

The List of Lists

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A catalogue of lists of pesticides identifying those associated with particularly harmful health or environmental impacts

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Introduction

Pesticides are chemicals designed to kill or control insects, weeds, diseases and other unwanted organisms. Over 800 active ingredients are sold worldwide in tens of thousands of formulations. Products are widely used in agriculture, public health, domestic and urban areas. Many pesticides have been found to be harmful to human and animal health or to the environment, and this briefing has proved to be a popular resource for identifying these.

The 2005 edition of the List of Lists has been fully revised and updated. Since 2002, the European Union (EU) has identified over 60 additional active ingredients as possible endocrine disruptors. Few authorities concur on these pesticides, however the four selected here now agree on atrazine, DDT, lindane and tributyltin. The List includes new information from the EU on the Water Framework Directive, bans and severe restrictions, and the full list of 'risk phrases' that appear on labels.

Some pesticides have been identified as a global concern. International and regional bodies have identified others for potential to cause cancer, disrupt hormonal systems, or be acutely toxic. National concerns may lead to a government ban or severe restriction. Under the recent Rotterdam

Convention information on such national action will be circulated, and the treaty offers potential to prohibit imports of certain chemicals.

Final decisions about which pesticides can be used are primarily taken at country level or by a regional authority. Some countries have introduced pesticide use reduction programmes to encourage an overall decrease in dependence, or replacement if less risky pest management products or strategies are available. Appearance on a prescribed list may assist authorities to prioritise pesticides to review or take actions to mitigate risks. It should be noted that certain pesticides on these lists are no longer produced or used, while many remain in widespread use.

While compiled primarily from official sources, two lists from public interest organisations are included: the PAN Dirty Dozen and the WWF endocrine disrupting chemicals lists, which have been influential in drawing attention to hazards.

This material is meant for information and should not be interpreted as advice, recommendations or guidance. We have made every effort to check accuracy. We will periodically update the briefing and welcome corrections and additions.



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The Rotterdam Convention on Prior Informed Consent (PIC)

This convention entered into legal force in February 2004. PIC is an early warning system about all bans and severe restrictions on pesticides. Pesticides that have been banned by two countries in two regions of the world, under criteria in the Convention, are entered on a PIC List, and importing countries must indicate whether they allow or prohibit import. Exporting countries must ensure compliance. It currently includes 37 chemicals: 24 pesticides, four severely hazardous pesticide formulations, (six until 1/1/2006 - note 2) and 11 industrial chemicals. Source: Annex III of Rotterdam Convention + later inclusions, <http://www.pic.int/>

The Stockholm Convention on Persistent Organic Pollutants (POPs)

This convention entered into legal force in May 2004. It currently covers 12 chemicals, including eight pesticides and others contaminated with dioxin. Governments will take measures to eliminate or reduce release into the environment of intentionally produced POPs. It aims ultimately to eliminate releases of unintentionally produced POPs, such as dioxins and furans. Seven pesticides are scheduled for elimination, with a phase out period for DDT (allowed use: indoor control of malaria vectors). Many POPs remain in stockpiles and require safe disposal. Source: Annex A, B and C of Stockholm Convention, <http://www.pops.int/>

The Convention on Long-range Transboundary Air Pollution (LRTAP)

This convention of the UN Economic Commission for Europe covers chemicals that travel long distances. A 1998 Protocol formed the basis of the Stockholm Convention. Of 45 countries in the region, 23 have ratified. LRTAP covers 11 pesticides (with HCH and lindane as one), two industrial chemicals and three byproducts or contaminants. Source: Annex I of Convention on Long-range Transboundary Air Pollution, <http://www.unece.org/env/lrtap/>

The Dirty Dozen

The Dirty Dozen (now 18) is a PAN initiative. Its aim was to bring attention to and stop the use of these particularly harmful chemicals. Most of the Dirty Dozen have been included in the PIC and/or POPs. Conventions, three pesticides: aldicarb, DBCP and paraquat - are not yet subject to international regulation.

Pesticides included in international conventions and the PAN dirty dozen

Active ingredient	PIC	POPs*	LRTAP	PAN Dirty Dozen
2,4,5-T and its salts and esters (dioxin contamination)	✓	(✓)		✓
Aldicarb				✓
Aldrin	✓	✓	✓	✓
Binapacryl	✓			
Captafol	✓			
Chlordane	✓	✓	✓	✓
Chlordecone			✓	
Chlordimeform	✓			✓
Chlorobenzilate	✓			
DBCP				✓
DDT	✓	✓	✓	✓
Dieldrin	✓	✓	✓	✓
Dinoseb and Dinoseb salts	✓			
1,2-Dibromoethane (EDB, or Ethylene dibromide)	✓			✓
DNOC (dinitro-ortho-cresol) and its salts - ammonium, potassium, sodium	✓			
Endrin		✓	✓	✓
Ethylene dichloride	✓			
Ethylene oxide	✓			
Fluoroacetamide	✓			
HCH, mixed isomers	✓		✓	✓
Heptachlor	✓	✓	✓	✓
Hexachlorobenzene	✓	✓	✓	
Lindane	✓		✓	✓
Mercury compounds, including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds	✓			
Methyl bromide (1)	-	-	-	-
Mirex		✓	✓	
Monocrotophos (2)	✓			
Paraquat				✓
Parathion (2)	✓			
Polychlorinated biphenyls (PCB), except mono- and dichlorinated (3)		✓	✓	
Pentachlorophenol and its salts and esters	✓			✓
Toxaphene (campechlor)	✓	✓	✓	✓
The following severely hazardous formulations are in PIC				
Dustable powder formulations containing a combination of: benomyl at or above 7 per cent, carbofuran at above 10 per cent, thiram at or above 15 per cent	✓			
Methamidophos 600 g/l (SL) formulation and higher	✓			
Phosphamidon 1000 g/l (SL) formulation and higher	✓			
Methyl parathion emulsifiable concentrates (EC) with 19.5%, 50%, 50%, 60% active ingredients and dusts containing 1.5%, 2% and 3% active ingredient	✓			✓

Notes:

(1) **Methyl Bromide** is an ozone-depleting pesticide covered by the Montreal Protocol on ozone-depleting substances, which requires industrialised countries to phase out its use by 2005, with a period of grace for developing countries to 2015. The pesticide is still widely used as a fumigant and soil sterilant, and industrial countries apply for extension of its use.

(2) **Monocrotophos** and **parathion** were included in PIC as severely hazardous formulations, but are now included as active ingredients on the basis of two bans in two different parts of the world. From 1 January 2006 they were no longer included as formulations.

(3) **Industrial chemicals in PIC: Polychlorinated biphenyls (PCBs)** are included in PIC as industrial chemicals, as are asbestos (actinolite, anthophyllite, amosite, crocidolite, tremolite), polybrominated biphenyls (PBB), polychlorinated terphenyls (PCT), tetraethyl lead, tetramethyl lead, tris (2,3-dibromopropyl) phosphate.

* **POPs - WWF has identified an additional 20 chemicals to be added to the convention**, of which seven are pesticides: chlordecone, hexachlorocyclohexane (HCH)/lindane, pentachlorophenol, endosulfan, hexachlorobutadiene, dicofol, methoxychlor. Source: Stockholm Convention: "New POPs" Screening Additional POPs candidates, WWF, April 2005, http://www.worldwildlife.org/toxics/pubs/New_POps_FINAL.pdf

World Health Organisation hazard classifications

The WHO classification measures acute toxicity. FAO recommends that WHO Ia and Ib pesticides should not be used in developing countries, and if possible class II should also be avoided. Note that a 'weaker' formulation will move these active ingredients into a lower hazard classification.

WHO Ia

Extremely Hazardous

Aldicarb
Brodifacoum
Bromadiolone
Bromethalin
Calcium cyanide
Captafol
Chlorethoxyfos
Chlormephos
Chlorophacinone
Difenacoum
Difethialone
Diphacinone
Disulfoton
EPN
Ethoprophos
Flocoumafen
Hexachlorobenzene
Mercuric chloride
Mevinphos
Parathion
Parathion methyl
Phenylmercury acetate
Phorate
Phosphamidon
Sodium fluoroacetate
Sulfotep
Tebupirimfos
Terbufos

Classified as obsolete since November 2001 List of Lists:
Fonofos

WHO Ib

Highly Hazardous

3-chloro-1,2-propanediol
Acrolein
Allyl alcohol
Azinphos ethyl
Azinphos methyl
Blastidicin-S
Butocarboxim
Butoxycarboxim
Cadusafos
Calcium arsenate
Carbofuran
Chlorfenvinphos
Coumaphos
Coumatetralyl
Demeton-s-methyl
Dichlorvos
Dicrotophos
Dinoterb

DNOC
Edifenphos
Ethiofencarb
Famphur
Fenamiphos
Flucythrinate
Fluoroacetamide
Formetanate
Furathiocarb
Heptenophos
Isoxathion
Lead arsenate
Mecarbam
Mercuric oxide
Methamidophos
Methidathion
Methiocarb
Methomyl
Monocrotophos
Nicotine
Omethoate
Oxamyl
Oxydemeton methyl
Paris green
Pentachlorophenol
Propetamphos
Sodium arsenite
Sodium cyanide
Strychnine
Tefluthrin
Thallium sulfate
Thiofanox
Thiometon
Triazophos
Vamidothion
Warfarin
Zeta cypermethrin
Zinc phosphide

Classified as obsolete since November 2001 List of Lists:

Isazofos
Isofenphos
Pindone
Pirimiphos ethyl
Propaphos

WHO II

Moderately Hazardous

2,4-D
Alanycarb
Alpha cypermethrin
Anilofos
Azaconazole
Azocyclotin
Bendiocarb
Benfuracarb
Bensulide (SAP)
Beta cyfluthrin
Bifenthrin
Bilanafos
Bioallethrin
Bromoxynil
Bromuconazole
Bronopol
Butamifos
Butylamine
Carbaryl
Carbosulfan

Cartap
Chloralose
Chlordane
Chlorfenapyr
Chlorphonium chloride
Chlorpyrifos
Clomazone
Copper sulfate
Cuprous oxide
Cyanazine
Cyanophos
Cyfluthrin
Cyhalothrin
Cypermethrin
Cyphenothrin [(1R)isomers]
DDT
Deltamethrin
Diazinon
Difenoquat
Dimethoate
Dinobuton
Diquat
Endosulfan
Endothal sodium
EPTC
Esfenvalerate
Ethion
Fenazaquin
Fenitrothion
Fenobucarb
Fenpropathin
Fenpropidin
Fenthion
Fentin acetate
Fentin hydroxide
Fenvalerate
Fipronil
Fluxofenim
Fuberidazole
Gamma-HCH (lindane)
Guazatine
Haloxypop
HCH
Imazalil
Imidacloprid
Iminoctadine
Ioxynil
Ioxynil octanoate
Isoprocarb
Lambda cyhalothrin
Lindane
Mecurous chloride
Metaldehyde
Metam-sodium
Methacrifos
Methasulfocarb
Methyl isothiocyanate
Metolcarb
Metribuzin
Molinat
Nabam
Naled
Paraquat
Pebulate
Permethrin
Phenthoate
Phosalone
Phosmet
Phoxim

Piperophos
Pirimicarb
Prallethrin
Profenofos
Propiconazole
Propoxur
Prosulfocarb
Prothiofos
Pyraclofos
Pyrazophos
Pyrethrins
Pyroquilon
Quinalphos
Quizalofop-p-tefuryl
Rotenone
Spiroxamine
TCA acid
Terbumeton
Tetraconazole
Thiacloprid
Thiobencarb
Thiocyclam
Thiodicarb
Triazamate
Trichlorfon
Tricyclazole
Tridemorph
Xyllycarb

Classified as obsolete since November 2001 List of Lists:
Etrifos
Formothion
Heptachlor
Sodium fluoride
Sodium hexafluorosilicate
Sulprofos
Vernolate

Gaseous or volatile fumigants

Aluminium phosphide
Chloropicrin
1,2-Dibromoethane
1,3-Dichloropropene
Ethylene dichloride
Ethylene oxide
Formaldehyde
Hydrogen cyanide
Magnesium phosphide
Methyl bromide
Phosphine
Sulfuryl fluoride

The WHO classification does not set out any criteria for air concentrations on which classification could be based. Most of these compounds are of high hazard and recommended exposure limits for occupational exposure have been adopted by national authorities in many countries.

The WHO recommended classification of pesticides by hazard and guidelines to classification: 2004
http://www.who.int/ipcs/publication/pesticides_hazard/en/

Class	LD ₅₀ for the rat (mg/kg body weight)			
	Solids (Oral)	Liquids	Solids (Dermal)	Liquids
Ia Extremely hazardous	5 or less	20 or less	10 or less	40 or less
Ib Highly hazardous	5-50	20-200	10-100	40-400
II Moderately hazardous	50-500	200-2000	100-1000	400-4000
III Slightly hazardous	Over 500	Over 2000	Over 1000	Over 4000
U Unlikely to present acute hazard in normal use: "WHO Table 5"				
O Active ingredients believed to be obsolete or discontinued for use as pesticides				
<i>The terms 'solid' and 'liquids' refer to the physical state of the active ingredient. The LD₅₀ value is a statistical estimate of the number of mg of toxicant per kg of bodyweight required to kill 50% of a large population of test animals.</i>				

Organophosphate pesticides

Organophosphates (OPs) are the most widely used group of insecticides in the world and many of these do not appear on restricted lists. They are among the most acutely toxic of all pesticides to both insect pests, and to vertebrate animals and humans. OPs are hazardous both to professional and amateur users. They are regularly detected in food items such as fruit and vegetables, sometimes above a safety level known as the Acceptable Daily Intake (ADI). In the FAO / WHO Joint Meeting on Pesticides Residues (JMPR), concerns were expressed that the ADI derived from subchronic or long-term studies may not be the ideal benchmark for assessing risk posed by short-term exposure to acutely toxic residues, including OPs. JMPR established an Acute Reference Dose (ARfD), defined as 'an estimate of a substance in food or drinking water, expressed on body weight basis, that can be ingested over a short period of time, usually during one meal or one day, without appreciable health risk to the consumer on the basis of all known facts at the time of evaluation.' An ARfD has not yet been established for all pesticide / food combinations.

Active Ingredient	WHO Class	Active Ingredient	WHO Class
Acephate	III	Sulfotep	Ia
Anilofos	II	Tebupirimfos	Ia
Azamethiphos	III	Temephos	U
Azinphos ethyl	Ib	Terbufos	Ia
Azinphos methyl	Ib	Tetrachlorvinphos	U
Butamifos	II	Thiometon	Ib
Cadusafos	Ib	Triazophos	Ib
Chlorethoxyfos	Ia	Trichlorfon	II
Chlorfenvinphos	Ib	Vamidothion	Ib
Chlormephos	Ia		
Chlorpyrifos	II	Obsolete	
Chlorpyrifos methyl	U		
CI 26691	--	Bromophos	O
Coumaphos	Ib	Bromophos ethyl	O
Cyanophos	II	Carbophenothion	O
Cythioate	--	Chlorphoxim	O
Demeton-s-methyl	Ib	Chlorthiophos	O
Diazinon	II	Crotoxyphos	O
Dichlorvos	Ib	Crufomate	O
Dicrotophos	Ib	Cyanofenphos	O
Dimethoate	II	Demephion-O	O
Dimethylvinphos	--	Demephion-S	O
Disulfoton	Ia	Demeton-O	O
Edifenphos	Ib	Demeton-S	O
EPN	Ia	Demeton-S methylsulphon	O
Ethion	II	Dialifos	O
Ethoprophos	Ia	Dichlofenthion	O
Famphur	Ib	Dimefox	O
Fenamiphos	Ib	Dioxabenzofos	O
Fenitrothion	II	Dioxathion	O
Fenthion	II	Ditalimfos	O
Fosamine	U	Endothion	O
Fosthiazate	--	ESP	O
Heptenophos	Ib	Etrimfos	O
Isopropyl O-(methoxyaminothio phosphoryl)salicylate	--	Fenchlorphos	O
Isoxathion	Ib	Fensulfothion	O
Malathion	III	Fonofos	O
Mecarbam	Ib	Formothion	O
Methacrifos	II	Fosmethilan	O
Methamidophos	Ib	Fosthietan	O
Methidathion	Ib	Iodofenphos (Jodfenphos)	O
Mevinphos	Ia	Isazofos	O
Monocrotophos	Ib	Isofenphos	O
Naled	II	Isothioate	O
Omethoate	Ib	Leptophos	O
Oxydemeton methyl	Ib	Menazon	O
Parathion	Ia	Mephosfolan	O
Parathion methyl	Ia	Phosfolan	O
Phenthoate	II	Pirimiphos ethyl	O
Phorate	Ia	Propaphos	O
Phosalone	II	Prothoate	O
Phosmet	II	Salithion	O
Phosphamidon	Ia	Schradan	O
Phoxim	II	Sulprofos	O
Piperophos	II	TEPP	O
Pirimiphos methyl	III	Thionazin	O
Profenofos	II	Trichloronat	O
Propetamphos	Ib		
Prothiofos	II		
Pyraclofos	II		
Pyridaphenthion	III		
Quinalphos	II		

This list is taken from PAN UK's active ingredient database and referenced against WHO classification of active pesticide ingredients (see page 3).

Definitions of cancer categories

US Environmental Protection Agency

The US EPA has changed its classification systems in recent years. Some categories have similar definitions:

1986 classifications

Group A = Human Carcinogen

Group B = Probable Human Carcinogen: **B1** indicates limited human evidence; **B2** indicates sufficient evidence in animals and inadequate or no evidence in humans.

Group C = Possible Human Carcinogen:

1996 classification

Known/Likely available tumour effects and other key data are adequate to demonstrate convincingly a carcinogenic potential for humans.

L1 = Likely to be carcinogenic to humans, available tumour effects and other key data are adequate to demonstrate carcinogenic potential for humans.

L2 = Likely at high doses but **Not Likely** at low doses

1999 classification

1 = Carcinogenic to humans

2 = Likely to be carcinogenic to humans

3 = Suggestive evidence of carcinogenicity, but not sufficient to assess human carcinogenic potential

4 = Not likely to be carcinogenic to humans - evidence that carcinogenic effects are not anticipated below a defined dose range.

SOURCE: Office of Pesticide Programs List of Chemicals Evaluated for Carcinogenic Potential, US EPA, [see details at www.epa.gov/pesticides/carlist/ although list not available on website], July of 2004.

(Continued on page 6)

Pesticides and cancer

This list cites potential pesticide carcinogens from the International Agency for Research on Cancer (IARC), US Environmental Protection Agency (EPA) and the European Union (EU) found in public documents. In 1993, Pesticides News listed 70 possible carcinogens – now the list has grown to over 160. Many of the pesticides included are obsolete chemicals but may be found in stockpiles. Other pesticides are still in use, especially those cited by the US EPA. For some pesticides, like DDT, there is agreement about carcinogenic potential, but with many others authorities do not agree on the risks.

The information supplied is taken from a range of sources, and it has not been easy to locate the relevant information. Indeed there are some inconsistencies and inaccuracies between and within the source documents. We invite comment, and hope that this information helps to stimulate international debate on how regulators deal with potentially carcinogenic pesticides.

Active ingredient	US EPA	EU	IARC	Active ingredient	US EPA	EU	IARC
Acephate	C			Deltamethrin			3
Acetaldehyde*	B2	3	2B	Di(2-ethylhexyl) phthalate*	B2		3
Acetamide*	C	3	2B	Dibromochloropropane (DBCP)	B2	2	2B
Acetochlor	2			Dibromoethane 1,2-	B2	2	
Acifluorfen, sodium	2,4			Dichlobenil	C		
Acrolein	C		3	Dichloromethane	B2	3	2B
Acrylamide*	B2	2	2A	Dichloropropene, 1,3- Telone II	B2		2B
Acrylonitrile	B1	2	2B	Dichlorvos	3		2B
Alachlor	L2	3		Diclofop-methyl	L1		
Aldicarb			3	Dicofol	C		3
Aldrin	B2	3	3	Dicrotophos	3		
Amitraz	C			Dieldrin	B2	3	3
Amitrole	B2	3	3	Difenoconazole	C		
Aniline*	B2	3		Dimethenamid	C		
Aramite	B2		2B	Dimethoxane	3		
Asulam	C			Dimethipin	C		
Atrazine			3	Dimethoate	C		
Azobenzene	B2	2	3	Dinoseb	C		
Benfluralin	3			Diuron	Known	3	
Benomyl	C			Endrin			3
Benzyl-4-chlorophenol, 2-	C			Epichlorohydrin	B2		
Bifenthrin	C			Epoxiconazole	2	3	
Bioallethrin	3			Esbiothrin	3		
Bis(chloroethyl)ether (BCEE)*	B2			Ethalfuralin	C		
Bromacil	C			Ethofenprox	C		
Bromoxynil	C			Ethoprop	L1		
Buprofezin	3			Ethylene dichloride		2	
Butachlor	L1			Etridiazole		3	
Cacodylic acid	B2			Fenbuconazole	C		
Cadmium*	B1			Fenoxycarb	L1		
Captafol	B2	2	2A	Fentin acetate		3	
Captan	B2	3	3	Fentin hydroxide		3	
Carbaryl	2	3	3	Fenvalerate			3
Carbendazim	C			Ferbam			3
Carbon tetrachloride	B2	3	2B	Fipronil	C		
Chlordane	B2	3	2B	Fluazinam	3		
Chlordecone		3	2B	Fluometuron	C		3
Chlordimeform	B2	3		Flusilazole		3	
Chlorfenapyr	3			Fluthiacet-methyl	L1		
Chloroaniline, p-*	B2			Folpet	B2	3	
Chloroform	B2	3	2B	Fomesafen	C		
Chloroprotham			3	Formaldehyde	B1	3	1
Chlorothalonil	B2	3	2B	Furilazole (MON 13900)	L1		
Chlzolinate		3		Furmecyclox	B2	3	
Clodinafop-propargyl	L1			Haloxypop-methyl	B2		
Clofencet (MON 21200)	C			Heptachlor	B2	3	2B
Clofentezine	C			Hexachlorobenzene	B2	2	2B
Cocamide diethanolamine	2			Hexachlorocyclohexane	B2		2B
Coumarin			3	Hexaconazole	C		
Creosote	B1	2	2A	Hexythiazox	C		
Cyanazine	C			Hydramethylnon	C		
Cypermethrin (and zeta cypermethrin)	C			Hydrogen cyanamide	C		
Cyproconazole (SAN 619F)	B2			Imazalil	L1		
Dacthal (DCPA)	C			Iprodione	L1	3	
Daminozide	B2	3		Iprovalicarb*	2		
DDD	B2			Isophorone*	C	3	
DDT	B2	3	2B	Isoproturon		3	

*These active ingredients are listed in the PAN North America database www.pesticideinfo.org, but are not given a use type or a chemical class.

European Union

There is no single EU list available denoting carcinogenic pesticides. EC Directive 67/548 and subsequent amendments provide the classification of dangerous substances, including pesticides. The cancer classifications are:

Category 2 (denoted as R45 on the pesticide label) = **May Cause Cancer**

Category 3 (denoted as R40 on label) = **Possible Risk of Irreversible Effects (Cancer, as cited in table)**

SOURCE: Commission Directive 2001/59/EC of 6 August 2001 adapting to technical progress for the 28th time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances..

International Agency for Research on Cancer

International Agency for Research on Cancer

Group 1 = Carcinogenic to humans

Group 2A = Probably Carcinogenic to humans.

Group 2B = Possibly carcinogenic to humans.

Group 3 = Not classifiable as to carcinogenicity in humans.

SOURCE: Overall Evaluations of Carcinogenicity to Humans. As evaluated in IARC Monographs Volumes 1-88 (a total of 900 agents, mixtures and exposures)

Last update July 2004

Active ingredient	US EPA	EU	IARC	Active ingredient	US EPA	EU	IARC
Isoxaben	C			Propham			3
Isoxaflutole	L1			Propiconazole	C		
Kresoxim-methyl	L1	3		Propoxur	B2		
Lactofen	2,4			Propylene oxide	B2	2	
Lindane (Hexachloro cyclohexane)	3		2B	Propyzamide		3	
Linuron	C	3		Pymetrozine	L1		
Malathion	3		3	Pyraflufen-Ethyl	2		
Maleic hydrazide			3	Pyrimethanil	C		
Mancozeb	B2			Pyriithiobac-sodium	C		
Maneb	B2		3	Quintozene			3
Mecroprop-p	3			Simazine	C	3	3
Mercaptobenzothiazole, 2-	C			Sulfallate		2	2B
Metam sodium and its dihydrate	B2			Sulfosulfuron	L1		
Methidathion	C			TCMTB (Busan 72)	C		
Methoxychlor			3	Tebuconazole	C		
Methyl bromide			3	Tebufenpyrad	3		
Methyl isothiocyanate	B2			Terbutryn	C		
Methylene bis(thiocyanate)	B2			Terrazole	B2		
Methylphenol, 3-	C			Tetrachloroethane, 1,1,2,2-	C		3
Metiram	B2			Tetrachlorvinphos	2		3
Metolachlor	C			Tetraconazole	2		
MGK Repellent 326	B2			Tetramethrin	C		
Mirex		3	2B	Thiabendazole	2,4		
Molinate	3	3		Thiacloprid	2		
MON 4660*	L1			Thiamethoxam	2		
Monuron		3	3	Thiazopyr	C		
Monuron-TCA		3		Thiodicarb	B2		
Naphthalene		2	2B	Thiophanate-methyl	2		
Nitrapyrin	2			Thiram			3
Nitrofen		2	2B	Tolyfluanid	2		
Norflurazon	C			Toxaphene	B2		2B
Orthophenylphenol and Na salt	B2			Tralkoxydim	2,3		
Oryzalin	2			Triadimefon	C		
Oxadiazon	C			Triadimenol	C		
Oxadixyl	C			Triallate	C		
Oxyfluorfen	C			Tribenuron methyl	C		
Oxythioquinox	B2			Tribufos (Tribuphos/DEF)	L2		
Paradichlorobenzene	C			Trichlorfon	L2		3
Parathion ethyl	C		3	Trichlorophenol, 2,4,6-	B2	3	
Parathion methyl			3	Tridiphane	C		
Pendimethalin	C			Trifluralin	C		3
Pentachloronitrobenzene	C			Triforine	2,3		
Pentachlorophenol	B2	3		Triflusulfuron-methyl	C		
Permethrin	3		3	Triphenyltin hydroxide	B2	3	
Phosmet	3			Uniconazole	C		
Phosphamidon	C			Vinclozolin	C	3	
Picloram			3	Zineb			3
Piperonyl butoxide	C		3	Ziram	2,3		3
Poly(hexamethylenebiguanide)	3						
Prochloraz	C						
Procymidone	B2						
Prodiamine	C						
Pronamide (Propyzamide)	B2	3					
Propachlor	L1						
Propanil	3						
Propargite	B2	3					
Propazine	C	3					

Breakdown products (B), impurities (I), solvents (So) and synergists (Sy)

Benzene (I,So)	1	1	
DDE (B)	B2		
Dichloroethylene, 1,1- (I)	C		
Ethylene thiourea - ETU (B,I)	B2		3
Heptachlor epoxide (B)	B2	3	
Hexachloroethane (So)	C		2B
MGK-264 (Sy)	C		
Trichloroethane, 1,1,2- (So)	C		
UDMH (I,B)	B2		

Pesticide groups

	US EPA	EU	IARC
Arsenic (acid, pentoxide and arsenate, sodium)	A		
Cadmium and its compounds (fungicides)	B1	2	
Chlorophenoxy herbicides			2B
Chromium VI compounds (insecticides, fungicides and wood preservatives)	A		1
Coal tars			1
Cresoste from coal-tars			2A
Hexachlorocyclohexanes (insecticides)	B2		2B
Non-arsenical insecticides (occupational exposures)			2A
Polychlorinated biphenyls	B2		2A
Pyrethrins	3		
Toxaphene (polychlorinated camphenes)			2B

Key

✓ = identified according to definitions below

UK EA

Endocrine disrupting substances in the environment: The Environment Agency's strategy, <http://www.environment-agency.gov.uk/commodata/acrob/at/139909>

German EA

Priority list of EDCs (category 1), Federal German Environmental Agency (Umweltbundesamt), published 2001, <http://www.umweltbundesamt.org/fpdf-1/2530.pdf>

EU

The implementation of the Community Strategy for Endocrine Disruptors - a range of substances suspected of interfering with the hormone systems of humans and wildlife (COM(1999)706).

Category 1. At least one study providing evidence of endocrine disruption in an intact organism. Not a formal weight of evidence approach.

Category 2. Potential for endocrine disruption. In vitro data indicating potential for endocrine disruption in intact organisms. Also includes effects in-vivo that may, or may not, be ED-mediated. May include structural analyses and metabolic considerations Commission Staff Working Document [Brussels, 28.10.2004 SEC(2004) 1372] http://europa.eu.int/comm/environment/endocrine/documents/sec_2004_1372_en.pdf

* Communications from the Commission to the Council and the European Parliament [Brussels, 14.06.2001 COM(2001) 262 final] http://europa.eu.int/eur-lex/en/com/cncl/2001/com2001_0262en01.pdf

OSPAR

Identified as a potential EDC under Oslo and Paris Commission, Endocrine disrupting pesticide: Gwynne Lyons. Pesticides News 46, December 1999.

WWF

World Wide Fund for Nature (WWF) list of pesticides reported to have reproductive and/or endocrine disrupting effects. WWF suspect a number of other pesticides of being EDCs, but they are not listed if no other authority above cited them. (For the full list see p8.)

Endocrine disrupting pesticides

Some pesticides are suspected of being endocrine disruptors. These chemicals affect parts of the hormonal system, and can lead to birth defects, sexual abnormalities and reproductive failure. Regulators do not agree on the list of endocrine disrupting chemicals (EDC). This list shows that four official sources agree only on atrazine, DDT, lindane and tributyltin. In May 2005 international experts and scientists representing different disciplines convened in Prague to discuss European research on EDCs, known as the cluster for research on endocrine disruptors (CREDO). The results reinforced concerns over the long-term consequences of exposure to endocrine disruptors to humans and wildlife (see the Prague Declaration on Endocrine Disruption www.edenresearch.info/declaration.html).

Active ingredient	UK EA	Ger. EA	EU	OSPAR	WWF
Acephate			✓2		
Acetochlor		✓	✓1*		✓
Alachlor		✓	✓1*		✓
Aldicarb			✓2		
Aldrin	✓		✓2*		✓
Amitrol		✓	✓2*		
Atrazine	✓	✓	✓1*	✓	✓
Benomyl					✓
Beta-HCH			✓1	✓	✓
Bifenthrin			✓1		
Bioallethrin			✓2		
Bromoxynil			✓2		
Carbaryl			✓1		
Carbendazim			✓2*		
Carbofuran			✓2		✓
Chlordane		✓	✓1*	✓	✓
Chlordecone		✓	✓1*	✓	✓
Chlorfenvinphos			✓2		
Cyathrin			✓1		
Cyanazine			✓2		
Cypermethrin			✓2		
2,4-D			✓2*		
2,4-DB			✓1 or 2		
DDT	✓	✓	✓1*	✓	✓
Delta HCH			✓2		
Deltamethrin			✓1		✓
Demeton-s-methyl	✓				
Dialifos			✓2*		
Diazinon			✓2*		
Dichlorvos	✓				
Dicofol			✓2*	✓	✓
Dieldrin	✓		✓2*	✓	✓
Dimethoate	✓		✓2*		✓
Diuron		✓	✓2*		
Endosulfan	✓		✓2*	✓	✓
Endrin	✓		✓2*		✓
Etridiazole			✓2		
Fenarimol			✓1		
Fentin acetate		✓	✓2*		
Fenitrothion			✓1		
Fenothrin			✓2		
Fenoxycarb			✓2		
Fenvalerate			✓2		
Fluavinate			✓2		
HCB		✓	✓1*	✓	✓
HCH			✓1		
Heptachlor			✓2*		
Ioxynil			✓1		
Iprodione			✓2*		
Lindane	✓	✓	✓1*	✓	✓
Linuron	✓	✓	✓1*		✓

Malathion			✓2*		
Mancozeb			✓1		
Maneb		✓	✓1*		✓
Metam sodium			✓1*		
Methomyl			✓2		
Methoxychlor			✓1	✓	✓
Methyl bromide			✓2*		
Metiram			✓1		✓
Metribuzin			✓1		
Mevinphos			✓2		
Mirex		✓	✓1*		✓
Nitrofen		✓	✓2*		
Oxychlorane			✓2*		
Parathion ethyl			✓2*		
Parathion methyl			✓2*		
Pentachlorophenol			✓1		
Permethrin	✓		✓2		✓
Phosphamidon			✓2		
Photomirex			✓2*		
Picloram			✓1		
Piperonyl butoxide			✓2		
Prochloraz			✓2*		
Procymidone			✓1		
Prometryn			✓2	✓	
Propanil			✓2*		
Resmethrin			✓1		
Simazine	✓		✓2*		✓
2,4,5-T			✓1 or 2		
Tebutryn			✓1		
Thiram		✓	✓1*		
Toxaphene		✓	✓1*	✓	✓
Triadimefon			✓2*		
Triadimenol			✓2		
Tributyltin	✓	✓	✓1*	✓	✓
Trichlorfon			✓1 or 2		
Trifluralin	✓		✓2		✓
Triphenyltin		✓	✓1*		
Vinclozolin		✓	✓1*	✓	✓
Zineb		✓	✓1*		✓
Ziram			✓2*		

WWF list of pesticides in the environment with reproductive and/or endocrine disrupting effects

Herbicides 2,4-D, 2,4,5-T, acetochlor, alachlor, amitrole, atrazine, bromacil, bromoxynil, cyanazine, DCPA (dacthal), ethiozin, glufosinate-ammonium, ioxynil, linuron, metribuzin, molinate, nitrofen, oryzalin, oxyacetamide/fluthamide (FOE 5043), paraquat, pendimethalin, picloram, prodiamine, pronamide, simazine, terbutryn, thiazopyr, trichlorobenzene, trifluralin

Fungicides benomyl, etridiazole, fenarimol, fenbuconazole, hexachlorobenzene, mancozeb, maneb, metiram, nabam, penachloronitrobenzene, pentachlorophenol, triadimefon, tributyltin, vinclozolin, zineb, ziram

Insecticides aldicarb, aldrin, bifenthrin, carbaryl, carbofuran, chlordane, chlordecone, chlorfentezine, 8-cyhalothrin, DDT and metabolites DDE, DDD, deltamethrin, dicofol, dieldrin, dimethoate, dinitrophenol, endosulfan (a and b), endrin, ethofenprox, fenitrothion, fenvalerate, fipronil, a-HCH, heptachlor and H-epoxide, lindane (g-HCH), malathion, methomyl, methoxychlor, mirex, oxychlorane, parathion (methylparathion), photomirex, pyrethrins, synthetic pyrethroids, ronnel (fenchlorfos), toxaphene, transnonachlor

Nematicide DBCP

Rodenticide n-2-fluorenylacetylamide

Sources (WWF)

1. Colborn T, 1998, *Endocrine disruption from environmental toxicants*. In: Rom W N (ed) *Environmental and Occupational Medicine*, Third edition, Lippincott-Raven Publishers, Philadelphia.

2. Brucker-Davis F, 1998, *Effects of environmental synthetic chemicals on thyroid function*, *Thyroid* 8(9), p827-856.

3. Short P, Colborn T, 1999, *Pesticide use in the US and policy implications: a focus on herbicides*, *Toxicol Ind Health* 15(1/2), p240-275.

Pesticides in the Marine Environment of the North-East Atlantic (OSPAR Convention)

The 1992 OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic is the current instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic. It combined and up-dated the 1972 Oslo Convention on dumping waste at sea and the 1974 Paris Convention on land-based sources of marine pollution. The work under the convention is managed by the OSPAR Commission, made up of representatives of the Governments of 15 Contracting Parties (Belgium, Denmark*, Finland*, France, Germany, Iceland*, Ireland, Luxembourg*, the Netherlands*, Norway*, Portugal, Spain*, Sweden*, Switzerland*, the United Kingdom*) and the European Commission, representing the European Community. Observers from 25 non-governmental organisations, representing environmental groups and industry, also contribute to the Commission's work.

The pesticides agreed as 'priorities for action' are listed here (updated in 2004), as well as a list of substances of 'possible concern' including 98 pesticides (updated in September 2005).

Active	Additional notes
Cadmium (heavy metal)	These compounds are generally extremely toxic, causing acute toxicity, cancer, reproductive and developmental toxicity. Previous use as a pesticide.
Dicofol	Dicofol is supplied in the European Union at levels greater than 1 000 tonnes/annum for use as an acaricide. The substance is highly toxic to aquatic organisms, bioaccumulative and will not degrade rapidly in the aquatic environment. It is currently not on a priority list for assessment under the EC Plant Protection Products Directive. Potential for endocrine disrupting effects, dicofol.**
Endosulfan	Endosulfan is produced in high volume in the European Union for use as an insecticide. It is very highly toxic, bioaccumulative and not easily degradable. Monitoring programmes detected this substance in surface waters. Potential for endocrine disrupting effects.**
HCH isomers	Hexachlorocyclohexane (Note: a synonym for the common name for mixed isomers is benzene hexachloride (BHC); common name for the gamma isomer is gamma-HCH or gamma-BHC; synonym for the 99% gamma isomer, which still has pesticide uses, is lindane)
Methoxychlor	Methoxychlor is used principally as an insecticide, although production and use volumes are now thought to be low. It has been found in surface waters. Methoxychlor shows very high toxicity to aquatic species, is highly bioaccumulative and does not degrade easily in the aquatic environment. It is structurally analogous to DDT.**
1,2,4-Trichlorobenzene	This substance is used as an intermediate in chemical synthesis, in termite treatment and as a degreasing solvent. It is produced in high volume in the European Union. It has been included in the first Priority List for action under the EU Water Framework Directive and has been assessed under the Existing Substances Regulation of the European Community. Monitoring studies detected this substance in surface waters. It has a high toxicity to aquatic organisms, is bioaccumulative and does not easily degrade in the environment, and thus gives rise to concerns arising from long-term exposures.**
1,2,3-Trichlorobenzene	This substance is used as an intermediate in chemical synthesis, in termite treatment and as a degreasing solvent. It has been included in the first Priority List for action under the EU Water Framework Directive. It has been found in monitoring studies in surface waters. The substance has high toxicity to aquatic organisms, is bioaccumulative and does not easily degrade in the environment, and thus gives rise to concerns arising from long-term exposures.**
1,3,5-Trichlorobenzene	This substance is used as an intermediate in chemical synthesis, in termite treatment and as a degreasing solvent. It has been included in the first Priority List for action under the EU Water Framework Directive. It has been detected in monitoring studies in surface waters. The substance has high toxicity to aquatic organisms, is bioaccumulative and does not easily degrade in the environment, and thus gives rise to concerns arising from long-term exposures.**
Mercury compounds	Mercury and organic mercury: all pesticide uses banned in Europe.
Nonylphenol/ethoxylates	(NP/NPEs) and related substances: nonylphenol ethoxylate 9-ETO is used as an adjuvant in certain pesticide formulations.
Octylphenol	Previous pesticide uses noted as a fungicide, bactericide and preservative
Organic tin compounds	(sic) (organotin compounds) These include tributyltin pesticides used as antifoulants, microbiocides with some substances used as a fungicide (tributyltin fluoride) and as a molluscicide (tributyltin oxide)
Pentachlorophenol (PCP)	Introduced in 1936 as a timber preservative, also used as an insecticide, fungicide, non-selective contact herbicide and general disinfectant. Very persistent in the environment.
Polychlorinated biphenyls	PCBs substances: One pesticide (arochlor) is a PCB.
Trifluralin	Trifluralin is a dinitroaniline herbicide used to control a wide spectrum of annual grasses and broadleaf weeds in agriculture, horticulture, viticulture, amenity and home garden. The major crops it is used on are oilseed rape and sunflowers and, to a lesser extent, cotton and cereals. Trifluralin was added to the OSPAR List of Chemicals for Priority action in 2002.

(Contd on p 10)

OSPAR Convention - Substances of concern

The OSPAR List of Substances of Possible Concern is a dynamic working list and will be regularly revised as new information becomes available. This may lead to exclusion of substances present on the current version and to inclusion of other substances if data on persistence, toxicity and liability to bioaccumulate (or evidence that they give rise to an equivalent level of concern) show that they should be added. This version of the OSPAR List of Substances of Possible Concern was last revised on 21 September 2005.

CAS No	Pesticide	CAS No	Pesticide
50293	DDT	2668475	[1,1'-biphenyl]-4-ol, 3,5-bis(1,1-dimethylethyl)-
53190	mitotane	2921882	chlorpyrifos
56359	TBTO (tributyltin oxide)	3424826	o,p-DDE
57749	chlordan	3734483	chlordan
58899	lindane	3972132	DIDT
60571	dieldrin	4824786	bromophos-ethyl
72208	endrin	8001352	toxaphene
72435	methoxychlor	8001501	dichloricide aerosol
72548	DDD,P,P'	13121705	cyhexatin
72559	DDE, P,P'	13356086	fenbutatin oxide
76448	heptachlor	14816183	phoxim
76879	fentin hydroxide	17540759	4-sec-butyl-2,6-di-tert-butylphenol
80068	chlorfenethol	18181709	iodofenphos
82688	quintozene	19398131	propanoic acid, 2-(2,4,5-trichlorophenoxy)-, 2-butoxyethyl ester
87865	PCP (pentachlorophenol)	21609905	leptophos
97187	phenol, 2,2'-thiobis[4,6-dichloro-	22916478	miconazole
101202	triclocarban	25168154	2,4,5-T esters
115297	endosulfan	26399360	profluralin
115322	dicofol	26864562	penfluridol
116290	tetradifon	26999291	phosphorodithioic acid, O,O-diisooctyl ester
143500	kepone/chlordecone	29098155	terofenamate
297789	isobenzan (ISO)	36065302	2,4,6-bromophenyl 1-2(2,3-dibromo-2-methylpropyl)
309002	aldrin	37893020	flubenzimine
319857	β -hexachlorocyclohexane	39515418	fenpropathrin
327980	trikloronat (ISO)	40487421	pendimethalin
465736	isodrin	42576023	bifenox
475263	DFDT	50471448	vinclozolin
497392	4,6-di-tert-butyl-m-cresol	51775361	2,2,5-endo,6-exo,8,9,10-heptachloronorbornane
510156	chlorobenzilate	52434909	1,3,5-triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(2,3-dibromopropyl)-
608731	technical-grade HCH	52468607	sibelim
668348	fentin, TPT	56296787	fluoxetine-hydrochloride- (INN)
732263	2,4,6-tri-tert-butylphenol	58138082	oxirane, 2-(3,5-dichlorophenyl)-2-(2,2,2-trichloroethyl)-
789026	o,p'-DDT	64131857	phosphorothioic acid, O,O,O-tris(4-nitrophenyl) ester
1024573	heptachlor epoxide	65925282	benzene, 1-[2-(2-chloroethoxy)ethoxy]-4-(1,1,3,3-tetramethylbutyl)-
1138529	phenol, 3,5-bis(1,1-dimethylethyl)-	67485294	hydramethylnon
1582098	trifluralin	68085858	cyhalothrin
1715408	bromocylene	69898415	furo[3,4-b]pyridin-7(5H)-one, 5-[4-(diethylamino)-2-ethoxyphenyl]-5-(1-ethyl-2-methyl-1H-indol-3-yl)-
1836755	nitrofen	70124775	flucythrinate
1836777	chlornitrofen	81412433	tridemorph
1861401	benfluralin	85409172	naphthenic acids, tributyltin compounds
1912249	atrazine	87237487	haloxifop-ethoxyethyl
1928478	2,4,5-T esters	111479051	propaquizafop
2062784	pimozide		
2104645	ethyl O-(p-nitrophenyl) phenyl phosphonothionate (EPN)		
2104963	bromophos		
2227136	tetrasul		
2303175	triallate		
2385855	mirex		
2545597	2,4,5-T esters		

Water Framework Directive 2000/60/EC

The first list of priority hazardous substances under the WFD were adopted in 2001. These substances will be subject to cessation or phasing out of discharges, emissions and losses within an appropriate timetable that shall not exceed 20 years. A further 14 possible priority hazardous substances are identified as being subject for review for identification as priorities, and other hazardous substances have been identified.

Dangerous Substances Directive 76/464/EEC

List I includes chemicals and families of pollutants from which certain individual substances were to be selected on the basis of their persistence, toxicity and bioaccumulation. Up to now, 19 individual substances have been regulated under specific Directives (see table), known as 'daughter directives', setting emission limit values and quality objectives at Community level. List II (formerly called 'candidate List I') includes groups and families of substances that have a deleterious effect on the aquatic environment, that are being considered for List I, and that should be regulated by Member States to reduce pollution. The Annex to Directive 76/464/EEC has been amended to reflect these regulations.

Implementation of 76/464

Member States must establish pollution reduction programmes including water quality objectives according to Article 7 of the Directive 76/464/EEC. Progress has been slow, and the Commission began infringement procedures against Member States, most of which are before the European Court of Justice. There have been several rulings against Member States. http://europa.eu.int/comm/environment/water/water-dangersub/candidate_list_1.htm
The following reports cover implementation of 76/464 - Assessment of programmes under Article 7 of Council Directive 76/464/EEC" 2001 - Pollution Reduction Programmes in Europe: Updated report on the Assessment of Programmes - Achievements and obstacles in the Implementation of Council Directive 76/464/EEC" on Aquatic Pollution Control of Dangerous Substances (1976-2002)

Regulating water in Europe

Regulation of water in Europe is in the process of change. Community policy on pollution caused by certain dangerous or hazardous substances in European waters was introduced three decades ago. The Dangerous Substances Directive 76/464/EEC of 4 May 1976 had the ambitious objective of regulating potential aquatic pollution by thousands of chemicals produced in Europe at that time. Community water policy has been restructured under the Water Framework Directive (2000/60/EC) (WFD), adopted in September 2000. Directive 76/464 is being integrated in the WFD, and will be fully repealed in 2013.

Directive 76/464 covers discharges to inland surface waters, territorial waters, inland coastal waters. It originally covered protection of groundwater, but this was removed in 1980 and regulated under the separate Council Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances. The priority substances for control under 76/464 were grouped under candidate Lists I and II, with the aim of eliminating pollution from List I substances and reducing pollution from List II substances. List I represents chemicals of greatest concern which were regulated in the 1980s at European level. List II substances (candidates for List I) were required to be regulated nationally.

The WFD has identified priority lists, and the European Commission is developing a proposal for regulating these substances, which is expected to be presented in 2006. The WFD list of priority substances has replaced 'candidate List I' (now List II) of 1982, but includes only a minority of List I substances. The WFD opens with a number of Recitals that indicate its intention. Recital 51 says that the aim of the "implementation of this Directive is to achieve a level of protection of waters at least equivalent to that provided in certain earlier acts, which should therefore be repealed once the relevant provisions of the WFD have been fully implemented." Recital 53 refers to the fact that full implementation and enforcement of existing environmental legislation for the protection of waters should be ensured. Collectively, the Recitals of the WFD seek to maintain a standard of water quality at least equivalent to that existing under present EC law. Article 1(c) "aims at enhanced protection and improvement of the aquatic environment ..." It is vital therefore that the substances identified under 76/464, and the standards it established, are fully integrated into the WFD before this earlier Directive is repealed.

Water Framework Directive 2000/60/EC

Priority hazardous substances

Brominated diphenylethers (**)
Cadmium and its compounds
C10-13-chloroalkanes (**)
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclohexane (Lindane)
Mercury and its compounds
Nonylphenols
Pentachlorobenzene
Polyaromatic hydrocarbons
Tributyltin compounds

Possible priority hazardous substances

Anthracene
Atrazine
Chlorpyrifos
Di(2-ethylhexyl)phthalate (DEHP)
Diuron
Endosulfan
Isoproturon
Lead and its compounds
Naphthalene
Octylphenols
Pentachlorophenol
Simazine
Trichlorobenzenes
Trifluralin

Other substances on the list

Alachlor
Benzene
Chlorfenvinphos
1,2-Dichloroethane
Dichloromethane
Fluoranthene
Nickel and its compounds
Trichloromethane (Chloroform)

Dangerous Substances Directive 76/464/EEC

List I substances

Aldrin
Cadmium and its compounds
Carbon tetrachloride
Chloroform
DDT (including metabolites DDD and DDE)
1,2-Dichloroethane
Dieldrin
Endrin
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclohexane (including all isomers and Lindane)
Isodrine
Mercury and its compounds
Pentachlorophenol
Tetrachloroethylene

Trichlorobenzene (technical mixture)
1,2,4-Trichlorobenzene
Trichloroethylene

Candidate list I substances - now list II

Atrazine
Azinphos-ethyl
Azinphos-methyl
Dichlorvos
Endosulfan
Fenitrothion
Fenthion
Malathion
Parathion (including Parathion-methyl)
Simazine
Tributyltin oxide

Trifluralin
Triphenyltin acetate (Fentin acetate)
Triphenyltin chloride (Fentin chloride)
Triphenyltin hydroxide (Fentin hydroxide)

Candidate list I substances ('99 substances') - now list II

2-Amino-4-chlorophenol
Anthracene
Arsenic and its mineral compounds
Bentazon
Benzene
Benzidine
Benzylchloride (Alpha-chlorotoluene)
Benzylidenechloride (Alpha, alpha-dichlorotoluene)

(Continued on page 12)

Biphenyl	Demeton (including Demeton-O, Demeton-S, Demeton-S-methyl and Demeton-S-methyl-sulphone)	Isopropyl benzene
Chloral hydrate	1,2-Dibromoethane	Linuron
Chlordane	Dibutyltin dichloride	MCPA
Chloroacetic acid	Dibutyltin oxide	Mecoprop
2-Chloroaniline	Dibutyltin salts (other than Dibutyltin dichloride and Dibutyltin oxide)	Methamidophos
3-Chloroaniline	Dichloroanilines	Mevinphos
4-Chloroaniline	1,2-Dichlorobenzene	Monolinuron
Mono-Chlorobenzene	1,3-Dichlorobenzene	Naphthalene
1-Chloro-2,4-dinitrobenzene	1,4-Dichlorobenzene	Omethoate
2-Chloroethanol	Dichlorobenzidines	Oxy-demeton-methyl
4-Chloro-3-methylphenol	Dichloro-di-isopropyl ether	PAH (with special reference to: 3,4-Benzopyrene and 3,4-Benzofluoranthene)
1-Chloronaphthalene	1,1-Dichloroethane	PCB (including PCT)
Chloronaphthalenes (technical mixture)	1,1-Dichloroethylene (Vinylidene chloride)	Phoxime
4-Chloronitroaniline	1,2-Dichloroethylene	Propanil
1-Chloro-2-nitrobenzene	Dichloromethane	Pyrazon
1-Chloro-3-nitrobenzene	Dichloronitrobenzenes	2,4,5-T (including 2,4,5-T salts and 2,4,5-T esters)
1-Chloro-4-nitrobenzene	2,4-Dichlorophenol	Tetrabutyltin
4-Chloro-2-nitrotoluene	1,2-Dichloropropane	1,2,4,5-Tetrachlorobenzene
Chloronitrotoluenes (other than 4-Chloro-2-nitrotoluene)	1,3-Dichloropropan-2-ol	1,1,2,2-Tetrachloroethane
2-Chlorophenol	1,3-Dichloropropene	Toluene
3-Chlorophenol	2,3-Dichloropropene	Triazophos
4-Chlorophenol	Dichlorprop	Tributyl phosphate
Chloroprene (2-Chloro-1,3-butadiene)	Diethylamine	Trichlorfon
3-Chloropropene (Allylchloride)	Dimethoate	1,1,1-Trichloroethane
2-Chlorotoluene	Dimethylamine	1,1,2-Trichloroethane
3-Chlorotoluene	Disulfoton	Trichlorophenols
4-Chlorotoluene	Epichlorohydrin	1,1,2-Tri-chloro-tri-fluoro-ethane
2-Chloro-p-toluidine	Ethylbenzene	Vinyl chloride (Chloroethylene)
Chlorotoluidines (other than 2-Chloro-p-toluidine)	Heptachlor (including Heptachlorepoxide)	Xylenes (technical mixture of isomers)
Coumaphos	Hexachloroethane	
Cyanuric chloride (2,4,6-Trichloro-1,3,5-triazine)		
2,4-D (incl 2,4-D-salts and 2,4-D-esters)		

Council Directive 79/117/EEC

Prohibits placing on the market and use of plant protection products containing certain active substances which, even if applied in an approved manner, could give rise to harmful effects.

Council Regulation (EC) 304/2003

This regulation of 28 January 2003 concerning the export and import of dangerous chemicals implements the Rotterdam Convention. It provides for the notification of importers of any products banned under Directive 79/117 or included in a PIC list of the Rotterdam Convention. This Regulation does not itself ban or severely restrict any chemicals but (with amending directives 1212/2003, 775/2004) reflects the regulatory status of chemicals under other EU legislation (Directives 79/117/EEC, 91/414/EEC, 98/8/EC, 850/2004).

Council Regulation (EC) 850/2004

This regulation on persistent organic pollutants (POPs) amends Directive 79/117/EEC and implements the Stockholm Convention in the EU.

Not authorised

The pesticides listed here do not include all those which cannot be used in the EU. Certain pesticides in 304/2003 were not notified under the Registration Directive 91/414/EEC, or were not defended by industry (see pp 14-16). These have been excluded from Annex 1 of 91/414, and are thus effectively banned. This includes chlordimeform, chlorobenzilate, 2,4,5-T, monocrotophos. Many other pesticides have not been defended by industry and in the absence of a dossier have had authorisation for use as a plant protection product withdrawn. In some cases this action may be considered to be a ban or severe restriction, and they would be included in Annex 1 of Regulation 304/2003. (See EXPORT/06/05).

*** Pentachlorophenol: Ban of concentration equal to or greater than 0.1% by mass, except in substances and preparations intended for use in industrial installations: in the treatment of wood; in the impregnation of heavy-duty textiles; as a synthesising and/or processing agent in industrial processes. EU production is banned under Directive 76/769/EEC

Pesticides banned or severely restricted in the European Union

Note: Pesticides that are severely restricted may have been granted an extension (or derogation) for essential use under Directive 91/414 (see page 14).

	EU Use limitation	Regulation / Directive (Decision*)
Acephate	Ban	1212/2003 (03/219)
Aldicarb**	Ban	1212/2003 (03/199)
Aldrin	Ban and export ban	79/117/EEC (1991) + 850/2004 (1)
Amitraz	Severe restriction	775/2004 (04/247)
Arsenic compounds	Severe restriction	Noted in 304/2003
Atrazine**	Severe restriction	775/2004 (04/247)
Binapacryl	Ban	79/117/EEC (1991)
Captafol	Ban	79/117/EEC (1991)
Chlordane	Ban and export ban	79/117/EEC (1981) + 850/2004
Chlorfenapyr	Severe restriction	Noted in 304/2003
Chlorobenzilate	Ban	2076/2002 (00/626)
Chlozolinate	Ban	Noted in 304/2003 (00/626)
Cyhalothrin	Ban	Noted in 304/2003 (94/643)
DDT	Ban and export ban	79/117/EEC (1986) + 850/2004
Dicofol containing more than 78% p,p*-Dicofol or 1 g/kg of DDT and DDT related compounds	Severe restriction	79/117/EEC (1991)
Dieldrin	Ban and export ban	79/117/EEC (1981) + 850/2004
Dinoseb, its acetate and salts	Ban	79/117/EEC (1991)
Dinoterb	Ban	Noted in 304/2003 (98/269)
DNOC	Ban	Noted in 304/2003 (99/164)
Endrin	Ban and export ban	79/117/EEC (1991) + 850/2004
Ethylene dichloride	Ban	79/117/EEC (1989)
Ethylene dibromide (1,2 dibromoethane)	Ban	79/117/EEC (1988)
Ethylene oxide (will be evaluated under biocides directive)	Agricultural ban	79/117/EEC (1991)
Fenthion	Severe restriction	775/2004 (04/140)
Fentin acetate	Ban	Noted in 304/2003 (02/478)
Fentin hydroxide	Ban	Noted in 304/2003 (02/479)
Fenvalerate	Ban	Noted in 304/2003 (98/270)
Ferbam	Ban	Noted in 304/2003 (95/276)
Fluoroacetamide	Biocidal use to 09/2006	Commission Decision 2004/129/EC
HCH containing less than 99.0% of the gamma isomer	Ban	79/117/EEC (1981)
Heptachlor	Ban and export ban	79/117/EEC (1984) + 850/2004
Hexachlorobenzene	Ban and export ban	79/117/EEC (1981) + 850/2004
Lindane (gamma-HCH)	Ban	Noted in 304/2003 (00/801)
Maleic hydrazide and its salts, other than choline, potassium and sodium salts; choline, potassium and of sodium salts maleic hydrazide containing more than 1 mg/kg of freehydrazine expressed on the basis of the acid equivalent	Ban	79/117/EEC (1991)
Mercury compounds including mercuric oxide, mercurous chloride (calomel); other inorganic mercury compounds: alkyl mercury compounds: and alkoxyalkyl and aryl mercury compounds	Ban / severe restriction	79/117/EEC (1991,1992)
Mirex	Ban and export ban	850/2004
Monocrotophos	Ban	1212/2003 (Reg. 2076/2002)
Monolinuron	Ban	Noted in 304/2003 (00/234)
Nitrofen	Ban	79/117/EEC (1988)
Nonylphenol ethoxylate	Ban as pesticide	775/2004 (Reg. 2076/2002)
Parathion	Severe restriction	Noted in 304/2003 (01/520)
Parathion methyl (methyl parathion)	Severe restriction	Noted in 304/2003 (03/166)
Pentachlorophenol and its compounds***	Ban (see exceptions)	91/173/EEC
Permethrin	Ban	Noted in 304/2003 (00/817)
Propham	Ban	Noted in 304/2003 (96/586)
Pyrazophos	Ban	Noted in 304/2003 (00/233)
Quintozene	Ban	79/117/EEC (1991) (00/816)
Simazine**	Severe restriction	775/2004 (04/247)
Tecnazene	Ban	Noted in 304/2003 (00/725)
Toxaphene (camphechlor)	Ban and export ban	79/117/EEC (1984) + 850/2004
Triorganostannic compounds (tributyltin compounds)	Severe restriction	Noted in 304/2003 (Reg 2076/2002)
Zineb	Ban	Noted in 304/2003 (01/245)

* Brackets () represents the Commission Decision number excluding this active ingredient from Annex 1 of 91/414.

** Have been granted essential use derogations (see p 14)

Phasing out pesticides in Europe under Agricultural Pesticides Directive 91/414/EEC

In an ambitious work programme launched in 1992, the European Commission started a Community-wide review process for all active ingredients used in plant protection products (pesticides) within the European Union. In a review process based on scientific assessments, each applicant had to prove that a substance could be used safely regarding human health, the environment, ecotoxicology and residues in the food chain. If a pesticide is approved under 91/414/EEC it is placed on Annex 1 of the Directive, and may be used throughout Member States. This and the following pages list those that have failed the review process and are not listed on Annex 1. The pesticides on page 14 have been granted a limited extension of use on certain crops until the end of December 2007 when they must come off the market. Those on page 15 have failed to make it onto Annex 1 and have been withdrawn from the market. In some cases this may be because the manufacturer has not supplied the data required to extend registration. In some cases the pesticide has been banned (see page 13). This programme should be completed by 2008. The information here indicates the type of use, the date it came off the market and the relevant decision making directive.

Pesticides withdrawn from the EU with 'essential use' derogations

Pesticides with essential uses have not been given EU-wide approval. Certain countries have been given an extension (or derogation) for one or more essential uses for the active ingredient on specific crops until December 2007. Member States are expected to explore alternatives to their use and to report on progress in substituting less harmful products or methods.

Alkyltrimethylbenzyl ammonium chloride	HB	Out 7/03 essential use	2076/2002	Furalaxyl	FU	Out 7/03 essential use	2076/2002
2-Aminobutane (aka sec-butylamine)	FU	Out 7/03 essential use	2076/2002	Furathiocarb	IN	Out 7/03 essential use	835/04, 2076/2002
4-CPA (4-chlorophenoxyacetic acid = PCPA)	PG	Out 7/03 essential use	2076/2002	Haloxypol	HB	Out 7/03 essential use	2076/2002
Aldicarb	NE,IN,AC	Out 09/04 essential uses	03/199	Heptenophos	IN	Out 7/03 essential use	2076/2002
Acifluorfen	HB	Out 7/03 essential use	2076/2002	Hexazinone	HB	Out 7/03 essential use	835/04, 2076/2002
Anthracene oil	IN,AC,HB,RO	Out 7/03 essential use	2076/2002	Imazamethabenz	HB	No Dossier essential use	Voted Out SCFA 29-6-04
Atrazine	HB	Out 10/04 essential use	835/2004, 04/247	Imazapyr	HB	Out 7/03 essential use	835/04, 2076/2002
Azaconazole	IN,FU	Out 7/03 essential use	835/04, 2076/2002	Iminoctadine	FU	Out 7/03 essential use	835/04, 2076/2002
Benfuresate	HB	Out 7/03 essential use	2076/2002	Kasugamycin	FU,BA	No Dossier essential use	Voted Out SCFA 29-6-04
Benomyl	FU	Out 05/03 derogation HU (771/2004)	essential use 835/04, 02/928	Mepronil	FU	Out 7/03 essential use	2076/2002
Bensultap	IN	Out 7/03 essential use	835/04, 2076/2002	Methidathion	IN,AC	Out 12/04 essential use	835/04, 2004/129
Bromacil	HB	Out 7/03 essential use	2076/2002	Metobromuron	HB	Out 7/03 essential use	2076/2002
Bromopropylate	AC	Out 7/03 essential use	835/04, 2076/2002	Metoxuron	HB	Out 7/03 essential use	2076/2002
Butylate	HB	Out 07/03 derogation HU (771/2004)	2076/2002	Naptalam	HB	Out 7/03 essential use	835/04, 2076/2002
Calcium hydroxide (aka slake lime)		Out 7/03 essential use	2076/2002	Omethoate	IN,AC	Out 7/03 essential use	2076/2002
Cartap	IN	Out 7/03 essential use	2076/2002	Orbencarb	HB	Out 7/03 essential use	2076/2002
Chinomethionat (aka quinomethionate)	AC,FU	Out 7/03 essential use	2076/2002	Oxadixyl	FU	Out 7/03 essential use	2076/2002
Chlorfenvinphos	IN	Out 7/03 essential use	835/04, 2076/2002	Oxine-copper	FU	Out 7/03 essential use	835/04, 2076/2002
Cresylic acid	ST,FU	No Dossier	Voted Out SCFA 29-6-04	Oxycarboxin	FU	Out 7/03 essential use	835/04, 2076/2002
Cyanazine	HB	Out 7/03 essential use	835/04, 2076/2002	Pebulate	HB	Out 7/03 essential use	2076/2002
Cycloate	HB	Out 07/03 derogation HU (771/2004)	essential use 835/04, 2076/2002	Pentachlor	HB	Out 7/03 essential use	2076/2002
Dalapon	HB	Out 7/03 essential use	2076/2002	Polyoxin	FU	No Dossier essential use	Voted Out SCFA 29-6-04
Dichlorophen	HB,FU	No Dossier essential use	Voted Out SCFA 29-6-04	Prometryne	HB	Out 7/03 essential use	835/04, 2076/2002
Dichlorprop	HB	Out 7/03 essential use	835/04, 2076/2002	Pyridafenthion	IN,AC	Out 7/03 essential use	2076/2002
Dikegulac	PG	Out 7/03 essential use	2076/2002	Resmethrin	IN	Out 7/03 essential use	2076/2002
Dimefuron	HB	Out 7/03 essential use	2076/2002	Rock powder		Out 7/03 essential use	2076/2002
Dinobuton	AC,FU	Out 7/03 essential use	2076/2002	Sethoxydim	HB	Out 7/03 essential use	2076/2002
Disodium octaborate tetrahydrate	HB	Out 7/03 essential use	2076/2002	Silver nitrate	PG,FU	Out 7/03 essential use	2076/2002
EPTC (ethyl dipropylthiocarbamate)	HB	Out 07/03 derogation HU (771/2004)	2076/2002	Simazine	HB	Out 10/04 essential use	835/2004, 04/247
Ethion (aka diethion)	IN,AC	Out 7/03 essential use	2076/2002	Sodium dimethylarsinate	RO	Out 7/03 essential use	2076/2002
Fenproprathrin	IN,AC	Out 7/03 essential use	2076/2002	Sodium monochloroacetate	HB	Out 7/03 essential use	2076/2002
Fenuron	HB	Out 7/03 essential use	2076/2002	Sulfotep	IN,AC	Out 7/03 essential use	2076/2002
Flumethralin	PG	Out 7/03 essential use	2076/2002	Tar acids	IN	Out 7/03 essential use	2076/2002
Fomesafen	HB	Out 7/03 essential use	2076/2002	Temephos	IN	Out 7/03 essential use	2076/2002
Fosamine E	E	Out 7/03 essential use	2076/2002	Terbacil	HB	Out 7/03 essential use	835/04, 2076/2002
				Terbufos	IN	Out 7/03 essential use	835/04, 2076/2002
				Terbutryn	HB	Out 7/03 essential use	835/04, 2076/2002
				Tetradifon	AC,IN	Out 7/03 essential use	2076/2002
				Thiocyclam	IN	Out 7/03 essential use	835/04, 2076/2002
				Triazophos	IN,AC	Out 7/03 essential use	2076/2002
				Triforine	FU,AC	Out 7/03 essential use	835/04, 2076/2002
				Vamidothion	IN,AC	Out 7/03 essential use	2076/2002

AC=Acaricide
AL=Algicide
AT=Attractant
BA=Bactericide
FU=Fungicide
HB=Herbicide
IN=Insecticide
MO=Molluscicide
NE=Nematicide
OT=Other
PG=Plant Growth Regulator
RE=Repellent
RO=Rodenticide
ST=Sterilant
VI=Viricide

Source: European Commission, DG Health and Consumer Protection, Status of active substances under EU review (doc. 3010) (240KB) updated 04 November 2004.

http://europa.eu.int/comm/food/plant/protection/evaluation/stat_active_subs_3010_en.xls

362 Substances where registration has been withdrawn under 91/414/EEC and its amendments

These pesticides can no longer be used in Member States. In some cases no manufacturer applied for registration; in some cases the active ingredient has been banned or severely restricted (see page 13)

AC=Acaricide
AL= Algicide
AT=Attractant
BA=Bactericide
FU=Fungicide
HB=Herbicide
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PG=Plant Growth Regulator
RE=Repellant
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VI=Viricide

(4E-7Z)-4,7-Tridecadien-1-yl-acetate AT Out 12/04 2004/129	2076/2002	Diafenthiuron IN,AC Out 7/03 2076/2002
(4Z-9Z)-7,9-Dodecadien-1-ol AT Out 12/04 2004/129	Bromethalin RO Out 12/04 2004/129	Dialifos IN,AC Out 7/03 2076/2002
(E)-10-Dodecenyl acetate AT Out 12/04 2004/129	Bromocyclen IN Out 7/03 2076/2002	Di-allate HB Out 7/03 2076/2002
(Z)-3-Methyl-6-isopropenyl- -3,4-decadien-1-yl AT Out 12/04 2004/129	Bromofenoxim HB Out 7/03 2076/2002	Diammonium phosphate AC Out 7/03 2076/2002
(Z)-3-Methyl-6-isopropenyl-9-decen-1- yl acetate AT Out 12/04 2004/129	Bromophos IN Out 7/03 2076/2002	Dichlofenthion IN Out 7/03 2076/2002
(Z)-7-Tetradecanole AT Out 12/04 2004/129	Bromophos-ethyl IN Out 7/03 2076/2002	Dichlofluanid FU Out 7/03 2076/2002
1,3-Dichloropropene (cis) ST Out 7/03 2076/2002	Bronopol FU,BA Out 7/03 2076/2002	Dichlone FU Out 7/03 2076/2002
1,3-Diphenyl urea PG Out 7/03 2076/2002	Butachlor HB Out 7/03 2076/2002	Diclobutrazol FU Out 7/03 2076/2002
2,3,6-TBA HB Out 7/03 2076/2002	Butocarboxim IN Out 7/03 2076/2002	Dicrotophos IN,AC Out 7/03 2076/2002
2-Benzyl-4-chlorophenol FU Out 7/03 2076/2002	Butoxycarboxim IN,AC Out 7/03 2076/2002	Dicyclopentadiene PG Out 7/03 2076/2002
3,7-Dimethyl-2,6-octadienal AT Out 12/04 2004/129	Calciferol RO Out 12/04 2004/129	Dienochlor AC Out 7/03 2076/2002
4-Chloro-3-methylphenol FU Out 12/04 2004/129	Calcium carbonate (aka chalk) Out 7/03 2076/2002	Diethatyl (-ethyl) HB Out 7/03 2076/2002
7,8-Epoxi-2-methyl-octadecane AT Out 12/04 2004/129	Calcium oxide (quick lime) Out 7/03 2076/2002	Difenoxuron HB Out 7/03 2076/2002
7-Methyl-3-methylene-7-octene-1-yl- propionate AT Out 12/04 2004/129	Calcium phosphate RO Out 12/04 2004/129	Difenoquat HB Out 7/03 2076/2002
Acephate IN Out 09/03 03/219	Carbon disulfide IN,NE Out 7/03 2076/2002	Difethialone RO Out 12/04 2004/129
Acridinic bases RE Out 12/04 2004/129	Carbophenothion IN,AC Out 7/03 2076/2002	Dimefox IN Out 7/03 2076/2002
Agrotis segetum granulosis virus IN Out 12/04 2004/129	Cetrimide HB Out 7/03 2076/2002	Dimepiperate HB Out 7/03 2076/2002
Aldimorph FU Out 7/03 2076/2002	Chlometoxyfen HB Out 7/03 2076/2002	Dimethirimol FU Out 7/03 2076/2002
Alkyldimethylbenzyl ammonium chloride HB Out 12/04 2004/129	Chloral-bis-acylal PG Out 7/03 2076/2002	Dimexano HB Out 7/03 2076/2002
Alkyldimethylethylbenzylammonium chloride HB Out 12/04 2004/129	Chloral-semi-acetal HB Out 7/03 2076/2002	Dinitramine HB Out 7/03 2076/2002
Alkyltrimethyl ammonium chloride BA,FU Out 7/03 2076/2002	Chloramben HB Out 7/03 2076/2002	Dinoterb HB Out 10/98 98/269
Allethrin IN Out 7/03 2076/2002	Chlorbromuron HB Out 7/03 2076/2002	Diocetyl dimethyl ammonium chloride FU,BA Out 12/04 2004/129
Alloxydim HB Out 7/03 2076/2002	Chlorbufam HB Out 7/03 2076/2002	Dioxacarb IN Out 7/03 2076/2002
Allyl alcohol HB Out 7/03 2076/2002	Chlorethazate PG Out 7/03 2076/2002	Dioxathion IN Out 7/03 2076/2002
Ametryn HB Out 7/03 2076/2002	Chlorfenprop HB Out 7/03 2076/2002	Diphacinone RO Out 12/04 2004/129
Amitraz AC,IN Out 08/04 04/141	Chlorfenon (aka chlorfenizon) IN,AC Out 7/03 2076/2002	Diphenamid (aka difenamide) HB Out 7/03 2076/2002
Ammonium hydroxyde FU Out 12/04 2004/129	Chlorfluazuron IN Out 7/03 2076/2002	Disulfoton IN Out 7/03 2076/2002
Ammonium sulphate HB Out 12/04 2004/129	Chlorflurenol (chlorflurecol) PG Out 12/04 2004/129	Ditalimfos FU Out 7/03 2076/2002
Ampropylfos FU Out 7/03 2076/2002	Chlorhydrate of poly(iminino imido biguanidine) FU,BA Out 12/04 2004/129	DNOC IN,AC,FU,HB Out 6/00 99/164
Ancymidol PG Out 7/03 2076/2002	Chlormephos IN Out 7/03 2076/2002	Drazoxolon FU Out 7/03 2076/2002
Anilazine FU Out 7/03 2076/2002	Chlorobenzilate AC Out 7/03 2076/2002	Endothal HB Out 7/03 2076/2002
Aschersonia aleyrodis IN Out 12/04 2004/129	Chlorophylline FU,BA Out 12/04 2004/129	Etacelasil PG Out 7/03 2076/2002
Azamethiphos IN Out 7/03 2076/2002	Chloropropylate AC Out 7/03 2076/2002	Ethanethiol RO Out 12/04 2004/129
Azinphos ethyl IN, AC Out 1/96 95/276	Chloroxuron HB Out 7/03 2076/2002	Ethidimuron (aka sulfodiazol) HB Out 7/03 2076/2002
Aziprotryne HB Out 7/03 2076/2002	Chlorphonium chloride PG Out 7/03 2076/2002	Ethiofencarb IN Out 7/03 2076/2002
Barban HB Out 7/03 2076/2002	Chlorthiamid HB Out 7/03 2076/2002	Ethirimol FU Out 7/03 2076/2002
Barium fluosilicate IN Out 7/03 2076/2002	Chlorthiophos IN Out 7/03 2076/2002	Ethoate-methyl IN Out 7/03 2076/2002
Barium nitrate RE Out 12/04 2004/129	Chlozolinate FU Out 4/02 00/626	Ethylhexanoate FU,BA Out 12/04 2004/129
Barium polysulphide IN,FU Out 7/03 2076/2002	Cholecalciferol RO Out 12/04 2004/129	Etrimefos IN,AC Out 7/03 2076/2002
Benzazolin HB Out 7/03 2076/2002	Choline chloride RO Out 12/04 2004/129	Fenamiosulf FU Out 7/03 2076/2002
Bendiocarb IN Out 7/03 2076/2002	Cinosulfuron HB Out 12/04 2004/129	Fenazaflo AC Out 7/03 2076/2002
Benodanil FU Out 7/03 2076/2002	Clofencet PG Out 12/04 2004/129	Fenfuram FU Out 7/03 2076/2002
Bensulide HB Out 7/03 2076/2002	Coumachlor RO Out 12/04 2004/129	Fenoprop PG,HB Out 7/03 2076/2002
Bentaluron FU Out 7/03 2076/2002	Coumafuryl RO Out 12/04 2004/129	Fenothiocarb IN,AC Out 7/03 2076/2002
Benzalkonium chloride HB Out 7/03 2076/2002	Coumatetralyl RO Out 12/04 2004/129	Fenoxaprop HB Out 7/03 2076/2002
Benzoximate AC Out 7/03 2076/2002	Crimidine RO Out 12/04 2004/129	Fenpiclonil FU Out 7/03 2076/2002
Benzoylprop HB Out 7/03 2076/2002	Cufraneb FU Out 7/03 2076/2002	Fenridazon PG Out 7/03 2076/2002
Benzthiazuron HB Out 7/03 2076/2002	Cyanides: calcium, hydrogen, sodium IN,RO Out 12/04 2004/129	Fenson (aka fenizon) AC Out 7/03 2076/2002
Bioallethrin IN Out 7/03 2076/2002	Cycluron HB Out 7/03 2076/2002	Fenthion IN Out 08/04 04/140
Bioresmethrin IN Out 7/03 2076/2002	Cyhalothrin IN Out 3/95 94/643	Fenthiosulf IN Out 7/03 2076/2002
Bitumen Pruning Out 7/03 2076/2002	Cyprofuram FU Out 7/03 2076/2002	Fentin acetate FU,HB Out 12/02 02/478
Boric acid IN Out 12/04 2004/129	DADZ (zinc-dimethyldithiocarbamate) RE Out 7/03 2076/2002	Fentin hydroxide FU,HB Out 12/02 02/479
Brandol (hydroxynonyl-2,6- dinitrobenzene) FU Out 7/03	delta-endotoxin of Bacillus thuringiensis IN Out 7/03 2076/2002	Fenvalerate E Out 4/99 98/270
	Demeton-S-methyl IN,AC Out 7/03 2076/2002	Ferbam E Out 1/96 95/276
	Demeton-S-methyl sulphone IN Out 7/03 2076/2002	Flamprop HB Out 7/03 2076/2002
	Desmetryne HB Out 7/03 2076/2002	Flamprop-M HB Out 12/04 2004/129
		Flocumafen RO Out 12/04 2004/129
		Fluazifop HB Out 7/03 2076/2002
		Flubenzimine AC Out 7/03 2076/2002
		Flucycloxuron AC Out 7/03 2076/2002
		Flucythrinate IN Out 7/03 2076/2002
		Flumequine BA Out 7/03 2076/2002
		Fluoroacetamide RO Out 12/04 2004/129
		Fluorodifen HB Out 7/03 2076/2002
		Fluoroglycofene HB Out 7/03 2076/2002

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 ST=Sterilant
 VI=Viricide
http://europa.eu.int/comm/food/fs/p_h_ps/pro/eva/existing/exis02_en.pdf

* Metalaxyl: manufacturers
 appealed against Decision,
 appeal overturned by Court of
 Justice August 2005.

Flupoxam HB Out 7/03 2076/2002	Nabam FU,HB Out 7/03 2076/2002	Siduron HB Out 7/03 2076/2002
Flurenol (flurecol) HB Out 12/04 2004/129	Naphtalene RE Out 12/04 2004/129	Sodium arsenite FU,IN Out 7/03 2076/2002
Fluridone HB Out 7/03 2076/2002	Naphylacetic acid hydrazide PG Out 7/03 2076/2002	Sodium carbonate Out 12/04 2004/129
Fonofos IN Out 7/03 2076/2002	Neburon HB Out 7/03 2076/2002	Sodium chloride HB Out 12/04 2004/129
Formothion IN,AC Out 7/03 2076/2002	Nitratin HB Out 7/03 2076/2002	Sodium diacetoneketogulonate PG Out 7/03 2076/2002
Fosthietan NE Out 7/03 2076/2002	Nitrogen IN Out 12/04 2004/129	Sodium dichlorophenate FU,BA Out 7/03 2076/2002
Furconazole FU Out 7/03 2076/2002	Nitrothal FU Out 7/03 2076/2002	Sodium dimethyldithiocarbamate FU Out 7/03 2076/2002
Furfural Out 7/03 2076/2002	Nonylphenol ether polyoxyethyleneglycol PG Out 7/03 2076/2002	Sodium diocetyl sulfosuccinate AC Out 7/03 2076/2002
Furmecycloz FU Out 7/03 2076/2002	Nonylphenol ethoxylate FU Out 7/03 2076/2002	Sodium fluosilicate IN Out 7/03 2076/2002
Gentian violet BA Out 7/03 2076/2002	Norflurazon HB Out 7/03 2076/2002	Sodium hydroxide HB Out 12/04 2004/129
Halfenprox (aka brofenprox) AC Out 7/03 2076/2002	Noruron HB Out 7/03 2076/2002	Sodium o-benzyl-p-chlorophenoxide FU Out 12/04 2004/129
Hexachlorophene FU Out 7/03 2076/2002	Nuarimol FU Out 12/04 2004/129	Sodium pentaborate PG Out 7/03 2076/2002
Hexaflumeron IN Out 12/04 2004/129	Octhilinone FU Out 7/03 2076/2002	Sodium propionate FU Out 12/04 2004/129
Hydramethylnon IN Out 7/03 2076/2002	Octyldecyldimethyl ammonium chloride FU,BA Out 12/04 2004/129	Sodium p-t-amylphenate FU,BA Out 7/03 2076/2002
Hydroxy-MCPA PG Out 7/03 2076/2002	Ofurace FU Out 7/03 2076/2002	Sodium p-t-amylphenoxide FU Out 12/04 2004/129
Hydroxyphenyl-salicylamide FU Out 7/03 2076/2002	Onion extract Out 12/04 2004/129	Sodium tetraborate IN,HB,MO Out 12/04 2004/129
Imazethabenz HB Out 7/03 2076/2002	Oxytetracycline BA Out 7/03 2076/2002	Sodium tetrathiocarbamate NE Out 7/03 2076/2002
Imazethapyr HB Out 12/04 2004/129	Papaïne RO Out 12/04 2004/129	Sodium thiocyanate HB Out 7/03 2076/2002
Iodofenphos IN Out 7/03 2076/2002	Paraformaldehyde IN Out 7/03 2076/2002	Soybean extract Out 12/04 2004/129
Isazofos IN Out 7/03 2076/2002	Parathion-ethyl IN,AC Out 1/03 01/520	Streptomycin BA Out 12/04 2004/129
Isocarbamide HB Out 7/03 2076/2002	Parathion-methyl IN,RE Out 03/166 2076/2002	Strychnine RO Out 12/04 2004/129
Isofenphos IN Out 7/03 2076/2002	p-Chloronitrobenzene IN Out 7/03 2076/2002	Sulprofos IN Out 7/03 2076/2002
Isolan IN Out 7/03 2076/2002	p-Cresyl acetate RE Out 12/04 2004/129	Tar oils IN,HB Out 12/04 2004/129
Isopropalin HB Out 7/03 2076/2002	p-Dichlorobenzene RO Out 12/04 2004/129	TCA HB Out 7/03 2076/2002
Isoprothiolane HB Out 7/03 2076/2002	Pentachlorophenol HB Out 7/03 2076/2002	TCMTB FU Out 7/03 2076/2002
Isoval RO Out 12/04 2004/129	Perfluidone HB Out 7/03 2076/2002	Terbutam (aka butam) HB Out 7/03 2076/2002
Isoxathion IN Out 7/03 2076/2002	Permethrin IN Out 12/03 00/817	Tebuthiuron HB Out 7/03 2076/2002
Karbutilate HB Out 7/03 2076/2002	Phenols HB,ST Out 7/03 2076/2002	Tecnazene FU,PG Out 1/03 00/725
Kinoprene IN Out 7/03 2076/2002	Phenothrin IN Out 7/03 2076/2002	Terbumeton HB Out 7/03 2076/2002
Lactic acid PG Out 12/04 2004/129	Phenthoate IN Out 7/03 2076/2002	Tetrachlorvinphos IN Out 7/03 2076/2002
Laurylidimethylbenzylammonium bromide FU,BA Out 12/04 2004/129	Pherodim AT Out 12/04 2004/129	Tetramethrin IN Out 7/03 2076/2002
Laurylidimethylbenzylammonium chloride FU,BA Out 12/04 2004/129	Phorate IN Out 7/03 2076/2002	Tetrasul AC Out 7/03 2076/2002
Lime phosphate PG Out 12/04 2004/129	Phosametine HB Out 7/03 2076/2002	Thallium sulphate RO Out 12/04 2004/129
Lindane IN,RO Out 6/02 00/801	Phosphamidon IN,AC Out 7/03 2076/2002	Thiazaffluron HB Out 7/03 2076/2002
Mamestra brassica nuclear polyhedrosis virus IN Out 12/04 2004/129	Phosphoric acid Out 12/04 2004/129	Thiazopyr HB Out 7/03 2076/2002
Mancopper FU Out 7/03 2076/2002	Pirimiphos-ethyl IN Out 7/03 2076/2002	Thiofanox IN Out 7/03 2076/2002
Mecarbam IN,AC Out 7/03 2076/2002	Plant oils / Soybean oil, epoxylated IN Out 12/04 2004/129	Thiometon IN,AC Out 7/03 2076/2002
Mefenacet HB Out 7/03 2076/2002	Potassium silicate Out 7/03 2076/2002	Thionazin NE Out 7/03 2076/2002
Mefluidide PG Out 10/04 2004/401	Potassium sorbate FU Out 12/04 2004/129	Thiophanate (ethyl) FU Out 7/03 2076/2002
Mephospholan IN Out 7/03 2076/2002	Pretilachlor HB Out 12/04 2004/129	Thiourea RO Out 12/04 2004/129
Merphos (aka tributylphosphorotrithioate) PG Out 7/03 2076/2002	Primisulfuron HB Out 12/04 2004/129	Tiocarbazil HB Out 7/03 2076/2002
*Metalaxyl FU Decision 03/308/EC	Profenofos IN Out 7/03 2076/2002	Tolylphtalam PG Out 7/03 2076/2002
Methacrifos IN Out 7/03 2076/2002	Promecarb IN Out 7/03 2076/2002	Tomato mosaic virus VI Out 12/04 2004/129
Methazole HB Out 7/03 2076/2002	Pronumone AT Out 12/04 2004/129	Tralomehrin IN Out 7/03 2076/2002
Methfuroxam FU Out 7/03 2076/2002	Propazine HB Out 7/03 2076/2002	trans-6-Nonen-1-ol AT Out 12/04 2004/129
Methoprene IN Out 7/03 2076/2002	Propetamphos IN Out 7/03 2076/2002	Triadimefon FU Out 12/04 2004/129
Methoprotihryne HB Out 7/03 2076/2002	Propham HB PG Out 4/97 96/586	Triapenthenol PG Out 7/03 2076/2002
Methoxychlor IN Out 7/03 2076/2002	Propionic acid FU,BA Out 12/04 2004/129	Triazamate IN To be withdrawn
Methylenebisthiocyanate FU Out 7/03 2076/2002	Propoxur IN Out 7/03 2076/2002	Triazbutyl FU Out 7/03 2076/2002
Methylisothiocyanate FU,NE,HB,IN Out 7/03 2076/2002	Propyl-3-t-butylphenoxycetate PG Out 7/03 2076/2002	Tribufos (s,s,s-tributyl-phosphorotrithioate) PG Out 7/03 2076/2002
Methylnaphthylacetamide PG Out 7/03 2076/2002	Prothiofos IN Out 7/03 2076/2002	Tributyltinoyde FU Out 7/03 2076/2002
Methylnaphthylacetic acid PG Out 7/03 2076/2002	Prothoate IN,AC Out 7/03 2076/2002	Trichloronate IN Out 7/03 2076/2002
Methyl-trans-6-nonenolate AT Out 12/04 2004/129	Pyraclufos AC,IN Out 7/03 2076/2002	Tridemorph FU Out 12/04 2004/129
Metolachlor HB Out 7/03 2076/2002	Pyranocumarin RO Out 12/04 2004/129	Tridiphane HB Out 7/03 2076/2002
Metsulfovax FU Out 7/03 2076/2002	Pyrazophos FU Out 9/01 00/233	Trietazine HB Out 7/03 2076/2002
Mevinphos IN,AC Out 7/03 2076/2002	Pyrazoxyfen HB Out 7/03 2076/2002	Trifenmorph MO Out 7/03 2076/2002
Monalide HB Out 7/03 2076/2002	Pyriphenox FU Out 7/03 2076/2002	Trimedlure AT Out 12/04 2004/129
Monocrotophos AC,IN Out 7/03 2076/2002	Pyroquilonone FU Out 7/03 2076/2002	Trioxymethylen FU Out 7/03 2076/2002
Monolinuron HB Out 9/01 00/234	Quinalphos IN Out 7/03 2076/2002	Validamycin FU Out 7/03 2076/2002
Monuron HB Out 7/03 2076/2002	Quinclorac HB Out 12/04 2004/129	Vernolate HB Out 7/03 2076/2002
MSMA (methyl arsonic acid) HB Out 7/03 2076/2002	Quintozene FU Out 6/02 00/816	Zineb FU Out 3/03 01/245
	Quizalofop HB Out 7/03 2076/2002	
	Scilliroside RO Out 12/04 2004/129	
	Sebacic acid RE Out 12/04 2004/129	
	Secbumeton HB Out 7/03 2076/2002	
	Seconal (aka 5-allyl-5-(1'-methylbutyl) barbituric acid) OT Out 7/03 2076/2002	
	Serricorin AT Out 12/04 2004/129	

European Union Risk Phrases

European Union (EU) requires that risk phrases (R-phrases) appear on each label and safety data sheet for hazardous chemicals. R-phrases consist of the letter R followed by a number. The precise meaning of each of these appears below (see www.ilpi.com/msds/ref/riskphrases.html)

Labels will also have symbols or pictograms, but the R-phrase specifies the particular danger(s). For example, sodium metal may have a large F and flame icon on the label, but the particular risk is denoted by R14/15 and R34 which correspond to "Reacts violently with water liberating highly flammable gases" and "causes burns".

Safety phrases (S-phrases) for handling precautions are also part of the same requirements (see www.ilpi.com/msds/ref/safetyphrases.html).

More than one R-phrase may appear on a Materials Safety Data Sheet (MSDS). These are usually presented in combination, such as R36/37/38. In the first table below, single phrases are given, and in the second table, combinations are given. In general, no more than four R-phrases should be sufficient to adequately communicate the risks of a particular material. The R-phrases selected should be those applicable to the substance(s) present in the concentration which gives rise to the most severe classification.

Single Risk Phrases

R1	Explosive when dry.	R29	Contact with water liberates toxic gases.
R2	Risk of explosion by shock, friction, fire or other sources of ignition.	R30	Can become highly flammable in use.
R3	Extreme risk of explosion by shock, friction, fire or other sources of ignition.	R31	Contact with acids liberates toxic gas.
R4	Forms very sensitive explosive metallic compounds.	R32	Contact with acids liberates Very toxic gas.
R5	Heating may cause an explosion.	R33	Danger of cumulative effects.
R6	Explosive with or without contact with air.	R34	Causes burns.
R7	May cause fire.	R35	Causes severe burns.
R8	Contact with combustible material may cause fire.	R36	Irritating to eyes.
R9	Explosive when mixed with combustible material.	R37	Irritating to respiratory system.
R10	Flammable.	R38	Irritating to skin.
R11	Highly flammable.	R39	Danger of very serious irreversible effects.
R12	Extremely flammable.	R40	Possible risks of irreversible effects.
R13	Extremely flammable liquified gas. This code is no longer in use.	R41	Risk of serious damage to eyes.
R14	Reacts violently with water.	R42	May cause sensitization by inhalation.
R15	Contact with water liberates highly flammable gases.	R43	May cause sensitization by skin contact.
R16	Explosive when mixed with oxidizing substances.	R44	Risk of explosion if heated under confinement.
R17	Spontaneously flammable in air.	R45	May cause cancer.
R18	In use, may form flammable/explosive vapour-air mixture.	R46	May cause heritable genetic damage.
R19	May form explosive peroxides.	R47	May cause birth defects.
R20	Harmful by inhalation.	R48	Danger of serious damage to health by prolonged exposure.
R21	Harmful in contact with skin.	R49	May cause cancer by inhalation.
R22	Harmful if swallowed.	R50	Very toxic to aquatic organisms.
R23	Toxic by inhalation.	R51	Toxic to aquatic organisms.
R24	Toxic in contact with skin.	R52	Harmful to aquatic organisms.
R25	Toxic if swallowed.	R53	May cause long-term adverse effects in the aquatic environment.
R26	Very toxic by inhalation.	R54	Toxic to flora.
R27	Very toxic in contact with skin.	R55	Toxic to fauna.
R28	Very toxic if swallowed.	R56	Toxic to soil organisms.
		R57	Toxic to bees.
		R58	May cause long-term adverse effects in the environment.
		R59	Dangerous for the ozone layer.

Multiple Risk Phrases

R14/15	Reacts violently with water liberating highly flammable gases.	R40/22	Harmful: possible risk of irreversible effects if swallowed.
R15/29	Contact with water liberates toxic, highly flammable gas.	R40/20/21	Harmful: possible risk of irreversible effects through inhalation and in contact with skin.
R20/21	Harmful by inhalation and in contact with skin.	R40/20/22	Harmful: possible risk of irreversible effects through inhalation and if swallowed.
R20/22	Harmful by inhalation and if swallowed.	R40/21/22	Harmful: possible risk of irreversible effects in contact with skin and if swallowed.
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.	R40/20/21/22	Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.
R21/22	Harmful in contact with skin and if swallowed.	R42/43	May cause sensitization by inhalation and skin contact.
R23/24	Toxic by inhalation and in contact with skin.	R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R23/25	Toxic by inhalation and if swallowed.	R48/21	Harmful: danger of serious damage to health by prolonged exposure in contact with skin.
R23/24/25	Toxic by inhalation, in contact with skin and if swallowed.	R48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R24/25	Toxic in contact with skin and if swallowed.	R48/20/21	Harmful: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin.
R26/27	Very toxic by inhalation and in contact with skin.	R48/20/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R26/28	Very toxic by inhalation and if swallowed.	R48/21/22	Harmful: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed.
R26/27/28	Very toxic by inhalation, in contact with skin and if swallowed.	R48/20/21/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
R27/28	Very toxic in contact with skin and if swallowed.	R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R36/37	Irritating to eyes and respiratory system.	R48/24	Toxic: danger of serious damage to health by prolonged exposure in contact with skin.
R36/38	Irritating to eyes and skin.	R48/25	Toxic: danger of serious damage to health by prolonged exposure if swallowed.
R36/37/38	Irritating to eyes, respiratory system and skin.	R48/23/24	Toxic: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin.
R37/38	Irritating to respiratory system and skin.	R48/23/25	Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R39/23	Toxic: danger of very serious irreversible effects through inhalation.	R48/24/25	Toxic: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed.
R39/24	Toxic: danger of very serious irreversible effects in contact with skin.	R48/23/24/25	Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
R39/25	Toxic: danger of very serious irreversible effects if swallowed.	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R39/23/24	Toxic: danger of very serious irreversible effects through inhalation and in contact with skin.	R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R39/23/25	Toxic: danger of very serious irreversible effects through inhalation and if swallowed.	R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R39/24/25	Toxic: danger of very serious irreversible effects in contact with skin and if swallowed.		
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.		
R39/26	Very toxic: danger of very serious irreversible effects through inhalation.		
R39/27	Very toxic: danger of very serious irreversible effects in contact with skin.		
R39/28	Very toxic: danger of very serious irreversible effects if swallowed.		
R39/26/27	Very toxic: danger of very serious irreversible effects through inhalation and in contact with skin.		
R39/26/28	Very toxic: danger of very serious irreversible effects through inhalation and if swallowed.		
R39/27/28	Very toxic: danger of very serious irreversible effects in contact with skin and if swallowed.		
R39/26/27/28	Very toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.		
R40/20	Harmful: possible risk of irreversible effects through inhalation.		
R40/21	Harmful: possible risk of irreversible effects in contact with skin.		

Web resources that support this List of Lists

The information in this document was accurate at the time of printing. However for the most up-to-date data it is best to visit the sites of those organisations responsible for the various classifications.

International organisations

Codex Alimentarius Commission
<http://www.codexalimentarius.net/>

Food and Agriculture Organization of the UN (FAO)
<http://www.fao.org/>

Pesticide Management Unit
<http://www.fao.org/ag/AGP/AGPP/Pesticid/Default.htm>

Global Information Network on Chemicals
<http://www.nihs.go.jp/GINC/>

International Agency for Research on Cancer (IARC)
<http://www.iarc.fr/>

Intergovernmental Forum on Chemical Safety (IFCS)
<http://www.who.int/ifcs/index.html>

International Programme on Chemical Safety (IPCS)
<http://www.who.int/pcs/>

Organisation for Economic Co-operation and Development - Work on Chemical Safety
<http://www.oecd.org/ehs/>

OECD Pesticide Programme
http://www.oecd.org/department/0,2688,en_2649_34383_1_1_1_1_1,00.html

OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic
<http://www.ospar.org/eng/html/welcome.html>

United Nations Environmental Programme (UNEP) Chemicals
<http://www.unep.ch/>

World Health Organisation
<http://www.who.int/>

Pesticides Evaluation Scheme
<http://www.who.int/whopes/>

Food Safety Programme
<http://www.who.int/fsf/>

Governments

Canada

Pest Management Regulatory Agency
<http://www.hc-sc.gc.ca/pmra-aria/english/index-e.html>

European Union

DG Agriculture
http://europa.eu.int/comm/agriculture/index_en.htm

Agriculture and the Environment
http://europa.eu.int/comm/agriculture/envir/index_en.htm

DG Environment
http://europa.eu.int/comm/environment/index_en.htm

Chemicals
<http://europa.eu.int/comm/environment/chemicals/index.htm>

DG Health and Consumer Protection
http://europa.eu.int/comm/dgs/health_consumer/index_en.htm

Food Safety
http://europa.eu.int/comm/food/index_en.htm

United Kingdom

Central Science Laboratory
<http://www.csl.gov.uk/>

Department for Environment, Food and

Rural Affairs
<http://www.defra.gov.uk>

DEFRA - Chemicals
<http://www.defra.gov.uk/environment/chemicals/index.htm>

Environment Agency (EA)
<http://www.environment-agency.gov.uk/>

Pesticides Safety Directorate
<http://www.pesticides.gov.uk/>

Pesticide Residues Committee
http://www.pesticides.gov.uk/prc_home.asp

United States

Environmental Protection Agency (EPA)
<http://www.epa.gov>

Pesticides
<http://www.epa.gov/pesticides/>

Recognition and Management of Pesticide Poisonings Handbook
<http://www.epa.gov/oppfod01/safety/healhcare/handbook/handbook.htm>

Pesticides RED Fact Sheets
<http://www.epa.gov/pesticides/reregistration/status.htm>

California Department of Pesticide Regulation
<http://www.cdpr.ca.gov/dprdatabase.htm>

Department of Health and General Services - Agency for Toxic Substances and Disease Registry
<http://www.atsdr.cdc.gov/>

National Toxicology Program - Department of Health and Human Services
<http://ntp.niehs.nih.gov/>

Academic

EXTOXNET - EXTension TOXicology NETwork
<http://ace.ace.orst.edu/info/extoxnet/ghindex.html>

Pesticides Information Profiles
<http://extoxnet.orst.edu/pips/ghindex.html>

Pesticide Management Education Program (Cornell University)
<http://pmep.cce.cornell.edu/>

Program on Breast Cancer and Environmental Risk Factors (Cornell University)
<http://envirocancer.cornell.edu/>

Active ingredients

chemfinder.com
<http://chemfinder.cambridgesoft.com/>

Material Safety Data Sheets
<http://www.ilpi.com/msds/index.html>

Cancer

US EPA
www.epa.gov/pesticides/carlist/

International Agency for Research on Cancer (IARC)
<http://www.iarc.fr/>

List of all agents, mixtures and exposures evaluated to date
<http://www-cie.iarc.fr/monoeval/grlist.html>

Endocrine disruption

UK Environment Agency - Chemicals
<http://www.environment-agency.gov.uk/business/444304/444362/>

PAN Pesticide Database

The PAN Pesticide Database developed by PAN North America contains information on pesticides from a collection of sources, providing data on human toxicity (chronic and acute), ecotoxicity and regulatory information for about 5,400 pesticide active ingredients and their transformation products, as well as adjuvants and solvents used in pesticide products. This database of active ingredients has been integrated with the US EPA product databases, which provide information on formulated products (the form of the pesticide that growers and consumers purchase for use) containing the active ingredients. The information is most complete for pesticides registered for use in the United States. www.pesticideinfo.org

Endocrine Disrupters
http://www.environment-agency.gov.uk/business/444304/444362/368813/379069/576137/576155/?version=1&lang=_e

DEFRA Endocrine Disrupting Substances in the Environment
<http://www.defra.gov.uk/environment/chemicals/hormone/index.htm>

EU Endocrine Disrupters Website
<http://europa.eu.int/comm/environment/endocrine/>

Our Stolen Future
Regular updates about the cutting edge of science related to endocrine disruption <http://www.ourstolenfuture.org/>

Methyl bromide

UNEP Ozone Secretariat
<http://www.unep.ch/ozone/home.htm>

Montreal Protocol on Substances that Deplete the Ozone Layer
http://www.unep.ch/ozone/Treaties_and_Ratification/2B_montreal_protocol.asp

US EPA Methyl Bromide Phase Out
<http://www.epa.gov/spdpublic/mbr/>

Obsolete pesticides

FAO - obsolete pesticides
<http://www.fao.org/WAICENT/FAOINFO/AGRICULT/AGP/AGPP/Pesticid/Disposal/default.htm>

International HCH and Pesticides Association (IHPA)
<http://hjem.get2net.dk/HCH-Pesticides/>

Persistent Organochlorine Pollutants (POPs)

United Nations Environment Programme on POPs
<http://www.chem.unep.ch/pops/>

Stockholm Convention
<http://www.pops.int/>

International POPs Elimination Network
<http://ipen.ecn.cz/>

Prior Informed Consent (PIC)

Joint FAO and UNEP Secretariat - Rotterdam Convention
<http://www.pic.int/>



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