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## Hazardous Materials List

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All agrochemicals, especially pesticides, can be potentially hazardous in some form or other to human and animal health as well as to the environment and therefore should be used only under caution. Fairtrade International recommends the use of other methods like proper choice of crops and varieties, suitable cultivation practices and biological material for pest, before a chemical pesticide is used for pest control.

The Hazardous Materials List (HML) is divided in three lists: the Red List, the Orange List and the Yellow List.

- **Red List:** The Red List is a 'prohibited' list and includes materials that must not be used on Fairtrade products.
- **Orange List:** The Orange List is a 'restricted' List and includes materials that may be used under conditions specified in this document thus restricting their use. The use of materials in this list will be monitored by Fairtrade International. Operators should be aware that some of these materials are to be phased out by end of 2019 as indicated in the list. The other materials in the list may eventually be prohibited and are encouraged to abandon their use
- **Yellow List:** The Yellow List is a 'flagged' list and includes materials which are flagged for being hazardous and should be used under extreme caution. Fairtrade International will be monitoring the classification of these materials by international bodies like PAN, WHO and FAO, and materials may be prohibited in the future. Operators are encouraged to abandon their use.

### Classification of materials in the HML

The Hazardous Materials List includes materials that are identified as Highly Hazardous as defined in the Code of Conduct on Pesticide Management adopted by FAO and WHO in 2013. The PML has been build based on information from PAN International List of Highly Hazardous Pesticides (HHP).

#### Highly Hazardous Pesticides (FAO/WHO)

*“Highly Hazardous Pesticides means pesticides that are acknowledged to present particularly high levels of acute or chronic hazards to health or environment according to internationally accepted classification systems such as WHO or GHS or their listing in relevant binding international agreements or conventions. In addition, pesticides that appear to cause severe or irreversible harm to health or the environment under conditions of use in a country may be considered to be and treated as highly hazardous.”*

*“Hazard means the inherent property of a substance, agent or situation having the potential to cause undesirable consequences (e.g. properties that can cause adverse effects or damage to health, the environment or property).”*



## Hazard criteria for identification of Highly Hazardous Pesticides<sup>1</sup>

Hazard criteria	Measure (hazard classifications used)
Conventions	<p>Persistent Organic Pollutants (<b>Stockholm Convention</b>)</p> <p>PIC substances (The <b>Rotterdam Convention</b> on the Prior Information Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade)</p> <p>Ozone depleting substances (<b>Montreal Protocol</b>)</p>
High acute toxicity	<p><b>'Extremely hazardous'</b> (Class 1a) according to WHO Recommended Classification of Pesticides by Hazard</p> <p><b>'Highly hazardous'</b> (Class 1b) according to WHO Recommended Classification of Pesticides by Hazard</p> <p><b>'Fatal if inhaled'</b> (H330) according to the Globally Harmonized System (GHS)</p>
Long term toxic effect or chronic exposure	<p><b>Carcinogenic</b> to humans according to IARC, US EPA or 'Known or presumed human carcinogens' (Category 1) according to the Globally Harmonized System (GHS)</p> <p><b>Probable/likely carcinogenic</b> to humans according to IARC, US EPA</p> <p>'Substances known to induce heritable mutations (<b>mutagenic</b>) or to be regarded as if they induce heritable mutations in the germ cells of humans', 'Substances known to induce heritable mutations in the germ cells of humans' (Category I) according to the Globally Harmonized System (GHS)</p> <p>'Known or Presumed human reproductive toxicant' (<b>reprotoxic</b>) (Category I) according to the Globally Harmonized System (GHS)</p> <p>Potential <b>endocrine disruptor</b> according to EU Category 1 or 'Suspected human reproductive toxicant' (Category 2) AND 'Suspected human carcinogen' (Category 2) according to the Globally Harmonized System (GHS) or</p>
Environmental concern	<p><b>'Very persistent'</b> half-life &gt; 60 days in marine-or freshwater or half-life &gt; 180 days in soil ('typical' half-life), marine or freshwater sediment (indicators and thresholds according to the Stockholm Convention) and/or</p> <p><b>'Very bioaccumulative'</b> (BCF &gt;5000) or Kow logP &gt;5 (existing BCF data supersede Kow log P data) (indicators and thresholds according to the Stockholm Convention) and/or</p> <p><b>Very toxic to aquatic organisms</b> (LC/EC 50 [48h] for Daphnia spp. &lt; 0,1 mg/l)</p>
Hazard to ecosystem services	<p><b>'Highly toxic for bees'</b> according to U.S. EPA (LD50, µg/bee &lt; 2) (includes Greenpeace bee toxic 7, namely: Clothianidin, Imidacloprid, Thiametoxam, Clorpyrifos, Cypermethrin, Deltamethrin, and Fipronil)</p>

<sup>1</sup> A glossary of terms and abbreviations used are given in the end of this document.



## Part 1: Fairtrade International Red List of Prohibited Materials

The Red List is a 'prohibited' list and includes Highly Hazardous Pesticides that must not be used on Fairtrade products.

The criteria for classifying a material in the Red List are:

- Listed in conventions OR
- High acute toxicity OR
- Long term toxic effect or chronic exposure (Carcinogenic, Mutagenic, Repro-toxic, Endocrine disruptor) OR
- Environmental concern (two of the following three effects on environment a) Very persistent, b) Very bioaccumulative, c) Very toxic to aquatic organisms; OR
- Considered as obsolete

Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conventions	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services <sup>2</sup>	Obsolete
1	2,3,4,5-Bistetrahydro-2-furaldehyde	126-15-8						x
2	2,4,5-T	93-76-5	x					x
3	2,4,5-TCP	35471-43-3						x
4	Acetochlor	34256-82-1			x			
5	Acrolein	107-02-8		x				
6	Alachlor	15972-60-8	x		x			
7	Aldicarb	116-06-3	x	x			x	
8	Aldrin	309-00-2	x			x	x	x
9	Allyl alcohol	107-18-6		x				
10	alpha-BHC;alpha-HCH	319-84-6	x					
11	Alpha-chlorohydrin*	96-24-2		x				
12	Amitrole	61-82-5			x			
13	Anthracene oil	90640-80-5			x			
14	Arsenic and its compounds	7778-39-4			x			
15	Asbestos	1332-21-4		x				
16	Azafenidin	68049-83-2			x			
17	Azinphos-ethyl	2642-71-9		x			x	
18	Azinphos-methyl	86-50-0	x	x			x	
19	Azocyclotin	41083-11-8		x		x		
20	Benomyl	17804-35-2	x		x			
21	beta-HCH; beta-BCH	319-85-7	x		x			

<sup>2</sup> Note: Hazard to ecosystem services is not a criteria for Red list, but the column is added to Red list to indicate that the materials are bee toxic also.



Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conventions	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services <sup>2</sup>	Obsolete
22	Binapacryl	485-31-4	x					x
23	Blasticidin-S	2079-00-7		x				
24	Brodifacoum*	56073-10-0		x				
25	Bromadiolone*	28772-56-7		x				
26	Bromethalin*	63333-35-7		x		x		
27	Bromoxynil	1689-84-5		x				
28	Bromoxynil heptanoate	56634-95-8				x		
29	Bromoxynil octanoate	1689-99-2				x		
30	Butocarboxim	34681-10-2		x			x	
31	Butoxycarboxim	34681-23-7		x				
32	Cadmium compounds	7440-43-9		x				x
33	Cadusafos	95465-99-9		x		x	x	
34	Calcium arsenate	7778-44-1		x				
35	Calcium cyanide	592-01-8		x				
36	Captafol	2425 06 1	x	x	x			
37	Captan	133-06-2			x			
38	Carbofuran	1563-66-2	x	x			x	
39	Carbon tetrachloride	56-23-5, 53908-27-3, 8003-06-3			x			x
40	Chloranil	118-75-2						x
41	Chlordane	57-74-9	x		x			
42	Chlordecone	143-50-0	x			x	x	x
43	Chlordimeform	6164-98-3			x			x
44	Chlorethoxyphos	54593-83-8		x			x	
45	Chlorfenvinphos	470-90-6		x			x	
46	Chlorfluazuron	71422-67-8				x		
47	Chlormephos	24934-91-6		x				
48	Chlorobenzilate	510-15-6	x					x
49	Chlorophacinone*	3691-35-8		x				
50	Chloropicrin	76-06-2		x				
51	Chlorotoluron	15545-48-9			x			
52	Copper arsenate	7778-41-8			x			



Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conventions	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services <sup>2</sup>	Obsolete
53	Coumaphos*	56-72-4		x				
54	Coumatetralyl*	5836-29-3		x				
55	CPMA (Chloromethoxypropyl-mercuric-acetate)	1319-86-4		x	x			
56	Creosote	8001-58-9			x			
57	Cyhexatin	13121-70-5				x		
58	DBCP	96-12-8			x			x
59	DDD (dichlorodiphenyl – dichloroethan)	72-54-8		x	x	x		
60	DDT	50-29-3	x		x	x		
61	Demeton-S-methyl	919-86-8		x			x	
62	Dicofol	115-32-2				x	x	
63	Dicrotophos	141-66-2		x			x	
64	Dieldrin	60-57-1	x			x	x	x
65	Difenacoum*	56073-07-5		x				
66	Difethialone*	104653-34-1		x				
67	Dimoxystrobin	149961-52-4			x	x		
68	Dinocap	39300-45-3			x			
69	Dinoseb and its salts and esters	88-85-7	x					x
70	Dinoterb	1420-07-1		x	x			
71	Diphacinone*	82-66-6		x				
72	Diquat dibromide	85-00-7		x				
73	Diquat dichloride	4032-26-2		x				
74	Disulfoton	298-04-4		x				
75	DNOC and its salts	534-52-1	x	x				
76	Edifenphos	17109-49-8		x				
77	Endosulfan	115-29-7	x	x	x			
78	Endrin	72-20-8	x					x
79	E-Phosphamidon	297-99-4		x				
80	Epichlorohydrin	106-89-8			x			
81	EPN	2104-64-5		x			x	
82	Ethiofencarb	29973-13-5		x				
83	Ethoprophos; Ethoprop	13194-48-4		x				



Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conventions	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services <sup>2</sup>	Obsolete
84	Ethylene dichloride, EDC	107-06-2	x		x			x
85	Ethylene oxide	75-21-8	x		x			
86	Ethylene thiourea	96-45-7			x			
87	Ethylenedibromide;1,2-dibromoethane, EDB	106-93-4	x		x			x
88	Famphur	52-85-7		x				
89	Fenamiphos	22224-92-6		x			x	
90	Fenarimol	60168-88-9			x			
91	Fenbutatin-oxide	13356-08-6		x		x		
92	Fenchlorazole-ethyl	103112-35-2			x			
93	Fentin acetate	900-95-8		x	x			
94	Fentin hydroxide	76-87-9		x	x			
95	Flocoumafen	90035-08-8		x				
96	Fluazifop-butyl	69806-50-4			x			
97	Fluazolate	174514-07-9				x		
98	Flucythrinate	70124-77-5		x			x	
99	Flumetralin	62924-70-3				x		
100	Flumioxazin	103361-09-7			x			
101	Fluoroacetamide	640-19-7	x	x				
102	Formaldehyde	50-00-0			x			
103	Formetanate	22259-30-9		x			x	
104	Furathiocarb	65907-30-4		x				
105	Halfenprox	111872-58-3				x		
106	Heptachlor	76-44-8	x			x		x
107	Heptenophos	23560-59-0		x			x	
108	Hexachlorobenzene (HCB)	118-74-1	x	x	x			x
109	Hexachlorocyclohexane HCH(Benzene hexachloride)	608-73-1	x				x	x
110	Hexaflumuron	86479-06-3			x			
111	Ioxynil	1689-83-4			x			
112	Isopyrazam	881685-58-1				x		
113	Isoxathion	18854-01-8		x			x	
114	Lead arsenate	7784-40-9		x		x		
115	Leptophos	21609-90-5						x
116	Lindane	58-89-9	x		x		x	



Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conventions	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services <sup>2</sup>	Obsolete
117	Linuron	330-55-2			x			
118	Magnesium phosphide	12057-74-8		x				
119	Maneb	12427-38-2			x			
120	Mecarbam	2595-54-2		x				
121	Mercury compounds, including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds	Individual CAS numbers	x	x				
122	Metam-sodium	137-42-8			x			
123	Methamidophos	10265-92-6	x	x			x	
124	Methidathion	950-37-8		x			x	
125	Methiocarb	2032-65-7		x			x	
126	Methomyl	16752-77-5		x			x	
127	Methoxychlor	72-43-5			x			
128	Methyl bromide	74-83-9	x					
129	Metiram	9006-42-2			x			
130	Metribuzin	21087-64-9			x			
131	Mevinphos	7786-34-7		x			x	
132	Mirex	2385-85-5	x			x	x	x
133	Molinate	2212-67-1			x			
134	Monocrotophos	6923-22-4	x	x			x	
135	Nicotine	54-11-5		x				
136	Nitrobenzene	98-95-3			x			
137	Nitrofen	1836-75-5			x			x
138	Octamethylpyrophosphoramidate (OMPA)	152-16-9						x
139	Omethoate	1113-02-6		x	x		x	
140	Oxydemeton-methyl	301-12-2		x			x	
141	Paraquat (All forms including Paraquat dichloride)	1910-42-5		x				
142	Parathion	56-38-2	x	x			x	
143	Parathion-methyl	298-00-0	x	x				
144	Paris Green (copper acetoarsenite)	12002-03-8			x			
145	Pentachlorobenzene	608-93-5	x					
146	Pentachlorophenol (PCP), its salts and esters	87-86-5	x	x	x			
147	Phenylmercury acetate	62-38-4			x			
148	Phorate	298-02-2		x			x	



Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conventions	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services <sup>2</sup>	Obsolete
149	Phosphamidon	13171-21-6	x	x			x	
150	Picloram	1918 02 1			x			
151	PMDS Di(phenylmercuric) dodecanyl succinate	27236-65-3			x			
152	Polybrominated biphenyls mixture PBB	Separate CAS Nos. are assigned to individual polybrominated biphenyls			x			
153	Polychlorinated biphenyls PCB (except mono and dichlorinated) Aroclor	Separate CAS Nos. are assigned to individual polychlorinated biphenyls	x					x
154	Polychlorinated Terphenyls (PCTs)	61788-33-8	x					
155	Potasan	299-45-6		x				
156	Profoxydim	139001-49-3			x			
157	Propetamphos	31218-83-4		x				
158	Propylene oxide	75-56-9			x			
159	Prothiofos	34643-46-4				x		
160	Pyrazoxon	108-34-9		x				
161	Pyridalyl	179101-81-6				x		
162	Quinalphos	13593-03-8			x		x	
163	Quizalofop-p-tefuryl	119738-06-6			x			
164	Resmethrin	10453-86-8			x		x	
165	Safrole	94-59-7			x			x
166	Silafluofen	105024-66-6			x		x	
167	Silvex (all forms)	93-72-1						x
168	Sodium arsenite (arsenic and its compounds)	7784-46-5			x			
169	Sodium cyanide	143-33-9		x				
170	Sodium fluoroacetate (1080)	62-74-8		x				
171	Strychnine	57-24-9		x				
172	Sulfotep	3689-24-5		x				
173	TCMTB	21564-17-0		x				
174	TDE	72-54-8, 53-19-0						x
175	Tebupirimphos (Phostebupirim)	96182-53-5		x		x		
176	Tefluthrin	79538-32-2		x			x	
177	Tepraloxydim	149979-41-9			x			





Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conventions	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services <sup>2</sup>	Obsolete
178	Terbufos	13071-79-9		x				
179	Terbutryn	886-50-0			x			
180	Terpene polychlorinates (Strobane)	8001-50-1				x		x
181	Tetraethyl lead	78-00-2				x		
182	Tetramethyl lead	75-74-1				x		
183	Thallium sulfate	7446-18-6		x				x
184	Thiofanox	39196-18-4		x			x	
185	Thiometon	640-15-3		x			x	
186	Thiourea	62-56-6			x			
187	Thiram	137-26-8	x		x			
188	Tolfenpyrad	129558-76-5				x		
189	Tolyfluanid	731-27-1		x				
190	Toxaphene; Camphechlor	8001-35-2	x			x	x	x
191	Tri-allate	2303-17-5				x		
192	Triazophos	24017-47-8		x				
193	Tributyltin compounds	Various CAS			x			
194	Trichlorfon	52-68-6			x		x	
195	Tridemorph	81412-43-3			x			
196	Trifluralin	1582-09-8			x			
197	Triforine	26644-46-2			x			
198	Tris(2,3 - dibromopropyl) phosphate	126-72-7	x					
199	Vamidothion	2275-23-2		x			x	
200	Vinclozolin	50471-44-8			x			
201	Vinyl chloride	75-01-4		x		x		x
202	Warfarin*	81-81-2		x	x			
203	Zeta-Cypermethrin	52315-07-8		x			x	
204	Zinc phosphide	1314-84-7		x				
205	Zineb	12122-67-7			x			
206	Ziram	137-30-4		x				
207	Z-Phosphamidon	23783-98-4		x				

\* Rodenticides (only those marked with\*) can be used in the premises (buildings) that handle Fairtrade products or around the fields, if used properly in fixed bait-stations to prevent spillage and spoilage. Non-chemical rodent control measures shall be implemented before these rodenticides are used. The bait stations should be monitored regularly to prevent exposure to non-target organisms. As a Red List material, they shall not be used on Fairtrade product or used in ways that results in its contact with a Fairtrade product.



## Part 2: Fairtrade International Orange List of Restricted Materials

Producers and traders use the materials in the Orange List on Fairtrade products only under the following conditions:

- a. Fulfilling the specific conditions of use (see the list below) AND
- b. Only using a material in the Orange List: i) as part of avoiding pesticide resistance build up in pests, ii) in rotation with less harmful pesticides, iii) as part of Integrated Pest Management (IPM) and iv) including non-chemical control measures; AND
- c. Developing a plan for reducing/phasing out the use of the materials including information on the type of material (technical name/active ingredient (a.i.), formulation (% of a.i.), commercial name), the quantity used (spray concentration (a.i. /ha or in % or ppm etc.) and total consumed a.i./ha/year), actions taken for reducing/phasing out the material including details of other non-chemical controls which are part of the IPM strategy. The plan is implemented and made available to the Certification Body.

The use of the pesticides in the list will be monitored. Some materials in the list are to be phased out by end of 2019 (see list below). For other materials in the list, decision on whether they will be placed in the list of prohibited materials (Red List) or retained in the Orange List will be taken in the next review of the HML.

The criteria for classifying a material in the Orange List are:

- Hazard to ecosystem services (Highly toxic for bees: only Greenpeace bee toxic 7) OR
- Materials that would be classified in the Red List but are perceived as irreplaceable in the short term as identified in the public consultations held as part of the last review of the materials list, but excludes materials that a) were included in the previous Red List for which a possibility of derogation was not available or b) are classified under conventions, or c) are carcinogenic; OR
- Materials that would be classified in the Yellow List but are identified as materials of high concern to civil society

Orange List (Restricted List)							
No.	Name of active ingredient of the material	CAS number	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services	Specific Conditions
1	2,4-DB	94-82-6		x			
2	Abamectin	71751-41-2	x (h330)				d
3	Aluminum phosphide	20859-73-8	x (h330)				c
4	Amisulbrom	348635-87-0			x		
5	Amitraz	33089-61-1		x			a
6	Atrazine	1912-24-9		x			
7	Beta –cyfluthrin	68359-37-5	x (WHO 1b)				d
8	Bifenthrin	82657-04-3		x			
9	Carbaryl	63-25-2		x			
10	Carbendazim	10605-21-7		x			



Orange List (Restricted List)							
No.	Name of active ingredient of the material	CAS number	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services	Specific Conditions
11	Carbosulfan	55285-14-8	x (h330)				d
12	Chlorantranilprole,	500008-45-7			x		
13	Chlorothalonil	1897-45-6	x (h330)				d
14	Chlorpyrifos, Chlorpyrifos-methyl	2921-88-2, 5598-13-0				x	b
15	Clothianidin	210880-92-5				x	b
16	Cypermethrin & its alpha and beta isomer	65731-84-2 67375-30-8 65731-84-2				x	b
17	Deltamethrin	52918-63-5		x		x	b
18	Dichlorvos; DDVP	62-73-7	x (WHO 1b and h330)				d
19	Dimethoate	60-51-5		x			
20	Epoxiconazole	133855-98-8		x			
21	Etofenprox	80844-07-1			x		
22	Fenitrothion	122-14-5		x			
23	Fenpropathrin	39515-41-8	x (h330)				d
24	Flufenoxuron	101463-69-8			x		
25	Fipronil	120068-37-3				x	b
26	Flusilazole	85509-19-9		x			
27	Glyphosate	1071-83-6		x			
28	Glufosinate ammonium	77182-82-2		x			
29	Imidacloprid	138261-41-3				x	b
30	Lambda-cyhalothin	91465-08-6	x (h330)	x			d
31	Lufenuron	103055-07-8			x		
32	Mancozeb	8018 01 7		x			
33	Oxamyl	23135-22-0	x (WHO 1b and h330)				d
34	Phosphine	7803-51-2	x (h330)				c
35	Pirimicarb	23103-98-2			x		
36	Procymidone	32809-16-8		x			
37	Propargite	2312-35-8			x		
38	Quinoxifen	124495-18-7			x		
39	Thiamethoxam	153719-23-4				x	b



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***Specific Conditions to be fulfilled for using certain pesticides in the Orange list of restricted materials***

Condition Set	Details
a	To be used only for Apiculture
b	Not to be used on young plant materials To be used only in greenhouse production OR In open field conditions, it is not used on gregariously flowering melliferous crops, starting one month prior to peak flowering and during flowering period. (e.g. coffee, fruit trees, cashew, almond etc.). The certification body will determine the crops which fall under this type.
c	To be used only by professionally trained warehouse staff using proper personal protective equipment and specially designed equipment to ensure hermetic sealing and minimize gas leakages
d	To be phased out by 31 December 2019



### Part 3: Fairtrade International Yellow List of Flagged Materials

The materials in this list are hazardous and should be used with caution. No additional conditions are prescribed by Fairtrade International for the use of these materials. The materials in the list can potentially be moved to the Red List (prohibited) or Orange List (restricted) as new information is generated on their hazards and thus it is recommended to limit the use of these materials and phase them out.

The Criteria for classifying a material in the Yellow List are:

- Long term toxic effect or chronic exposure (Probable Carcinogens) OR
- Environment concern (at least one the following three effects on environment a) Very persistent, b) Very bioaccumulative, c) Very toxic to aquatic organisms; OR
- Hazard to ecosystem services (Highly toxic for bees: excludes Greenpeace bee toxic 7) OR
- Hazardous materials allowed in organic agriculture, irrespective of their nature of hazard

Yellow List (Flagged List)							
No.	Name of active ingredient of the material	CAS number	Conventions	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services
1	1,3-dichloropropene	542-75-6			x		
2	Acephate	30560-19-1					x
3	Acrinathrin	101007-06-1					x
4	Alanycarb	83130-01-2					x
5	Anthraquinone	84-65-1			x		
6	Antibiotics (including Amoxicillin)	26787-78-0			x		
7	Azamethiphos	35575-96-3					x
8	Bendiocarb	22781-23-3					x
9	Benfuracarb	82560-54-1					x
10	Bensulide	741-58-2					x
11	Benthiavali carb-isopropyl	177406-68-7			x		
12	Bioresmethrin	28434-01-7					x
13	Borax; disodium tetraborate decahydrate	1303-96-4			x		
14	Boric acid	10043-35-3			x		
15	Butachlor	23184-66-9			x		
16	Butylate	2008-41-5			x		
17	Chinomethionat;Oxythioquinox	2439 01 2			x		
18	Chlorfenapyr	122453-73-0					x
19	Chloroform	67-66-3			x		
20	Climbazole	38083-17-9					x



Yellow List (Flagged List)							
No.	Name of active ingredient of the material	CAS number	Conventions	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services
21	Copper (II) hydroxide	29427-59-2				x	
22	Cyflufenamid	180409-60-3			x		
23	Cyhalothrin (not lambda)	68085-85-8					x
24	Cyhalothrin, gamma	76703-62-3					x
25	Daminozide	1596-84-5			x		
26	Diafenthiuron	80060-09-9					x
27	Diazinon	333-41-5					x
28	Diclofop-methyl	51338-27-3			x		
29	Dimethenamid	87674-68-8			x		
30	Dinotefuran	165252-70-0					x
31	Diuron	330-54-1			x		
32	Esfenvalerate	66230-04-4					x
33	Ethirimol	23947-60-6					x
34	Fenazaquin	120928-09-8					x
35	Fenoxycarb	72490-01-8			x		x
36	Fenthion	55-38-9					x
37	Fenvalerate	51630-58-1					x
38	Fluthiacet-methyl	117337-19-6			x		
39	Folpet	133-07-3			x		
40	Fosthiazate	98886-44-3					x
41	Furilazole	121776-33-8			x		
42	Haloxifop-methyl; haloxifop	69806-40-2			x		
43	Hexythiazox	78587-05-0			x		
44	Imazalil	35554-44-0			x		
45	Imazethapyr	81335-77-5					x
46	Imiprothrin	72963-72-5					x
47	Indoxacarb	173584-44-6					x
48	Iprodione	36734-19-7			x		
49	Iprovalicarb	140923-17-7			x		
50	Isoxaflutole	141112-29-0			x		
51	Kresoxim-methyl	143390-89-0			x		



Yellow List (Flagged List)							
No.	Name of active ingredient of the material	CAS number	Conventions	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services
52	Malathion	121-75-5					x
53	Mepanipyrim	110235-47-7			x		
54	Metaflumizone	139968-49-3					x
55	Metam-potassium	137-41-7			x		
56	Methabenzthiazuron	18691-97-9					x
57	MGK 326	136-45-8			x		
58	Milbemectin	51596-10-2 /11-3					x
59	MON 4660	71526-07-3			x		
60	Monuron	150-68-5			x		
61	Naled	300-76-5					x
62	Nitenpyram	150824-47-8					x
63	Nitrapyrin	1929-82-4			x		
64	Oryzalin	19044-88-3			x		
65	Oxadiazon	19666-30-9			x		
66	Oxyfluorfen	42874-03-3			x		
67	Paraffin oils; mineral oils	11 separate CAS			x		
68	Permethrin	52645-53-1			x		x
69	Phenthoate	2597 03 7					x
70	Phosalone	2310-17-0			x		
71	Phosmet	732-11-6					x
72	Pirimiphos-methyl	29232-93-7					x
73	Prallethrin	23031-36-9					x
74	Profenofos	41198-08-7					x
75	Propachlor	1918-16-7			x		
76	Propham	122-42-9			x		
77	Propoxur	114-26-1			x		x
78	Propyzamide	23950-58-5			x		
79	Pymetrozine	123312-89-0			x		
80	Pyraclufos	77458-01-6					x
81	Pyraflufen-ethyl	129630-19-9			x		
82	Pyrazachlor	6814-58-0			x		



Yellow List (Flagged List)							
No.	Name of active ingredient of the material	CAS number	Conventions	High acute toxicity	Long term toxic effect or chronic exposure	Environmental concern	Hazard to ecosystem services
83	Pyrazophos	13457-18-6					x
84	Pyridaben	96489-71-3					x
85	Pyridiphenthion	119-12-0					x
86	Pyrimethanil	53112-28-0			x		
87	Quinoclamine	2797-51-5					x
88	Quintozene	82-68-8			x		
89	Rotenone	83-79-4					x
90	Sedaxane	874967-67-6			x		
91	Simazine	122-34-9				x	
92	Sodium dimethyl dithiocarbamate	128-04-1			x		
93	Spinetoram	935545-74-7					x
94	Spinosad	168316-95-8					x
95	Spirodiclofen	148477-71-8			x		
96	Sulfoxaflor	946578-00-3					x
97	Tebuconazole	107534-96-3			x		
98	Technazene	117-18-0			x		
99	Temephos	3383-96-8					x
100	Terrazole; Etridiazole	2593-15-9			x		
101	Tetrachlorvinphos	22248-79-9			x		x
102	Tetraconazole	112281-77-3			x		
103	Tetramethrin	7696-12-0					x
104	Thiacloprid	111988-49-9			x		
105	Thiodicarb	59669-26-0			x		x
106	Thiophanate-methyl	23564-05-8			x		
107	Tralomethrin	66841-25-6					x
108	Triadimenol	55219-65-3			x		
109	Validamycin	37248-47-8					x
110	XMC	2655-14-3					x





## Glossary

**Active ingredient (a.i.):** are the chemicals in pesticide products that kill, control, or repel pests. Often, the active ingredients make up a small portion of the whole product. All other ingredients are called "inert ingredients" which are important for product performance and usability.

**Bioaccumulation:** it refers to the accumulation of substances, such as pesticides, in an organism.

**Carcinogen:** is any substance, radionuclide, or radiation that is an agent directly involved in causing cancer.

**CAS number:** A CAS Registry Number, also referred to as CASRN or CAS Number, is a unique numerical identifier assigned by Chemical Abstracts Service (CAS) to every chemical substance described in the open scientific literature.

**Endocrine disruptor:** are chemicals that, at certain doses, can interfere with endocrine (or hormone) systems.

**Environmental Persistence:** Property of some organic compounds to be resistant to environmental degradation through chemical, biological, and photolytic processes.

**FAO:** The Food and Agriculture Organization of the United Nations is an agency of the United Nations that leads international efforts to defeat hunger. (<http://www.fao.org/home/en/>)

**GHS:** The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is an internationally agreed-upon system, created by the United Nations to replace the various classification and labelling standards used in many countries in their different regulations on hazard classification, by using consistent criteria on a global level.

([http://www.unece.org/trans/danger/publi/ghs/ghs\\_welcome\\_e.html](http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html))

**IARC:** The International Agency for Research on Cancer is an intergovernmental agency forming part of the World Health Organization of the United Nations. (<http://www.iarc.fr/>)

**IPM:** "the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimize risks to human health and the environment. IPM emphasizes the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms." ([www.fao.org](http://www.fao.org))

**Montreal Protocol:** The Montreal Protocol on Substances that Deplete the Ozone Layer is an international treaty designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion. (<http://ozone.unep.org>)

**Mutagen:** is a physical or chemical agent that changes the genetic material thus increases the frequency of permanent alteration of the genetic material of an organism.

**Obsolete pesticides:** are pesticides that are unfit for further use or for re-conditioning. Obsolescence may arise because a product has been de-registered locally or banned internationally. (IUPAC International Union of Pure and Applied Chemistry)

**PAN: Pesticide Action Network (PAN)** is an international coalition of around 600 NGOs, citizens' groups, and individuals in about 60 countries and is involved in fighting problems caused by pesticide use, and advocates ecologically sound alternatives. (<http://www.pan-uk.org/>)

**Reprotoxic:** Reproductive toxicity is a hazard associated with some chemical substances that they will interfere in some way with normal reproduction; such substances are called reprotoxic. It includes adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring.

**Rodenticides:** are chemicals made and sold for the purpose of killing rodents (colloquially rat poison)



**Rotterdam Convention:** Formally, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, is a multilateral treaty to promote shared responsibilities in relation to importation of hazardous chemicals. The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labelling, include directions on safe handling, and inform purchasers of any known restrictions or bans. Signatory nations can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged to make sure that producers within their jurisdiction comply. (<http://www.pic.int>)

**Stockholm Convention:** Stockholm Convention on Persistent Organic Pollutants is an international environmental treaty, signed in 2001 and effective from May 2004, that aims to eliminate or restrict the production and use of persistent organic pollutants (POPs). (<http://www.pops.int>)

**US EPA:** The United States Environmental Protection Agency (EPA or sometimes USEPA) is an agency of the Federal government of the United States which was created for the purpose of protecting human health and the environment. (<https://www3.epa.gov/>)

**WHO:** The World Health Organization (WHO) is a specialized agency of the United Nations that is concerned with international public health. It was established on 7 April 1948, headquartered in Geneva, Switzerland. (<http://www.who.int/en/>)

## Change history

Version number	Date of publication	Changes
01.12.2016_v1.0	1.12.2016	Full review. Name change from Prohibited Materials List to Hazardous Materials List. Name change of Amber List to Yellow List. Removal of derogation upon request for certain chemicals. Addition of Orange List. Revised criteria for HML. Revised list of materials in Red, Yellow and Orange Lists. Glossary of terms added. Inclusion of change history.