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INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY

THE WHO RECOMMENDED CLASSIFICATION OF PESTICIDES BY HAZARD

and

GUIDELINES TO CLASSIFICATION 2000-2002

United Nations Environment Programme

International Labour Organization

World Health Organization

IOMC **INTER-ORGANIZATION PROGRAMME FOR THE SOUND MANAGEMENT OF CHEMICALS**

A cooperative agreement among UNEP, ILO, FAO, WHO, UNIDO, UNITAR & OECD

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THE WHO RECOMMENDED CLASSIFICATION OF PESTICIDES BY HAZARD AND GUIDELINES TO CLASSIFICATION 2000-01

The WHO Recommended Classification of Pesticides by Hazard was approved by the 28th World Health Assembly in 1975 and has since gained wide acceptance. When it was published in the WHO Chronicle, 29, 397-401 (1975), an annex, which was not part of the Classification, illustrated its use by listing examples of classification of some pesticidal active ingredients and their formulations. Later suggestions were made by Member States and pesticide registration authorities that further guidance should be given on the classification of individual pesticides. Guidelines were first issued in 1978, and have since been revised and reissued at 2-yearly intervals.

The document is arranged as follows:

Part I: The Classification as recommended by the World Health Assembly. This part is not subject to periodic review and the classification table and text can only be changed by resolution of the World Health Assembly.

Part II: Guidelines to Classification. Individual products are classified in a series of tables, according to the oral or dermal toxicity of the technical product, and its physical state. The tables are subject to review periodically.

The toxicity values are intended to be a guide only. Formulations should be separately classified using the methods set out on pages 3 (single technical product) and 6 (mixtures) and the table in Part I. To assist in the classification of formulations, an annex is now provided giving numerical tables from which the classification may also be derived.

Comments on Part II of the document are welcome, together with proposals for new entries. These should be addressed to the International Programme on Chemical Safety, World Health Organization, 1211 Geneva 27, Switzerland, and should include supporting data on the compound being commented on or proposed.

This document is a revision of the document previously issued as WHO/PCS/98.21

PART I

RECOMMENDED CLASSIFICATION OF PESTICIDES BY HAZARD

Extract from WHO Chronicle, 29: 397-401 (1975)

> In 1973, the WHO Executive Board asked the Director-General of WHO to take steps to develop a tentative classification of pesticides that would distinguish between the more and the less hazardous forms of each pesticide. A proposal for a WHO recommended classification of pesticides by hazard was accordingly prepared, taking into account the views of members of the WHO Expert Advisory Panel on Insecticides and other expert advisory panels with special competence and interest in pesticide technology, as well as the comments of WHO Member States and of two international agencies. This proposal was adopted by the Twenty-eighth World Health Assembly, which recommended the use of the classification by Member States, international agencies, and regional bodies.

The hazard referred to in this Recommendation is the acute risk to health (that is, the risk of single or multiple exposures over a relatively short period of time) that might be encountered accidentally by any person handling the product in accordance with the directions for handling by the manufacturer or in accordance with the rules laid down for storage and transportation by competent international bodies.

Any classification based on biological data can never be treated as final. In the assessment of biological data, honest differences of opinion are inevitable and most borderline cases can be reclassified in an adjacent class. Variability or inconsistency in toxicity data due to differences in susceptibility of test animals, or to experimental techniques and materials used can also result in differing assessments. The classification criteria are guide-points intended to supplement but never to substitute for special knowledge, sound clinical judgement or experience with a compound. Reappraisal might be necessary from time to time.

Basis of classification

The classification distinguishes between the more and the less hazardous forms of each pesticide in that it is based on the toxicity of the technical compound and on its formulations. In particular, allowance is made for the lesser hazards from solids as compared with liquids.

The classification is based primarily on the acute oral and dermal toxicity to the rat since these determinations are standard procedures in toxicology. Where the dermal LD_{50}[1] value of a compound is such that it would place it in a more restrictive class than the oral LD_{50} value would indicate, the compound will always be classified in the more restrictive class. Provision is made for the classification of a particular compound to be adjusted if, for any reason, the acute hazard to man differs from that indicated by LD_{50} assessments alone.

[1] The LD_{50} 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.

Class		LD_{50} for the rat (mg/kg body weight)			
		Oral		Dermal	
		Solids[a]	Liquids[a]	Solids[a]	Liquids[a]
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[b]	Over 500	Over 2000	Over 1000	Over 4000[b]

[a] The terms "solids" and "liquids" refer to the physical state of the active ingredient being classified.

[b] See also Part II, Guidelines, para. 7 of Notes, page 7.

Application of the criteria for classification

(a) Where it is shown that for a particular compound the rat is not the most suitable test animal (for example, if another species is conspicuously more sensitive or more closely resembles man in its reaction) then the classification of that compound should take this into account.

(b) In practice, the majority of classifications will be made on the acute oral LD_{50} value. However, dermal toxicity must always be considered since it has been found that, under most conditions of handling pesticides, a high proportion of the total exposure is dermal. Classification based on dermal data in a class indicating a great risk is necessary when the dermal LD_{50} values indicate greater hazard than oral LD_{50} values.

(c) If the active ingredient produces irreversible damage to vital organs, is highly volatile, is markedly cumulative in its effect, or is found after direct observations to be particularly hazardous or significantly allergenic to man, then adjustments to the classification can be made by classifying the compound in a class indicating a higher hazard. Alternatively, if it can be shown that the preparation is less toxic or hazardous than expected from consideration of the LD_{50} values of the ingredient or ingredients, or for any other reason, adjustments should be made by classifying the compound in a class indicating a lower hazard.

(d) In certain special cases the acute oral or dermal LD_{50} values of the compound or formulation should not be used as the main basis for classification. In such cases (for example, aerosol preparations, other special formulations and fumigants), more appropriate criteria should be used.

(e) It is highly desirable that, whenever practicable, toxicological data for each formulation to be classified should be available from the manufacturer. However, if such data are not obtainable, then the classification may be based on proportionate calculations from the LD_{50} values of the technical ingredient or ingredients, according to the following formula:

$$\frac{LD_{50} \text{ active ingredient} \times 100}{\text{Percentage of active ingredient in formulation}}$$

If the formulation contains more than one ingredient (including solvents, wetting agents, etc.) of significant toxicity-enhancing properties, then the classification should correspond to the toxicity of the mixed ingredients.

(f) With a few exceptions, pesticides have low volatility and therefore no criteria are at present set out for volatility in this Recommendation. The inclusion of such criteria is unlikely to affect the classification of pesticides by hazard except in the case of volatile fumigants used in agriculture and food storage. On the other hand, when the criteria are applied to pesticide formulations based on solvents or to other chemicals, account must be taken of volatility and consequent inhalation toxicity.

Effects of classification on labeling [2]

While no specific symbols to identify classes are included in the Recommendation, the following are the general implications of the classification as regards labelling.

The aim should be uniformity in the statement on the nature of the risk (by phrase and/or symbol) on the label of the product, irrespective of the country of origin or use. Labels of products classified in classes Ia and Ib should bear a symbol indicating a high degree of hazard (usually a type of skull and crossbones) and a signal word or phrase, e.g. POISON or TOXIC. The presentation of the symbol and word or phrase, in terms of colour, size and shape should ensure that they are given sufficient prominence on the label.

The text should be in the local language and for all formulations should include the approved name of the active ingredient or ingredients, the method of use, and precautions to be taken in use. For classes Ia and Ib, symptoms and immediate treatment of poisoning should also be included.

The detailed precautions necessary for the use of a pesticide depend on the nature of the formulation and the pattern of use and are best decided by a pesticide registration authority when accepting a commercial label.

There are international agreements on symbols to denote hazards from materials which are inflammable, corrosive, explosive, etc., and these should be consulted and used where appropriate.

[2] See also FAO (1985; 1990).

PART II
GUIDELINES TO CLASSIFICATION OF PESTICIDES BY HAZARD

The main section of the guidelines consists of five tables preceded by notes on their use. In the tables, active ingredients (technical grade) have been classified as follows:

The tables are arranged in alphabetical order.

In addition, the following tables show the details stated:

NOTES ON THE USE OF THE TABLES IN CLASSIFICATION

The final classification of any product is intended to be by formulation

The classification given in the tables below is of active ingredients, and only forms the starting point for the final classification of an actual formulation. It is by far preferable that the final classification of a formulation should be based on toxicity data obtained on that formulation by the manufacturer: the criteria set out in the table of the Classification in Part I are then applied to this first-hand data. Only if this is not available should the formula be used, as shown in Part I on page 3 to extrapolate the LD_{50} of the formulation from that of the technical product. In this event, the single oral or dermal value of the LD_{50} given in the tables below should be used in the formula, taking into account the physical state of the formulation. See also the Annex on page 44.

The following important points should be noted.

1. While the classification deals only with the acute risk to health, evaluations of other effects, including cancer, have been completed for many compounds for registration purposes. Where other effects have been shown to occur in man, these are noted in the 'Remarks' column and may have in some cases resulted in an adjusted classification.
2. Wherever possible, the data are listed under internationally approved common names, or if such names are not at present available, under nationally approved names. Some other common names appear in the alphabetic index pp. 55-64. Trade names are not given since there are many of these.
3. A list of references that may be used for the identification of pesticides is given at the end of these introductory notes, and the manufacturer should always assist by specifying any existing approved or common names for his product.
4. It is not possible to include classification of mixtures of pesticides in the guidelines: very many of these are marketed with varying concentrations of active constituents. There are three possible approaches to the classification of mixtures - in order of preference:

(a) require the formulator to obtain reliable acute oral and dermal toxicity data for rats on the actual mixture as marketed: or

(b) classify the formulation according to the most hazardous constituent of the mixture as if that constituent was present in the same concentration as the total concentration of all active constituents: or

(c) apply the formula:

$$\frac{C_a}{T_a} + \frac{C_b}{T_b} + \ldots \frac{C_z}{T_z} \equiv \frac{100}{T_m}$$

Where C = the % concentrations of constituent A, B ... Z in the mixture
T = the oral LD_{50} values of constituents A, B ...Z
T_m = the oral LD_{50} value of the mixture.

The formula can also be used for dermal toxicities provided that this information is available on the same species for all constituents. The use of this formula does not take into account any potentiation or protective phenomena.

5. In the tables below, single figures have been given as LD_{50} values for classification purposes, using the route as described in the table. Where several LD_{50} values have been published, the lowest deemed reliable is used. Where a sex difference occurs in LD_{50} values, the value for the more sensitive sex is used. A number of adjustments to Classification have been made in respect of some pesticides and these are explained. A borderline case has been classified in the more or less hazardous class after consideration of its toxicology and use experience.

6. Pesticides have been classified on the basis of the physical state of the technical product. It may happen in a few cases that where the technical product is a solid, highly concentrated liquid formulations may need to be classified in a more hazardous class. In most cases, oils (used as a physical and not a chemical term) have been classified as liquids unless very viscous at ordinary temperatures.

7. In Table 5, a number of pesticides are listed as unlikely to present any acute hazard in normal use. The WHO classification is open-ended but it is clear that there must be a point at which the acute hazard posed by the use of these compounds is so low as to be negligible provided that the precautions are taken that should be used in dealing with any chemical. In compiling this table, it has been assumed that this point is an oral LD_{50} of 2000 mg/kg for solids and 3000 mg/kg for liquids, or a dermal LD_{50} of 4000 and 6000 mg/kg. However, it should not be overlooked that in formulations of these technical products, solvents or vehicles may present a greater hazard than the actual pesticide and therefore classification of a formulation in one of the higher hazard classes may be necessary.

8. Biological pesticides are not included in this Classification because the methods of the hazard testing of live biological agents are not appropriate to classification procedures applied to chemical compounds.

9. The toxicity data for pyrethroids is highly variable according to isomer ratios, the vehicle used for oral administration, and the husbandry of the test animals. The variability is reflected in the prefix 'c' before LD_{50} values. The single LD_{50} value now chosen for classification purposes is based on administration in corn oil and is much lower than that in aqueous solutions. This has resulted in considerable changes in the classification of some products and also underlines the need for classification by formulation if the classification is to reflect true hazard.

ENTRIES AND ABBREVIATIONS USED IN THE TABLES

Active ingredients printed in *italics* in tables 1-5 are either new or have been reclassified.

Column 1: Sequential number of active ingredients, preceded by an indicator of the category in the classification.

Column 2: Common name. [ISO] denotes common name of the active ingredient approved by the International Organization for Standardization. Such names are, when available, preferred by WHO to all other common names. However, attention is drawn to the fact that some of these names may not be acceptable for national use in some countries. If the letters ISO appear within parentheses (ISO), this indicates that ISO has standardized (or is in the process of standardizing) the name of the base, but not the name of the derivative listed in column 1. For example, fentin acetate (ISO) indicates that fentin is an ISO name, but fentin acetate is not. ISO* denotes pending ISO approval of the name. C denotes chemical, trivial, or other common name.

Column 3: CAS Registry number: The number for the chemical, not those for eg. different esters or salts are given.

Column 4: UN number refers to the UN Recommendations on the transport of dangerous goods, Eleventh revision (1999). This is given only for active ingredients in Tables 1, 2, 3 or 4, since so few ingredients in Table 5 have UN numbers. The UN number refers only to the active ingredient; formulations are likely to have different numbers, since the ingredient may, for example, be dissolved in a solvent - and liquid products have different UN numbers, which depends on their flammability.

Column 5: Chemical type. Only a limited number of chemical types are shown. Most have some significance in the sense that they may have a common antidote, or may be confused in the nomenclature with other chemical types e.g. thiocarbamates are not cholinesterase inhibitors and do not have the same effects as carbamates. Chemical type is also a determinant of the UN numbering system. These chemical classifications are included only for convenience, and do not represent a recommendation of the part of the World Health Organization as to the way in which the pesticides should be classified. It should, furthermore, be understood that some pesticides may fall into more than one type.

AS	Arsenic compound
BP	Bipyridylium derivative
C	Carbamate
CO	Coumarin derivative
CU	Copper compound
HG	Mercury compound
NP	Nitrophenol derivative
OC	Organochlorine compound
OP	Organophosphorus compound
OT	Organotin compound
PAA	Phenoxyacetic acid derivative
PZ	Pyrazole
PY	Pyrethroid
T	Triazine derivative
TC	Thiocarbamate

Column 6: Physical state. Refers only to the active ingredient. L denotes liquid, including solids with a melting point below 50°C; oil denotes oily liquids and S solids, including waxes. The physical state may affect the exposure potential and thus the absorbed amount of the chemical, and thus is a factor affecting the classification (See table on page 3 in Part 1).

Column 7: Main use. In most cases only a single use is given. This is only for identification purposes and does not exclude other uses.

AC	acaricide
AP	aphicide
B	bacteriostat (soil)
FM	fumigant
F	fungicide, other than for seed treatment
FST	fungicide, for seed treatment
H	herbicide
I	insecticide
IGR	insect growth regulator
Ix	ixodicide (for tick control)
L	larvicide
M	molluscicide
MT	miticide
N	nematocide
O	other use for plant pathogens
PGR	plant growth regulator
R	rodenticide
RP( )	repellant (species)
-S	applied to soil: not used with herbicides or plant growth regulators
SY	synergist

Column 8: LD_{50}. The LD_{50} value is a statistical estimate of the number of mg of toxicant per kg of body weight required to kill 50% of a large population of test animals: the rat is used unless otherwise stated. Usually a single value, but sometimes a range is given. "c" preceding the value indicates that it is a value within a wider than usual range, adopted for classification purposes. When several different values are reported in the literature, the lowest is reported and used as the basis of classification, unless there are clear indications that a higher value is more reliable. Oral route values are used unless the dermal route values place the compound in a more hazardous class, or unless the dermal values are significantly lower than the oral values, although in the same class. Dermal LD_{50} values are indicated with the letter D.

Column 9: Remarks. This column is used to indicate cases in which the classification of a technical product has been adjusted (i.e., the oral LD_{50} value is not directly used as the basis of classification); Major irritant properties are also noted although they do not affect the classification. Sources of further information may also be given here: DS denotes a WHO/FAO Data Sheet on Pesticides, EHC an Environmental Health Criteria monograph, HSG a Health and Safety Guide, IARC IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, ICSC an International Chemical Safety Card and JMPR an evaluation by the Joint FAO/WHO Meeting on Pesticide Residues. These publications (with the exception of IARC Monographs) can be found on the IPCS web site (http://www.who.int/pcs/).

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Table 1. Extremely hazardous (Class Ia) technical grade active ingredients of pesticides

Common name	CAS no	UN no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Aldicarb [ISO]	116-06-3	2757	C	S	I-S	0.93	DS 53; EHC 121; HSG 64; IARC 53; ICSC 94; JMPR 1996a
Brodifacoum [ISO]	56073-10-0	3027	CO	S	R	0.3	DS 57; EHC 175; HSG 93
Bromadiolone [ISO]	28772-56-7	3027	CO	S	R	1.12	DS 88; EHC 175; HSG 94
Bromethalin [ISO]	63333-35-7	2588		S	R	2	
Calcium cyanide [C]	592-01-8	1575		S	FM	39	Adjusted classification; see note 1; ICSC 407
Captafol [ISO]	2425-06-1			S	F	5000	Adjusted classification; see note 2; HSG 49; IARC 53; ICSC 119; JMPR 1986a; see note 3
Chlorethoxyfos [ISO]	54593-83-8	3018	OP	L	I	1.8	Extremely hazardous by skin contact (LD_{50} in rabbits 12.5 mg/kg)
Chlormephos [ISO]	24934-91-6	3018	OP	L	I	7	
Chlorophacinone [ISO]	3691-35-8	2588		S	R	3.1	DS 62; EHC 175
Difenacoum [ISO]	56073-07-5	3027	CO	S	R	1.8	EHC 175; HSG 95
Difethialone [ISO]	104653-34-1	2588		S	R	0.56	EHC 175
Diphacinone [ISO]	82-66-6	2588		S	R	2.3	EHC 175
Disulfoton [ISO]	298-04-4	3018	OP	L	I	2.6	DS 68; JMPR 1997a
EPN	2104-64-5	2783	OP	S	I	14	See note 4; ICSC 753
Ethoprophos [ISO]	13194-48-4	3018	OP	L	I-S	D26	DS 70; JMPR 2000
Flocoumafen	90035-08-8	3027	CO	S	R	0.25	EHC 175; ICSC 1267
Fonofos [ISO]	944-22-9	3018	OP	L	I-S	c8	ICSC 708
Hexachlorobenzene [ISO]	118-74-1	2729	OC	S	FST	D10000	Adjusted classification; see notes 3 and 5; DS 26; IARC 20; ICSC 895
Mercuric chloride [ISO]	7487-94-7	1624	HG	S	F-S	1	See note 3; ICSC 979
Mevinphos [ISO]	26718-65-0	3018	OP	L	I	D4	DS 14; ICSC 924; JMPR 1998b
Parathion [ISO]	56-38-2	3018	OP	L	I	13	See note 3; DS 6; HSG 74; IARC 30; ICSC 6; JMPR 1996b
Parathion-methyl [ISO]	298-00-0	3018	OP	L	I	14	See note 3; DS 7; EHC 145; HSG 75; IARC 30; ICSC 626; JMPR 1996b
Phenylmercury acetate [ISO]	62-38-4	1674	HG	S	FST	24	Adjusted classification; see notes 3 and 6; ICSC 540
Phorate [ISO]	298-02-2	3018	OP	L	I	2	DS 75; JMPR 1997b
Phosphamidon	13171-21-6	3018	OP	L	I	7	See note 3; DS 74; ICSC 189; JMPR 1987b
Sodium fluoroacetate [C]	62-74-8	2629		S	R	0.2	DS 16
Sulfotep [ISO]	3689-24-5	1704	OP	L	I	5	ICSC 985
Tebupirimfos [ISO*]	96182-53-5	3018	OP	L	I	1.3	Extremely hazardous by skin contact (LD_{50} 9.4 mg/kg in rats)
Terbufos [ISO]	13071-79-9	3018	OP	L	I-S	c2	JMPR 1991

EHC = Environmental Health Criteria Monograph; DS= Pesticide Data Sheet; HSG = Health and Safety Guide; IARC = IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; ICSC = International Chemical Safety Card; JMPR = Evaluation by the Joint FAO/WHO Meeting on Pesticide Residues.

Notes to Class Ia

1. Calcium cyanide is in Class Ia as it reacts with moisture to produce hydrogen cyanide gas. The gas is not classified under the WHO system (see Table 8).
2. Captafol is carcinogenic in both rats and mice.
3. Captafol, Hexachlorobenzene, mercury compounds, parathion, parathion-methyl, and phosphamidon are on the PIC list, see table 7, p. 39
4. EPN has been reported as causing delayed neurotoxicity in hens.
5. Hexachlorobenzene has caused a serious outbreak of porphyria in humans. Hexachlorobenzene is one of the 12 persistent organochlorine pesticides (POPs) banned or severely restricted by the Stockholm convention. See http://irptc.unep.ch/pops/.
6. Phenylmercury acetate is highly toxic to mammals and very small doses have produced renal lesions: teratogenic in the rat.

THE FINAL CLASSIFICATION OF ANY PRODUCT DEPENDS ON ITS FORMULATION

See Pages 6 & 7, and the Annex

Table 2. Highly hazardous (Class Ib) technical grade active ingredients of pesticides

Common name	CAS no	UN no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Acrolein [C]	*107-02-8*	*1092*		*L*	*H*	*29*	*EHC 127; HSG 67; IARC 19, 36, 63; ICSC 90*
Allyl alcohol [C]	107-18-6	1098		L	H	64	Highly irritant to skin and eyes; ICSC 95
Azinphos-ethyl [ISO]	2642-71-9	2783	OP	S	I	12	DS 72; JMPR 1974
Azinphos-methyl [ISO]	86-50-0	2783	OP	S	I	16	DS 59; ICSC 826; JMPR 1992
Blasticidin-S	2079-00-7	2588		S	F	16	
Butocarboxim [ISO]	34681-10-2	2992	C	L	I	158	JMPR 1986a
Butoxycarboxim [ISO]	34681-23-7	2992	C	L	I	D288	
Cadusafos [ISO]	95465-99-9	3018	OP	L	N,I	37	JMPR 1992
Calcium arsenate [C]	7778-44-1	1573	AS	S	I	20	EHC 18; IARC 1, 2, 23; ICSC 765; JMPR 1969
Carbofuran [ISO]	1563-66-2	2757	C	S	I	8	DS 56; ICSC 122; JMPR 1997b
Chlorfenvinphos [ISO]	470-90-6	3018	OP	L	I	31	ICSC 1305; JMPR 1995b
3-Chloro-1,2-propanediol [C]	96-24-2	2689		L	R	112	See note 1
Coumaphos [ISO]	*56-72-4*	*2783*	*OP*	*S*	*AC,MT*	*7.1*	*ICSC 422; JMPR 1991*
Coumatetralyl [ISO]	5836-29-3	3027	CO	S	R	16	
Zeta-cypermethrin [ISO]	52315-07-8	3352	PY	L	I	c86	See note 9, p. 7; HSG 22; ICSC 246
Demeton-S-methyl [ISO]	919-86-8	3018	OP	L	I	40	DS 61, EHC 197; ICSC 705; JMPR 1990
Dichlorvos [ISO]	62-73-7	3018	OP	L	I	56	Volatile, DS 2; EHC 79; HSG 18; IARC 20, 53; ICSC 690; JMPR 1994
Dicrotophos [ISO]	141-66-2	3018	OP	L	I	22	ICSC 872
Dinoterb [ISO]	1420-07-1	2779	NP	S	H	25	
DNOC [ISO]	534-52-1	2779	NP	S	I-S,H	25	JMPR 1965a
Edifenphos [ISO]	17109-49-8	3018	OP	L	F	150	JMPR 1982
Ethiofencarb [ISO]	*29973-13-5*	*2992*	*C*	*L*	*I*	*200*	*JMPR 1983*
Famphur	52-85-7	2783	OP	S	I	48	
Fenamiphos [ISO]	*22224-92-6*	*2783*	*OP*	*S*	*N*	*15*	*DS 92; ICSC 483; JMPR 1998b*
Flucythrinate [ISO]	70124-77-5	3352	PY	L	I	c67	Irritant to skin and eyes, see note 9, p.7; JMPR 1986b
Fluoroacetamide [C]	640-19-7	2588		S	R	13	See note 2
Formetanate [ISO]	22259-30-9	2757	C	S	AC	21	
Furathiocarb	65907-30-4	2992	C	L	I-S	42	
Heptenophos [ISO]	23560-59-0	3018	OP	L	I	96	
Isazofos [ISO]	42509-80-8	3018	OP	L	I-S	60	
Isofenphos [ISO]	25311-71-1	3018	OP	Oil	I	28	JMPR 1987a
Isoxathion [ISO]	18854-04-8	3018	OP	L	I	112	

Table 2. Highly hazardous (Class Ib) technical grade active ingredients of pesticides, continued

Common name	CAS no	UN no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Lead arsenate [C]	7784-40-9	1617	AS	S	L	c10	EHC 18; IARC 1, 2, 23; ICSC 911; JMPR 1969
Mecarbam [ISO]	2595-54-2	3018	OP	Oil	I	36	JMPR 1987a
Mercuric oxide [ISO]	21908-53-2	1641	HG	S	O	18	ICSC 981
Methamidophos [ISO]	10265-92-6	2783	OP	S	I	30	See note 2; HSG 79; ICSC 176; JMPR 1991
Methidathion [ISO]	950-37-8	3018	OP	L	I	25	JMPR 1998b
Methiocarb [ISO]	*2032-65-7*	*2757*	*C*	*S*	*I*	*20*	*JMPR 1999*
Methomyl [ISO]	16752-77-5	2757	C	S	I	17	DS 55, EHC 178; HSG 97; ICSC 177
Monocrotophos [ISO]	6923-22-4	2783	OP	S	I	14	See note 2; HSG 80; ICSC 181; JMPR 1996b
Nicotine [ISO]	54-11-5	1654		L		D50	ICSC 519
Omethoate [ISO]	1113-02-6	3018	OP	L	I	50	JMPR 1997a
Oxamyl [ISO]	23135-22-0	2757	C	S	I	6	DS 54; JMPR 1986b
Oxydemeton-methyl [ISO]	301-12-2	3018	OP	L	I	65	JMPR 1990
Paris green [C]	12002-03-8	1585	AS	S	L	22	Copper-arsenic complex
Pentachlorophenol [ISO]	87-86-5	3155		S	I,F,H	D80	See note 2; Irritant to skin; EHC 71; HSG 19; IARC 20, 53; ICSC69
Pindone [ISO]	*83-26-1*	*2902*		*S*	*R*	*50*	
Pirimiphos-ethyl [ISO]	23505-41-1	3018	OP	L	I	140	
Propaphos	7292-16-2	3018	OP	L	I	70	
Propetamphos [ISO]	31218-83-4	3018	OP	L	I	106	
Sodium arsenite [C]	7784-46-5	1557	AS	S	R	10	
Sodium cyanide [C]	143-33-9	1689		S	R	6	ICSC 1118
Strychnine [C]	57-24-9	1692		S	R	16	ICSC 197
Tefluthrin	79538-32-2	3349	PY	S	I-S	c22	See note 9, p. 7
Thallium sulfate [C]	7446-18-6	1707		S	R	11	DS 10, EHC 182; ICSC 336
Thiofanox [ISO]	39196-18-4	2757	C	S	I-S	8	
Thiometon [ISO]	640-15-3	3018	OP	Oil	I	120	DS 67; ICSC 580; JMPR 1980
Triazophos [ISO]	24017-47-8	3018	OP	L	I	82	JMPR 1994
Vamidothion [ISO]	2275-23-2	3018	OP	L	I	103	JMPR 1989
Warfarin [ISO]	81-81-2	3027	CO	S	R	10	DS 35, EHC 175; HSG 96; ICSC 821
Zinc phosphide [C]	1314-84-7	1714		S	R	45	DS 24, EHC 73; ICSC 602

EHC = Environmental Health Criteria Monograph; DS= Pesticide Data Sheet; HSG = Health and Safety Guide; IARC = IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; ICSC = International Chemical Safety Card; JMPR = Evaluation by the Joint FAO/WHO Meeting on Pesticide Residues.

Notes to Class II

1. 3-chloro-2,3-propanediol in nonlethal dosage is a sterilant for male rats. This compound is also known as alpha cyanohydring.
2. Fluoroacetamide, methamidophos, monocrotophos, and pentachlorophenol are on the PIC list; see Table 7, p. 39.

THE FINAL CLASSIFICATION OF ANY PRODUCT
DEPENDS ON ITS FORMULATION
See Pages 6 & 7, and the Annex

Table 3. Moderately hazardous (Class II) technical grade active ingredients of pesticides

Common name	CAS no	UN no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Alanycarb [ISO]	83130-01-2		C	S	I	330	
Anilofos [ISO]	64249-01-0		OP	S	H	472	
Azaconazole	60207-31-0			S	F	308	
Azocyclotin [ISO]	41083-11-8	2786	OT	S	AC	80	JMPR 1995a
Bendiocarb [ISO]	22781-23-3	2757	C	S	I	55	DS 52
Benfuracarb [ISO]	82560-54-1	2992	C	L	I	205	
Bensulide [ISO]	741-58-2	2902		L	H	270	ICSC 383
Bifenthrin	82657-04-3	3349	PY	S	I	c55	
Bilanafos [ISO]	71048-99-2			S	H	268	
Bioallethrin [C]	584-79-2		PY	L	I	c700	See note 1; note 9, p. 7; ICSC 227
Bromoxynil [ISO]	1689-84-5	2588		S	H	190	
Bromuconazole	116255-48-2			S	F	365	ICSC 1264
Bronopol	52-51-7			S	B	254	ICSC 415
Butamifos [ISO]	36335-67-8		OP	L	H	630	
Butylamine [ISO]	13952-84-6	1992		L	F	380	Irritant to skin; ICSC 401; JMPR 1985b
Carbaryl [ISO]	63-25-2	2757	C	S	I	c300	DS 3; EHC 153; HSG 78; IARC 12; ICSC 121; JMPR 2001
Carbosulfan [ISO]	55285-14-8	2992	C	L	I	250	JMPR 1987a
Cartap [ISO]	15263-53-3			S	I	325	EHC 76; JMPR 1996a
Chloralose [C]	15879-93-3			S	R	400	
Chlordane [ISO]	57-74-9	2996	OC	L	I	460	See notes 2 and 3; DS 36; EHC 34; HSG 13; IARC 20, 42, 53; ICSC 740; JMPR 1995a
Chlorfenapyr [ISO]	122453-73-0			S	I,MT	441	
Chlorphonium chloride [ISO]	115-78-6	2588		S	PGR	178	Irritant to skin and eyes
Chlorpyrifos [ISO]	2921-88-2	2783	OP	S	I	135	DS 18; ICSC 851; JMPR 2000
Clomazone [ISO]	81777-89-1			L	H	1369	
Copper sulfate [C]	7758-98-7		CU	S	F	300	
Cuprous oxide [C]	1317-39-1		CU	S	F	470	ICSC 421
Cyanazine [ISO]	21725-46-2		T	S	H	288	ICSC 391
Cyanophos [ISO]	2636-26-2		OP	L	I	610	
Cyfluthrin [ISO]	68359-37-5		PY	S	I	c250	See note 9, p. 7; JECFA 1997
Beta-cyfluthrin [ISO]	68359-37-5		PY	S	I	450	See note 9, p. 7
Cyhalothrin [ISO]	68085-85-8	3352	PY	Oil	Ix	c144	See note 9, p. 7; EHC 99; HSG 38; ICSC 858; JMPR 1985c
Cypermethrin [ISO]	52315-07-8	3352	PY	L	I	c250	See note 9, p. 7; DS 58; EHC 82; HSG 22;ICSC 246; JECFA 1996

Table 3. Moderately hazardous (Class II) technical grade active ingredients of pesticides, continued

Common name	CAS no	UN no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Alpha-cypermethrin [ISO]	67375-30-8	3349	PY	S	I	c79	See note 9, p 7; EHC 142; JECFA 1996
Cyphenothrin [(1R)-isomers] [ISO]	39515-40-7	3352	PY	L	I	318	
2,4-D [ISO]	94-75-7	3345	PAA	S	H	375	DS 37; EHC 29, 84; HSG 5; IARC 15, 41; ICSC 33; JMPR 1998b
DDT [ISO]	50-29-3	2761	OC	S	I	113	See notes 2 and 3; DS 21; EHC 9, 83; IARC 5, 42, 53; ICSC 34; JMPR 2001
Deltamethrin [ISO]	52918-63-5	3349	PY	S	I	c135	See note 9, p. 7; DS 50; EHC 97; HSG 30; IARC 53; ICSC 247; JMPR 2001
Diazinon [ISO]	333-41-5	3018	OP	L	I	1000	DS 45, EHC 198; ICSC 137; JMPR 1994
Difenzoquat [ISO]	43222-48-6	2588		S	H	470	
Dimethoate [ISO]	60-51-5	2783	OP	S	I	c150	DS 42; EHC 90; HSG 20; ICSC 741; JMPR 1997b
Dinobuton [ISO]	973-21-7	2779	NP	S	AC,F	140	
Diquat [ISO]	2764-72-9	2781	BP	S	H	231	Irritant to skin and eyes and damages nails; DS 40; EHC 39; HSG 52; JMPR 1994
Endosulfan [ISO]	115-29-7	2761	OC	S	I	80	DS 15; EHC 40; HSG 17; ICSC 742; JMPR 1999
Endothal-sodium [(ISO)]	125-67-9	2588		S	H	51	
EPTC [ISO]	759-94-4		TC	L	H	1652	ICSC 469
Esfenvalerate [ISO]	66230-04-4	3349	PY	S	I	87	
Ethion [ISO]	563-12-2	3018	OP	L	I	208	ICSC 888; JMPR 1991
Etrimfos [ISO]	38260-54-7		OP	L	I	1800	JMPR 1986c
Fenazaquin [ISO]	120928-09-8	2588		S	AC	134	
Fenitrothion [ISO]	122-14-5		OP	L	I	503	DS 30; EHC 133; HSG 65; ICSC 622; JMPR 2001
Fenobucarb	3766-81-2		C	S	I	620	
Fenpropidin [ISO]	67306-00-7			L	F	1440	
Fenpropathrin [ISO]	64257-84-7	3349	PY	S	I	c66	See note 9, p. 7; JMPR 1994
Fenthion [ISO]	55-38-9	3018	OP	L	I,L	D586	DS 23; ICSC 655; JMPR 1998b
Fentin acetate[(ISO)]	900-95-8	2786	OT	S	F	125	DS 22; EHC 15; JMPR 1971
Fentin hydroxide[(ISO)]	76-87-9	2786	OT	S	F	108	DS 22; EHC 15; ICSC 1283; JMPR 1971
Fenvalerate [ISO]	51630-58-1	3352	PY	L	I	c450	See note 9, p. 7; DS90; EHC 95, HSG 34; IARC 53; ICSC 273; JMPR 1986c
Fipronil	120068-37-3	2588		S	I	92	JMPR 2001
Fluxofenim [ISO]	88485-37-4			oil	H	670	
Formothion [ISO]	2540-82-1	3018	OP	L	I	365	JMPR 1997a
Fuberidazole [ISO]	*3878-19-1*			*S*	*F*	*336*	

Table 3. Moderately hazardous (Class II) technical grade active ingredients of pesticides, continued

Common name	CAS no	UN no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Gamma-HCH [ISO]	58-89-9	2761	OC	S	I	88	See note 3
Guazatine	108173-90-6			S	FST	230	LD_{50} value refers to triacetate; JMPR 1998b
Haloxyfop	69806-34-4			S	H	393	JMPR 1996b
HCH [ISO]	608-73-1	2761	OC	S	I	100	See notes 2, 3 and 4; EHC 123; IARC 5, 20, 42; ICSC 487; JMPR 1974
Heptachlor [ISO]	76-44-8	2761	OC	S	I	100	See notes 2 and 3; DS 19; EHC 38; HSG 14; IARC 5, 20, 53; ICSC 743; JMPR 1995a
Imazalil [ISO]	35554-44-0	2588		S	F	320	ICSC 1303; JMPR 2001
Imidacloprid [ISO]	138261-41-3			S	I	450	
Iminoctadine [ISO]	13516-27-3			S	F	300	Eye irritant
Ioxynil [ISO]	1689-83-4	2588		S	H	110	ICSC 900
Ioxynil octanoate [(ISO)]	3861-47-0			S	H	390	
Isoprocarb [ISO]	2631-40-5	2757	C	S	I	403	
Lambda-cyhalothrin	2164-08-1	3349	PY	S	I	c56	See note 9, p. 7; EHC 142; HSG 38
Mercurous chloride [C]	10112-91-1	2025	HG	S	F	210	See note 3; ICSC 984
Metaldehyde [ISO]	108-62-3			S	M	227	DS 93
Metam-sodium [(ISO)]	137-42-8	2771		S	F-S	285	
Methacrifos [ISO]	62610-77-9		OP	L	I	678	JMPR 1991
Methasulfocarb [ISO]	66952-49-6	2757		S	F	112	
Methyl isothiocyanate [ISO]	556-61-6	2588		S	F-S	72	Skin and eye irritant; see note 5
Metolcarb [ISO]	1129-41-5		C	S	I	268	
Metribuzin [ISO]	*21087-64-9*			*S*	*H*	*322*	
Molinate [ISO]	2212-67-1		TC	L	H	720	
Nabam [ISO]	142-59-6	2771		S	F	395	Goitrogenic in rats
Naled [ISO]	300-76-5	3018	OP	L	I	430	DS 39; ICSC 925
Paraquat [ISO]	1910-42-5	2781	BP	S	H	150	See note 6; DS 4; EHC 39; HSG 51; ICSC 5; JMPR 1987a
Pebulate [ISO]	1114-71-2		TC	L	H	1120	
Permethrin [ISO]	52645-53-1	3352	PY	L	I	c500	See note 9, p. 7; DS 51; EHC 94; HSG 33; IARC 53; ICSC 312; JMPR 2000
Phenthoate [ISO]	2597-03-7	3018	OP	L	I	c400	DS 48; JMPR 1985c
Phosalone [ISO]	2310-17-0	2783	OP	S	I	120	ICSC 797; JMPR 1998b
Phosmet [ISO]	732-11-6	2783	OP	S	I,AC	113	ICSC 543; JMPR 1999
Phoxim [ISO]	14816-18-3		OP	L	I	D1975	DS 31; JECFA 2000

Table 3. Moderately hazardous (Class II) technical grade ingredients of pesticides, continued

Common name	CAS no	UN no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Piperophos [ISO]	24151-93-7	3018	OP	oil	H	324	
Pirimicarb [ISO]	23103-98-2	2757	C	S	AP	147	JMPR 1983
Prallethrin [ISO]	23031-36-9	3352	PY	oil	I	460	
Profenofos [ISO]	41198-08-7	3018	OP	L	I	358	JMPR 1991
Propiconazole [ISO]	60207-90-1			L	F	1520	JMPR 1988
Propoxur [ISO]	114-26-1	2757	C	S	I	95	DS 25; ICSC 191; JMPR 1990
Prosulfocarb [ISO]	52888-80-9		TC	L	H	1820	
Prothiofos [ISO]	34643-46-4		OP	L	I	925	
Pyraclofos [ISO(*)]	77458-01-6	3018	OP	L	I	237	
Pyrazophos [ISO]	13457-18-6	2784		S	F	435	JMPR 1993
Pyrethrins [C]	8003-34-7			L	I	500-1000	Seen note 7; DS 11; JMPR 2000
Pyroquilon [ISO]	57369-32-1			S	F	320	
Quinalphos [ISO]	13593-03-8	2783	OP	S	I	62	
Quizalofop-p-tefuryl [ISO]	119738-06-6			L	H	1012	
Rotenone [C]	83-79-4	2588		S	I	132-1500	See note 8; HSG 73; ICSC 944
Sodium fluoride [ISO]	7681-49-4	1690		S	I	180	
Sodium hexafluorosilicate [ISO]	16893-85-9	2674		S	L-S	125	ICSC 1243
Spiroxamine [ISO(*)]	118134-30-8			L	F	500	Dermal LD_{50} 1068 mg/kg; may cause skin sensitisation
Sulprofos [ISO]	35400-43-2	3018	OP	oil	I	130	ICSC 1248
TCA [ISO] (acid)	76-03-9	1839		S		400	See note 2 to table 5, p. 34; ICSC 586
Terbumeton [ISO]	33693-04-8		T	S	H	483	
Tetraconazole [ISO]	112281-77-3			Oil	F	1031	
Thiacloprid				S	I	444	
Thiobencarb [ISO]	28249-77-6		TC	L	H	1300	
Thiocyclam [ISO]	31895-22-4			S	I	310	
Thiodicarb [ISO]	59669-26-0	2757	C	S	I	66	JMPR 2001
Triazamate [ISO(*)]	112143-82-5	2588		S	AP	50-100	
Trichlorfon [ISO]	52-68-6		OP	S	I	250	DS 27; EHC 132; HSG 66; IARC 30; ICSC 585; JMPR 1979
Tricyclazole [ISO]	41814-78-2			S	F	305	
Tridemorph [ISO]	81412-43-3			Oil	F	650	
Vernolate [ISO]	1929-77-7		TC	L	H	1780	
Xylylcarb	2425-10-7		C	S	I	380	

EHC = Environmental Health Criteria Monograph; DS= Pesticide Data Sheet; HSG = Health and Safety Guide; IARC = IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; ICSC = International Chemical Safety Card; JMPR = Evaluation by the Joint FAO/WHO Meeting on Pesticide Residues.

Notes to Class II

1. Bioallethrin, esbiothrin, esbiol, and esdepalléthrine are members of the series; their toxicity varies considerably within this series, according to concentrations of isomers.
2. Chlordane, DDT and heptachlor are on the list of the 12 persistent organochlorine pesticides (POPs) banned or severely restricted by the Stockholm convention. See http://irptc.unep.ch/pops/.
3. Chlordane, DET, Gamma-HCH, HCH, Heptachlor, and mercury compounds are on the PIC list; see Table 7, p. 39
4. HCH: The LD_{50} varies according to the mixture of isomers. The value shown has been chosen, and the technical product placed in Class II, as a result of the cumulative properties of the beta isomer.
5. The melting point of methyl isothiocyanate (S) is 35? C.
6. Paraquat has serious delayed effects if absorbed. It is of relatively low hazard in normal use but may be fatal if the concentrated product is taken by mouth or spread on the skin.
7. Mixture of compounds present in *Pyrethrum cineraefolium* and other flowers;
8. Compounds from roots of *Derris* and *Lonchocarpus* spp

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Table 4. Slightly hazardous (Class III) technical grade ingredients of pesticides

Common name	CAS no	UN no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Acephate [ISO]	30560-19-1		OP	S	I	945	JMPR 1991
Acetochlor [ISO]	34256-82-1			L	H	2950	
Acifluorfen [ISO]	50594-66-6			S	H	1370	Strong irritant to eyes
Alachlor [ISO]	*15972-60-8*	*2588*		*S*	*H*	*930*	*See note 1, p. 30; DS 86; IARC 19, 36, 63; ICSC 371*
Allethrin [ISO]	584-79-2		PY	Oil	I	c685	See note 9, page 7; EHC 87; HSG 24; ICSC 212; JMPR 1965a
Ametryn [ISO]	834-12-8		T	S	H	1110	
Amitraz [ISO]	33089-61-1			S	AC	800	ICSC 98; JMPR 1999
Azamethiphos [ISO]	35575-96-3		OP	S	I	1010	
Bensultap [ISO]	17606-31-4			S	I	1100	
Bentazone [ISO]	25057-89-0			S	H	1100	HSG 48; ICSC 828; JMPR 1999
Bromofenoxim [ISO]	13181-17-4			S	H	1217	
Butroxydim [ISO]	138164-12-2			S	H	1635	
Chinomethionat [ISO]	*2439-01-2*			*S*	*AC,F*	*2500*	*JMPR 1988*
Chlormequat (chloride) [ISO]	999-81-5			S	PGR	670	ICSC 781
Chloroacetic acid [C]	79-11-8	1751		S	H	650	Irritant to skin and eyes; data refer to sodium salt; ICSC 235
Chlorthiamid [ISO]	1918-13-4			S	H	757	ICSC 852
Copper hydroxide [C]	20427-59-2		CU	S	F	1000	
Copper oxychloride [C]	1332-40-7		CU	S	F	1440	
4-CPA [ISO]	122-88-3		PAA	S	PGR	850	
Cycloate [ISO]	1134-23-2		TC	L	H	>2000	
Cyhexatin [ISO]	13121-70-5		OT	S	AC	540	EHC 15; JMPR 1995b
Cymoxanil [ISO]	57966-95-7			S	F	1196	
Cyproconazole	94361-06-5			S	F	1020	
Dazomet [ISO]	533-74-4			S	F-S	640	Irritant to skin and eyes; ICSC 786
2,4-DB	94-82-6			S	H	700	
Desmetryn [ISO]	1014-69-3		T	S	H	1390	
Dicamba [ISO]	1918-00-9			S	H	1707	ICSC 139
Dichlormid	37764-25-3			L	H	2080	
Dichlorobenzene [C]	106-46-7			S	FM	500-5000	Mixture of isomers
Dichlorophen [ISO]	97-23-4		OC	S	F	1250	
Dichlorprop [ISO]	7547-66-2			S	H	800	ICSC 38
Diclofop [ISO]	40483-25-2			S	H	565	

Table 4. Slightly hazardous (Class III) technical grade ingredients of pesticides, continued

Common name	CAS no	UN no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Dicofol [ISO]	115-32-2		OC	S	AC	c690	DS 81; IARC 30; ICSC 752; JMPR 1993
Dienochlor [ISO]	2227-47-0		OC	S	AC	3160	Acutely toxic by inhalation; skin sensitiser
Diethyltoluamide [ISO]	134-62-3			L	RP (insect)	c2000	DS 80
Difenoconazole [ISO]	119446-68-3			S	F	1453	
Dimepiperate [ISO]	61432-55-1		TC	S	H	946	
Dimethachlor [ISO]	50563-36-5			S	H	1600	
Dimethametryn [ISO]	22936-75-0		T	L	H	3000	
Dimethipin [ISO]	55290-64-7			S	H	1180	JMPR 2000
Dimethylarsinic acid [C]	75-60-5	1572	AS	S	H	1350	
Diniconazole [ISO]	83657-24-3			S	F	639	
Dinocap [ISO]	39300-45-3		NP	S	AC,F	980	ICSC 881; JMPR 1999
Diphenamid [ISO]	957-51-7			S	H	970	ICSC 763
Dithianon [ISO]	3347-22-6			S	F	640	JMPR 1993
Dodine [ISO]	2439-10-3			S	F	1000	JMPR 2001
Empenthrin [(1R) isomers] [ISO]	54406-48-3		PY	Oil	I	>2280	
Esprocarb [ISO]	85785-20-2		TC	L	H	>2000	Skin and eye irritant
Etridiazole [ISO]	2593-15-9			L	F	2000	
Fenothiocarb [ISO]	62850-32-2		C	S	L	1150	
Ferimzone [ISO]	89269-64-7			S	F	725	
Fluazifop-p-butyl [ISO]	83066-88-0			L	H	2451	
Fluchloralin [ISO]	33245-39-5			S	H	1550	
Flufenacet [ISO(*)]	142459-58-3			S	H	600	May cause skin sensitization
Fluoroglycofen	77501-60-1			S	H	1500	
Flurprimidol [ISO]	56425-91-3			S	PGR	709	
Flusilazole	85509-19-9			S	F	1110	JMPR 1996b
Flutriafol [ISO]	76674-21-0			S	F,FST	1140	
Fomesafen [ISO]	72178-02-0		OC	S	H	1250	
Furalaxyl [ISO]	57646-30-7			S	F	940	
Glufosinate [ISO]	53369-07-6			S	H	1625	
Hexazinone [ISO]	51235-04-2			S	H	1690	

Table 4. Slightly hazardous (Class III) technical grade ingredients of pesticides, continued

Common name	CAS no	UN no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Hydramethylnon	67485-29-4			S	I	1200	
Iprobenfos	26087-47-8			S	F	600	
Isoprothiolane [ISO]	50512-35-1			S	F	1190	
Isoproturon [ISO]	34123-59-6			S	H	1800	
Isouron [ISO]	55861-78-4			S	H	630	
Malathion [ISO]	121-75-5	3082	OP	L	I	c2100	See note 2, p. 30; DS 29; IARC 30; ICSC 172; JMPR 1998b
MCPA [ISO]	94-74-6		PAA	S	H	700	IARC 30, 41; ICSC 54
MCPA-thioethyl [ISO]	25319-90-8		PAA	S	H	790	
MCPB [ISO]	94-81-5			S	H	680	
Mecoprop [ISO]	7085-19-0			S	H	930	ICSC 55
Mecoprop-P [ISO]	16484-77-8			S	H	1050	
Mefluidide [ISO]	53780-34-0			S	H	1920	
Mepiquat [ISO]	15302-91-7			S	PGR	1490	
Metalaxyl [ISO]	57837-19-1			S	F	670	JMPR 1983
Metamitron [ISO]	*41394-05-2*			*S*	*H*	*1183*	
Metconazole [ISO]	125116-23-6			S	F	660	
Methylarsonic acid [ISO]	124-58-3		AS	S	H	1800	ICSC 755
Metolachlor [ISO]	51218-45-2			L	H	2780	
Myclobutanil	88671-89-0			S	F	1600	JMPR 1993
2-Napthyloxyacetic acid [ISO]	120-23-0			S	PGR	600	
Nitrapyrin [ISO]	1929-82-4			S	B-S	1072	
Nuarimol [ISO]	63284-71-9			S	F	1250	
Octhilinone [ISO]	26530-20-1			S	F	1470	
N-octylbicycloheptene dicarboximide [C]	113-48-4			L	SY	2800	
Oxadixyl	77732-09-3			A	F	1860	
Paclobutrazol [ISO]	76738-62-0			S	PGR	1300	JMPR 1989
Pendimethalin [ISO]	40487-42-1			S	H	1050	
Pimaricin	7681-93-8			S	F	2730	See note 3, p. 30
Pirimiphos-methyl [ISO]	29232-93-7		OP	L	I	2018	DS 49; JMPR 1993
Prochloraz [ISO]	67747-09-5			S	F	1600	JMPR 1985a
Propachlor [ISO]	1918-16-7			S	H	1500	DS 78; EHC 147; HSG 77
Propanil [ISO]	709-98-8			S	H	c1400	ICSC 552
Propargite [ISO]	2312-35-8			L	AC	2200	JMPR 2000

Table 4. Slightly hazardous (Class III) technical grade ingredients of pesticides, continued

Common name	CAS no	UN no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Pyrazoxyfen [ISO]	71561-11-0			S	H	1644	
Pyridaben [ISO]	96489-71-3			S	AC	820	
Pyridaphenthion	119-12-0		OP	S	I	769	
Pyridate [ISO]	55512-33-9			S	H	c2000	
Pyrifenox [ISO]	88283-41-4			L	F	2900	
Quinoclamine [ISO]	2797-51-5			S	H	1360	
Quizalofop	76578-12-6			S	H	1670	
Resmethrin [ISO]	10453-86-8		PY	S	I	2000	See note 4, p. 30; EHC 92,DS 83,HSG 25;ICSC 324
Sethoxydim [ISO]	74051-80-2			L	H	3200	
Simetryn [ISO]	1014-70-6		T	S	H	1830	
Sodium chlorate [ISO]	7775-09-9	1495		S	H	1200	ICSC 1117
Sulfluramid [ISO]	4151-50-2			S	I	543	
2,3,6-TBA [ISO]	50-31-7			S	H	1500	
Tebuconazole [ISO]	*107534-96-3*			*S*	*F*	*1700*	*JMPR 1995b*
Tebufenpyrad [ISO(*)]	119168-77-3			S	MT	595	
Tebuthiuron [ISO]	34014-18-1			S	H	644	
Thiram [ISO]	137-26-8			S	F	560	DS 71; EHC 78; IARC 12, 53; ICSC 757; JMPR 1993
Tralkoxydim [ISO]	87820-88-0			S	H	934	
Triadimefon [ISO]	43121-43-3			S	F	602	JMPR 1986b
Triadimenol [ISO]	55219-65-3			S	FST	900	JMPR 1990
Tri-allate [ISO]	2303-17-5		TC	L	H	2165	HSG 89; ICSC 201
Triclopyr [ISO]	55335-06-3			S	H	710	
Triflumizole	99387-89-0			S	F	695	ICSC 1252
Undecan-2-one [C]	112-12-9			Oil	RP, dogs,cats	2500	
Uniconazole [ISO]	83657-22-1			S	PGR	1790	
XMC	2655-14-3		C	S	I	542	
Ziram [ISO]	137-30-4			S	F	1400	Irritant to skin; DS 73; EHC 78; IARC 12, 53; ICSC 348; JMPR 1997b

EHC = Environmental Health Criteria Monograph; DS= Pesticide Data Sheet; HSG = Health and Safety Guide; IARC = IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; ICSC = International Chemical Safety Card; JMPR = Evaluation by the Joint FAO/WHO Meeting on Pesticide Residues.

Notes to Class III:

1. Alachlor was previously classified as Class Ia pesticide due to its carcinogenicity in rats. But mechanistic studies have indicated that tumors are induced by a mechanism not relevant to humans.
2. Malathion: LD_{50} value can vary according to impurities. This value has been adopted for classification purposes and is that of a technical product conforming to WHO specifications.
3. Pimaricin: antibiotic, identical with tennecetin and natamycin.
4. Resmethrin is a mixture of isomers, the trans isomer (70-80%) also being known as bioresmethrin and the *cis* isomer (20-30%) as cismethrin. Bioresmethrin alone is of much lower toxicity (oral LD_{50} 9 000 mg/kg) and is the subject of DS 34. It appears in table 5.

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Table 5. Technical grade active ingredients of pesticides unlikely to present acute hazard in normal use

Common name	CAS no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Aclonifen	74070-46-5		S	H	>5000	
Acrinathrin [ISO]	101007-06-1	PY	S	MT	>5000	
Alloxydim	55634-91-8		S	H	2260	
Amitrole [ISO]	61-82-5		S	H	5000	EHC 158, DS 79; HSG 85; IARC 7, 41; ICSC 631; JMPR 1998b
Ammonium sulfamate	7773-06-0		S	H	3900	
Ancymidol [ISO]	12771-68-5		S	PGR	4500	
Anthraquinone	84-65-1		S	RP (birds)	>5000	
Asulam [ISO]	3337-71-1		S	H	>4000	
Atrazine [ISO]	1912-24-9	T	S	H	c2000	DS 82; HSG 47; IARC 53; ICSC 99
Azimsulfuron [ISO]	120162-55-2		S	H	>5000	
Azoxystrobine [ISO]	131860-33-8		S	F	>5000	
Benalaxyl [ISO]	71626-11-4		S	F	c4200	JMPR 1988
Benazolin [ISO]	3813-05-6		S	H	3200	Irritant to skin and eyes
Benfluralin [ISO]	1861-40-1		S	H	>10000	
Benfuresate	68505-69-1		S	H	2031	
Benomyl [ISO]	17804-35-2		S	F	>10000	EHC 148, DS 87; HSG 81; ICSC 382; JMPR 1996b
Benoxacor [ISO]	98730-04-2		S	H	>5000	This molecule is not an active substance as such but is a "safener"
Bensulfuron-methyl	83055-99-6		S	H	>5000	
Bifenox [ISO]	42576-02-3		S	H	>6400	
Bioresmethrin [ISO]	28434-01-7	PY	L	I	>7000	DS 34; EHC 92; HSG 25; ICSC 229; JMPR 1992
Biphenyl	92-52-4		S	F	3280	ICSC 106
Bispyribac	125401-75-4		S	H	2635	
Bitertanol	70585-36-3		S	F	>5000	
Borax [ISO]	1303-96-4		S	F	4500	ICSC 567
Bromacil [ISO]	314-40-9		S	H	5200	
Bromobutide	74712-19-9		S	H	>5000	
Bromopropylate [ISO]	18181-80-1		S	AC	>5000	JMPR 1994
Bupirimate [ISO]	41483-43-6		S	F	c4000	
Buprofezin [ISO]	69327-76-0		S	I	2200	JMPR 1992
Butachlor	23184-66-9		L	H	3300	
Butralin [ISO]	33629-47-9		S	H	>10000	
Butylate [ISO]	2008-41-5	TC	L	F	>4000	
Captan [ISO]	133-06-2		S	F	9000	Irritant to skin; DS 9; HSG 50; IARC 30; ICSC 120; JMPR 1996b
Carbendazim [ISO]	10605-21-7		S	F	>10000	DS 89; EHC 149; HSG 82; ICSC 1277; JMPR 1996b
Carbetamide [ISO]	16118-49-3	C	S	H	>10000	
Carboxin [ISO]	5234-68-4		S	FST	3820	
Carpropamid [ISO(*)]	104030-54-8		L	F	>5000	
Chlomethoxyfen	32861-85-1		S	H	>10000	
Chloramben [ISO]	133-90-4		S	H	5620	
Chloransulam methyl	14750-35-4			H	>5000	
Chlorbromuron [ISO]	13360-45-7		S	H	>5000	

Table 5. Technical grade active ingredients of pesticides unlikely to present acute hazard in normal use, continued

Common name	CAS no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Chlorfluazuron	71422-67-8		S	IGR	8500	
Chloridazon [ISO]	1698-60-8		S	H	2420	
Chlorimuron	99283-00-8		S	H	4102	
Chlorothalonil [ISO]	1897-45-6		S	F	>10000	EHC 183; HSG 98; IARC 30; ICSC 134
Chlorotoluron [ISO]	15545-48-9		S	H	>10000	
Chlorpropham [ISO]	101-21-3	C	S	PGR	>5000	IARC 12; JMPR 2001
Chlorpyrifos methyl [ISO]	5598-13-0	OP	S	I	>3000	DS 33; JMPR 1993
Chlorsulfuron	64902-72-3		S	H	5545	
Chlorthal-dimethyl [ISO]	1861-32-1		S	H	>3000	
Chlozolinate	84332-86-5		S	F	>4000	
Cinmethylin	87818-31-3		L	H	3960	
Cinosulfuron [ISO]	94593-91-6		S	H	>5000	
Clofentezine [ISO(*)]	74115-24-5		S	AC	>5200	JMPR 1987a
Clomeprop	84496-56-0		S	H	>5000	
Clopyralid	57754-85-5		S	H	4300	Severe irritant to eyes
Cloxyfonac	32791-87-0	PAA	S	PGR	>5000	
Cryolite [C]	15096-52-3		S	I	>10000	
Cycloprothrin	63935-38-6	PY	L	I	>5000	
Cyclosulfamuron [ISO(*)]	136849-15-5		S	H	>5000	
Cycloxydim	101205-02-1		S	H	3900	
Cyhalofop [ISO]	122008-85-9		S	H	>5000	
Cyromazine	66215-27-8		S	L	3300	JMPR 1991
Daimuron	42609-52-9		S	H	>5000	
Dalapon	75-99-0		S	H	9330	
Daminozide [ISO]	1596-84-5		S	H	8400	
Desmedipham [ISO]	13684-56-5		S	H	>9600	
Diafenthiuron [ISO]	80060-09-9		S	AC	2068	
Dichlobenil [ISO]	1194-65-6		S	H	3160	ICSC 867
Dichlofluanid [ISO]	1085-98-9		S	F	>5000	JMPR 1985a
Diclomezine	62865-36-5		S	F	>10000	
Dicloran	99-30-9		S	F	4000	ICSC 871; JMPR 1999
Diclosulam [ISO]	145701-21-9			H	>5000	
Diethofencarb	87130-20-9		S	F	>5000	
Diflubenzuron	35367-38-5		S	L	>4640	DS 77, EHC 184; HSG 99
Diflufenican [ISO(*)]	83164-33-4		S	H	>2000	
Dikegulac [ISO]	18467-77-1		S	PGR	>10000	
Dimefuron [ISO]	34205-21-5		S	H	>2000	
Dimethirimol [ISO]	5221-53-4		S	F	2350	
Dimethomorph [ISO]	110488-70-5		S	F	>5000	
Dimethyl phthalate [C]	131-11-3		L	RP (insect)	8200	ICSC 261
Dinitramine [ISO]	29091-05-2		S	H	3000	
Dipropyl isocinchomerate [C]	3737-22-2		L	RP (fly)	5230	
Dithiopyr [ISO]	97886-45-8		S	H	>5000	
Diuron [ISO]	330-54-1		S	H	3400	
Dodemorph [ISO]	1593-77-7		L	H	4500	
Ethalfluralin [ISO]	55283-68-6		S	H	>10000	
Ethephon	16672-87-0		S	PGR	>4000	JMPR 1998a
Ethirimol [ISO]	23947-60-6		S	FST	6340	

Table 5. Technical grade active ingredients of pesticides unlikely to present acute hazard in normal use, continued

Common name	CAS no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Ethofumesate [ISO]	26225-79-6		S	H	>6400	
Etofenprox	80844-07-1		S	I	>10000	JMPR 1994
Famoxadone [ISO(*)]	131807-57-3		S	F	>5000	
Fenarimol [ISO]	60168-88-9		S	F	2500	JMPR 1996b
Fenbutatin oxide [ISO]	13356-08-6	OT	S	MT	2630	EHC 15; JMPR 1993
Fenchlorazole [ISO]	103112-35-2		S	H	>5000	
Fenclorim	3740-92-9		S	H	>5000	
Fenfuram [ISO]	24691-80-3		S	FST	>10000	
Fenhexamid [ISO(*)]			S	F	>5000	
Fenoxycarb	79127-80-3	C	S	I	>10000	
Fenpiclonil	74738-17-3		S	FST	>5000	
Fenpropimorph	67564-91-4		oil	F	3515	JMPR 1995b
Fenuron [ISO]	101-42-8		S	H	6400	
Fenuron-TCA [(ISO)]	4482-55-7		S	H	4000	
Ferbam [ISO]	14484-64-1		S	F	>10000	DS 94; EHC 78; IARC 12, 42; ICSC 792; JMPR 1997b
Flamprop-M	90134-59-1		S	H	>3000	
Flucarbazone-sodium			S	H	> 5000	
Flucycloxuron [ISO]	94050-52-9		S	AC	>5000	
Flufenoxuron	101463-69-8		S	I	>3000	
Flumetralin	62924-70-3		S	PGR	>5000	
Flumetsulam [ISO]	98967-40-9		S	H	>5000	
Fluometuron [ISO]	2164-17-2		S	H	>8000	
Flupropanate	756-09-2		S	H	>10000	
Flupyrsulfuron [ISO]	144740-54-5		S	H	>5000	
Flurenol [ISO]	467-69-6		S	PGR	>5000	
Fluridone [ISO]	59756-60-4		S	H	>10000	
Flurochloridone	61213-25-0		S	H	4000	
Fluroxypyr	69377-81-7		S	H	>5000	
Fluthiacet	149253-65-6		S	H	>5000	
Flutolanil	66332-96-5		S	F	>10000	ICSC 1265
tau-Fluvalinate	102851-06-9	PY	oil	I	>3000	Skin and eye irritant
Folpet	133-07-3		S	F	>10000	HSG 72; ICSC 156
Fosamine [ISO]	25954-13-6	OP	S	H	2400	
Fosetyl	15845-66-2		S	F	5800	
Gibberellic acid	77-06-5		S	PGR	>10000	
Glyphosate [ISO]	1071-83-6		S	H	4230	EHC 159, DS 91; ICSC 160; JMPR 1987a
Hexaconazole	79983-71-4		S	F	2180	JMPR 1991
Hexaflumuron [ISO]	86479-06-3		S	I	>5000	ICSC 1266
Hexythiazox	78587-05-0		S	AC	>5000	JMPR 1992
Hydroprene [ISO]	41205-09-8		L	IGR	>10000	
2-Hydroxyethyl octyl sulphide [C]	3547-33-9		L	RP (insect)	8530	
Hymexazol	10004-44-1		S	FST	3900	
Imazamethabenzmethyl [(ISO)]	81405-85-8		S	H	>5000	
Imazapyr	81334-34-1		S	H	>5000	Irritant to eyes
Imazaquin	81335-37-7		S	H	>5000	

Table 5. Technical grade active ingredients of pesticides unlikely to present acute hazard in normal use, continued

Common name	CAS no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Imazethapyr	81335-77-5		S	H	>5000	
Imibenconazole [ISO]	86598-92-7		S	F	>5000	
Inabenfide	82211-24-3		S	PGR	>10000	
Iprodione [ISO]	36734-19-7		S	F	3500	JMPR 1996b
Iprovalicarb			S	F	>5000	
Isoxaben	82558-50-7		S	H	>10000	
Kasugamycin	19408-46-9		S	F	>10000	
Lenacil [ISO]	2164-08-1		S	H	>10000	
Linuron [ISO]	330-55-2		S	H	4000	ICSC 1300
Maleic hydrazide [C]	123-33-1 10071-13-3		S	PGR	6950	IARC 4, 42; JMPR 1997b
Mancozeb	8018-01-7		S	F	>8000	Irritant to skin on multiple exposure; DS 94; EHC 78; ICSC 754
Maneb [ISO]	12427-38-2		S	F	6750	Irritant to skin on multiple exposure; DS 94; EHC 78; ICSC 173; JMPR 1994
Mefenacet	73250-68-7		S	H	>5000	
Mepanipyrim [ISO]	110235-47-7		S	F	>5000	
Mepronil [ISO]	55814-41-0		S	F	>10000	
Metazachlor	67129-08-2		S	H	2150	
Methabenzthiazuron [ISO]	18691-97-9		S	H	>2500	
Methoprene [ISO]	40596-69-8		L	IGR	>10000	DS 47; JMPR 1987b
Methoxychlor [ISO]	72-43-5	OC	S	I	6000	DS 28; IARC 5, 20; ICSC 1306; JMPR 1978
Methyldymron	42609-73-4		S	H	3948	
Metiram	9006-42-2		S	F	>10000	JMPR 1994
Metobromuron [ISO]	3060-89-7		S	H	2500	
Metosulam	139528-85-1		S	H	>5000	
Metoxuron	19937-59-8		S	H	>3200	
Metsulfuron methyl	74223-64-6		S	H	>5000	
Monolinuron	1746-81-2		S	H	2250	ICSC 1273
2-(1-Naphthyl) acetamide	86-86-2		S	PGR	6400	
1-Naphthylacetic acid	86-87-3		S	PGR	c3000	
Napropamide	15299-99-7		S	H	5000	
Naptalam	132-66-1		S	PGR	8200	
Neburon [ISO]	555-37-3		S	H	>10000	
Niclosamide [ISO]	50-65-7		S	M	5000	DS 63
Nicosulfuron [ISO]	111991-09-4		S	H	>5000	Irritant to eyes
Nitrothal-isopropyl [ISO]	10552-74-6		S	F	6400	
Norflurazon [ISO]	27314-13-2		S	H	>8000	
Ofurace	58810-48-3		S	F	2600	
Oryzalin [ISO]	19044-88-3		S	H	>10000	
Oxabetrinil	74782-23-3		S	H	>5000	
Oxadiazon [ISO]	19666-30-9		S	H	>8000	
Oxine-copper [ISO]	10380-28-6	CU	S	F	7792	
Oxycarboxin [ISO]	5259-88-1		S	F	2000	
Oxyfluorfen [ISO]	42874-03-3		S	H	>5000	
Penconazole	66246-88-6		S	F	2120	JMPR 1993
Pencycuron	66063-05-6		S	F	>5000	

Table 5. Technical grade active ingredients of pesticides unlikely to present acute hazard in normal use, continued

Common name	CAS no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Pentanochlor	2307-68-8		S	H	>10000	
Phenmedipham [ISO]	13684-63-4		S	H	>8000	
Phenothrin [ISO]	26002-80-2	PY	L	I	>5000	DS 85; EHC 96; HSG 32; ICSC 313; JMPR 1989
2-Phenylphenol [C]	90-43-7		S	F	2480	ICSC 669; IARC 30; JMPR 2000
Phosphorus acid [C]	13598-36-2		L	F	>5000	
Phthalide	27355-22-2		S	F	>10000	
Picloram [ISO]	1918-02-1		S	H	8200	ICSC 1246
Piperonyl butoxide	51-03-6		Oil	SY	>7500	IARC 30; JMPR 1996b
Pretilachlor [ISO]	51218-49-6		L	H	6100	
Primisulfuron [ISO]	113036-87-6		S	H	>5050	
Probenazole	27605-76-1		S	F	2030	
Procymidone [ISO]	32809-16-8		S	F	6800	JMPR 1990
Prodiamine [ISO]	29091-21-2		S	H	>5000	
Prometon [ISO]	1610-18-0	T	S	H	2980	
Prometryn [ISO]	7287-19-6	T	S	H	3150	
Propamocarb	24579-73-5		S	F	8600	JMPR 1987a
Propaquizafop	111479-05-1		S	H	>5000	ICSC 1271
Propazine [ISO]	139-40-2	T	S	H	>5000	ICSC 697
Propham [ISO]	122-42-9		S	H	5000	IARC 12; JMPR 1993
Propineb [ISO]	12071-83-9		S	H	8500	DS 94; EHC 78; JMPR 1994
Propyzamide [ISO]	23950-58-5		S	H	5620	
Pyrazolynate [ISO]	58011-68-0		S	H	9550	
Pyrazosulfuron [ISO]	98389-04-9		S	H	>5000	
Pyrimethanil [ISO]	53112-28-0		S	F	4150	
Pyriminobac	136191-56-5		S	H	>5000	
Pyriproxyfen [ISO]	95737-68-1		S	I	>5000	ICSC 1269; JMPR 2000
Pyrithiobac sodium [ISO]	123343-16-8		S	H	3200	
Quinclorac	84087-01-4		S	H	2680	
Quinmerac [ISO]	90717-03-6		S	H	>5000	
Quinoxyfen [ISO]	124495-18-7			F	>5000	
Quintozene [ISO]	82-68-8		S	F	>10000	EHC 41; HSG 23; IARC 5; JMPR 1996b
Rimsulfuron [C]	122931-48-0		S	H	>5000	
Siduron [ISO]	1982-49-6		S	H	>7500	
Simazine	122-34-9	T	S	H	>5000	ICSC 699
Spinosad [ISO(*)]	131929-60-7 131929-63-0			I	3738	
Sulfometuron	74223-56-6		S	H	>5000	
Sulphur (UN number 1350)	7704-34-9		S	F,I	>3000	Skin and mucous membrane irritant. See note 1; ICSC 1166
TCA (sodium salt) [ISO]	650-51-1		S	H	3200	Irritant to skin and eyes: see note 2, p.38
Tebutam	35256-85-0		Oil	H	6210	
Tecnazene [ISO]	117-18-0		S	F	>10000	EHC 42; HSG 12; JMPR 1995b
Teflubenzuron	83121-18-0		S	I	>5000	JMPR 1995b
Temephos [ISO]	3383-96-8	OP	L	I	8600	DS 8; ICSC 199
Terbacil [ISO]	5902-51-2		S	H	>5000	
Terbuthylazine [ISO]	5915-41-3	T	S	H	2160	
Terbutryn [ISO]	886-50-0	T	S	H	2400	

Table 5. Technical grade active ingredients of pesticides unlikely to present acute hazard in normal use, continued

Common name	CAS no	Chem type	Phys state	Main use	LD_{50} mg/kg	Remarks
Tetrachlorvinphos [ISO]	22248-79-9	OP	S	I	4000	
Tetradifon [ISO]	116-29-0		S	AC	>10000	EHC 67; HSG 11; ICSC 747
Tetramethrin [ISO]	7696-12-0	PY	S	O	>5000	EHC 98; HSG 31; ICSC 334
Thiabendazole [ISO]	148-79-8		S	F	3330	JECFA 1997
Thidiazuron	51707-55-2		S		>4000	
Thifensulfuron-methyl	79277-27-3		S	H	>5000	
Thiophanate-methyl [ISO]	23564-05-8		S	F	>6000	JMPR 1999
Tiocarbazil	36756-79-3	TC	L	H	10000	
Tolclofos-methyl [ISO]	57018-04-9		S	F-S	c5000	JMPR 1995b
Tolylfluanid [ISO]	731-27-1		S	F	>5000	JMPR 1989
Transfluthrin [ISO]	118712-89-3	PY	S	I	>5000	
Triasulfuron	82097-50-5		S	H	>5000	
Tribenuron [ISO]	106040-48-6		S	H	>5000	
Trietazine [ISO]	1912-26-1	T	S	H	2830	ICSC 202
Triflumuron	64628-44-0		S	PGR	>5000	
Trifluralin [ISO]	1582-09-8		S	H	>10000	IARC 53; ICSC 205
Triflusulfuron-methyl [ISO]	126535-15-7		S	H	>5000	
Triforine [ISO]	26644-46-2		S	F	>6000	JMPR 1998b
Triticonazole [ISO]	131983-72-7		S	F	>2000	
Validamycin	37248-47-8		S	F	>10000	
Vinclozolin [ISO]	50471-44-8		S	F	10000	JMPR 1996b
Zineb [ISO]	12122-67-7		S	F	>5000	DS 94; EHC 78; IARC 12; ICSC 350; JMPR 1994

Notes:

1. Sulphur dust can spontaneously ignite unless diluted about 50% with inert material.
2. TCA: The data shown refer to sodium trichloroacetic acid. In many countries, the same term (TCA) refers to the free acid (now accepted by ISO): this is a solid with an oral LD_{50} of 400 mg/kg and if used as a pesticide would be placed in Class II. It is highly corrosive to skin.

THE FINAL CLASSIFICATION OF ANY PRODUCT DEPENDS ON ITS FORMULATION
See Pages 6 & 7, and the Annex

TABLE 6. ACTIVE INGREDIENTS BELIEVED TO BE OBSOLETE OR DISCONTINUED FOR USE AS PESTICIDES

Ingredients discontinued have been identified from the previous edition of this classification, from the Pesticide Manual (Pesticide Manual, 1991, 1994; 1997), and in some cases from the manufacturer. It is difficult, in some cases, to be sure whether or not all commercial activity in a substance has ceased; some of these materials are known to be still in use for non-agricultural purposes. IPCS will be grateful for details of any materials in this Section, which are still in commercial use. The common name and CAS number are indicated.

Active ingredient	CAS no	Active ingredient	CAS no	Active ingredient	CAS no
Acrylonitrile	107-13-1	Chloranil	118-75-2	Demeton-S-methylsulphon	17040-19-6
Aldoxycarb	1646-88-4	Chloranocryl	2164-09-2	Dialifos	10311-84-9
Aldrin[1,2]	309-00-2	Chlorbenside	103-17-3	Di-allate	2303-16-4
Allidochlor	93-71-0	Chlorbufam	1967-16-4	Diamidafos	1754-58-1
Allyxycarb	6392-46-7	Chlorbicyclen	2550-75-6	Dibromochloro-propane	96-12-8
Amidithion	919-76-6	Chlordecone	143-50-0	Dibutyl phthalate	84-74-2
Aminocarb	2032-59-9	Chlordimeform[1]	6164-98-3	Dibutyl succinate	141-03-7
Anilazine	101-05-3	Chlorfenac	85-34-7	Dichlofenthion	97-17-6
ANTU	86-88-4	Chlorfenethol	80-06-8	1,2-Dichloropropane	78-87-5
Aramite	140-57-8	Chlorfenprop-methyl	14437-17-3	Dichlozoline	24201-58-9
Arsenous oxide	1327-53-3	Chlorfenson	80-33-1	Diclobutrazol	75736-33-3
Athidathion	19691-80-6	Chlorfensulfide	22274-74-0	Dieldrin[1,2]	60-57-1
Atraton	1610-17-9	Chlorfentazine		Diethatyl	38727-55-8
Aziprotryne	4658-28-0	Chlorflurenol	2536-31-4	Difenoxuron	14214-32-5
Azothoate	5834-96-8	Chlormebuform	37407-77-5	Dimefox	115-26-4
Barban	101-27-9	Chlormethiuron	28217-97-2	Dimetilan	644-64-4
Barium carbonate	513-77-9	Chlornitrofen	1836-77-7	Dimexano	1468-37-7
Benodanil	15310-01-7	Chlorobenzilate[1]	510-15-6	Dinex	131-89-5
Benquinox	495-73-8	Chloroneb	2675-77-6	Dinocton	32534-96-6
Benzoximate	29104-30-1	Chloropropylate	5836-10-2	Dinoseb[1]	88-85-7
Benzoylprop-ethyl	33878-50-1	Chloroxuron	1982-47-4	Dinoseb acetate[1]	2813-95-8
Benzthiazuron	1929-88-0	Chlorquinox	3495-42-9	Dioxabenzophos	3811-49-2
Binapacryl[1]	485-31-4	Chlorphoxim	14816-20-7	Dioxacarb	6988-21-2
Bis(tributyltin) oxide	56-35-9	Chlorthiophos	21923-23-9	Dioxathion	78-34-2
Bisthiosemi	39603-48-0	Cloethocarb	51487-69-5	Dipropetryn	4147-51-7
Bromocyclen	1715-40-8	Clofop	26129-32-8	Disul	149-26-8
Bromophos	2104-96-3	Coumachlor	81-82-3	Ditalimfos	5131-24-8
Bromophos-ethyl	4824-78-6	Crimidine	535-89-7	Drazoxolon	5707-69-7
Bufencarb	8065-36-9	Credazine	14491-59-9	Eglinazine	6616-80-4
Butacarb	2655-19-8	Crotoxyphos	7700-17-6	Endothion	2778-04-3
Butam	35256-85-0	Crufomate	299-86-5	Endrin[2]	72-20-8
Butenachlor	87310-56-3	Cyanofenphos	13067-93-1	EPBP	3792-59-4
Buthidazole	55511-98-3	Cyanthoate	3734-95-0	Erbon	136-25-4
Buthiobate	51308-54-4	Cycloheximide	66-81-9	ESP (Oxydeprofos)	2674-91-1
Butonate	126-22-7	Cycluron	2163-69-1	Etacelasil	37894-46-5
Butopyronoxyl	532-34-3	Cyometrinil	63278-33-1	Etaconazole	60207-93-4
Buturon	3766-60-7	Cypendazole	28559-00-4	Ethidimuron	30043-49-3
Calcium cyanamide	156-62-7	Cyprofuram	69581-33-5	Ethiolate	2941-55-1
Camphechlor[1,2]	8001-35-2	Cypromid	2759-71-9	Ethoate-methyl	116-01-8
Carbamorph	31848-11-0	Delachlor	24353-58-0	Ethohexadiol	94-96-2
Carbanolate	671-04-5	Demephion-O	682-80-4	Ethyleneglycolbis (trichloroacetate)	2514-53-6
Carbon disulfide	75-15-0	Demephion-S	2587-90-8	EXD	502-55-6
Carbophenothion	786-19-6	Demeton-O	298-03-3		
Chloraniformethan	20856-57-9	Demeton-S	126-75-0		

TABLE 6. ACTIVE INGREDIENTS BELIEVED TO BE OBSOLETE OR DISCONTINUED FOR USE AS PESTICIDES, continued

Active ingredient	CAS no	Active ingredient	CAS no	Active ingredient	CAS no
Fenaminosulf	140-56-7	Kinoprene	42588-37-4	Phosdiphen	36519-00-3
Fenazaflor	14255-88-0	Leptophos	21609-90-5	Phosfolan	947-02-4
Fenchlorphos	299-84-3	Lythidathion	2669-32-1	Piproctanyl	69309-47-3
Fenitropan	65934-95-4	Malonoben	10537-47-0	Potassium cyanate	590-28-3
Fenoprop (Silvex)	93-72-1	Mebenil	7055-03-0	Profluralin	26399-36-0
Fenoxaprop-ethyl	82110-72-3	Mecarbinzid	27386-64-7	Proglinazine	68228-20-6
Fenson	80-38-6	Mecarphon	29173-31-7	Promacyl	34264-24-9
Fensulfothion	115-90-2	Medinoterb acetate	2487-01-6	Promecarb	2631-37-0
Fenthiaprop	95721-12-3	Menazon	78-57-9	Propyl isome	83-59-0
Flamprop	58667-63-3	Mephospholan	950-10-7	Prothiocarb	19622-08-3
Fluazifop	69335-91-7	Methazole	20354-26-1	Prothoate	2275-18-5
Flubenzimine	37893-02-0	Methiuron	21540-35-2	Proxan	108-25-8
Fluenetil	4301-50-2	Methoprotryne	841-06-5	Pydanon	22571-07-9
Fluorodifen	15457-05-3	Methoxyethylmercury silicate[1]	64491-92-5	Pyracarbolid	24691-76-7
Fluoromide	13577-71-4	Methoxyphenone	41295-28-7	Pyridinitril	1086-02-8
Fluotrimazole	31251-03-3	Methoxymethyl mercury chloride[1]	123-88-6	Quinacetol sulfate	57130-91-3
Fluvalinate	69409-94-5	Methylmercury dicyandiamide[1]	502-39-6	Quinonamid	27541-88-4
Fosmethilan	83733-82-8	Metsulfovax	21542-18-6	Ryania	8047-13-0
Fosthietan	21548-32-3	Mexacarbate	315-18-4	Sabadilla	8051-02-3
Furconazole-cis	112839-32-4	Mipafox	371-86-8	Salicylanilide	87-17-2
Furmecyclox	60568-05-0	Mirex[2]	2385-85-5	Schradan	152-16-9
Glyodin	556-22-9	Monalide	7187-36-7	Scilliroside	507-60-8
Glyphosine	2439-99-8	Monuron	150-68-5	Secbumeton	26259-45-0
Griseofulvin	126-07-8	Monuron-TCA	140-41-0	Sesamex	51-14-9
Halacrinate	34462-96-9	Morfamquat	4636-83-3	Sulfallate	95-06-7
Haloxydine	2693-61-0	Myclozolin	54864-61-8	Sulfoxide	120-62-7
Heptopargil	73886-28-9	Naphthalene	91-20-3	SWEP	1918-18-9
Hexachloroacetone	116-16-5	Naphthalic anhydride	81-84-5	2,4,5-T[1]	93-76-5
Hexaflurate	17029-22-0	Nitralin	4726-14-1	TDE	72-54-8
Hydroxyquinoline sulfate	134-31-6	Nitrilacarb	29672-19-3	TEPP	107-49-3
Ipazine	1912-25-0	Nitrofen	1836-75-5	Terbucarb	1918-11-2
IPSP	5827-05-4	Norbormide	991-42-4	Tetrasul	2227-13-6
Isobenzan	297-78-9	Noruron	2163-79-3	Thiazafluron	25366-23-8
Isobornyl thiocyanoacetate	115-31-1	Oxapyrazon	4489-31-0	Thicyofen	116170-30-0
Isocarbamid	30979-48-7	Oxydisulfoton	2497-07-6	Thionazin	297-97-2
Isocil	314-42-1	Parafluron	7159-99-1	Thiophanate	23564-06-9
Isodrin	465-73-6	Perfluidone	37924-13-3	Thioquinox	93-75-4
Isomethiozin	57052-04-7	Phenisopham	57375-63-0	Triamiphos	1031-47-6
Isonoruron	28805-78-9	Phenkapton	2275-14-1	Triapenthenol	76608-88-3
Isopropalin	33820-53-0	Phenobenzuron	3134-12-1	Triarimol	26766-27-8
Isothioate	36614-38-7	Phenylmercury dimethyl dithiocarbamate[1]	32407-99-1	Tricamba	2307-49-5
Isoxapyrifop	87757-18-4	Phenylmercury nitrate[1]	8003-05-2	Trichlamide	70193-21-4
Jodfenphos	18181-70-9	Phosacetim	4104-14-7	Trichloronat	327-98-0
Karbutilate	4849-32-5			Tridiphane	58138-08-2
Kelevan	4234-79-1			Trifenmorph	1420-06-3
				Trimethacarb	12407-86-2

[1] Aldrin, binapacryl, camphechlor (toxaphene), chlordimeform, chlorobenzilate, dieldrin, dinoseb and dinoseb salts, mercury compounds, and 2,4,5-T belong to the PIC list. See Table 7, p. 39

[2] Aldrin, camphechlor (toxaphene), dieldrin, endrin and mirex belong to the list of Persistent Organic Pollutants (POP), banned or severely restricted by the Stockholm treaty in 2001, see http://irptc.unep.ch/pops/

TABLE 7. PESTICIDES SUBJECT TO THE PRIOR INFORMED CONSENT (PIC) PROCEDURE (UNEP & FAO, 1999) [1]

Class	Pesticide	CAS number
O	2,4,5-T	93-76-5
O	Aldrin[2]	309-00-2
O	Binapacryl	485-31-4
Ia	Captafol	2425-06-1
II	Chlordane[2]	57-74-9
O	Chlordimeform	6164.98.3
O	Chlorobenzilate	510-15-6
II	DDT[2]	50-29-3
O	Dieldrin[2]	60-57-1
O	Dinoseb and dinoseb salts	88-85-7
	1,2-Dibromoethane (EDB)	106-93-4
Ib	Fluoroacetamide	640-19-7
II	HCH (mixed isomers)	608-73-1
II	Heptachlor[2]	76-44-8
Ia	Hexachlorobenzene[2]	118-74-1
II	Lindane	58-89-9
	Mercury compounds, including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds	
Ib	Pentachlorophenol	87-86-5
O	Toxaphene	8001-35-2
Ib	Methamidophos (soluble liquid formulations of the substance that exceed 600 g active ingredient/L)	10265-92-6
Ia	Methyl-parathion (emulsifiable concentrates (EC) with 19.5%, 40%, 50%, 60% active ingredient and dusts containing 1.5%, 2% and 3% active ingredient	298-00-0
Ib	Monocrotophos (soluble liquid formulations of the substance that exceed 600 g active ingredient/L)	6923-22-4
Ia	Parathion (all formulations – aerosols, dustable powder (DP), emulsifiable concentrate (EC), granules (GR) and wettable powders (WP) of this substance are included, except capsule suspensions (CS)	56-38-2
Ia	Phosphamidon (soluble liquid formulations of the substance that exceed 1000 g active ingredient/L)	13171-21-6 [mixture, (E) & (Z) isomers] 23783-98-4 [(Z)-isomer] 297-99-4 [(E)-isomer]

[1] According to the PIC Convention, export of a chemical can only take place with the prior informed consent of the importing Party. The PIC procedure is a means for formally obtaining and disseminating the decisions of importing countries as to whether they wish to receive future shipments of a certain chemical and for ensuring compliance to these decisions by exporting countries. The aim is to promote a shared responsibility between exporting and importing countries in protecting human health and the environment from the harmful effects of such chemicals (further information can be found at:

http://www.fao.org/ag/agp/agpp/pesticid/pic/piclist.htm, and
http://www.fao.org/ag/agp/agpp/pesticid/pic/convsum.htm).

[2] Aldrin, chlordane, DDT, dieldrin, heptachlor, and hexachlorobenzene belong to the list of Persistent Organic Pollutants (POP), banned or severely restricted by the Stockholm treaty in 2001, see http://irptc.unep.ch/pops/

TABLE 8. GASEOUS OR VOLATILE FUMIGANTS NOT CLASSIFIED UNDER THE WHO RECOMMENDED CLASSIFICATION OF PESTICIDES BY HAZARD

The 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.

Pesticide	CAS number	Remarks
Aluminium phosphide	20859-73-8	DS 46; EHC 73; HSG 28; JMPR 1967
Chloropicrin	76-06-2	JMPR 1965b
1,2-Dibromoethane	106-93-4	EHC 177; IARC 15
1,3-Dichloropropene	542-75-6	EHC 146; HSG 76; IARC 41
Ethylene dichloride	107-06-2	EHC 62, 176; HSG 55; IARC 20
Ethylene oxide	75-21-8	EHC 55; HSG 16; JMPR 1969; IARC 11, 36, 42
Formaldehyde	50-00-0	EHC 89; HSG 57
Hydrogen cyanide	74-90-8	JMPR 1965b
Magnesium phosphide	12057-74-8	EHC 73; HSG 28
Methyl bromide	74-83-9	DS 5; EHC 166; HSG 86; IARC 41, 45; JMPR 1967
Phosphine	7803-51-2	DS 46; EHC 73; HSG 28; JMPR 1967
Sulfuryl fluoride	2699-79-8	

ANNEX

HOW TO FIND THE HAZARD CLASS OF A FORMULATION

The following tables A-D can be used to find the hazard class of a formulation. These should be used only if toxicity data is not available on the formulation itself; see the note at the top of page 6.

The tables should be used as follows:

Step 1: What is the approved name of the active ingredient in the pesticide? Use the index to find the entry in tables 1-5 of the Guidelines.

Step 2: From the entry in the Guidelines, what is the route of application used for the classification? What is the physical state of the formulation?

If the route is O (oral) and the formulation is a solid, use table A of this Annex.

If the route is O (oral) and the formulation is a liquid, use table C of this Annex.

If the route is D (dermal) and the formulation is a solid, use table B of this Annex.

If the route is D (dermal) and the formulation is a liquid, use table D of this Annex.

Step 3: From the entry in the Guidelines, what is the LD_{50} of the active ingredient.

Using the table A, B, C, or D, selected in Step 2, find the column along the top line which most nearly includes the LD_{50} figure.

Step 4: What is the concentration % of the active ingredient in the formulation?

Using the same table A, B, C, or D, find the figure in the left hand column which most nearly includes this percentage figure.

Step 5: Find the square where the column selected in Step 3 crosses the line selected in Step 4. The number in this square is the approximate LD_{50} of the formulation.

Step 6: The hazard classes are shown by blocks of squares. The hazard class of the formulation is that of the block in which lies the square selected in Step 5.

These tables can also be used to find the hazard class of mixtures. First see pages 6 and 7, para. 4 of the Guidelines and select the method to be used to arrive at the LD_{50} of the mixture. For method (b), use the above method from Step 1, using the name of the more or most toxic ingredient. For method (c), pass to Step 4 using the total percentages of all active ingredients in the mixture.

Table A. LD_{50} values and classification of formulations when the route is **ORAL** and the formulation **SOLID**

First row = Oral LD_{50} of active ingredient (mg/kg)

First column = Percent concentration of active ingredient in the formulation

	Class Ia			Class Ib									Class II																Class III									
	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100	120	140	160	180	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000
100	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100	120	140	160	180	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000
95	1	3	5	11	16	21	26	32	37	42	47	53	63	74	84	95	105	126	147	168	189	211	263	316	368	421	474	526	632	737	842	947	1053	1263	1474	1684	1895	
90	1	3	6	11	17	22	28	33	39	44	50	56	67	78	89	100	111	133	156	178	200	222	278	333	389	444	500	556	667	778	889	1000	1111	1333	1556	1778		
85	1	4	6	12	18	24	29	35	41	47	53	59	71	82	94	106	118	141	165	188	212	235	294	353	412	471	529	588	706	824	941	1059	1176	1412	1647	1882		
80	1	4	6	13	19	25	31	38	44	50	56	63	75	88	100	113	125	150	175	200	225	250	313	375	438	500	563	625	750	875	1000	1125	1250	1500	1750	2000		
75	1	4	7	13	20	27	33	40	47	53	60	67	80	93	107	120	133	160	187	213	240	267	333	400	467	533	600	667	800	933	1067	1200	1333	1600	1867			
70	1	4	7	14	21	29	36	43	50	57	64	71	86	100	114	129	143	171	200	229	257	286	357	429	500	571	643	714	857	1000	1143	1286	1429	1714	2000			
65	2	5	8	15	23	31	38	46	54	62	69	77	92	108	123	138	154	185	215	246	277	308	385	462	538	615	692	769	923	1077	1231	1385	1538	1846				
60	2	5	8	17	25	33	42	50	58	67	75	83	100	117	133	150	167	200	233	267	300	333	417	500	583	667	750	833	1000	1167	1333	1500	1667	2000				
55	2	5	9	18	27	36	45	55	64	73	82	91	109	127	145	164	182	218	255	291	327	364	455	545	636	727	818	909	1091	1273	1455	1636	1818					
50	2	6	10	20	30	40	50	60	70	80	90	100	120	140	160	180	200	240	280	320	360	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000					
45	2	7	11	22	33	44	56	67	78	89	100	111	133	156	178	200	222	267	311	356	400	444	556	667	778	889	1000	1111	1333	1556	1778	2000						
40	3	8	13	25	38	50	63	75	88	100	113	125	150	175	200	225	250	300	350	400	450	500	625	750	875	1000	1125	1250	1500	1750	2000							
35	3	9	14	29	43	57	71	86	100	114	129	143	171	200	229	257	286	343	400	457	514	571	714	857	1000	1143	1286	1429	1714	2000								
30	3	10	17	33	50	67	83	100	117	133	150	167	200	233	267	300	333	400	467	533	600	667	833	1000	1167	1333	1500	1667	2000					**UNLIKELY**				
25	4	12	20	40	60	80	100	120	140	160	180	200	240	280	320	360	400	480	560	640	720	800	1000	1200	1400	1600	1800	2000										
20	5	15	25	50	75	100	125	150	175	200	225	250	300	350	400	450	500	600	700	800	900	1000	1250	1500	1750	2000						**TO PRESENT**						
15	7	20	33	67	100	133	167	200	233	267	300	333	400	467	533	600	667	800	933	1067	1200	1333	1667	2000														
10	10	30	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000								**ACUTE HAZARD**								
5	20	60	100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000																					
3	33	100	167	333	500	667	833	1000	1167	1333	1500	1667	2000														**IN NORMAL USE**											
1	100	300	500	1000	1500	2000																																
0.5	200	600	1000	2000																																		
0.3	333	1000	1667																																			
0.1	1000																																					
0.05	2000																																					

Table B. LD_{50} values and classification of formulations when the route is **DERMAL** and the formulation **SOLID**

First row = Dermal LD_{50} of active ingredient (mg/kg)

First column = Percent concentration of active ingredient in the formulation

	Class Ia			Class Ib									Class II																Class III									
	1	5	10	20	30	40	50	60	70	80	90	100	120	140	160	180	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2500	3000	3500	4000
100	1	5	10	20	30	40	50	60	70	80	90	100	120	140	160	180	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2500	3000	3500	4000
95	1	5	11	21	32	42	53	63	74	84	95	105	126	147	168	189	211	263	316	368	421	474	526	632	737	842	947	1053	1263	1474	1684	1895	2105	2632	3158	3684	
90	1	6	11	22	33	44	56	67	78	89	100	111	133	156	178	200	222	278	333	389	444	500	556	667	778	889	1000	1111	1333	1556	1778	2000	2222	2778	3333		
85	1	6	12	24	35	47	59	71	82	94	106	118	141	165	188	212	235	294	353	412	471	529	588	706	824	941	1059	1176	1412	1647	1882	2118	2353	2941	3529		
80	1	6	13	25	38	50	63	75	88	100	113	125	150	175	200	225	250	313	375	438	500	563	625	750	875	1000	1125	1250	1500	1750	2000	2250	2500	3125	3750		
75	1	7	13	27	40	53	67	80	93	107	120	133	160	187	213	240	267	333	400	467	533	600	667	800	933	1067	1200	1333	1600	1867	2133	2400	2667	3333			
70	1	7	14	29	43	57	71	86	100	114	129	143	171	200	229	257	286	357	429	500	571	643	714	857	1000	1143	1286	1429	1714	2000	2286	2571	2857	3571			
65	2	8	15	31	46	62	77	92	108	123	138	154	185	215	246	277	308	385	462	538	615	692	769	923	1077	1231	1385	1538	1846	2154	2462	2769	3077				
60	2	8	17	33	50	67	83	100	117	133	150	167	200	233	267	300	333	417	500	583	667	750	833	1000	1167	1333	1500	1667	2000	2333	2667	3000	3333				
55	2	9	18	36	55	73	91	109	127	145	164	182	218	255	291	327	364	455	545	636	727	818	909	1091	1273	1455	1636	1818	2182	2545	2909	3273					
50	2	10	20	40	60	80	100	120	140	160	180	200	240	280	320	360	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2400	2800	3200	3600					
45	2	11	22	44	67	89	111	133	156	178	200	222	267	311	356	400	444	556	667	778	889	1000	1111	1333	1556	1778	2000	2222	2667	3111	3556						
40	3	13	25	50	75	100	125	150	175	200	225	250	300	350	400	450	500	625	750	875	1000	1125	1250	1500	1750	2000	2250	2500	3000	3500							
35	3	14	29	57	86	114	143	171	200	229	257	286	343	400	457	514	571	714	857	1000	1143	1286	1429	1714	2000	2286	2571	2857	3429								
30	3	17	33	67	100	133	167	200	233	267	300	333	400	467	533	600	667	833	1000	1167	1333	1500	1667	2000	2333	2667	3000	3333									
25	4	20	40	80	120	160	200	240	280	320	360	400	480	560	640	720	800	1000	1200	1400	1600	1800	2000	2400	2800	3200	3600										
20	5	25	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1250	1500	1750	2000	2250	2500	3000	3500												
15	7	33	67	133	200	267	333	400	467	533	600	667	800	933	1067	1200	1333	1667	2000	2333	2667	3000	3333								**UNLIKELY**						
10	10	50	100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2500	3000	3500	4000																
5	20	100	200	400	600	800	1000	1200	1400	1600	1800	2000	2400	2800	3200	3600	4000												**TO PRESENT**								
3	33	167	333	667	1000	1333	1667	2000	2333	2667	3000	3333	4000																								
1	100	500	1000	2000	3000	4000																					**ACUTE HAZARD**										
0.5	200	1000	2000	4000																																	
0.3	333	1667	3333																						**IN NORMAL USE**												
0.1	1000																																				

Table C. LD_{50} values and classification when the route is **ORAL** and the formulation is a **LIQUID**

First row = Oral LD_{50} of active ingredients (mg/kg)

First column = Percent concentration of active ingredient in the formulation

	Class Ia					Class Ib													Class II																		Class III	
	1	5	10	15	20	30	40	50	60	70	80	90	100	120	140	160	180	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2500	3000
100	1	5	10	15	20	30	40	50	60	70	80	90	100	120	140	160	180	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2500	3000
95	1	5	11	16	21	32	42	53	63	74	84	95	105	126	147	168	189	211	263	316	368	421	474	526	632	737	842	947	1053	1263	1474	1684	1895	2105	2632	
90	1	6	11	17	22	33	44	56	67	78	89	100	111	133	156	178	200	222	278	333	389	444	500	556	667	778	889	1000	1111	1333	1556	1778	2000	2222	2778	
85	1	6	12	18	24	35	47	59	71	82	94	106	118	141	165	188	212	235	294	353	412	471	529	588	706	824	941	1059	1176	1412	1647	1882	2118	2353	2941	
80	1	6	13	19	25	38	50	63	75	88	100	113	125	150	175	200	225	250	313	375	438	500	563	625	750	875	1000	1125	1250	1500	1750	2000	2250	2500		
75	1	7	13	20	27	40	53	67	80	93	107	120	133	160	187	213	240	267	333	400	467	533	600	667	800	933	1067	1200	1333	1600	1867	2133	2400	2667		
70	1	7	14	21	29	43	57	71	86	100	114	129	143	171	200	229	257	286	357	429	500	571	643	714	857	1000	1143	1286	1429	1714	2000	2286	2571	2857		
65	2	8	15	23	31	46	62	77	92	108	123	138	154	185	215	246	277	308	385	462	538	615	692	769	923	1077	1231	1385	1538	1846	2154	2462	2769			
60	2	8	17	25	33	50	67	83	100	117	133	150	167	200	233	267	300	333	417	500	583	667	750	833	1000	1167	1333	1500	1667	2000	2333	2667	3000			
55	2	9	18	27	36	55	73	91	109	127	145	164	182	218	255	291	327	364	455	545	636	727	818	909	1091	1273	1455	1636	1818	2182	2545	2909				
50	2	10	20	30	40	60	80	100	120	140	160	180	200	240	280	320	360	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2400	2800					
45	2	11	22	33	44	67	89	111	133	156	178	200	222	267	311	356	400	444	556	667	778	889	1000	1111	1333	1556	1778	2000	2222	2667						
40	3	13	25	38	50	75	100	125	150	175	200	225	250	300	350	400	450	500	625	750	875	1000	1125	1250	1500	1750	2000	2250	2500	3000						
35	3	14	29	43	57	86	114	143	171	200	229	257	286	343	400	457	514	571	714	857	1000	1143	1286	1429	1714	2000	2286	2571	2857							
30	3	17	33	50	67	100	133	167	200	233	267	300	333	400	467	533	600	667	833	1000	1167	1333	1500	1667	2000	2333	2667	3000								
25	4	20	40	60	80	120	160	200	240	280	320	360	400	480	560	640	720	800	1000	1200	1400	1600	1800	2000	2400	2800										
20	5	25	50	75	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1250	1500	1750	2000	2250	2500	3000											
15	7	33	67	100	133	200	267	333	400	467	533	600	667	800	933	1067	1200	1333	1667	2000	2333	2667	3000													
12	8	42	83	125	167	250	333	417	500	583	667	750	833	1000	1167	1333	1500	1667	2083	2500	2917															
10	10	50	100	150	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2500	3000																
8	13	63	125	188	250	375	500	625	750	875	1000	1125	1250	1500	1750	2000	2250	2500																		
6	17	83	167	250	333	500	667	833	1000	1167	1333	1500	1667	2000	2333	2667	3000																			
5	20	100	200	300	400	600	800	1000	1200	1400	1600	1800	2000	2400	2800	3200																				
4	25	125	250	375	500	750	1000	1250	1500	1750	2000	2250	2500	3000																						
2	50	250	500	750	1000	1500	2000	2500	3000																	**UNLIKELY**										
1.5	67	333	667	1000	1333	2000	2667																													
1	100	500	1000	1500	2000	3000																		**TO PRESENT**											
0.5	200	1000	2000	3000																																
0.3	333	1667	3333																			**ACUTE HAZARD**														
0.1	1000																																			
0.05	2000																			**IN NORMAL USE**																

Table D. LD_{50} values and classification of formulations when the route is **DERMAL** and the formulation **LIQUID**

First row = Dermal LD_{50} of active ingredient (mg/kg)

First column = Percent concentration of active ingredient in the formulation

	Class Ia							Class Ib															Class II																				Class III	
	1	5	10	15	20	30	40	50	60	70	80	90	100	120	140	160	180	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2500	3000	3500	4000	5000	6000
100	1	5	10	15	20	30	40	50	60	70	80	90	100	120	140	160	180	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2500	3000	3500	4000	5000	6000
95	1	5	11	16	21	32	42	53	63	74	84	95	105	126	147	168	189	211	263	316	368	421	474	526	632	737	842	947	1053	1263	1474	1684	1895	2105	2632	3158	3684	4211	5263	
90	1	6	11	17	22	33	44	56	67	78	89	100	111	133	156	178	200	222	278	333	389	444	500	556	667	778	889	1000	1111	1333	1556	1778	2000	2222	2778	3333	3889	4444	5556	
85	1	6	12	18	24	35	47	59	71	82	94	106	118	141	165	188	212	235	294	353	412	471	529	588	706	824	941	1059	1176	1412	1647	1882	2118	2353	2941	3529	4118	4706	5882	
80	1	6	13	19	25	38	50	63	75	88	100	113	125	150	175	200	225	250	313	375	438	500	563	625	750	875	1000	1125	1250	1500	1750	2000	2250	2500	3125	3750	4375	5000		
75	1	7	13	20	27	40	53	67	80	93	107	120	133	160	187	213	240	267	333	400	467	533	600	667	800	933	1067	1200	1333	1600	1867	2133	2400	2667	3333	4000	4667	5333		
70	1	7	14	21	29	43	57	71	86	100	114	129	143	171	200	229	257	286	357	429	500	571	643	714	857	1000	1143	1286	1429	1714	2000	2286	2571	2857	3571	4286	5000	5714		
65	2	8	15	23	31	46	62	77	92	108	123	138	154	185	215	246	277	308	385	462	538	615	692	769	923	1077	1231	1385	1538	1846	2154	2462	2769	3077	3846	4615	5385			
60	2	8	17	25	33	50	67	83	100	117	133	150	167	200	233	267	300	333	417	500	583	667	750	833	1000	1167	1333	1500	1667	2000	2333	2667	3000	3333	4167	5000	5833			
55	2	9	18	27	36	55	73	91	109	127	145	164	182	218	255	291	327	364	455	545	636	727	818	909	1091	1273	1455	1636	1818	2182	2545	2909	3273	3636	4545	5455				
50	2	10	20	30	40	60	80	100	120	140	160	180	200	240	280	320	360	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2400	2800	3200	3600	4000	5000	6000				
45	2	11	22	33	44	67	89	111	133	156	178	200	222	267	311	356	400	444	556	667	778	889	1000	1111	1333	1556	1778	2000	2222	2667	3111	3556	4000	4444	5556					
40	3	13	25	38	50	75	100	125	150	175	200	225	250	300	350	400	450	500	625	750	875	1000	1125	1250	1500	1750	2000	2250	2500	3000	3500	4000	4500	5000						
35	3	14	29	43	57	86	114	143	171	200	229	257	286	343	400	457	514	571	714	857	1000	1143	1286	1429	1714	2000	2286	2571	2857	3429	4000	4571	5143	5714						
30	3	17	33	50	67	100	133	167	200	233	267	300	333	400	467	533	600	667	833	1000	1167	1333	1500	1667	2000	2333	2667	3000	3333	4000	4667	5333	6000							
25	4	20	40	60	80	120	160	200	240	280	320	360	400	480	560	640	720	800	1000	1200	1400	1600	1800	2000	2400	2800	3200	3600	4000	4800	5600									
20	5	25	50	75	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1250	1500	1750	2000	2250	2500	3000	3500	4000	4500	5000	6000										
15	7	33	67	100	133	200	267	333	400	467	533	600	667	800	933	1067	1200	1333	1667	2000	2333	2667	3000	3333	4000	4667	5333	6000											
10	10	50	100	150	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2500	3000	3500	4000	4500	5000	6000															
5	20	100	200	300	400	600	800	1000	1200	1400	1600	1800	2000	2400	2800	3200	3600	4000	5000	6000																				
3	33	167	333	500	667	1000	1333	1667	2000	2333	2667	3000	3333	4000	4667	5333	6000																							
2	50	250	500	750	1000	1500	2000	2500	3000	3500	4000	4500	5000	6000																										
1	100	500	1000	1500	2000	3000	4000	5000	6000																															
0.5	200	1000	2000	3000	4000	6000																		UNLIKELY																
0.4	250	1250	2500	3750	5000																																			
0.3	333	1667	3333	5000																			TO PRESENT																
0.25	400	2000	4000																																					
0.15	667	3333																		ACUTE HAZARD																				
0.1	1000	5000																																						
0.05	2000																	IN NORMAL USE																						
0.03	3333																																							
0.02	5000																																							

Pesticide active ingredients, which occur in Tables 1-8, in CAS no order

For each active ingredient, the classification (Ia, Ib, II, III, or U (unlikely to pose an acute hazard in normal use, O (obsolete), FM (fumigant), and page number(s) are given.

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50-31-7	III	29
50-65-7	U	34
51-03-6	U	35
51-14-9	O	38
52-51-7	II	21
52-68-6	II	24
52-85-7	Ib	18
54-11-5	Ib	19
55-38-9	II	22
56-35-9	O	37
56-38-2	Ia	16, 39
56-72-4	Ib	18
57-24-9	Ib	19
57-74-9	II	21, 39
58-89-9	II	23, 39
60-51-5	II	22
60-57-1	O	37, 39
61-82-5	U	31
62-38-4	Ia	16
62-73-7	Ib	18
62-74-8	Ia	16
63-25-2	II	21
66-81-9	O	37
72-20-8	O	37
72-43-5	U	34
72-54-8	O	38
74-83-9	FM	39
74-90-8	FM	39
75-15-0	O	37
75-21-8	FM	39
75-60-5	III	27
75-99-0	U	32
76-03-9	II	24
76-06-2	FM	39
76-44-8	II	23, 39
76-87-9	II	22
77-06-5	U	33
78-34-2	O	37
78-57-9	O	38
78-87-5	O	37
79-11-8	III	26
80-06-8	O	37
80-33-1	O	37
80-38-6	O	38
81-81-2	Ib	19
81-82-3	O	37
81-84-5	O	38
82-66-6	Ia	16
82-68-8	U	35
83-26-1	Ib	19
83-59-0	O	38
83-79-4	II	24
84-65-1	U	31
84-74-2	O	37
85-34-7	O	37
86-50-0	Ib	18
86-86-2	U	34
86-87-3	U	34
86-88-4	O	37
87-17-2	O	38
87-86-5	Ib	19, 39
88-85-7	O	37, 39
90-43-7	U	35
91-20-3	O	38
92-52-4	U	31
93-71-0	O	37
93-72-1	O	38
93-75-4	O	38
93-76-5	O	38, 39
94-74-6	III	28
94-75-7	II	22
94-81-5	III	28
94-82-6	III	26
94-96-2	O	37
95-06-7	O	38
96-12-8	O	37
96-24-2	Ib	18
97-17-6	O	37
97-23-4	III	26
99-30-9	U	32
101-05-3	O	37
101-21-3	U	32
101-27-9	O	37
101-42-8	U	33
103-17-3	O	37
106-46-7	III	26
106-93-4	FM	39, 39
107-02-8	Ib	18
107-06-2	FM	39
107-13-1	O	37
107-18-6	Ib	18
107-49-3	O	38
108-25-8	O	38
108-62-3	II	23
112-12-9	III	29
113-48-4	III	28
114-26-1	II	24
115-26-4	O	37
115-29-7	II	22
115-31-1	O	38
115-32-2	III	27
115-78-6	II	21
115-90-2	O	38
116-01-8	O	37
116-06-3	Ia	16
116-16-5	O	38
116-29-0	U	36
117-18-0	U	35
118-74-1	Ia	16, 39
118-75-2	O	37
119-12-0	III	29
120-23-0	III	28
120-62-7	O	38
121-75-5	III	28
122-14-5	II	22
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131-11-3	U	32
131-89-5	O	37
132-66-1	U	34
133-06-2	U	31
133-07-3	U	33
133-90-4	U	31
134-31-6	O	38
134-62-3	III	27
136-25-4	O	37
137-26-8	III	29
137-30-4	III	29
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139-40-2	U	35
140-41-0	O	38
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140-57-8	O	37
141-03-7	O	37
141-66-2	Ib	18
142-59-6	II	23
143-33-9	Ib	19
143-50-0	O	37
148-79-8	U	36
149-26-8	O	37
150-68-5	O	38
152-16-9	O	38
156-62-7	O	37
297-78-9	O	38
297-97-2	O	38
298-00-0	Ia	16, 39
298-02-2	Ia	16
298-03-3	O	37
298-04-4	Ia	16
299-84-3	O	38
299-86-5	O	37
300-76-5	II	23

Pesticide active ingredients, which occur in Tables 1-8, in CAS no order

For each active ingredient, the classification (Ia, Ib, II, III, or U (unlikely to pose an acute hazard in normal use, O (obsolete), FM (fumigant), and page number(s) are given.

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315-18-4	O	38
327-98-0	O	38
330-54-1	U	32
330-55-2	U	34
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371-86-8	O	38
465-73-6	O	38
467-69-6	U	33
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485-31-4	O	37, 39
495-73-8	O	37
502-39-6	O	38
502-55-6	O	37
507-60-8	O	38
510-15-6	O	37, 39
513-77-9	O	37
532-34-3	O	37
533-74-4	III	26
534-52-1	Ib	18
535-89-7	O	37
542-75-6	FM	39
555-37-3	U	34
556-22-9	O	38
556-61-6	II	23
563-12-2	II	22
584-79-2	III	26
584-79-2	II	21
590-28-3	O	38
592-01-8	Ia	16
608-73-1	II	23, 39
640-15-3	Ib	19
640-19-7	Ib	18, 39
644-64-4	O	37
650-51-1	U	35
671-04-5	O	37
682-80-4	O	37
709-98-8	III	28
731-27-1	U	36
732-11-6	II	23
741-58-2	II	21
756-09-2	U	33
759-94-4	II	22
786-19-6	O	37
834-12-8	III	26
841-06-5	O	38
886-50-0	U	35
900-95-8	II	22
919-76-6	O	37
919-86-8	Ib	18
944-22-9	Ia	16
947-02-4	O	38
950-10-7	O	38
950-37-8	Ib	19
957-51-7	III	27
973-21-7	II	22
991-42-4	O	38
999-81-5	III	26
1014-69-3	III	26
1014-70-6	III	29
1031-47-6	O	38
1071-83-6	U	33
1085-98-9	U	32
1086-02-8	O	38
1113-02-6	Ib	19
1114-71-2	II	23
1129-41-5	II	23
1134-23-2	III	26
1194-65-6	U	32
1303-96-4	U	31
1314-84-7	Ib	19
1317-39-1	II	21
1327-53-3	O	37
1332-40-7	III	26
1420-06-3	O	38
1420-07-1	Ib	18
1468-37-7	O	37
1563-66-2	Ib	18
1582-09-8	U	36
1593-77-7	U	32
1596-84-5	U	32
1610-17-9	O	37
1610-18-0	U	35
1646-88-4	O	37
1689-83-4	II	23
1689-84-5	II	21
1698-60-8	U	32
1715-40-8	O	37
1746-81-2	U	34
1754-58-1	O	37
1836-75-5	O	38
1836-77-7	O	37
1861-32-1	U	32
1861-40-1	U	31
1897-45-6	U	32
1910-42-5	II	23
1912-24-9	U	31
1912-25-0	O	38
1912-26-1	U	36
1918-00-9	III	26
1918-02-1	U	35
1918-11-2	O	38
1918-13-4	III	26
1918-16-7	III	28
1918-18-9	O	38
1929-77-7	II	24
1929-82-4	III	28
1929-88-0	O	37
1967-16-4	O	37
1982-47-4	O	37
1982-49-6	U	35
2008-41-5	U	31
2032-59-9	O	37
2032-65-7	Ib	19
2079-00-7	Ib	18
2104-64-5	Ia	16
2104-96-3	O	37
2163-69-1	O	37
2163-79-3	O	38
2164-08-1	II	23
2164-08-1	U	34
2164-09-2	O	37
2164-17-2	U	33
2212-67-1	II	23
2227-13-6	O	38
2227-47-0	III	27
2275-14-1	O	38
2275-18-5	O	38
2275-23-2	Ib	19
2303-16-4	O	37
2303-17-5	III	29
2307-49-5	O	38
2307-68-8	U	35
2310-17-0	II	23
2312-35-8	III	28
2385-85-5	O	38
2425-06-1	Ia	16, 39
2425-10-7	II	24
2439-01-2	III	26
2439-10-3	III	27
2439-99-8	O	38
2487-01-6	O	38
2497-07-6	O	38
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2550-75-6	O	37
2587-90-8	O	37
2593-15-9	III	27
2595-54-2	Ib	19
2597-03-7	II	23
2631-37-0	O	38
2631-40-5	II	23
2636-26-2	II	21
2642-71-9	Ib	18
2655-14-3	III	29
2655-19-8	O	37
2669-32-1	O	38
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For each active ingredient, the classification (Ia, Ib, II, III, or U (unlikely to pose an acute hazard in normal use, O (obsolete), FM (fumigant), and page number(s) are given.

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2797-51-5	III	29
2813-95-8	O	37
2921-88-2	II	21
2941-55-1	O	37
3060-89-7	U	34
3134-12-1	O	38
3337-71-1	U	31
3347-22-6	III	27
3383-96-8	U	35
3495-42-9	O	37
3547-33-9	U	33
3689-24-5	Ia	16
3691-35-8	Ia	16
3734-95-0	O	37
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3766-81-2	II	22
3792-59-4	O	37
3811-49-2	O	37
3813-05-6	U	31
3861-47-0	II	23
3878-19-1	II	22
4104-14-7	O	38
4147-51-7	O	37
4151-50-2	III	29
4234-79-1	O	38
4301-50-2	O	38
4482-55-7	U	33
4489-31-0	O	38
4636-83-3	O	38
4658-28-0	O	37
4726-14-1	O	38
4824-78-6	O	37
4849-32-5	O	38
5131-24-8	O	37
5221-53-4	U	32
5234-68-4	U	31
5259-88-1	U	34
5598-13-0	U	32
5707-69-7	O	37
5827-05-4	O	38
5834-96-8	O	37
5836-10-2	O	37
5836-29-3	Ib	18
5902-51-2	U	35
5915-41-3	U	35
6164-98-3	O	37, 39
6392-46-7	O	37
6616-80-4	O	37
6923-22-4	Ib	19, 39
6988-21-2	O	37
7055-03-0	O	38
7085-19-0	III	28
7159-99-1	O	38
7187-36-7	O	38
7287-19-6	U	35
7292-16-2	Ib	19
7446-18-6	Ib	19
7487-94-7	Ia	16
7547-66-2	III	26
7681-49-4	II	24
7681-93-8	III	28
7696-12-0	U	36
7700-17-6	O	37
7704-34-9	U	35
7758-98-7	II	21
7773-06-0	U	31
7775-09-9	III	29
7778-44-1	Ib	18
7784-40-9	Ib	19
7784-46-5	Ib	19
7803-51-2	FM	39
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8051-02-3	O	38
8065-36-9	O	37
9006-42-2	U	34
10004-44-1	U	33
10071-13-3	U	34
10112-91-1	II	23
10265-92-6	Ib	19, 39
10311-84-9	O	37
10380-28-6	U	34
10453-86-8	III	29
10537-47-0	O	38
10552-74-6	U	34
10605-21-7	U	31
12002-03-8	Ib	19
12057-74-8	FM	39
12071-83-9	U	35
12122-67-7	U	36
12407-86-2	O	38
12427-38-2	U	34
12771-68-5	U	31
13067-93-1	O	37
13071-79-9	Ia	16
13121-70-5	III	26
13171-21-6	Ia	16, 39
13181-17-4	III	26
13194-48-4	Ia	16
13356-08-6	U	33
13360-45-7	U	31
13457-18-6	II	24
13516-27-3	II	23
13577-71-4	O	38
13593-03-8	II	24
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13684-56-5	U	32
13684-63-4	U	35
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14255-88-0	O	38
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14484-64-1	U	33
14491-59-9	O	37
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14816-18-3	II	23
14816-20-7	O	37
15096-52-3	U	32
15263-53-3	II	21
15299-99-7	U	34
15302-91-7	III	28
15310-01-7	O	37
15457-05-3	O	38
15545-48-9	U	32
15845-66-2	U	33
15879-93-3	II	21
15972-60-8	III	26
16118-49-3	U	31
16484-77-8	III	28
16672-87-0	U	32
16752-77-5	Ib	19
16893-85-9	II	24
17029-22-0	O	38
17040-19-6	O	37
17109-49-8	Ib	18
17606-31-4	III	26
17804-35-2	U	31
18181-70-9	O	38
18181-80-1	U	31
18467-77-1	U	32
18691-97-9	U	34
18854-04-8	Ib	18
19044-88-3	U	34
19408-46-9	U	34
19622-08-3	O	38
19666-30-9	U	34
19691-80-6	O	37
19937-59-8	U	34
20354-26-1	O	38
20427-59-2	III	26
20856-57-9	O	37

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21087-64-9	II	23	28249-77-6	II	24	37894-46-5	O	37
21540-35-2	O	38	28434-01-7	U	31	37924-13-3	O	38
21542-18-6	O	38	28559-00-4	O	37	38260-54-7	II	22
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21609-90-5	O	38	28805-78-9	O	38	39196-18-4	Ib	19
21725-46-2	II	21	29091-05-2	U	32	39300-45-3	III	27
21908-53-2	Ib	19	29091-21-2	U	35	39515-40-7	II	22
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22224-92-6	Ib	18	29173-31-7	O	38	40483-25-2	III	26
22248-79-9	U	36	29232-93-7	III	28	40487-42-1	III	28
22259-30-9	Ib	18	29672-19-3	O	38	40596-69-8	U	34
22274-74-0	O	37	29973-13-5	Ib	18	41083-11-8	II	21
22571-07-9	O	38	30043-49-3	O	37	41198-08-7	II	24
22781-23-3	II	21	30560-19-1	III	26	41205-09-8	U	33
22936-75-0	III	27	30979-48-7	O	38	41295-28-7	O	38
23031-36-9	II	24	31218-83-4	Ib	19	41394-05-2	III	28
23103-98-2	II	24	31251-03-3	O	38	41483-43-6	U	31
23135-22-0	Ib	19	31848-11-0	O	37	41814-78-2	II	24
23184-66-9	U	31	31895-22-4	II	24	42509-80-8	Ib	18
23505-41-1	Ib	19	32407-99-1	O	38	42576-02-3	U	31
23560-59-0	Ib	18	32534-96-6	O	37	42588-37-4	O	38
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23564-06-9	O	38	32809-16-8	U	35	42609-73-4	U	34
23947-60-6	U	32	32861-85-1	U	31	42874-03-3	U	34
23950-58-5	U	35	33089-61-1	III	26	43121-43-3	III	29
24017-47-8	Ib	19	33245-39-5	III	27	43222-48-6	II	22
24151-93-7	II	24	33629-47-9	U	31	50471-44-8	U	36
24201-58-9	O	37	33693-04-8	II	24	50512-35-1	III	28
24353-58-0	O	37	33820-53-0	O	38	50563-36-5	III	27
24579-73-5	U	35	33878-50-1	O	37	50594-66-6	III	26
24691-76-7	O	38	34014-18-1	III	29	51218-45-2	III	28
24691-80-3	U	33	34123-59-6	III	28	51218-49-6	U	35
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25057-89-0	III	26	34256-82-1	III	26	51308-54-4	O	37
25311-71-1	Ib	18	34264-24-9	O	38	51487-69-5	O	37
25319-90-8	III	28	34462-96-9	O	38	51630-58-1	II	22
25366-23-8	O	38	34643-46-4	II	24	51707-55-2	U	36
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26002-80-2	U	35	34681-23-7	Ib	18	52315-07-8	Ib	19
26087-47-8	III	28	35256-85-0	O	37	52645-53-1	II	23
26129-32-8	O	37	35256-85-0	U	35	52888-80-9	II	24
26225-79-6	U	33	35367-38-5	U	32	52918-63-5	II	22
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26644-46-2	U	36	36335-67-8	II	21	54406-48-3	III	27
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27314-13-2	U	34	36734-19-7	U	34	55219-65-3	III	29
27355-22-2	U	35	36756-79-3	U	36	55283-68-6	U	32
27386-64-7	O	38	37248-47-8	U	36	55285-14-8	II	21
27541-88-4	O	38	37407-77-5	O	37	55290-64-7	III	27
27605-76-1	U	35	37764-25-3	III	26	55335-06-3	III	29

Pesticide active ingredients, which occur in Tables 1-8, in CAS no order

For each active ingredient, the classification (Ia, Ib, II, III, or U (unlikely to pose an acute hazard in normal use, O (obsolete), FM (fumigant), and page number(s) are given.

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55512-33-9	III	29	67564-91-4	U	33	82110-72-3	O	38
55634-91-8	U	31	67747-09-5	III	28	82211-24-3	U	34
55814-41-0	U	34	68085-85-8	II	21	82558-50-7	U	34
55861-78-4	III	28	68228-20-6	O	38	82560-54-1	II	21
56073-07-5	Ia	16	68359-37-5	II	21	82657-04-3	II	21
56073-10-0	Ia	16	68359-37-5	II	21	83055-99-6	U	31
56425-91-3	III	27	68505-69-1	U	31	83066-88-0	III	27
57018-04-9	U	36	69309-47-3	O	38	83121-18-0	U	35
57052-04-7	O	38	69327-76-0	U	31	83130-01-2	II	21
57130-91-3	O	38	69335-91-7	O	38	83164-33-4	U	32
57369-32-1	II	24	69377-81-7	U	33	83657-22-1	III	29
57375-63-0	O	38	69409-94-5	O	38	83657-24-3	III	27
57646-30-7	III	27	69581-33-5	O	37	83733-82-8	O	38
57754-85-5	U	32	69806-34-4	II	23	84087-01-4	U	35
57837-19-1	III	28	70124-77-5	Ib	18	84332-86-5	U	32
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58138-08-2	O	38	71048-99-2	II	21	85785-20-2	III	27
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58810-48-3	U	34	71561-11-0	III	29	86598-92-7	U	34
59669-26-0	II	24	71626-11-4	U	31	87130-20-9	U	32
59756-60-4	U	33	72178-02-0	III	27	87310-56-3	O	37
60168-88-9	U	33	73250-68-7	U	34	87757-18-4	O	38
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60207-93-4	O	37	74070-46-5	U	31	88283-41-4	III	29
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64491-92-5	O	38	77732-09-3	III	28	96489-71-3	III	29
64628-44-0	U	36	78587-05-0	U	33	97886-45-8	U	32
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66246-88-6	U	34	81334-34-1	U	33	101205-02-1	U	32
66332-96-5	U	33	81335-37-7	U	33	101463-69-8	U	33
66952-49-6	II	23	81335-77-5	U	34	102851-06-9	U	33
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116255-48-2	II	21	125401-75-4	U	31	149253-65-6	U	33
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118712-89-3	U	36	131807-57-3	U	33			

INDEX. CLASSIFICATION OF ACTIVE PESTICIDE INGREDIENTS

Ia = Extremely hazardous; IB = Highly hazardous; II =Moderately hazardous; III = slightly hazardous; U = Unlikely to present acute hazard in normal use; FM =Fumigant, not classified; O = Obsolete as pesticide, not classified.

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