

FIN 4 PAGE FACT SHEET

March 2006

CONTAMINANT LEGISLATION

This fact sheet covers Dioxins and PCBs and Heavy Metals

Current and proposed legislation to control contaminant levels in human food and animal feed

- Contaminants are defined as any substance not intentionally added to food that are present in such food as a result of the production, manufacture, processing, preparation, treatment, packing, packaging, or transport, or as a result of environmental contamination. Another definition is that they are chemicals whose adventitious presence in food has the potential to cause toxicological harm to consumers.
- There are at least 100 or so of these substances on lists of 'chemicals causing concern' and currently the UK Food Standards Agency is taking an interest in about 30 contaminants in terms of actual or suspected acute or chronic toxic effects to human beings.
- The FIN Contaminant Safety Monitor, introduced in 2004, is a regular alert to contaminant issues and regulations and focuses on contaminants that are, or are likely to, impact on fishmeal, fish oil, wild finfish and farmed fish.
- The majority of these contaminants are already the subject of EU legislation and identified in either Directive 2002/32/EC on undesirable substances in animal feed and/or Commission Regulation (EC) No 466/2001 which sets maximum levels for certain contaminants in foodstuffs. Some of these limits are under review, generally with a view to reducing them.

This FIN fact sheet is a guide to current and pending maximum permitted levels legislation. It covers legislation relating to maximum levels in seafood for human consumption (A) and maximum levels in farmed animal and fish feed (B) and covers six contaminants:

Dioxins
Dioxin-like PCBs
Mercury
Cadmium
Lead
Arsenic

Dioxins and PCBs

DIOXINS

EU Maximum Levels for dioxins and furans in human food and feed were introduced on 1 August 2003.

A. CURRENT maximum dioxin levels in seafood for human consumption

The current EU maximum levels for dioxin in food are contained in Commission Regulation 466/2001, amended by Council Regulation 2375/2001, implemented July 2002, effective February 2003.

EU Maximum Permitted Level	Dioxins and Furans
Food fish	4 pg/g
Fish oil intended for human consumption	2 pg/g

B. CURRENT maximum dioxin levels in farmed animal and fish feed

The current EU maximum levels for dioxin in feed are contained in Commission Regulation 466/2001, amended by Council Regulation 2375/2001, implemented July 2002, effective February 2003.

EU Maximum Permitted Level	Dioxins and Furans
Fish oil	6 pg/g TEQ
Fishmeal	1.25 pg/g TEQ
Compound feed for fish, and fish protein hydrolysates (>20%fat)	2.25 pg/g TEQ

DIOXINS AND DIOXIN-LIKE PCBs

In December 2005 the EU Commission agreed Maximum Levels and Action Levels for dioxins and dioxin-like PCBs in human food and feed. These are in addition to maintaining the current maximum levels for dioxins only.

A. NEW combined maximum dioxin and dioxin-like PCB levels in seafood for human consumption

EU Commission Regulation 199/2006 sets new maximum levels and will apply from 4 November 2006.

New ML's	Sum	Dioxins & Furans	Dioxin-like PCBs
Fish	8pg/g	4 pg/g	4 pg/g
Marine oil, incl. Fish body oil & liver oil	10pg/g	2pg/g	8pg/g
Eel	12pg/g	4 pg/g	8 pg/g

B. NEW combined maximum dioxin and dioxin-like PCB levels in farmed animal and fish feed

EU Commission Directive 2006/13/EC sets new maximum levels and will apply from 4 November 2006.

New combined AL's	Sum	Dioxins & Furans	Dioxin-like PCBs
Fish, other aquatic animals, their products and by-products, except:	4.5ng/kg	1.25ng/kg	3.25ng/kg
- fish oil	24ng/kg	6ng/kg	18ng/kg
- fish protein hydrolysates (>20%fat)	11ng/kg	2.25ng/kg	8.75ng/kg
Compound feeding stuffs for fish	7ng/kg	2.25ng/kg	4.75ng/kg

A. NEW combined dioxin and dioxin-like PCB action limits in seafood for human consumption

EU Commission Recommendation 2006/88/EC sets new EU action levels for the sum of dioxins and dl-PCBs for fish muscle meat and fishery products and will apply from 14 November 2006.

New AL's	Sum	Dioxins & Furans	Dioxin-like PCBs
Fresh weight	6pg/g	3pg/g	3pg/g
Marine oil incl fish oil	7.5pg/g	1.5pg/g	6pg/g
Eel	12pg/g	4pg/g	8pg/g

B. NEW combined dioxin and dioxin-like PCB action limits in farmed animal and fish feed

EU Commission Recommendation 2006/88/EC sets action levels and will apply from 14 November 2006.

New AL's	Dioxins & Furans	Dioxin-like PCBs
Fish, other aquatic animals, their products and by-products, except:	1.0 ng/kg	2.5 ng/kg
- fish oil	5.0 ng/kg	14.0 ng/kg
- fish protein hydrolysates (>20%fat)	1.75 ng/kg	7.0 ng/kg
Compound feeding stuffs for fish	1.75 ng/kg	3.5 ng/kg

Heavy Metals

MERCURY

New EU Maximum Levels for total mercury in human food and feed were introduced at the beginning of 2005.

A. CURRENT maximum mercury levels in seafood for human consumption

The current EU maximum levels for total mercury in fish are contained in Commission Regulation 78/2005, effective 9 February 2005.

Product	Maximum Mercury level (mg/kg wet weight)
Fishery products and muscle meat of fish, excluding species listed below:	0.50
<ul style="list-style-type: none"> - anglerfish (<i>Lophius</i> species) - atlantic catfish (<i>Anarhichas lupus</i>) - bonito (<i>Sarda sarda</i>) - eel (<i>Anguilla anguilla</i>) - emperor, orange roughy, rosy soldierfish (<i>Hoplostethus</i> species) - grenadier (<i>Coryphaenoides rupestris</i>) - halibut (<i>Hippoglossus hippoglossus</i>) - marlin (<i>Makaira</i> species) - megrim (<i>Lepidorhombus</i> species) - mullet (Mullet species) - pike (<i>Esox lucius</i>) - plain bonito (<i>Orcynopsis unicolor</i>) - poor cod (<i>Tricopterus minutus</i>) - portuguese dogfish (<i>centroscomnnes coelolepis</i>) - rays (<i>Raja</i> species) - redfish (<i>Sebastes marinus</i>, <i>S. mentalla</i>, <i>S. viviparus</i>) - sail fish (<i>Istiophorus platypterus</i>) - scabbard fish (<i>Lepidopus caudatus</i>, <i>Aphanopus carbo</i>) - seabream, pandora (<i>Pagellus</i> species) - shark (all species) - snake mackerel or butterfish (<i>Lepidocybium flavobrunneum</i>, <i>ruvettus pretiosus</i>, <i>Gempylus serpens</i>) - sturgeon (<i>Acipenser</i> species) - swordfish (<i>Xiphias gladius</i>) - tuna (<i>Thunnus</i>, <i>Euthynnus</i>, and <i>Katsuwonus</i> species) 	1.0

B. CURRENT maximum mercury levels in farmed animal and fish feed

The current EU maximum levels for total mercury in fish are contained in Commission Directive 2005/8/EC amended Annex I to Directive 2002/32/EC, effective 27th January 2005.

Products intended for animal feed	Maximum Mercury content in mg/kg (ppm) relative to feedingstuff (m.c. 12%)
Feed materials with the exception of:	0.1
- feeding stuffs produced by the processing of fish or other marine animals	0.5
- calcium carbonate	0.3

Complete feeding stuffs with the exception of:	0.1
- complete feeding stuffs for dogs and cats	0.4
Complementary feedingstuffs except:	0.2
- complementary feeding stuffs for dogs and cats	-

CADMIUM

New EU Maximum Levels for cadmium in human food were introduced at the beginning of 2005. New Maximum Levels for cadmium in feed are pending.

A. CURRENT maximum cadmium levels in seafood for human consumption

The current EU maximum levels for cadmium in fish are contained in Commission Regulation 78/2005, effective 9 February 2005.

Product	Maximum Cadmium level (mg/kg wet weight)
Muscle meat of fish, excluding muscle meat of:	0.05
- anchovy (<i>Engraulis</i> species)	0.10
- bonito (<i>Sarda sarda</i>)	
- common two-banded sea bream (<i>Diplodus vulgaris</i>)	
- eel (<i>Anguilla anguilla</i>)	
- grey mullet (<i>Mugil labrosus labrosus</i>)	
- horse mackerel or scad (<i>Trachurus</i> species)	
- louver or luvar (<i>Luvarus imperialis</i>)	
- sardine (<i>Sardina pilchardus</i>)	
- sardinops (<i>Sardinops</i> species)	
- tuna (<i>Thunnus</i> , <i>Euthynnus</i> , and <i>Katsuwonus</i> species)	
- wedge sole (<i>Dicologlossa cuneata</i>)	
And	
- swordfish (<i>Xiphias gladius</i>)	0.30
Crustaceans, excluding brown meat of crab	0.50
Bivalve molluscs	1.0
Cephalods (without viscera)	1.0

B. PROPOSED maximum cadmium levels in farmed animal and fish feed

The current EU maximum levels for cadmium in feed are contained in Commission Directive 2005/87/EC, effective 25 December 2005.

Products intended for animal feed	Proposed maximum Cadmium content in mg/kg (ppm) relative to feedingstuff (m.c. 12%)
Feed materials of animal origin	2
Feed materials of mineral origin, except:	2
- phosphates	10
Additives belonging to the functional group of compounds of trace elements except:	10
- copper oxide, manganous oxide, zinc oxide, manganous sulphate monohydrate	30
Additives belonging to the functional groups of binders and anti-caking agents	2
Premixtures	15
Mineral feedingstuffs containing <7% phosphorus	5
Mineral feedingstuffs containing ≥7% phosphorus	0.75 per 1% phosphorus with a maximum of 7.5
Complementary feedingstuffs for pet animals	2
Other complementary feeding stuffs	0.5
Complete feedingstuffs for cattle, sheep and goats, and feedingstuffs for fish except:	1
- complete feeding stuffs for pets	2
- feedingstuffs for calves, lambs and kids and other complete feedingstuffs	0.5

LEAD

New EU Maximum Levels for lead in human food and feed were introduced at the beginning of 2005.

A. CURRENT maximum lead levels in seafood for human consumption

The current EU maximum levels for lead in fish are contained in Commission Regulation 78/2005, effective 9 February 2005

Product	Maximum Lead level (mg/kg wet weight)
Muscle meat of fish, excluding:	0.20
- common two-banded sea bream (<i>Diplodus vulgaris</i>)	0.40
- eel (<i>Anguilla anguilla</i>)	
- grey mullet (<i>Mugil labrosus labrosus</i>)	
- grunt (<i>Pomadasyb benneti</i>)	
- horse mackerel or scad (<i>Trachurus</i> species)	
- sardine (<i>Sardina pilchardus</i>)	
- sardinops (<i>Sardinops</i> species)	
- spotted seabass (<i>Dicentrarchus punctatus</i>)	
- wedge sole (<i>Dicologlossa cuneata</i>)	

Crustaceans, excluding brown meat of crab, and head and thorax meat of lobster and similar large crustaceans (Nephropidae and Palinuridae)	0.50
Bivalve molluscs	1.0
Cephalods (without viscera)	1.0
Fats and oils, including milk fat	0.1

B. CURRENT maximum lead levels in farmed animal and fish feed

The current EU maximum levels for lead in feed materials are contained in Commission Directive 2005/87/EC, effective 25 December 2005.

Products intended for animal feed	Maximum Lead content in mg/kg (ppm) relative to feedingstuff (m.c. 12%)
Feed materials with the exception of:	10
- green fodder	40
- phosphates and calcareous marine algae	15
- calcium carbonate	20
- yeasts	5
Complete feeding stuffs:	5
Complementary feeding stuffs except:	10
- mineral feedingstuffs	15

B. PROPOSED addition to maximum lead levels in farmed animal and fish feed

At November 2005 in addition SANCO/00216/2005 – rev 4 proposes to expand the list of products intended for animal feed (to include of binders, anti-caking agents, premixtures and pet foods) and lower the maximum level for green fodder as follows:

Products intended for animal feed	Proposed maximum Lead content in mg/kg (ppm) relative to feedingstuff (m.c. 12%)
Additives belonging to the functional group of compounds of trace elements except:	100
- zinc oxide	400
- manganous oxide, iron and copper carbonate	200
Additives belonging to the functional groups of binders and anti-caking agents except:	30
- clinoptilolite of volcanic origin	60
Premixtures	200
Green fodder	30

ARSENIC (whilst not strictly a heavy metal, it has the characteristics of a metal)

New EU Maximum Levels for arsenic in feed were introduced at the beginning of 2005

A. CURRENT maximum arsenic levels in seafood for human consumption

Fish are the most significant source of arsenic in the UK diet – eg 4mg/kg and 94% of exposure in the MAFF 1997 Total Diet Survey and 3.2mg/kg and 87% in the 2001 TDS. However the FSA Committee on Toxicity has advised that these levels do not pose a risk.

B. CURRENT maximum arsenic levels in farmed animal and fish feed

The current EU maximum levels for arsenic in feed materials are contained in Commission Directive 2003/100 amending Annexe 1 to Directive 2002/32/EC, effective from 19 November 2004.

Products intended for animal feed	Maximum Arsenic content in mg/kg (ppm) relative to feedingstuff (m.c. 12%)
Feed materials with the exception of:	2
- meal made from grass, dried lucerne, dried clover, dried sugar beet pulp, dried molasses sugar beet pulp	4
- palm kernel expeller	4
- phosphates and calcareous marine algae	10
- calcium carbonate	15
- magnesium oxide	20
- feedings stuffs obtained from the processing of fish or other marine animals	15
- seaweed meal and feed materials derived from seaweed	40
Complete feeding stuffs with the exception of::	2
- complete feedingstuffs for fish and for fur animals	6
Complementary feeding stuffs with the exception of:	4
- mineral feedingstuffs	12

The FIN web site at provides detailed information on all aspects of fishmeal use.

www.fin.org.uk