

Undesirable substances in animal feed

Undesirable substances	Products intended for animal feed	Maximum content ¹ in ppm ²	SCAN Opinion ³	Problems already identified by the Commission
Arsenic	Feed materials with the exception of:	2	"Arsenic in its organic forms has a limited toxicity, therefore the determination of total arsenic in feed may not always accurately reflect the risk posed by the inorganic forms. As a consequence, a detailed assessment should address the risks related to the inorganic forms of arsenic."	<ul style="list-style-type: none"> - Seaweed meal - Fish feed / fishmeal - Magnesium oxide - Calcium carbonate - Palm kernel expeller
	- meal made from grass, from dried lucerne and from dried clover, and dried sugar beet pulp and dried molasses sugar beet pulp	4		
	- phosphates and feedingstuffs obtained from the processing of fish or other marine animals	10		
	Complete feedingstuffs with the exception of:	2		
	- complete feedingstuffs for fish	4		
	Complementary feedingstuffs with the exception of:	4		
- mineral feedingstuffs	12			
Lead	Feed materials with the exception of:	10	"Lead at the limit fixed in current legislation may affect the health of sheep and possibly other ruminants. Consequently the maximum value in complete feed for this animal species should be reviewed."	<ul style="list-style-type: none"> - Calcium carbonate (lime products in general)
	- green fodder	40		
	- phosphates	30		
	- yeasts	5		
	Complete feedingstuffs	5		
	Complementary feedingstuffs with the exception of:	10		
- mineral feedingstuffs	30			

¹ As set in Annex I of Directive 2002/32/EC.

² Relative to a feedingstuff with a moisture content of 12%

³ SCAN reviews of the current maximum limits of undesirable substances in feed materials and compound feed are expected for the nearer future.

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Fluorine	Feed materials with the exception of:	150	"Fluorine limits in the current legislation protect only the health of some species. For poultry and horse, limits fixed in feedingstuffs are above their tolerance. Consequently the maximum value in complete feed for these animal species should be reconsidered."	<ul style="list-style-type: none"> - Feedingstuffs of marine origin in particular marine krill - Magnesium oxide - Calcium carbonate (lime products in general)
	- feedingstuffs of animal origin	500		
	- phosphates	2 000		
	Complete feedingstuffs with the exception of:	150		
	- complete feedingstuffs for cattle, sheep and goats			
	o in milk	30		
	o other	50		
	- complete feedingstuffs for pigs	100		
	- complete feedingstuffs for poultry	350		
	- complete feedingstuffs for chicks	250		
Mineral mixtures for cattle, sheep and goats	2 000			
Other complementary feedingstuffs	125			
Mercury	Feed materials with the exception of:	0,1	"Methyl mercury is recognised as significantly more toxic than inorganic mercury, therefore the determination of total mercury in feed may not always accurately reflect the risk posed by the organic forms. As a consequence, a detailed assessment should address the risks related to the organic forms of mercury."	<ul style="list-style-type: none"> - Fish feed - Calcium carbonate
	- feedingstuffs produced by the processing of fish or other marine animals	0,5		
	Complete feedingstuffs with the exception of:	0,1		
	- complete feedingstuffs for dogs and cats	0,4		
	Complementary feedingstuffs except:	0,2		
	- complementary feedingstuffs for dogs and cats			

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Nitrites	Fish meal	60 (expressed as sodium nitrite)	<p>“Retaining limit for nitrite in feedingstuffs appears to serve no practical purpose.”</p> <ul style="list-style-type: none"> - could be removed from list of undesirable substances 	
	Complete feedingstuffs excluding:	15		
	- feedingstuffs intended for pets except birds and aquarium fish	(expressed as sodium nitrite)		
Cadmium	Feed materials of vegetable origin	1	<p>“Cadmium at the limit fixed in the current legislation may affect the health of pigs. Consequently the maximum value in complete feed for this animal species should be reconsidered.”</p>	<ul style="list-style-type: none"> - Calcium carbonate - Magnesium oxide
	Feed materials of animal origin, except	2		
	- feedingstuffs for pets			
	Phosphates	10		
	Complete feedingstuffs for cattle, sheep and goats except:	1		
	- complete feedingstuffs for calves, lambs and kids			
	Other complete feedingstuffs except	0,5		
	- feedingstuffs for pets			
	Mineral feedingstuffs	5		
Other complementary feedingstuffs for cattle, sheep and goats feedingstuffs	0,5			
Aflatoxin B₁	Feed materials with the exception of:	0,05	<ul style="list-style-type: none"> - Current EU regulations adequate in terms of protection of both animal and human health (also against aflatoxin M₁) 	<ul style="list-style-type: none"> - Copra
	- groundnut, copra, palm-kernel, cotton seed, babassu, maize and products derived from the processing thereof	0,02		
	Complete feedingstuffs for cattle, sheep and goats with the exception of:	0,05		
	- dairy cattle	0,005		
	- calves and lambs	0,01		
	Complete feedingstuffs for pig and poultry (except young animals)	0,02		
	Other complete feedingstuffs	0,01		
	Complementary feedingstuffs for cattle, sheep and goats (except complementary feedingstuffs for dairy animals, calves and lambs)	0,05		
	Complementary feedingstuffs for pigs and poultry (except young animals)	0,03		
Other complementary feedingstuffs	0,005			

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Hydrocyanic acid	Feed materials with the exception of	50	<ul style="list-style-type: none"> - under normal feeding practice hydrocyanic acid is released slowly and will not become toxic - if feed is consumed rapidly, probability of intoxication increases 	
	- linseed	250		
	- linseed cakes	350		
	- manioc products and almond cakes	100		
	Complete feedingstuffs with the exception of:	50		
- complete feedingstuffs for chicks	10			
Free gossypol	Feed materials with the exception of:	20	<ul style="list-style-type: none"> - toxic potential recognised by feed manufacturers and taken into account when formulating a ration - should be excluded from list of undesirable substances 	
	- cotton-seed cakes	1 200		
	Complete feedingstuffs with the exception of:	20		
	- complete feedingstuffs for cattle, sheep and goats	500		
	- complete feedingstuffs for poultry (except laying hens) and calves	100		
- complete feedingstuffs for rabbits and pigs (except piglets)	60			
Theo-bromine	Complete feedingstuffs with the exception of:	300	<ul style="list-style-type: none"> - toxic potential recognised by feed manufacturers and taken into account when formulating a ration - should be excluded from list of undesirable substances (any risk contained by modern methods of feed formulation) 	
	- complete feedingstuffs for adult cattle	700		
Volatile mustard oil	Feed materials with the exception of:	100	<ul style="list-style-type: none"> - toxic potential recognised by feed manufacturers and taken into account when formulating a ration - least-cost programmes used to develop feed formulations contain restrictions that limit inclusion levels to ensure safety of target species 	
	- rapeseed cakes	4 000 (allyl isothiocyanate)		
	Complete feedingstuffs with the exception of:	150 (allyl isothiocyanate)		
	- complete feedingstuffs for cattle, sheep and goats (except young animals)	1 000 (allyl isothiocyanate)		
- complete feedingstuffs for pigs (except piglets) and poultry	500 (allyl isothiocyanate)			
Vinal thiooxazolidone (Vinyloxazolidone thione)	Complete feedingstuffs for poultry with the exception of:	1 000	<ul style="list-style-type: none"> - toxic potential recognised by feed manufacturers and taken into account when formulating a ration - should be excluded from list of undesirable substances (any risk contained by modern methods of feed formulation) 	
	- complete feedingstuffs for laying hens	500		

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Rye ergot	All feedingstuffs containing unground cereals	1 000	- Specific limits should be set for individual ergot alkaloids rather than for concentration of ergot sclerotia	
Weed seeds and unground and uncrushed fruits containing alkaloids, glucosides or other toxic substances separately or in combination including a) Lolium temulentum b) Lolium remotum c) Datura stramonium	All feedingstuffs	3 000	- Basis and extent of infected (fungal endophytes) L. temulentum toxicity unclear - L. remotum in absence of galled seed heads not considered a toxic material	
		1 000		
		1 000		
Castor oil plant	All feedingstuffs	10 (expressed in terms of castor-oil plants husks)		
Crotalaria spp.	All feedingstuffs	100		
Aldrin Dieldrin	All feedingstuffs with the exception of: - fats	0,01		
		0,2		
Camphechlor (toxaphene)	All feedingstuffs	0,1		
Chlordane	All feedingstuffs with the exception of: - fats	0,02		
		0,05		
DDT	All feedingstuffs with the exception of: - fats	0,05		
		0,5		

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Endosulfan	All feedingstuffs with the exception of:	0,1		
	- maize	0,2		
	- oilseeds	0,5		
	- complete feedingstuffs for fish	0,005		
Endrin	All feedingstuffs with the exception of:	0,01		
	- fats	0,05		
Heptachlor	All feedingstuffs with the exception of:	0,01		
	- fats	0,2		
Hexachlorbenzene (HCB)	All feedingstuffs with the exception of:	0,01		
	- fats	0,2		
Hexachlorocyclo-hexane (HCH)	- alpha-isomers All feedingstuffs with the exception of: - fats	0,02		
		0,2		
	- beta-isomers Compound feedingstuffs with the exception of: - feedingstuffs for dairy cattle Feed materials with the exception of: - fats	0,01 0,005 0,01 0,1		
- gamma-isomers All feedingstuffs with the exception of: - fats	0,2 2,0			
Dioxin , expressed in international toxic equivalent	Citrus pulp	500 pg I-TEQ/kg (upper bound detection limit)	- SCAN conclusion of 2000 report still valid	

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Apricots	All feedingstuffs	Seeds and fruit of the plant species as well as their processed derivatives may only be present in feedingstuffs in trace amounts not quantitatively determinable	- Feed manufacturers well aware of risk posed by presence of cyanogenic glycosides and present day use of such by-products unusual	
Bitter almond				
Unhusked beech mast				
Camelina			- Unlikely that seeds/plant parts would have adverse effects on livestock	
Mowrah, Bassia, Madhuca			- Presence of toxic saponins undesirable, presence of Madhuca longifolia seed at concentrations associated with adventitious contamination expected to be tolerated by non-ruminants and have no detectable effects on ruminants	
Purghera				
Croton				
Sareptian mustard				
Indian mustard			- Presence should be allowed provided that limit set for allyl isothiocyanates from whatever source is not exceeded	
Chinese mustard				
Black mustard				
Ethiopian mustard				