration which shall not result in a level of the substance higher than 50 % of the maximum levels established in the feed when the instructions for use of the premixture are followed.

SECTION VII:AUTHORISED FEED ADDITIVES IN NON-TARGET FEED FOLLOWING UNAVOIDABLE CARRY-OVER

		— other animal species.	3,75
		Premixtures for use in feed in which the use of monensin sodium is not authorised.	[b]
7.	Narasin	Feed materials	0,7
		Compound feed for	
		— turkeys, rabbits, equine species, laying birds and chickens reared for laying (> 16 weeks),	0,7
		— other animal species.	2,1
		Premixtures for use in feed in which the use of narasin is not authorised.	[b]
8.	Nicarbazin	Feed materials	1,25
		Compound feed for	
		— equine species, laying birds and chickens reared for laying (> 16 weeks),	1,25
		— other animal species.	3,75
		Premixtures for use in feed in which the use of nicarbazin (alone or in combination with narasin) is not authorised.	[b]
9.	Robenidine hydrochloride	Feed materials	0,7
		Compound feed for	

a Without prejudice to the authorised levels in the frame of Regulation (EC) No 1831/2003 of the European Parliament and of the Council (OJ L 268, 18.10.2003, p. 29).

b The maximum level of the substance in the premixture is the concentration which shall not result in a level of the substance higher than 50 % of the maximum levels established in the feed when the instructions for use of the premixture are followed.

SECTION VII:AUTHORISED FEED ADDITIVES IN NON-TARGET FEED FOLLOWING UNAVOIDABLE CARRY-OVER

		— laying birds and chickens reared for laying (> 16 weeks),	0,7
		— chickens for fattening, rabbits for fattening and breeding and turkeys for the period before slaughter in which the use of robenidine hydrochloride is prohibited (withdrawal feed),	0,7
		— other animal species.	2,1
		Premixtures for use in feed in which the use of robenidine hydrochloride is not authorised.	[b]
10.	Salinomycin sodium	Feed materials	0,7
		Compound feed for	
		— equine species, turkeys, laying birds and chickens reared for laying (> 12 weeks),	0,7
		— chickens for fattening, chickens reared for laying (< 12 weeks) and rabbits for fattening for the period before slaughter in which the use of salinomycin sodium	0,7

a Without prejudice to the authorised levels in the frame of Regulation (EC) No 1831/2003 of the European Parliament and of the Council (OJ L 268, 18.10.2003, p. 29).

b The maximum level of the substance in the premixture is the concentration which shall not result in a level of the substance higher than 50 % of the maximum levels established in the feed when the instructions for use of the premixture are followed.

SECTION VII:AUTHORISED FEED ADDITIVES IN NON-TARGET FEED FOLLOWING UNAVOIDABLE CARRY-OVER

		is prohibited (withdrawal feed),	
		— other animal species.	2,1
		Premixtures for use in feed in which the use of salinomycin sodium is not authorised	[b]
11.	Semduramicin sodium	Feed materials	0,25
		Compound feed for	
		— laying birds and chickens reared for laying (> 16 weeks),	0,25
		— chickens for fattening for the period before slaughter in which the use of semduramicin sodium is prohibited (withdrawal feed),	0,25
		— other animal species.	0,75
		Premixtures for use in feed in which the use of semduramicin sodium is not authorised.	[b]

a Without prejudice to the authorised levels in the frame of Regulation (EC) No 1831/2003 of the European Parliament and of the Council (OJ L 268, 18.10.2003, p. 29).

b The maximum level of the substance in the premixture is the concentration which shall not result in a level of the substance higher than 50 % of the maximum levels established in the feed when the instructions for use of the premixture are followed.

Textual Amendments

F2 Inserted by Commission Regulation (EU) No 744/2012 of 16 August 2012 amending Annexes I and II to Directive 2002/32/EC of the European Parliament and of the Council as regards maximum levels for arsenic, fluorine, lead, mercury, endosulfan, dioxins, Ambrosia spp., diclazuril and lasalocid A sodium and action thresholds for dioxins (Text with EEA relevance).

F3 Inserted by Commission Regulation (EU) No 107/2013 of 5 February 2013 amending Annex I to Directive 2002/32/EC of the European Parliament and of the Council as regards maximum levels for melamine in canned pet food (Text with EEA relevance).

F4 Inserted by Commission Regulation (EU) No 1275/2013 of 6 December 2013 amending Annex I to Directive 2002/32/EC of the European Parliament and of the Council as regards maximum levels for arsenic, cadmium, lead, nitrites, volatile mustard oil and harmful botanical impurities (Text with EEA relevance).

F5 Substituted by Commission Regulation (EU) 2017/2229 of 4 December 2017 amending Annex I to Directive 2002/32/EC of the European Parliament and of the Council as regards maximum levels for lead, mercury, melamine and decoquinate (Text with EEA relevance).

F6 Substituted by Commission Regulation (EU) 2019/1869 of 7 November 2019 amending and correcting Annex I to Directive 2002/32/EC of the European Parliament and of the Council as regards maximum levels for certain undesirable substances in animal feed (Text with EEA relevance).

F7 Substituted by Commission Regulation (EU) No 1275/2013 of 6 December 2013 amending Annex I to Directive 2002/32/EC of the European Parliament and of the Council as regards maximum levels for arsenic, cadmium, lead, nitrites, volatile mustard oil and harmful botanical impurities (Text with EEA relevance).

F8 Substituted by Commission Regulation (EU) 2015/186 of 6 February 2015 amending Annex I to Directive 2002/32/EC of the European Parliament and of the Council as regards maximum levels for arsenic, fluorine, lead, mercury, endosulfan and Ambrosia seeds (Text with EEA relevance).

F9 Substituted by Commission Regulation (EU) No 277/2012 of 28 March 2012 amending Annexes I and II to Directive 2002/32/EC of the European Parliament and of the Council as regards maximum levels and action thresholds for dioxins and polychlorinated biphenyls (Text with EEA relevance).

F10 Inserted by Commission Regulation (EU) 2019/1869 of 7 November 2019 amending and correcting Annex I to Directive 2002/32/EC of the European Parliament and of the Council as regards maximum levels for certain undesirable substances in animal feed (Text with EEA relevance).

F11 Substituted by Commission Regulation (EU) No 744/2012 of 16 August 2012 amending Annexes I and II to Directive 2002/32/EC of the European Parliament and of the Council as regards maximum levels for arsenic, fluorine, lead, mercury, endosulfan, dioxins, Ambrosia spp., diclazuril and lasalocid A sodium and action thresholds for dioxins (Text with EEA relevance).

[F9ANNEX II

ACTION THRESHOLDS TRIGGERING INVESTIGATIONS BY MEMBER STATES, AS REFERRED TO IN ARTICLE 4(2)

SECTION: DIOXINS AND PCBs

Undesirable substances	**Products intended for animal feed**	**Action threshold in ng WHO-PCDD/F TEQ/kg (ppt)[b] relative to a feedingstuff with a moisture content of 12 %**	**Comments and additional information (e.g. nature of investigations to be performed)**
[F11 1. Dioxins [sum of polychlorinated dibenzo-*para*-dioxins (PCDDs), polychlorinated dibenzofurans	Feed materials of plant origin	0,5	[c]
	with the exception of:		
	— vegetable oils and their by-products.	0,5	[c]

(PCDFs) expressed in World Health Organisation (WHO) toxic equivalents, using the WHO-TEFs (toxic equivalency factors, 2005)[a]]	Feed materials of mineral origin	0,5	[c]
	Feed materials of animal origin:		
	— Animal fat, including milk fat and egg fat,	0,75	[c]
	— Other land animal products including milk and milk products and eggs and egg products,	0,5	[c]
	— Fish oil,	4,0	[d]
	— Fish, other aquatic animals and products derived thereof with the exception of fish oil, hydrolysed fish protein containing more than 20 % fat and crustacea meal,	0,75	[d]
	— Hydrolysed fish protein containing more than 20 % fat; crustacea meal.	1,25	[d]
	Feed additives belonging to the	0,5	[c]

		functional groups of binders and anti-caking agents		
		Feed additives belonging to the functional group of compounds of trace elements	0,5	[c]
		Premixtures	0,5	[c]
		Compound feed with the exception of:	0,5	[c]
		— compound feed for pet animals and fish,	1,25	[d]
		— compound feed for fur animals.	—	]
2.	Dioxin-like PCBs (sum of polychlorinated biphenyls (PCBs) expressed in World Health Organisation (WHO) toxic equivalents, using the WHO-TEFs (toxic equivalency factors, 2005)[a])	Feed materials of plant origin with the exception of:	0,35	[c]
		— vegetable oils and their by-products	0,5	[c]
		Feed materials of mineral origin	0,35	[c]
		Feed materials of animal origin:		
		— Animal fat, including milk fat and egg fat	0,75	[c]
		— Other land animal products including milk and milk products and eggs and egg products	0,35	[c]

— Fish oil	11,0	[d]
— Fish, other aquatic animals and products derived thereof with the exception of fish oil and fish protein, hydrolysed, containing more than 20 % fat[c]	2,0	[d]
— Fish protein, hydrolysed, containing more than 20 % fat	5,0	[d]
Feed additives belonging to the functional groups of binders and anti-caking agents	0,5	[c]
Feed additives belonging to the functional group of compounds of trace elements	0,35	[c]
Premixtures	0,35	[c]
Compound feed with the exception of:	0,5	[c]
— compound feed for pet animals and fish	2,5	[d]
— compound feed for fur animals	—	

a Table of TEF (= toxic equivalency factors) for dioxins, furans and dioxin-like PCBs:
WHO-TEFs for human risk assessment based on the conclusions of the World Health Organisation (WHO) – International Programme on Chemical Safety (IPCS) expert meeting which was held in Geneva in June 2005 (Martin van den Berg

et al., The 2005 World Health Organisation Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds. Toxicological Sciences 93(2), 223–241 (2006))

Congener	**TEF value**
Dibenzo-para-dioxins ('PCDDs') and Dibenzo-para-furans (PCDFs)	
2,3,7,8-TCDD	1
1,2,3,7,8-PeCDD	1
1,2,3,4,7,8-HxCDD	0,1
1,2,3,6,7,8-HxCDD	0,1
1,2,3,7,8,9-HxCDD	0,1
1,2,3,4,6,7,8-HpCDD	0,01
OCDD	0,0003
2,3,7,8-TCDF	0,1
1,2,3,7,8-PeCDF	0,03
2,3,4,7,8-PeCDF	0,3
1,2,3,4,7,8-HxCDF	0,1
1,2,3,6,7,8-HxCDF	0,1
1,2,3,7,8,9-HxCDF	0,1
2,3,4,6,7,8-HxCDF	0,1
1,2,3,4,6,7,8-HpCDF	0,01
1,2,3,4,7,8,9-HpCDF	0,01
OCDF	0,0003
'Dioxin-like' PCBs: Non-ortho PCBs + Mono-ortho PCBs	
Non-ortho PCBs	
PCB 77	0,0001
PCB 81	0,0003
PCB 126	0,1
PCB 169	0,03
Mono-ortho PCBs	
PCB 105	0,00003
PCB 114	0,00003
PCB 118	0,00003
PCB 123	0,00003
PCB 156	0,00003
PCB 157	0,00003
PCB 167	0,00003
PCB 189	0,00003
Abbreviations used: 'T' = tetra; 'Pe' = penta; 'Hx' = hexa; 'Hp' = hepta; 'O' = octa; 'CDD' = chlorodibenzodioxin; 'CDF' = chlorodibenzofuran; 'CB' = chlorobiphenyl.	

b 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.

c	Identification of source of contamination. Once source is identified, take appropriate measures, where possible, to reduce or eliminate source of contamination.
d	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., shall be recorded with a view to future measures to manage the presence of dioxins and dioxin-like compounds in these materials for animal nutrition.**]]**

ANNEX III

CORRELATION TABLE

Directive 1999/29/EC	**This Directive**
Article 1	Article 1
Article 2(a)	Article 2(a)
Article 2(b)	Article 2(b)
Article 2(c)	Article 2(g)
Article 2(d)	Article 2(f)
Article 2(e)	Article 2(e)
Article 2(f)	Article 2(i)
Article 2(g)	Article 2(j)
Article 2(h)	—
—	Article 2(c)
—	Article 2(d)
—	Article 2(h)
—	Article 2(k)
—	Article 2(l)
Article 3	Article 3
Article 4(1)	Article 4(1)
Article 4(2)	—
—	Article 4(2)
Article 5	—
Article 6	—
Article 7	Article 5
Article 8	Article 6
Article 9	Article 7
Article 10	Article 8
Article 11	Article 9

Article 12	—
—	Article 10
Article 13	Article 11
Article 14	Article 12
Article 15	Article 13
Article 16	—
—	Article 14
—	Article 15
Article 17	Article 16
Article 18	Article 17
Annex I	Annex I
Annex II	—
Annex III	—
Annex IV	Annex II