Hazardous Materials List

Version: 1.12.2016 v 1.5

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 30 June 2020 or by 30 June 2022 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 HML 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[1]

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

[1] 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	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental concern	Hazard to ecosystem services[2]	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	Abamectin	71751-41-2		x (h330)				
5	Acetochlor	34256-82-1			x			
6	Acrolein	107-02-8		x				
7	Alachlor	15972-60-8	x		x			
8	Aldicarb	116-06-3	x	x			x	
9	Aldrin	*309-00-2*	x			x	x	x
10	Allyl alcohol	*107-18-6*		x				
11	alpha-BHC;alpha-HCH	319-84-6	x					
12	Alpha-chlorohydrin*	96-24-2		x				
13	Amitrole	61-82-5			x			
14	Anthracene oil	90640-80-5			x			
15	Arsenic and its compounds	7778-39-4			x			
16	Asbestos	*1332-21-4*		x				
17	Azafenidin	68049-83-2			x			
18	Azinphos-ethyl	2642-71-9		x			x	
19	Azinphos-methyl	86-50-0	x	x			x	
20	Azocyclotin	41083-11-8		x		x		
21	Benomyl	17804-35-2	x		x			

[2] 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.

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Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental concern	Hazard to ecosystem services[2]	Obsolete
22	Beta – cyfluthrin	68359-37-5		x (WHO 1b)				
23	beta-HCH; beta-BCH	319-85-7	x		x			
24	Binapacryl	*485-31-4*	x					x
25	Blasticidin-S	2079-00-7		x				
26	Brodifacoum*	56073-10-0		x				
27	Bromadiolone*	28772-56-7		x				
28	Bromethalin*	63333-35-7		x		x		
29	Bromoxynil	1689-84-5		x				
30	Bromoxynil heptanoate	56634-95-8				x		
31	Bromoxynil octanoate	1689-99-2				x		
32	Butocarboxim	34681-10-2		x			x	
33	Butoxycarboxim	34681-23-7		x				
34	Cadmium compounds	*7440-43-9*		x				x
35	Cadusafos	95465-99-9		x		x	x	
36	Calcium arsenate	*7778-44-1*		x				
37	Calcium cyanide	*592-01-8*		x				
38	Captafol	2425 06 1	x	x	x			
39	Captan	*133-06-2*			x			
40	Carbofuran	1563-66-2	x	x			x	
41	Carbon tetrachloride	56-23-5, 53908-27-3, 8003-06-3			x			x
42	Carbosulfan	55285-14-8	x (h330)					
43	Chloranil	118-75-2						x
44	Chlordane	57-74-9	x		x			
45	Chlordecone	*143-50-0*	x			x	x	x
46	Chlordimeform	*6164-98-3*			x			x
47	Chlorethoxyphos	54593-83-8		x			x	
48	Chlorfenvinphos	470-90-6		x			x	
49	Chlorfluazuron	71422-67-8				x		
50	Chlormephos	24934-91-6		x				
51	Chlorobenzilate	*510-15-6*	x					x
52	Chlorophacinone*	3691-35-8		x				

Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental concern	Hazard to ecosystem services[2]	Obsolete
53	Chloropicrin	76-06-2		x				
54	Chlorothalonil	1897-45-6		x (h330)				
55	Chlorotoluron	15545-48-9			x			
56	Chlorpyrifos, Chlorpyrifos-methyl	2921-88-2, 5598-13-0					x	
57	Clothianidin	210880-92-5					x	
58	Copper arsenate	*7778-41-8*			x			
59	Coumaphos*	56-72-4		x				
60	Coumatetralyl*	5836-29-3		x				
61	CPMA (Chloromethoxypropyl-mercuric-acetate)	*1319-86-4*		x	x			
62	Creosote	8001-58-9			x			
63	Cyhexatin	13121-70-5				x		
64	DBCP	*96-12-8*			x			x
65	DDD (dichlorodiphenyl – dichloroethan)	*72-54-8*		x	x	x		
66	DDT	50-29-3	x		x	x		
67	Demeton-S-methyl	919-86-8		x			x	
68	Dichlorvos; DDVP	62-73-7	x (WHO 1b and h330)					
69	Dicofol	*115-32-2*				x	x	
70	Dicrotophos	141-66-2		x			x	
71	Dieldrin	*60-57-1*	x			x	x	x
72	Difenacoum*	56073-07-5		x				
73	Difethialone*	104653-34-1		x				
74	Dimoxystrobin	149961-52-4			x	x		
75	Dinocap	39300-45-3			x			
76	Dinoseb and its salts and esters	88-85-7	x					x
77	Dinoterb	1420-07-1		x	x			
78	Diphacinone*	82-66-6		x				
79	Diquat dibromide	85-00-7		x				
80	Diquat dichloride	4032-26-2		x				
81	Disulfoton	298-04-4		x				
82	DNOC and its salts	534-52-1	x	x				

Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental concern	Hazard to ecosystem services[2]	Obsolete
83	Edifenphos	17109-49-8		x				
84	Endosulfan	115-29-7	x	x	x			
85	Endrin	*72-20-8*	x					x
86	E-Phosphamidon	297-99-4		x				
87	Epichlorohydrin	106-89-8			x			
88	EPN	2104-64-5		x			x	
89	Ethiofencarb	29973-13-5		x				
90	Ethoprophos; Ethoprop	13194-48-4		x				
91	Ethylene dichloride, EDC	107-06-2	x		x			x
92	Ethylene oxide	75-21-8	x		x			
93	Ethylene thiourea	96-45-7			x			
94	Ethylenedibromide;1,2-dibromoethane, EDB	106-93-4	x		x			x
95	Famphur	52-85-7		x				
96	Fenamiphos	22224-92-6		x			x	
97	Fenarimol	60168-88-9			x			
98	Fenbutatin-oxide	13356-08-6		x		x		
99	Fenchlorazole-ethyl	103112-35-2			x			
100	Fenpropathrin	39515-41-8	x (h330)					
101	Fentin acetate	900-95-8		x	x			
102	Fentin hydroxide	76-87-9		x	x			
103	Flocoumafen	90035-08-8		x				
104	Fluazifop-butyl	69806-50-4			x			
105	Fluazolate	174514-07-9				x		
106	Flucythrinate	70124-77-5		x			x	
107	Flumetralin	62924-70-3				x		
108	Flumioxazin	103361-09-7			x			
109	Fluoroacetamide	640-19-7	x	x				
110	Formaldehyde	50-00-0			x			
111	Formetanate	22259-30-9		x			x	
112	Furathiocarb	65907-30-4		x				
113	Glyphosate and its salts	1071-83-6 69254-40-6 38641-94-0			x			

Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental concern	Hazard to ecosystem services[2]	Obsolete
		40465-66-5 34494-03-6 81591-81-3						
114	Halfenprox	111872-58-3				x		
115	Heptachlor	76-44-8	x			x		x
116	Heptenophos	23560-59-0		x			x	
117	Hexachlorobenzene (HCB)	118-74-1	x	x	x			x
118	Hexachlorocyclohexane HCH(Benzene hexachloride)	608-73-1	x				x	x
119	Hexaflumuron	86479-06-3			x			
120	Imidacloprid	138261-41-3					x	
121	Ioxynil	1689-83-4			x			
122	Isopyrazam	881685-58-1				x		
123	Isoxathion	18854-01-8		x			x	
124	Lambda-cyhalothin	91465-08-6		x (h330)	x			
125	Lead arsenate	7784-40-9		x		x		
126	Leptophos	21609-90-5						x
127	Lindane	58-89-9	x		x		x	
128	Linuron	330-55-2			x			
129	Magnesium phosphide	12057-74-8		x				
130	Maneb	12427-38-2			x			
131	Mecarbam	2595-54-2		x				
132	Mercury compounds, including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds	Individual CAS numbers	x	x				
133	Metam-sodium	137-42-8			x			
134	Methamidophos	10265-92-6	x	x			x	
135	Methidathion	950-37-8		x			x	
136	Methiocarb	2032-65-7		x			x	
137	Methomyl	16752-77-5		x			x	
138	Methoxychlor	72-43-5			x			
139	Methyl bromide	74-83-9	x					
140	Metiram	9006-42-2			x			
141	Metribuzin	21087-64-9			x			
142	Mevinphos	7786-34-7		x			x	

Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental concern	Hazard to ecosystem services[2]	Obsolete
143	Mirex	2385-85-5	x			x	x	x
144	Molinate	2212-67-1			x			
145	Monocrotophos	6923-22-4	x	x			x	
146	Nicotine	54-11-5		x				
147	Nitrobenzene	98-95-3			x			
148	Nitrofen	1836-75-5			x			x
149	Octamethylpyrophosphoramide (OMPA)	152-16-9						x
150	Omethoate	1113-02-6		x	x		x	
151	Oxamyl	23135-22-0	x (WHO 1b and h330)					
152	Oxydemeton-methyl	301-12-2		x			x	
153	Paraquat (All forms including Paraquat dichloride)	1910-42-5		x				
154	Parathion	56-38-2	x	x			x	
155	Parathion-methyl	298-00-0	x	x				
156	Paris Green (copper acetoarsenite)	12002-03-8			x			
157	Pentachlorobenzene	608-93-5	x					
158	Pentachlorophenol (PCP), its salts and esters	87-86-5	x	x	x			
159	Phenylmercury acetate	62-38-4			x			
160	Phorate	298-02-2		x			x	
161	Phosphamidon	13171-21-6	x	x			x	
162	Picloram	1918 02 1			x			
163	PMDS Di(phenylmercuric) dodecenyl succinate	27236-65-3			x			
164	Polybrominated biphenyls mixture PBB	Separate CAS Nos. are assigned to individual polybrominated biphenyls			x			
165	Polychlorinated biphenyls PCB (except mono and dichlorinated) Aroclor	Separate CAS Nos. are assigned to individual polychlorinated biphenyls	x					x
166	Polychlorinated Terphenyls (PCTs)	61788-33-8	x					
167	Potasan	299-45-6		x				
168	Profoxydim	139001-49-3			x			
169	Propetamphos	31218-83-4		x				

Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental concern	Hazard to ecosystem services[2]	Obsolete
170	Propylene oxide	75-56-9			x			
171	Prothiofos	34643-46-4				x		
172	Pyrazoxon	108-34-9		x				
173	Pyridalyl	179101-81-6				x		
174	Quinalphos	13593-03-8			x		x	
175	Quizalofop-p-tefuryl	119738-06-6			x			
176	Resmethrin	10453-86-8			x		x	
177	Safrole	94-59-7			x			x
178	Silafluofen	105024-66-6			x		x	
179	Silvex (all forms)	93-72-1						x
180	Sodium arsenite (arsenic and its compounds)	7784-46-5			x			
181	Sodium cyanide	143-33-9		x				
182	Sodium fluoroacetate (1080)	62-74-8		x				
183	Strychnine	57-24-9		x				
184	Sulfotep	3689-24-5		x				
185	TCMTB	21564-17-0		x				
186	TDE	72-54-8, 53-19-0						x
187	Tebupirimphos (Phostebupirim)	96182-53-5		x		x		
188	Tefluthrin	79538-32-2		x			x	
189	Tepraloxydim	149979-41-9			x			
190	Terbufos	13071-79-9		x				
191	Terbutryn	886-50-0			x			
192	Terpene polychlorinates (Strobane)	8001-50-1				x		x
193	Tetraethyl lead	78-00-2				x		
194	Tetramethyl lead	75-74-1				x		
195	Thallium sulfate	7446-18-6		x				x
196	Thiamethoxam	153719-23-4					x	
197	Thiofanox	39196-18-4		x			x	
198	Thiometon	640-15-3		x			x	
199	Thiourea	62-56-6			x			
200	Thiram	137-26-8	x		x			
201	Tolfenpyrad	129558-76-5				x		
202	Tolylfluanid	731-27-1		x				
203	Toxaphene; Camphechlor	8001-35-2	x			x	x	x

Red List (Prohibited List)								
No.	Name of active ingredient (a.i.) of the material	CAS number	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental concern	Hazard to ecosystem services[2]	Obsolete
204	Tri-allate	2303-17-5				x		
205	Triazophos	24017-47-8		x				
206	Tributyltin compounds	Various CAS			x			
207	Trichlorfon	52-68-6			x		x	
208	Tridemorph	81412-43-3			x			
209	Trifluralin	1582-09-8			x			
210	Triforine	26644-46-2			x			
211	Tris (2,3 - dibromopropyl) phosphate	126-72-7	x					
212	Vamidothion	2275-23-2		x			x	
213	Vinclozolin	50471-44-8			x			
214	Vinyl chloride	75-01-4		x		x		x
215	Warfarin*	81-81-2		x	x			
216	Zeta-Cypermethrin	52315-07-8		x			x	
217	Zinc phosphide	1314-84-7		x				
218	Zineb	12122-67-7			x			
219	Ziram	137-30-4		x				
220	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:

- Fulfilling the specific conditions of use (see the list below) AND
- 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
- 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 30 June 2020 or by 30 June 2022 (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

Specific Conditions / Phase out date 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 (for exact date please see column Specific Conditions / Phase out date)

Orange List (Restricted List)							
No.	Name of active ingredient of the material	CAS number	High acute toxicity	Long term toxic effect or chronic exposure	Environ mental concern	Hazard to ecosystem services	Specific Conditions / (Phase out date)
1	2,4-DB	94-82-6		x			
2	Acetamiprid	135410-20-7					
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	Bifenthrin	82657-04-3		x			
8	Carbaryl	63-25-2		x			
9	Carbendazim	10605-21-7		x			
10	Chlorantraniliprole,	500008-45-7			x		
11	Cypermethrin & its alpha and beta isomer	65731-84-2 67375-30-8 65731-84-2				x	b
12	Deltamethrin	52918-63-5		x		x	b
13	Dimethoate	60-51-5		x			
14	Epoxiconazole	133855-98-8		x			
15	Etofenprox	80844-07-1			x		
16	Fenitrothion	122-14-5		x			
17	Flufenoxuron	101463-69-8			x		
18	Fipronil	120068-37-3				x	b
19	Flusilazole	85509-19-9		x			
20	Glufosinate ammonium	77182-82-2		x			
21	Lufenuron	103055-07-8			x		
22	Mancozeb	8018 01 7		x			
23	Phosphine	7803-51-2	x (h330)				c
24	Pirimicarb	23103-98-2			x		
25	Procymidone	32809-16-8		x			
26	Propargite	2312-35-8			x		
27	Quinoxyfen	124495-18-7			x		
28	Sulfoxaflor	946578-00-3				x	b
29	Thiacloprid	111988-49-9		x			b

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	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental 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	Benthiavalicarb-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
21	Copper (II) hydroxide	29427-59-2				x	

Yellow List (Flagged List)							
No.	Name of active ingredient of the material	CAS number	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental concern	Hazard to ecosystem services
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	Haloxyfop-methyl; haloxyfop	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		
52	Malathion	121-75-5					x

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Yellow List (Flagged List)							
No.	Name of active ingredient of the material	CAS number	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental concern	Hazard to ecosystem services
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	Pyraclofos	77458-01-6					x
81	Pyraflufen-ethyl	129630-19-9			x		
82	Pyrazachlor	6814-58-0			x		
83	Pyrazophos	13457-18-6					x

Yellow List (Flagged List)							
No.	Name of active ingredient of the material	CAS number	Conven-tions	High acute toxicity	Long term toxic effect or chronic exposure	Environ-mental concern	Hazard to ecosystem services
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	Tebuconazole	107534-96-3			x		
97	Technazene	117-18-0			x		
98	Temephos	3383-96-8					x
99	Terrazole; Etridiazole	2593-15-9			x		
100	Tetrachlorvinphos	22248-79-9			x		x
101	Tetraconazole	112281-77-3			x		
102	Tetramethrin	7696-12-0					x
103	Thiodicarb	59669-26-0			x		x
104	Thiophanate-methyl	23564-05-8			x		
105	Tralomethrin	66841-25-6					x
106	Triadimenol	55219-65-3			x		
107	Validamycin	37248-47-8					x
108	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)

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)

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.
01.12.2016_v1.1	5.11.2019	Change of phase out timeline for materials listed in Orange List, group ‘b’
01.12.2016_v1.2	18.06.2020	Change of phase out timelines for materials listed in Hazardous Materials List (Orange List) and changes for materials in Yellow List.
01.12.2016_v1.3	22.07.2020	Carbosulfan (CAS Nr.55285-14-8), Dichlorvos; DDVP (CAS Nr.62-73-7) and Fenpropathrin (CAS Nr. 39515-41-8) moved to Red list of prohibited materials from Orange list of restricted materials.
01.12.2016_v1.4	04.01.2021	Acetamiprid is added in the Orange List. Sulfoxaflor (CAS Nr.946578-00-3) and Thiacloprid (CAS Nr. 111988-49-9) moved to Orange list group “b” from Yellow list of flagged materials

01.12.2016_v1.5	01.07.2022	The following materials are moved to Red list of prohibited materials from Orange list of restricted materials: – Abamectin (CAS Nr. 71751-41-2), – Beta – cyfluthrin (CAS Nr. 1897-45-6), – Chlorothalonil (CAS Nr. 68359-37-5), – Chlorpyrifos, Chlorpyrifos-methyl (CAS Nr. 2921-88-2, 5598-13-0), – Clothianidin (CAS Nr. 210880-92) – Glyphosate and its salts (CAS Nr. 1071-83-6, 69254-40-6, 38641-94-0, 40465-66-5, 34494-03-6, 81591-81-3) – Imidacloprid (CAS Nr. 138261-41-3) – Lambda-cyhalothin (CAS Nr. 91465-08-6) – Oxamyl (CAS Nr. 23135-22-0) – Thiamethoxam (CAS Nr. 153719-23-4)