WHO/PCS/96.3
ENGLISH ONLY

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International Programme on Chemical Safety

THE WHO RECOMMENDED CLASSIFICATION OF PESTICIDES BY HAZARD and GUIDELINES TO CLASSIFICATION 1996-1997

United Nations Environment Programme
Programme des Nations Unies pour l'Environnement

International Labour Organization
Bureau international du Travail

World Health Organization
Organisation Mondiale de la Santé

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1. INTRODUCTION

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 4 (single technical product) and 6 and 7 (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/94.2

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 border-line 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}* 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.

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* 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 product or formulation being classified.

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

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 labelling*

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 world 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.

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* See also references 2 and 3, page 11.

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, technical products have been classified as follows:

The tables are arranged in alphabetical order. Each technical product appears in one table only.

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 technical compounds, 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 4 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 50.

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. 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:

$$\frac{C_A}{T_A} + \frac{C_B}{T_B} + \frac{C_Z}{T_Z} = \frac{100}{T_m}$$

where C = the % concentrations of constituent A, B ... Z in the mixture
where T = the oral LD_{50} values of constituents A, B ...Z
where 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. These figures are not median values, but a safety margin is incorporated by choosing the lower confidence limit in most cases. 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. 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 safety 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 labelling is to reflect true hazard.

ENTRIES AND ABBREVIATIONS USED IN THE TABLES

The following notes apply to Tables 1 to 5.

Name (Column 1): approved name of active ingredient.

Status (Column 2):

ISO: Common name 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 counties. If the letters ISO appear within parentheses, 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.

N( ): Approved by a national ministry or other body, which is shown in the parentheses as follows:

- A: United States Environmental Protection Agency or American National Standards Institute or the Weed Science Society of America or the Entomological Society of America;
- B: British Standards Institution, or the British Pharmacopoeia Commission;
- F: Association Française de Normalisation;
- J: Japanese Ministry of Agriculture and Forestry;
- U: Gosudarstvennyi Komitet Standartov, USSR.

C: Chemical, trivial, or other common name.

Main use (Column 3): 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

Chemical type (Column 4): 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.

C	carbamate
CNP	chloronitrophenol derivative
OC	organochlorine compound
OM	organomercury compound
OP	organophosphorus compound
OT	organotin compound
P	pyridyl derivative
PA	phenoxyacetic acid derivative
PY	pyrethroid
T	triazine derivative
TC	thiocarbamate

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.

Chemical type is not shown where it is apparent from the name.

Physical state (Column 5): refers only to the technical compound.

L	liquid, including solids with a melting point below 50°C:
oil	oily liquid - refers to physical state only
S	solid, includes waxes.

Route (Column 6): 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.

D	dermal
O	oral

LD_{50}, mg/kg (column 7): 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. A single value is given: "c" preceding the value indicates that it is a value within a wider than usual range, adopted for classification purposes: + preceding the value indicates that the kill at the stated dose was less than 50% of the test animals, and is used for typographical reasons in place of the symbol >.

Remarks (Column 8):

(a) Where the classification of a technical product has been adjusted, the basis for this is indicated in this column.

(b) Major irritant properties are noted: these do not affect classification.

(c) Where the name of a technical product is cross-referenced, the referenced product will be found in the same table.

(d) DS followed by a number indicates that a WHO/FAO Data Sheet of that number contains further information on the product.

(e) EHC followed by a number indicates that an issue of that number in the Environmental Health Criteria Series has been published by the International Programme on Chemical Safety. In addition, other Environmental Health Criteria have been published on general topics relevant to some chemical classes of pesticides listed. These are given in References 9-54 below.

REFERENCES

The following references may provide a useful source of information on identification of pesticides.

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19. WHO (1984), Environmental Health Criteria 40; Endosulfan, Geneva, World Health Organization, 109 pp.

20. WHO (1984), Environmental Health Criteria 41; Quintozene, Geneva, World Health Organization, 38 pp.

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22. WHO (1984), Environmental Health Criteria 43; Chlordecone, Geneva, World Health Organization, 57 pp.

23. WHO (1984), Environmental Health Criteria 44; Mirex, Geneva, World Health Organization, 70 pp.

24. WHO (1984), Environmental Health Criteria 45; Campechlor, Geneva, World Health Organization, 66 pp.

25. WHO (1985), Environmental Health Criteria 55; Ethylene Oxide, Geneva, World Health Organization, 79 pp.

26. WHO (1986), Environmental Health Criteria 63; Organophosphorus Insecticides, Geneva, World Health Organization, 181 pp.

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28. WHO (1984), Environmental Health Criteria 66; Kelevan, Geneva, World Health Organization, 32 pp.

29. WHO (1986), Environmental Health Criteria 67; Tetradifon, Geneva, World Health Organization, 47 pp.

30. WHO (1987), Environmental Health Criteria 71; Pentachlorophenol, Geneva, World Health Organization, 236 pp.

31. WHO (1988), Environmental Health Criteria 73; Phosphine and Selected Metal Phosphides, Geneva, World Health Organization, 100 pp.

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TABLE 1. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS Ia "EXTREMELY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
acrolein	C	H		L	O	29	EHC 127; HSG 67
alachlor	ISO	H		S	O	930	Adjusted classification; see note 10, DS 84
aldicarb	ISO	I-S	C	S	O	0.93	DS 53; EHC 121; HSG 64
arsenous oxide	C	R		S	O	180	Adjusted classification; see note 1, end of table; EHC 18; HSG 70
brodifacoum	ISO	R		S	O	0.3	DS 57; EHC 175; HSG 93
bromadialone	ISO	R		S	O	1.12	DS 88; EHC 175; HSG 94
bromethalin	ISO	R		S	O	2	
calcium cyanide	C	FM		S	O	39	Adjusted classification; see note 2, end of table
captafol	ISO	F		S	O	5 000	Adjusted classification; see note 8, end of table; HSG 49
chlorfenvinphos	ISO	I	OP	L	O	10	
chlormephos	ISO	I	OP	L	O	7	
chlorophacinone	ISO	R		S	O	3.1	DS 62; EHC 175
chlorthiophos	ISO	I	OP	L	O	9.1	
coumaphos	ISO	AC, MT	OP	L	O	7.1	
CVP	N(J)						See chlorfenvinphos
cycloheximide	ISO	F		S	O	2	
DBCP	N(J)						See dibromochloropropane
demephion-O and -S	ISO	I	OP	L	O	15	
demeton-O and -S	ISO	I	OP	L	O	2.5	DS 60
dibromochloropropane	C	F-S		L	O	170	Adjusted classification; see note 3, end of table
difenacoum	ISO	R		S	O	1.8	EHC 175; HSG 95
difethialone	ISO	R		S	O	0.56	EHC 175
difolatan	N(J)						See captafol
dimefox	ISO	I	OP	L	O	1	Volatile

TABLE 1. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS Ia "EXTREMELY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
diphacinone	ISO	R		S	O	2.3	EHC 175
disulfoton	ISO	I	OP	L	O	2.6	DS 68
EPN	N(A,J)	I	OP	S	O	14	See note 7, end of table
ethoprop	N(A)						See ethoprophos
ethoprophos	ISO	I-S	OP	L	D	26	DS 70
ethylthiometon	N(J)						See disulfoton
fenamiphos	ISO	N	OP	L	O	15	DS 92
fensulfothion	ISO	I	OP	L	O	3.5	DS 44
flocoumafen	N(B)	R		S	O	0.25	EHC 175
fonofos	ISO	I-S	OP	L	O	c8	
hexachlorobenzene	ISO	FST		S	D	10 000	Adjusted classification; see note 4, end of table; DS 26
leptophos	ISO	I	OP	S	O	50	Adjusted classification; see note 5, end of table; DS 38
M74	N(J)						See disulfoton
MBCP	N(J)						See leptophos
mephosfolan	ISO	I	OP	L	O	9	
mercuric chloride	ISO	F-S		S	O	1	
merkaptophos	N(U)						When mixed with merkaptophosteolovy, see demeton -O and -S
metaphos	N(U)						See parathion-methyl
mevinphos	ISO	I	OP	L	D	4	DS 14
nitrofen	ISO	H		S	O	c3000	Adjusted classification; see note 9; DS 84
parathion	ISO	I	OP	L	O	13	DS 6; HSG 74
parathion-methyl	ISO	I	OP	L	O	14	DS 7; EHC 145; HSG 75
phenylmercury acetate	ISO	FST		S	O	24	Adjusted classification; see note 6, end of table
phorate	ISO	I	OP	L	O	2	DS 75
phosfolan	ISO	I	OP	L	O	9	
phosphamidon	ISO	I	OP	L	O	7	DS 74
prothoate	ISO	AC,I	OP	L	O	8	

TABLE 1. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS Ia "EXTREMELY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
red squill							See scilliroside
schradan	ISO	I	OP	L	O	9	
scilliroside	C	R		S	O	c0.5	Induces vomiting in mammals
sodium fluoroacetate	C	R		S	O	0.2	DS 16
sulfotep	ISO	I	OP	L	O	5	
TEPP	ISO	AC	OP	L	O	1.1	
terbufos	ISO	I-S	OP	L	O	c2	
thiofos	N(U)						See parathion
thionazin	ISO	N	OP	L	O	11	
timet	N(U)						See phorate

Notes to Class Ia

1. Arsenous oxide (also known as arsenic trioxide, arsenious oxide, and white arsenic) has a minimum lethal dose for humans of 2 mg/kg. Evidence of carcinogenicity for humans is sufficient.
2. 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 7).
3. Dibromochloropropane has been found to cause sterility in humans and is mutagenic and carcinogenic in animals.
4. Hexachlorobenzene has caused a serious outbreak of porphyria in humans. See also WHO Technical Report Series No. 555 (1974).
5. Leptophos has been shown to cause delayed neurotoxicity.
6. Phenylmercury acetate is highly toxic to mammals and very small doses have produced renal lesions: teratogenic in the rat.
7. EPN has been reported as causing delayed neurotoxicity in hens.
8. Captafol is carcinogenic in both rats and mice.
9. Nitrofen is carcinogenic in both rats and mice and is teratogenic in several species tested.
10. Alachlor is carcinogenic in both rats and mice.

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

TABLE 2. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS Ib "HIGHLY HAZARDOUS"

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
aldoxycarb	ISO	I,N	C	S	O	27	
aldrin	ISO	I	OC	S	D	98	DS41; EHC 91; HSG 21
allyl alcohol	C	H		L	O	64	Highly irritant to skin and eyes
aminocarb	ISO	I	C	S	O	50	
antu	ISO	R		S	O	8	Induces vomiting in dogs. Some impurities are carcinogenic
azinphos-ethyl	ISO	I	OP	S	O	12	DS 72
azinphos-methyl	ISO	I	OP	S	O	16	DS 59
benfuracarb	N(B)	I	C	L	O	138	
bis(tributyltin) oxide	C	F,M		L	O	194	Irritant to skin. DS 65; EHC 15
blasticidin-S	N(J)	F		S	O	16	
bromophos-ethyl	ISO	I	OP	L	O	71	
butocarboxim	ISO	I	C	L	O	158	
butoxycarboxim	ISO	I	C	L	D	288	
cadusafos	ISO	N,I	OP	L	O	37	
calcium arsenate	C	I		S	O	20	
carbofuran	ISO	I	C	S	O	8	DS 56
carbophenothion	ISO	I	OP	L	O	32	
3-chloro-1,2-propanediol	C	R		L	O	112	See note 1, end of table
coumachlor	ISO	R		S	D	33	
coumatetralyl	ISO	R		S	O	16	
crotoxyphos	ISO	I	OP	L	O	74	
zeta-cypermethrin	ISO	I	PY	L	O	c86	See note 9, page 7; HSG 22
DDVF	N(U)						See dichlorvos
DDVP	N(J)						See dichlorvos
delnav	N(U)						See dioxathion
demeton-S-methyl	ISO	I	OP	L	O	40	DS 61
demeton-S-methylsulphon	ISO	I	OP	S	O	37	

TABLE 2. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS Ib "HIGHLY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
demeton-S-methylsulphon	ISO	I	OP	S	O	37	
dichlorvos	ISO	I	OP	L	O	56	Volatile, DS 2; EHC 79; HSG 18
dicrotophos	ISO	I	OP	L	O	22	
dieldrin	ISO	I	OC	S	O	37	DS 17: EHC 91
dimetilan	N(A,B)	I	C	S	O	47	
dinoseb	ISO	H	NCP	L	O	58	
dinoseb acetate	ISO	H	NCP	L	O	60	
dinoterb	ISO	H	NCP	S	O	25	
dioxathion	ISO	I	OP	L	O	23	
DMTP	N(J)						See methidathion
DNBP	N(J)						See dinoseb
DNBPA	N(J)						See dinoseb acetate
DNOC	ISO	I-S,H	NCP	S	O	25	
EDDP	N(J)						See edifenfos
edifenphos	ISO	F	OP	L	O	150	
endrin	ISO	I	OC	S	O	7	DS 1; EHC 130; HSG 60
ESP	N(J)	I	OP	L	O	105	
famphur	N(A)	I	OP	S	O	48	
flucythrinate	ISO	I	PY	L	O	c67	Irritant to skin and eyes, see special note 9, page 7
fluoroacetamide	C	R		S	O	13	
formetanate	ISO	AC	C	S	O	21	
fosmethilan	ISO	I	OP	S	O	49	Irritant to skin and eyes.
furathiocarb	N(B)	I-S	C	L	O	42	
heptenophos	ISO	I	OP	L	O	96	
isazofos	ISO	I-S	OP	L	O	60	
isofenphos	ISO	I	OP	oil	O	28	
isothioate	ISO	I	OP	L	O	150	
isoxathion	ISO	I	OP	L	O	112	

TABLE 2. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS Ib "HIGHLY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
lead arsenate	C	L		S	O	c10	
mecarbam	ISO	I	C	oil	O	36	
mercuric oxide	ISO	O		S	O	18	
methamidophos	ISO	I	OP	L	O	30	HSG 79
methidathion	ISO	I	OP	L	O	25	
methomyl	ISO	I	C	S	O	17	DS 55, EHC 178; HSG 97
methyl-merkapto-phosteolovy	N(U)						See demeton-S-methyl
metilmerkapto-phosoksid	N(U)						See oxydemeton-methyl
metriltriazotion	N(U)						See azinphos-methyl
monocrotophos	ISO	I	OP	S	O	14	HSG 80
MPP	N(J)						See fenthion
nicotine	ISO			L	D	50	
omethoate	ISO	I	OP	L	O	50	
oxamyl	ISO	I	C	S	O	6	DS 54
oxydemeton-methyl	ISO	I	OP	L	O	65	
oxydeprofos	N(B)						See ESP
paris green	C	L		S	O	22	Copper-arsenic complex
pentachlorophenol	ISO	I,F,H	NCP	S	D	80	Irritant to skin; EHC 71; HSG 19
phenylmercury nitrate	C	FST	OM	S			Oral LD_{50} not available, rat i.v. LD_{50} is 27 mg/kg
pirimiphos-ethyl	ISO	I	OP	L	O	140	
propaphos	N(J)	I	OP	L	O	70	
propetamphos	ISO	I	OP	L	O	106	
sodium arsenite	C	R		S	O	10	
sodium cyanide	C	R		S	O	6	
strychnine	C	R		S	O	16	
TBTO							See bis-(tributyltin) oxide

TABLE 2. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS Ib "HIGHLY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
tefluthrin	N(B)	I-S	PY	S	O	c22	See page 7, note 9
thallium sulfate	C	R		S	O	11	DS 10
thiofanox	ISO	I-S	C	S	O	8	
thiometon	ISO	I	OP	oil	O	120	DS 67
thioxamyl							See oxyamyl
triamiphos	ISO	F		S	O	20	
triazophos	ISO	I	OP	L	O	82	
triazotion	N(U)						See azinphos-ethyl
vamidothion	ISO	I	OP	L	O	103	
warfarin	ISO	R		S	O	10	DS 35, EHC 175; HSG 96
zinc phosphide	C	R		S	O	45	DS 24, EHC 73

Notes to Class Ib

1. 3-chloro-1,2-propanediol in nonlethal dosage is a sterilant for male rats. This compound is also known as alpha-chlorohydrin.

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

TABLE 3. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS II "MODERATELY HAZARDOUS"

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
alanycarb	ISO	I	C	S	O	330	
allidochlor	ISO	H		L	O	700	Irritant to skin and eyes
anilofos	ISO	H		S	O	472	
azaconazole	N(B)	F		S	O	308	
azocyclotin	ISO	AC	OT	S	O	80	
bendiocarb	ISO	I	C	S	O	55	DS 52
bensulide	ISO	H		L	O	270	
benzofos	N(U)						See phosalone
BHC	ISO						See HCH
gamma-BHC							See gamma-HCH
bifenthrin	N(B)	I	PY	S	O	c55	
bilanafos	ISO	H		S	O	268	
binapacryl	ISO	AC		S	O	421	
bioallethrin	C	I	PY	L	O	c700	See note 5, end of table; also note 9, page 7
bisthiosemi	N(J)	R		S	O	c150	Induces vomiting in non-rodents.
BPMC							See fenobucarb
bromoxynil	ISO	H		S	O	190	
bronopol	N(B)	B		S	O	254	
bufencarb	ISO	I	C	S	O	87	
butamifos	ISO	H		L	O	630	
butenachlor	ISO	H		L	O	1 630	
butylamine	ISO	F		L	O	380	Irritant to skin
camphechlor	ISO	I	OC	S	O	80	DS 20; EHC 45
carbaryl	ISO	I	C	S	O	c300	DS 3; EHC 153; HSG 78
carbosulfan	ISO	I		L	O	250	
cartap	ISO	I		S	O	325	
chloralose	C	R		S	O	400	
chlordane	ISO	I	OC	L	O	460	DS 36; EHC 34; HSG 13

TABLE 3. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS II "MODERATELY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
chlordimeform	ISO	AC	OC	S	O	340	
chlorphenamidine	N(J)						See chlordimeform
chlorphonium	ISO	PGR		S	O	178	Irritant to skin and eyes
chlorpyrifos	ISO	I	OP	S	O	135	DS 18
clomazone	ISO	H		L	O	1 369	
copper sulfate	C	F		S	O	300	
cuprous oxide	C	F		S	O	470	
cyanazine	ISO	H	T	S	O	288	
cyanofenphos	ISO	I	OP	S	O	89	See note 4, end of table
cyanophos	ISO	I	OP	L	O	610	
CYAP	N(J)						See cyanophos
cyfluthrin	ISO	I	PY	S	O	c250	See note 9, page 7
beta-cyfluthrin	ISO	I	PY	S	O	450	
cyhalothrin	ISO	Ix	PY	oil	O	c144	See note 9, page 7; EHC 99
lambda-cyhalothrin	N(B)	I	PY	S	O	c56	See note 9, page 7; EHC 142; HSG 38
CYP	N(J)						See cyanofenphos
cypermethrin	ISO	I	PY	S	O	c250	See note 9, page 7; DS 58; EHC 82; HSG 22
alpha-cypermethrin	ISO	I	PY	S	O	c79	See note 9, page 7 EHC 142
beta-cypermethrin	ISO	I	PY	S	O	166	
cyphenothrin [(1R)-isomers]	ISO	I	PY	L	O	318	
cyprofuram	ISO	F		S	O	174	
2,4-D	ISO	H	PA	S	O	375	DS 37; EHC 29; EHC 84
DAPA	N(J)						See fenaminosulf

TABLE 3. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS II "MODERATELY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DDT	ISO	I	OC	S	O	113	DS 21; EHC 9; EHC 83
deltamethrin	ISO	I	PY	S	O	c135	See note 9, page 7; DS 50; EHC 97; HSG 30
dialifor	N(A,J)						See dialifos
dialifos	ISO	I	OP	S	D	145	
di-allate	ISO	H	TC	L	O	395	
diazinon	ISO	I	OP	L	O	300	DS 45
dibrom	N (Denmark)						See naled
dichlofenthion	ISO	I-S	OP	L	O	270	
difenzoquat	ISO	H		S	O	470	
dimethoate	ISO	I	OP	S	O	c150	DS 42; EHC 90; HSG 20
dinobuton	ISO	AC,F		S	O	140	
dioxabenzophos	N(B)	I	OP	S	O	125	
dioxacarb	ISO	I	C	S	O	90	
diquat	ISO	H	P	S	O	231	Irritant to skin, and eyes, and damages nails: DS 40; EHC 39; HSG 52
drazoxolon	(ISO)	FST		S	O	126	
ECP	N(J)						See dichlofenthion
endosulfan	ISO	I	OC	S	O	80	DS 15; EHC 40; HSG 17
endothal-sodium	(ISO)	H		S	O	51	
EPBP	N(J)	I-S	OP	oil	O	275	
EPTC	ISO	H	TC	L	O	1 652	
esbiol							See bioallethrin
esbiothrin							See bioallethrin
esdepalléthrine							See bioallethrin
esfenvalerate	ISO	I	PY	S	O	87	
ethiofencarb	ISO	I	C	L	O	411	

TABLE 3. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS II "MODERATELY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ethion	ISO	I	OP	L	O	208	
etrimfos	ISO	I	OP	L	O	1 800	
fenaminosulf	ISO	F-S		S	O	60	
fenazaquin	ISO	AC		S	O	134	
fenchlorphos	ISO	I	OP	L	O	1 740	DS 69
fenitrothion	ISO	I	OP	L	O	503	DS 30; EHC 133; HSG 65
fenobucarb	N(B)	I	C	S	O	620	
fenpropathrin	ISO	I	PY	S	O	c66	See note 9, page 7
fenthion	ISO	I,L	OP	L	D	586	DS 23
fentin acetate	(ISO)	F	OT	S	O	125	DS 22
fentin hydroxide	(ISO)	F	OT	S	O	108	DS 22
fenvalerate	ISO	I	PY	L	O	c450	See note 9, page 7; EHC 95, DS 90; HSG 34
fipronil	N(B)	I	pyrazole	S	O	92	
fluvalinate	N(B)	I		oil	O	282	Irritant to skin
fluxofenim	ISO	H		oil	O	670	
formothion	ISO	I	OP	L	O	365	
fosfamid	N(U)						See dimethoate
furconazole-cis	ISO	F		S	O	450	
guazatine	N(B)	FST		S	O	230	LD_{50} value refers to triacetate
haloxyfop	N(A,B)	H		S	O	393	
HCH	ISO	I	OC	S	O	100	See note 1, end of table
gamma-HCH	ISO	I	OC	S	O	88	DS 12; EHC 124; HSG 54
heptachlor	ISO	I	OC	S	O	100	DS 19; EHC 38; HSG 14
imazalil	ISO	F		S	0	320	
imidacloprid	N(B)	I	nitro-guanidine	S	O	450	
iminoctadine	ISO	F		S	O	300	Eye irritant
ioxynil	ISO	H		S	O	110	

TABLE 3. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS II "MODERATELY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ioxynil octanoate	(ISO)	H		S	O	390	
isoprocarb	ISO	I	C	S	O	403	
karbation	N(U)						See metam-sodium
lindane	ISO						See gamma-HCH
MEP	N(J)						See fenitrothion
mercaptodimethur							See methiocarb
mercurous chloride	C	F		S	O	210	
metaldehide	ISO	M		S	O	227	
metam-sodium	(ISO)	F-S		S	O	285	
methacrifos	ISO	I	OP	L	O	678	
methasulfocarb	ISO	F		S	O	112	
methiocarb	ISO	I	C	S	O	100	
methyl isothiocyanate	ISO	F-S		S	O	72	Skin and eye irritant
metolcarb	ISO	I	C	S	O	268	
MICP	N(J)						See isoprocarb
molinate	ISO	H	TC	L	O	720	
MPMC							See xylylcarb
nabam	ISO	F	TC	S	O	395	Goitrogenic in rats
NAC	N(J)						See carbaryl
naled	ISO	I	OP	L	O	430	DS 39
norbormide	ISO	R		S	O	52	
2,4-PA	N(J)						See 2,4-D
PAP	N(J)						See phenthoate
paraquat	ISO	H	P	S	O	150	See note 2, end of table; DS 4; EHC 39; HSG 51
pebulate	ISO	H	TC	L	O	1 120	
permethrin	ISO	I	PY	L	O	c500	See note 9 page 7; DS 51; EHC 94; HSG 33
PHC	N(J)						See propoxur

TABLE 3. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS II "MODERATELY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
phenthoate	ISO	I	OP	L	O	c400	DS 48
phosalone	ISO	I	OP	L	O	120	
phosmet	ISO	I,AC	OP	S	O	230	
phoxim	ISO	I	OP	L	D	1 975	DS 31
phthalofos	N(U)						See phosmet
pindone	ISO	R		S	O	50	
piperophos	ISO	H		oil	O	324	
pirimicarb	ISO	AP	C	S	O	147	
polychlorcamphene	N(U)						See camphechlor
prallethrin	ISO	I	PY	oil	O	460	
profenofos	ISO	I	OP	L	O	358	
promacyl	N(Aust)	Ix	C	L	O	1 220	
promecarb	ISO	I	C	S	O	74	
propiconazole	ISO	F		L	O	1 520	
propoxur	ISO	I	C	S	O	95	DS 25
prosulfocarb	ISO	H		L	O	1 820	
prothiofos	ISO	I	OP	L	O	925	
prothiophos							See prothiofos
pyraclofos	N(B)	I	OP	L	O	237	
pyrazophos	ISO	F		S	O	435	
pyrethrins	C	I		L	O	500-1 000	Mixture of compounds present in Pyrethrum Cineraefolium and other flowers; DS 11
pyroquilon	ISO	F		S	O	320	
quinalphos	ISO	I	OP	S	O	62	
quizalofop-p-tefuryl	ISO	H		L	O	1012	
reglon	N(U)						See diquat
ronnel	N(A)						See fenchlorphos

TABLE 3. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS II "MODERATELY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
rotenone	C	I		S	O	132-1 500	Compounds from roots of Derris and Lonchocarpus spp.; HSG 73
salithion							See dioxabenzofos
SAP	N(J)						See bensulide
sec-butylamine							See butylamine
sevin	N(U)						See carbaryl
sodium fluoride	ISO	I		S	O	180	
sodium hexafluorosilicate	ISO	L-S		S	O	125	
sulfallate	ISO	H		oil	0	850	Irritant to skin and eyes
sulprofos	ISO	I	OP	oil	O	130	
2,4,5-T	ISO	H		S	O	500	See note 3, end of table; DS 13
TCA	ISO						See note 2 to table 5
terbumeton	ISO	H	T	S	O	483	
tetraconazole	ISO	F		oil	O	1 031	
thiazafluron	ISO	H		S	O	278	
thiazfluron	N(B)						See thiazafluron
thicyofen	ISO	F		S	O	368	
thiobencarb	ISO	H	TC	L	O	1 300	
thiocyclam	ISO	I		S	O	310	
thiodan	N(U)						See endosulfan
thiodicarb	ISO	I		S	O	66	
tolyl-methyl-carbamate							See metolcarb
toxaphene	N(A)						See camphechlor
tralomethrin	N(B)	I	PY	S	O	c85	
trichloroacetic acid							See note 2 to table 5
tricyclazole	ISO	F		S	O	305	
tridemorph	ISO	F		oil	O	650	

TABLE 3. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS II "MODERATELY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
vernolate	ISO	H	TC	L	O	1 780	
xylylcarb	N(B)	I	C	S	O	380	

Notes to Class II

1. 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.

2. Paraquat has serious delayed effects if absorbed. It is of relatively low hazard in actual use but very dangerous if taken by mouth accidentally.

3. 2,4,5-T may contain a contaminant TCDD which affects toxicity: it should not exceed 0.01 mg/kg technical material.

4. Cyanofenphos has been reported as causing delayed neurotoxicity in hens. It is no longer manufactured.

5. Bioallethrin, esbiothrin, esbiol, and esdepalléthrine are members of the allethrin series; their toxicity varies considerably within this series, according to concentrations of isomers.

6. The melting point of methyl isothiocyanate (S) is 35 °C.

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

TABLE 4. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS III "SLIGHTLY HAZARDOUS"

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
acephate	ISO	I	OP	S	O	945	
acetochlor	ISO	H		L	O	2 950	
acifluorfen	ISO	H		S	O	1 370	Strong irritant to eyes
allethrin	ISO	I	PY	oil	O	c685	See note 9, page 7; EHC 87; HSG 24
ametryn	ISO	H	T	S	O	1 110	
amitraz	ISO	AC		S	O	800	
azamethiphos	ISO	I	OP	S	O	1 010	
azidithion	N(F)						See menazon
barban	ISO	H		S	O	1 300	
bensultap	ISO	I		S	O	1 100	
bentazone	ISO	H		S	O	1 100	
benzoylprop-ethyl	(ISO)	H		S	O	1 555	
benzthiazuron	ISO	H		S	O	1 280	
bromofenoxim	ISO	H		S	O	1 217	
bromophos	ISO	I	OP	S	O	c1 600	DS 76
buthidazole	ISO	H		S	O	1 480	
cacodylic acid							See dimethylarsinic acid
carbofos	N(U)						See malathion
chlorfenac	ISO	H	OC	S	O	575	
chlorfenethol	ISO	AC	OC	S	O	930	
chlorfenson	ISO	AC	OC	S	O	c2 000	Irritant to skin
chlorinat	N(U)						See barban
chlormequat (chloride)	ISO	PGR		S	O	670	
chloroacetic acid	C	H		S	O	650	Irritant to skin and eyes; data refers to sodium salt
chlorobenzilate	ISO	AC	OC	S	O	700	
chlorocholine chloride	C						See chlormequat
chlorthiamid	ISO	H		S	O	757	

TABLE 4. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS III "SLIGHTLY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
cismethrin	ISO						See note 3, end of table, and resmethrin
citrex	N(U)						See dodine
clofop	ISO	H		L	O	1 208	
copper hydroxide	C	F		S	O	1 000	
copper oxychloride	C	F		S	O	1 440	
4-CPA	ISO	PGR		S	O	850	
crufomate	ISO	I	OP	S	O	770	
cycloate	ISO	H	TC	L	O	+2 000	
cyhexatin	ISO	AC	OT	S	O	540	
cymoxanil	ISO	F		S	O	1 196	
cyproconazole	N(B)	F		S	O	1 020	
dazomet	ISO	F-S		S	O	640	Irritant to skin and eyes
2,4-DB	N(B)	H		S	O	700	
DCBN	N(J)						See chlorthiamid
deet							See diethyltoluamide
dehydroacetic acid	C	F		S	O	1 000	
2,4-DES	N(B,U)						See disul
desmetryn	ISO	H	T	S	O	1 390	
diallyl dichloroacetamide							See dichlormid
dicamba	ISO	H		S	O	1 707	
dichlone	ISO	FST		S	O	1 300	
dichlormid	N(A)	H		L	O	2 080	
dichlorobenzene	C	FM		S	O	500-5 000	Mixture of isomers
dichlorophen	ISO	F	OC	S	O	1 250	
dichlorprop	ISO	H		S	O	800	
diclofop	ISO	H		S	O	565	
dicofol	ISO	AC		S	O	c690	DS 81
dienochlor	ISO	AC		S	O	3 160	Acutely toxic by inhalation; skin sensitizer

TABLE 4. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS III "SLIGHTLY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
diethyltoluamide	ISO	RP (insect)		L	O	c2 000	DS 80
difenoconazole	ISO	F	T	S	O	1 453	
dimepiperate	ISO	H	TC	S	O	946	
dimethachlor	ISO	H		S	O	1 600	
dimethametryn	ISO	H	T	L	O	3 000	
dimethipin	ISO	H		S	O	1 180	
dimethylarsinic acid	C	H		S	O	1 350	
diniconazole	ISO	F		S	O	639	
dinocap	ISO	AC,F	NCP	S	O	980	
diphenamid	ISO	H		S	O	970	
disul	ISO	H		S	O	730	
dithianon	ISO	F		S	O	640	
2,4-DP	N(U)						See dichlorprop
dodine	ISO	F		S	O	1 000	
doguadine	N(F)						See dodine
2,4-DP							See dichlorprop
DSMA							See methylarsonic acid
empenthrin [(1R) isomers]	ISO	I	PY	oil	O	+2 280	
ephirsulphonate	N(U)						See chlorfenson
esprocarb	ISO	H	TC	L	O	+2 000	Skin and eye irritant
etacelasil	ISO	PGR		L	O	2 065	
etaconazole	ISO	F		S	O	1 340	
ethohexadiol	N(A)	RP (insect)		L	O	2 400	
etridiazole	ISO	F		L	O	2 000	
fenoprop	ISO	H		S	O	650	
fenson	ISO	AC		S	O	1 550	
fenothiocarb	ISO	L	C	S	O	1 150	
fenpropidin	ISO	F		S	O	1 440	
fenthiaprop	N(B)	H		S	O	915	
ferimzone	ISO	F		S	O	725	

TABLE 4. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS III "SLIGHTLY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
flamprop	ISO	H		S	O	1 210	
fluchloralin	ISO	H		S	O	1 550	
fluoroglycofen	N(B)	H		S	O	1 500	
flurprimidol	ISO	PGR		S	O	709	
flusilazole	N(B)	F		S	O	1 110	
flutriafol	ISO	F,FST	T	S	O	1 140	
fomesafen	ISO	H	OC	S	O	1 250	
fuberidazole	ISO	F		S	O	1 100	
furalaxyl	ISO	F		S	O	940	
glufosinate	ISO	H		S	O	1 625	
heptopargil	ISO	PGR		L	O	2 100	
hexazinone	ISO	H		S	O	1 690	
hydramethylnon	N(A,B)	I		S	O	1 200	
IBP							See iprobenphos
iprobenphos	N(B)	F		S	O	600	
isoprothiolane	ISO	F		S	O	1 190	
isoproturon	ISO	H		S	O	1 800	
isouron	ISO	H		S	O	630	
isoxapyrifop	ISO	H		S	O	500	
kelthane	N(J)						See dicofol
malathion	ISO	I	OP	L	O	c2 100	See note 1, end of table, DS 29
maldison	N(Aus,NZ)						See malathion
MCPA	ISO	H		S	O	700	
MCPA-thioethyl	ISO	H		S	O	790	
MCPB	ISO	H		S	O	680	
mecoprop	ISO	H		S	O	930	
mecoprop-P	ISO	H		S	O	1 050	
mefluidide	ISO	H		S	O	1 920	
menazon	ISO	AP	OP	S	O	1 950	
mepiquat	ISO	PGR		S	O	1 490	
metalaxyl	ISO	F		S	O	670	
metaxon	N(U)						See MCPA
metconazole	ISO	F		S	O	660	

TABLE 4. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS III "SLIGHTLY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
methazole	N(A,B)	H		S	O	4 543	Slightly irritant to eyes
2-methoxyethlymercury silicate	C	FST	OM	S	O	1 140	
methylarsonic acid	ISO	H		S	O	1 800	
metolachlor	ISO	H		L	O	2 780	
MSMA							See methylarsonic acid
myclobutanil	N(B)	F		S	O	1 600	
2-napthyloxy acetic acid	ISO	PGR		S	O	600	
nitrapyrin	ISO	B-S		S	O	1 072	
nuarimol	ISO	F		S	O	1 250	
octhilinone	ISO	F		S	O	1 470	
N-octyl bicycloheptene dicarboximide	C	SY		L	O	2 800	
oxadixyl	N(B)	F		A	O	1 860	
paclobutrazol	ISO	PGR		S	O	1 300	
palléthrine	N(F)						See allethrin
para-dichlorobenzene							See dichlorobenzene
pendimethalin	ISO	H		S	O	1 050	
perfluidone	ISO	H		S	O	920	
pimaricin	N(B)	F		S	O	2 730	See note 2, end of table
piproctanyl	ISO	PGR		S	O	820	
pirimiphos-methyl	ISO	I	OP	L	O	2 018	DS 49
prochloraz	ISO	F		S	O	1 600	
propachlor	ISO	H		S	O	1 500	DS 78
propanil	ISO	H		S	O	c1 400	
propargite	ISO	AC		L	O	2 200	
pyrazoxyfen	ISO	H		S	O	1 644	
pyridaben	ISO	AC		S	O	820	
pyridaphenthion	N(J)	I	OP	S	O	769	
pyridate	ISO	H		S	O	c2 000	
pyrifenox	ISO	F		L	O	2 900	

TABLE 4. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS III "SLIGHTLY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
quinoclamine	ISO	H		S	O	1 360	
quizalofop	N(B)	H		S	O	1 670	
resmethrin	ISO	I	PY	S	O	2 000	See note 3, end of table; EHC 92, DS 83, HSG 25
ryania	C	I		S	O	c750	LD_{50} varies: vegetable product
sesamex	N(A)	SY		L	O	2 000	
sethoxydim	ISO	H		L	O	3 200	
silvex	N(A)						See fenoprop
simetryn	ISO	H	T	S	O	1 830	
sodium chlorate	ISO	H		S	O	1 200	
sulfluramid	ISO	I		S	O	543	
sulfoxide	N(A)	SY		L	O	2 000	
2,3,6-TBA	ISO	H		S	O	1 500	
tebuthiuron	ISO	H		S	O	644	
thiram	ISO	F		S	O	560	DS 71
TMTD	N(U)						See thiram
2,4,5-TP	N(F,J,U)						See fenoprop
tralkoxydim	ISO	H		S	O	934	
triadimefon	ISO	F		S	O	602	
triadimenol	ISO	FST		S	O	900	
tri-allate	ISO	H	TC	L	O	2 165	HSG 89
trichlorfon	ISO	H	OP	S	O	560	DS 27; EHC 132; HSG 66
triclopyr	ISO	H		S	O	710	
tridiphane	N(B)	H		S	O	1 740	
trifenmorph	ISO	M		S	O	1 400	DS 64
triflumizole	N(B)	F		S	O	695	
undecan-2-one	C	RP (dogs, cats)		oil	O	2 500	
uniconazole	ISO	PGR		S	O	1 790	
XMC	N(J)	I	C	S	O	542	

TABLE 4. LIST OF TECHNICAL PRODUCTS CLASSIFIED IN CLASS III "SLIGHTLY HAZARDOUS"
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ziram	ISO	F		S	O	1 400	Irritant to skin; DS 73

Notes to Class III:

1. 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.

2. Pimaricin: antibiotic, identical with tennecetin and natamycin.

3. Resmethrin is a mixture of isomers, the trans isomer (70-80%) being also 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.

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

TABLE 5. LIST OF TECHNICAL PRODUCTS UNLIKELY TO PRESENT ACUTE HAZARD IN NORMAL USE (BUT SEE TEXT PRECEDING TABLES)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
aclonifen	N(B)	H		S	O	+5 000	
acrinathrin	ISO	MT		S	O	+5 000	
alloxydim	ISO	H		S	O	2 260	
aminotriazole	N(F)						See amitrole
amitrole	ISO	H	T	S	O	5 000	EHC 158, DS 79; HSG 85
ammonium sulfamate	ISO	H		S	O	3 900	
ancymidol	ISO	PGR		S	O	4 500	
anilazine	ISO	F	T	S	O	2 710	Irritant to eyes and skin
anthraquinone	ISO	RP (birds)		S	O	+5 000	
asulam	ISO	H	TC	S	O	+4 000	
atrazine	ISO	H	T	S	O	c2 000	DS 82; HSG 47
aziprotryne	ISO	H	T	S	O	3 600	
benalaxyl	ISO	F		S	O	c4 200	
benazolin	ISO	H		S	O	3 200	Irritant to skin and eyes
benefin	N(A)						See benfluralin
benfluralin	ISO	H		S	O	+10 000	
benfuresate	ISO	H		S	O	2 031	
benomyl	ISO	F	TC	S	O	+10 000	EHC 148, DS 87; HSG 81
benoxacor	ISO	H		S	O	+5 000	
bensulfuron	N(B)	H		S	O	+5 000	
benthrodine	N(J)						See benfluralin
benzamizole							See isoxaben
benzoximate	ISO	AC		S	O	+10 000	
bifenox	ISO	H		S	O	+6 400	
bioresmethrin	ISO	I	PY	L	O	+7 000	DS 34
biphenyl	ISO	F		S	O	3 280	
bispyribac	ISO	H		S	O	2 635	
bitertanol	ISO	F		S	O	+5 000	
borax	ISO	F		S	O	4 500	

TABLE 5. LIST OF TECHNICAL PRODUCTS UNLIKELY TO PRESENT ACUTE HAZARD IN NORMAL USE (BUT SEE TEXT PRECEDING TABLES)
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
bromacil	ISO	H		S	O	5 200	
bromobutide	ISO	H		S	O	+5 000	
bromocyclen	ISO	I,AC		S	O	+10 000	
bromopropylate	ISO	AC		S	O	+5 000	
bupirimate	ISO	F		S	O	c4 000	
buprofezin	ISO	I		S	O	2 200	
butachlor	ISO	H		L	O	3 300	
buthiobate	ISO	F		L	O	3 200	
butopyronoxyl	N(A)	RP (insects)		L	O	7 840	
butralin	ISO	H		S	O	+10 000	
buturon	ISO	H		S	O	3 000	
butylate	ISO	F	TC	L	O	+4 000	
captan	ISO	F		S	O	9 000	Irritant to skin; DS 9; HSG 50
carbendazim	ISO	F		S	O	+10 000	DS 89; EHC 149; HSG 82
carbetamide	ISO	H		S	O	+10 000	
carboxin	ISO	FST		S	O	3 820	
chinomethionat	ISO	AC,F		S	O	2 500	
chlomethoxyfen	N(B)	H		S	O	+10 000	
chloramben	ISO	H		S	O	5 620	
chlorbromuron	ISO	H		S	O	+5 000	
chlorbufam	ISO	H		S	O	2 500	
chlorfenidim	N(U)						See monuron
chlorfluazuron	ISO	IGR		S	O	8 500	
chlorflurecol	N(B)						See chlorflurenol
chlorflurenol	ISO	PGR	OC	S	O	+10 000	
chloridazon	ISO	H		S	O	2 420	
chlorimuron	N(B)	H		S	O	4 102	
chlornitrofen	ISO	H		S	O	+10 000	
chloromethiuron	ISO	IX		S	O	2 500	
chloroneb	ISO	H	OC	S	O	+10 000	
chloropropylate	ISO	AC	OC	S	O	+5 000	

TABLE 5. LIST OF TECHNICAL PRODUCTS UNLIKELY TO PRESENT ACUTE HAZARD IN NORMAL USE (BUT SEE TEXT PRECEDING TABLES)
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
chlorothalonil	ISO	F		S	O	+10 000	
chlorotoluron	ISO	H		S	O	+10 000	
chloroxifenidim	N(U)						See chloroxuron
chloroxuron	ISO	H		S	O	+3 000	
chlorphoxim	ISO	I	OP	S	O	+2 500	DS 32
chlorpropham	ISO	H		S	O	+5 000	
chlorpyrifos methyl	ISO	I	OP	L	O	+3 000	DS 33
chlorsulfuron	ISO	H		S	O	5 545	
chlorthal-dimethyl	ISO	H		S	O	+3 000	
chlozolinate	N(B)	F		S	O	+4 000	
cinmethylin	ISO	H		L	O	3 960	
cinosulfuron	ISO	H		S	O	+5 000	
clofentezine	N(B)	AC		S	O	+5 200	
clomeprop	ISO	H		S	O	+5 000	
clonitralide	N(A)						See niclosamide
clopyralid	N(B)	H		S	O	4 300	Severe irritant to eyes
cloxyfonac	ISO	PGR		S	O	+5 000	
CNA	N(J)						See dicloran
COMU	N(J)						See cycluron
credazine	N(J)	H		S	O	3 090	
cryolite	C	I		S	O	+10 000	
cycloprothrin	ISO	I	PY	L	O	+5 000	
cycloxydim	N(B)	H		S	O	3 900	
cycluron	ISO	H		S	O	2 600	
cyometrinil	N(B)	H		S	O	2 277	
cyromazine	ISO	L		S	O	3 300	
daimuron	ISO	H		S	O	+5 000	
dalapon	N(A,B,F)	H		S	O	9 330	
daminozide	ISO	H		S	O	8 400	
desmedipham	ISO	H		S	O	+9 600	
diafenthiuron	ISO	AC		S	O	2 068	
dichlobenil	ISO	H		S	O	3 160	
dichlorfenidim	N(U)						See diuron

TABLE 5. LIST OF TECHNICAL PRODUCTS UNLIKELY TO PRESENT ACUTE HAZARD IN NORMAL USE (BUT SEE TEXT PRECEDING TABLES)
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
dichlofluanid	ISO	F		S	O	+5 000	
dichloropicolinic acid							See clopyralid
diclobutrazol	ISO	F	T	S	O	+4 000	
diclomezine	ISO	F		S	O	+10 000	
dicloran	N(B)	F		S	O	4 000	
diethatyl	ISO	H		S	O	2 300	
diethofencarb	ISO	F		S	O	+5 000	
difenoxuron	ISO	H		S	O	+7 750	
diflubenzuron	ISO	L		S	O	+4 640	DS 77
diflufenican	N(B)	H		S	O	+2 000	
dikegulac	ISO	PGR		S	O	+10 000	
dimefuron	ISO	H		S	O	+2 000	
dimethirimol	ISO	F		S	O	2 350	
dimethomorph	ISO	F		S	O	+5 000	
dimethyl phthalate	C	RP (insect)		L	O	8 200	
dinitramine	ISO	H		S	O	3 000	
diphenyl							See biphenyl
dipropetryn	ISO	H	T	S	O	4 050	
dipropyl isocinchomerate	C	RP (fly)		L	O	5 230	
disodium octaborate							See borax
ditalmifos	ISO	F	OP	S	O	5 660	Irritant to skin; allergenic
dithiopyr	ISO	H			O	+5 000	
diuron	ISO	H		S	O	3 400	
dodemorph	ISO	H		L	O	4 500	
eglinazine	ISO	H		S	O	+10 000	
ethalfluralin	ISO	H		S	O	+10 000	
ethephon	N(A)	PGR		S	O	+4 000	
ethidimuron	ISO	H		S	O	+5 000	
ethirimol	ISO	FST		S	O	6 340	
ethofumesate	ISO	H		S	O	+6 400	
etofenprox	N(B)	I		S	O	+10 000	

TABLE 5. LIST OF TECHNICAL PRODUCTS UNLIKELY TO PRESENT ACUTE HAZARD IN NORMAL USE (BUT SEE TEXT PRECEDING TABLES)
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
fenarimol	ISO	F		S	O	2 500	
fenbutatin oxide	ISO	MT	OT	S	O	2 630	EHC 15
fenchlorazole	ISO	H		S	O	+5 000	
fenclorim	ISO	H		S	O	+5 000	
fenfuram	ISO	FST		S	O	+10 000	
fenidim	N(U)						See fenuron
fenitropan	ISO	F		S	O	3 230	
fenoxaprop-ethyl	N(B)	H		S	O	2 350	
fenoxycarb	ISO	I	C	S	O	+10 000	
fenpiclonil	ISO	FST		S	O	+5 000	
fenpropimorph	ISO	F		oil	O	3 515	
fenuron	ISO	H		S	O	6 400	
fenuron-TCA	(ISO)	H		S	O	4 000	
ferbam	ISO	F	TC	S	O	+10 000	
flamprop-M	ISO	H		S	O	+3 000	
fluazifop	ISO	H	P	L	O	3 330	
flubenzimine	ISO	AC		S	O	3 000	
flucycloxuron	ISO	AC		S	O	+5 000	
flufenoxuron	ISO	I		S	O	+3 000	
flumetralin	N(B)	PGR		S	O	+5 000	
flumetsulam	ISO	H		S	O	+5 000	
fluometuron	ISO	H		S	O	+8 000	
fluorodifen	ISO	H		S	O	9 000	
fluoromide	N(J)	F		S	O	+10 000	
flupropanate	ISO	H		S	O	+10 000	
flurecol butyl							See flurenol
flurenol	ISO	PGR		S	O	+5 000	
fluridone	ISO	H		S	O	+10 000	
flurochloridone	ISO	H		S	O	4 000	
fluthiacet	ISO	H		S	O	+5 000	
fluroxypyr	N(B)	H		S	O	+5 000	
fluthiacet	ISO	H		S	O	+5 000	
flutolanil	ISO	F		S	O	+10 000	

TABLE 5. LIST OF TECHNICAL PRODUCTS UNLIKELY TO PRESENT ACUTE HAZARD IN NORMAL USE (BUT SEE TEXT PRECEDING TABLES)
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
tau-fluvalinate	ISO	I	PY	oil	O	+3 000	Skin and eye irritant
folpet	ISO	F		S	O	+10 000	HSG 72
fosamine	ISO	H		S	O	2 400	
fosetyl	N(B)	F		S	O	5 800	
furmecyclox	N(B)	FST		S	O	3 780	
gibberellic acid	N(B)	PGR		S	O	+10 000	
glyphosate	ISO	H		S	O	4 230	EHC 159, DS 91
glyphosine	ISO	H		S	O	3 920	
hexaconazole	N(B)	F		S	O	2 180	
hexaflumuron	ISO	I		S	O	+5 000	
hexythiazox	N(B)	AC		S	O	+5 000	
hydroprene	N(A)	IGR		L	O	+10 000	
2-hydroxyethyl octyl sulphide	C	RP (insect)		L	O	8 530	
hydroxyisoxazole	N(J)						See hymexazol
hymexazol	N(B)	FST		S	O	3 900	
imazamethabenz-methyl	(ISO)	H		S	O	+5 000	
imazapyr	ISO	H		S	O	+5 000	Irritant to eyes
imazaquin	ISO	H		S	O	+5 000	
imazethapyr	N(B)	H		S	O	+5 000	
imibenconazole	ISO	F		S	O	+5 000	
inabenfide	ISO	PGR		S	O	+10 000	
iodofenphos	N(A,B)						See jodfenphos
iprodione	ISO	F		S	O	3 500	
isopropalin	ISO	H		L	O	+5 000	
isoxaben	N(B)	H		S	O	+10 000	
jodfenphos	ISO	I	OP	S	O	2 100	DS 43
karbutilate	ISO	H		S	O	3 000	
kasugamycin	N(J)	F		S	O	+10 000	
kinoprene	ISO	IGR		S	O	4 900	
lenacil	ISO	H		S	O	+10 000	
linuron	ISO	H		S	O	4 000	

TABLE 5. LIST OF TECHNICAL PRODUCTS UNLIKELY TO PRESENT ACUTE HAZARD IN NORMAL USE (BUT SEE TEXT PRECEDING TABLES)
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
maleic hydrazide	ISO	PGR		S	O	6 950	
mancozeb	ISO	F	TC	S	O	+8 000	Irritant to skin on multiple exposure; DS 94
maneb	ISO	F	TC	S	O	6 750	Irritant to skin on multiple exposure; DS 94
mefenacet	ISO	H		S	O	+5 000	
mepanipyrim	ISO	F		S	O	+5 000	
mepronil	N(J)	F		S	O	+10 000	
metamitron	ISO	H		S	O	3 343	
metazachlor	ISO	H		S	O	2 150	
methabenzthiazuron	ISO	H		S	O	+2 500	
methoprene	ISO	IGR		L	O	+10 000	DS 47
methoprotryne	ISO	H		S	O	+5 000	
methoxychlor	ISO	I	OC	S	O	6 000	DS 28
methoxyphenone	N(J)	H		S	O	+4 000	
methyldymron	N(J)	H		S	O	3 948	
metiram	N(J)	F		S	O	+10 000	
metobromuron	ISO	H		S	O	2 500	
metosulam	ISO	H		S	O	+5 000	
metoxuron	ISO	H		S	O	+3 200	
metribuzin	ISO	H	T	S	O	2 200	
metsulfovax	ISO	F		S	O	3 929	
metsulfuron	N(A,B)	H		S	O	+5 000	
monalide	ISO	H		S	O	+4 000	
monolinuron	ISO	H		S	O	2 250	
monuron	ISO	H		S	O	3 600	
monuron-TCA	N(A)	H		S	O	3 700	
naphthalene	C	F		S	O	2 200	
naphthalic anhydride	C	PGR		S	O	+10 000	
2-(1-naphthyl) acetamide	ISO	PGR		S	O	6 400	
1-naphthylacetic acid	ISO	PGR		S	O	c3 000	

TABLE 5. LIST OF TECHNICAL PRODUCTS UNLIKELY TO PRESENT ACUTE HAZARD IN NORMAL USE (BUT SEE TEXT PRECEDING TABLES)
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
napropamide	ISO	H		S	O	5 000	
naptalam	ISO	PGR		S	O	8 200	
neburon	ISO	H		S	O	+10 000	
niclosamide	ISO	M		S	O	5 000	DS 63
nicosulfuron	ISO	H		S	O	+5 000	Irritant to eyes
nitralin	ISO	H		S	O	+2 000	
nitrothal-isopropyl	ISO	F		S	O	6 400	
norflurazon	ISO	H		S	O	+8 000	
(octylthio)ethanol	C						See 2-hydroxyethyl octyl sulphide
ofurace	ISO	F		S	O	2 600	
oryzalin	ISO	H		S	O	+10 000	
oxabetrinil	ISO	H		S	O	+5 000	
oxadiazon	ISO	H		S	O	+8 000	
oxine copper	ISO	F		S	O	10 000	
oxycarboxin	ISO	F		S	O	2 000	
oxyfluorfen	ISO	H		S	O	+5 000	
penconazole	N(B)	F		S	O	2 120	
pencycuron	ISO	F		S	O	+5 000	
pentanochlor	ISO	H		S	O	+10 000	
phenisobromolate	N(J)						See bromopropylate
phenisopham	ISO	H		S	O	+4 000	
phenmedipham	ISO	H		S	O	+8 000	
phenothrin	ISO	I	PY	L	O	+5 000	DS 85; EHC 96; HSG 32
2-phenylphenol	ISO	F		S	O	2 480	
phosdiphen	N(J)	F		L	O	6 200	
phthalide	N(J)	F		S	O	+10 000	
picloram	ISO	H		S	O	8 200	
piperonyl butoxide	N(A)	SY		oil	O	+7 500	
pretilachlor	ISO	H		L	O	6 100	
primisulfuron	ISO	H		S	O	+5 050	
probenazole	N(J)	F		S	O	2 030	

TABLE 5. LIST OF TECHNICAL PRODUCTS UNLIKELY TO PRESENT ACUTE HAZARD IN NORMAL USE (BUT SEE TEXT PRECEDING TABLES)
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
procymidone	ISO	F		S	O	6 800	
prodiamine	ISO	H		S	O	+5 000	
profluralin	ISO	H		S	O	c10 000	
proglinazine	ISO	H		S	O	+8 000	
prometon	ISO	H	T	S	O	2 980	
prometryn	ISO	H	T	S	O	3 150	
pronamide	N(A)						See propyzamide
propamocarb	ISO	F		S	O	8 600	
propaquizafop	ISO	H		S	O	+5 000	
propazine	ISO	H	T	S	O	+5 000	
propham	ISO	H		S	O	5 000	
propineb	ISO	H	TC	S	O	8 500	
propyzamide	ISO	H		S	O	5 620	
pyracarbolid	ISO	F		S	O	+10 000	
pyrazolynate	ISO	H		S	O	9 550	
pyrazon	N(A)						See chloridazon
pyrazosulfuron	ISO	H		S	O	+5 000	
pyrimethanil	ISO	F		S	O	4 150	
pyriminobac	ISO	H		S	O	+5 000	
pyriproxyfen	N(B)	I		S	O	+5 000	
quinclorac	ISO	H		S	O	2 680	
quinmerac	ISO	H		S	O	+5 000	
quinomethinoate	N(B)						See chinomethionat
quinonamid	ISO	F		S	O	+10 000	
quintozene	ISO	F		S	O	+10 000	EHC 41
rimsulfuron	C	H		S	O	+5 000	
secbumeton	ISO	H	T	S	O	2 680	
siduron	ISO	H		S	O	+7 500	
simazine	ISO	H	T	S	O	+5 000	
sodium metaborate	C						See borax
sodium trichloracetate							See TCA and note 2, end of table

TABLE 5. LIST OF TECHNICAL PRODUCTS UNLIKELY TO PRESENT ACUTE HAZARD IN NORMAL USE (BUT SEE TEXT PRECEDING TABLES)
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
solan	N(A)						See pentanochlor
stirofos	N(A)						See tetrachlorvinphos
sulfometuron	N(B)	H		S	O	+5 000	
sulfur	N(A,J)						See sulphur
sulphur	ISO	F,I		S	O	+3 000	Irritant to skin and mucous membranes. See note 1 end of table
TCA	ISO	H		S	O	3 200	Irritant to skin and eyes: see note 2, end of table
tebuconazole	ISO	F		S	O	4 000	
tebutam	ISO	H		oil	O	6 210	
tecnazene	ISO	F		S	O	+10 000	EHC 42; HSG 12
tedion	N(U)						See tetradifon
teflubenzuron	N(B)	I		S	O	+5 000	
temephos	ISO	I	OP	L	O	8 600	DS 8
terbacil	ISO	H		S	O	+5 000	
terbuthylazine	ISO	H	T	S	O	2 160	
terbutryn	ISO	H	T	S	O	2 400	
tetrachlorvinphos	ISO	I	OP	S	O	4 000	
tetradifon	ISO	AC		S	O	+10 000	EHC 67; HSG 11
tetramethrin	ISO	O	PY	S	O	+5 000	EHC 98; HSG 31
tetrasul	ISO	AC		S	O	6 810	
thiabendazole	ISO	F		S	O	3 330	
thidiazuron	ISO	PGR		S	O	+4 000	
thifensulfuron	N(B)	H		S	O	+5 000	
thiophanate	ISO	F		S	O	+10 000	
thiophanate-methyl	ISO	F		S	O	+6 000	
tiocarbazil	ISO	H	TC	L	O	10 000	
tolclofos-methyl	ISO	F-S		S	O	c5 000	

TABLE 5. LIST OF TECHNICAL PRODUCTS UNLIKELY TO PRESENT ACUTE HAZARD IN NORMAL USE (BUT SEE TEXT PRECEDING TABLES)
(continued)

Name	Status	Main use	Chemical type	Physical state	Route	LD_{50} (mg/kg)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
tolyfluanid	ISO	F		S	O	+5 000	
transfluthrin	ISO	I	PY	S	O	+5 000	
triasulfuron	ISO	H		S	O	+5 000	
tribenuron	N(B)	H		S	O	+5 000	
trichlamide	ISO	F		S	O	+5 000	
trietazine	ISO	H	T	S	O	2 830	
trifluralin	ISO	H		S	O	+10 000	
triflumuron	ISO	PGR		S	O	+5 000	
triforine	ISO	F		S	O	+6 000	
triticonazole	N(B)	F	triazole	S	O	+2 000	
validamycin	N(J)	F		S	O	+10 000	
vinclozolin	ISO	F		S	O	10 000	
zineb	ISO	F		S	O	+5 000	DS 94

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. TECHNICAL PRODUCTS NOT INCLUDED IN THE CLASSIFICATION AND BELIEVED TO BE OBSOLETE OR DISCONTINUED FOR USE AS PESTICIDES

allyxycarb
amidithion
aramite
athidithion
atraton
azothoate
barium carbonate
benodanil
benquinox
butacarb
butam
butonate
calcium cyanamide
carbamorph
carbanolate
chloethocarb
chloraniformethan
chloranil
chloranocryl
chlorbenside
chlorbicyclen
chlordecone (EHC 43; HSG 41)
chlorfenprop-methyl
chlorfensulphide
chlorfentezine
chloromebuform
chlorquinox
crimidine
cyanthoate
cypendazole
cypromid
delachlor
diamidafos
dibutyl phthalate
dibutyl succinate
dichlozoline
dimexano
dinex
dinocton
endothion
erbon
ethiolate
ethoate-methyl
ethyleneglycol bis(trichloracetate)
EXD
fenazaflor
fluotrimazole
fosthietan
fluenetil
glyodin
griseofulvin
halacrinate
haloxydine
hexachloroacetone
hexaflurate
hydroxyquinoline sulfate
ipazine
IPSP
isobenzan
isobornyl thiocyanoacetate
isocarbamid
isocil
isodrin
isomethiozin
isonoruonlisoprothiolane
kelevan (EHC 66; HSG 2)
lythidathion
malonoben
MCC
mebenil
mecarbinzid
mecarphon
medinoterb acetate
methacarbate
methiuron
2-methoxymethyl mercury chloride (DS 66)
methylmercury dicyandiamide
mexacarbate
mipafox
mirex (EHC 44; HSG 39)
morfamquat
myclozolin
nitrilacarb
noruron
oxapyrazon
oxydisulfoton
parafluron
phenkapton
phenobenzuron
phenylmercury dimethyldithiocarbamate
phosacetim
potassium cyanate
propyl isome
prothiocarb
proxan
pydanon
pyridinitril
quinacetol-sulfate
sabadilla
salicylanilide
schradan
swep
TDE
terbucarb
thioquinox
triapenthenol
triarimol
tricamba
trichloronat
trimethacarb

TABLE 7. LIST OF GASEOUS OR VOLATILE FUMIGANTS NOT CLASSIFIED UNDER THE WHO RECOMMENDED CLASSIFICATION OF PESTIIDES BY HAZARD[1]

acrylonitrile (EHC 28; HSG 1)
aluminium phosphide (EHC 73; HSG 28)
carbon disulfide (EHC 10)
chloropicrin
1,2-dichloropropane (EHC 146; HSG 76)
1,3-dichloropropene (EHC 146; HSG 76)
epoxyethane (ethylene oxide) (EHC 55; HSG 16)
ethylene dibromide (EHC 177)
ethylene dichloride (EHC 176)
ethylene oxide (EHC 55; HSG 16)
formaldehyde (EHC 89; HSG 57)
hydrogen cyanide
magnesium phosphide (EHC 73; HSG 28)
methyl bromide (DS 5; EHC 166; HSG 86)
phosphine (DS 46; EHC 73; HSG 28)
sulfuryl fluoride

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[1] 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.

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, column (6), 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, (column 7), 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: USE IF THE ROUTE IS O (ORAL) AND THE FORMULATION IS A SOLID

ORAL LD_{50} OF ACTIVE INGREDIENT (MG/KG) - SOLIDS

Class Ia: columns 1–5; Class Ib: columns 10–50; Class II: columns 60–500; Class III: below the stepped line

% CONCENTRATION OF ACTIVE INGREDIENT IN FORMULATION (rows)

%	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
100	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
95	1	3	5	10	15	21	26	31	37	42	47	52	63	74	84	95	105
90	1	3	5	11	16	22	28	33	39	44	50	55	66	78	89	100	111
85	1	3	6	12	17	23	29	35	41	47	53	59	70	82	94	106	117
80	1	4	6	12	19	25	31	37	44	50	56	62	75	87	100	112	125
75	1	4	6	13	20	26	33	40	46	53	60	66	80	93	106	120	133
70	1	4	7	14	21	28	36	43	50	57	64	71	86	100	114	128	143
65	1	4	8	15	23	31	38	46	54	61	69	77	92	107	123	138	154
60	2	5	8	17	25	33	42	50	58	67	75	83	100	117	133	150	167
55	2	5	9	18	27	36	45	54	63	73	82	91	109	127	145	163	182
50	2	6	10	20	30	40	50	60	70	80	90	100	120	140	160	180	200
45	2	7	11	22	33	44	55	67	78	89	100	111	133	155	178	200	222
40	2	7	12	25	37	50	62	75	87	100	112	125	150	175	200	225	250
35	3	8	14	28	43	57	71	86	100	114	128	143	171	200	228	257	286
30	3	10	17	33	50	67	83	100	117	133	150	167	200	233	267	300	333
25	4	12	20	40	60	80	100	120	140	160	180	200	240	280	320	360	400
20	5	15	25	50	75	100	125	150	175	200	225	250	300	350	400	450	500
15	7	20	33	67	100	133	167	200	233	267	300	333	400	467	533	600	667
10	10	30	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000
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	2333	2667	3000	3333
1	100	300	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	6000	7000	8000	9000	10000
0.5	200	600	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000					
0.1	1000	3000	5000	10000													

%	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330
100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330
95	116	126	137	147	158	168	179	189	200	210	221	231	242	252	263	273	284	295	305	316	326	337	347
90	122	133	144	155	166	178	189	200	211	222	233	244	255	266	278	289	300	311	322	333	344	355	366
85	129	141	153	165	176	188	200	212	223	235	247	259	270	282	294	306	317	329	341	353	365	376	388
80	137	150	162	175	187	200	212	225	237	250	262	275	287	300	312	325	337	350	362	375	387	400	412
75	146	160	173	186	200	213	226	240	253	266	280	293	306	320	333	346	360	373	386	400	413	426	440
70	157	171	186	200	214	228	243	257	271	286	300	314	328	343	357	371	386	400	414	428	443	457	471
65	169	184	200	215	231	246	261	277	292	308	323	338	354	369	384	400	415	431	446	461	477	492	508
60	183	200	217	233	250	267	283	300	317	333	350	367	383	400	417	433	450	467	483	500	517	533	550
55	200	218	236	254	273	291	309	327	345	363	382	400	418	436	454	473	491	509	527	545	563	582	600
50	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500	520	540	560	580	600	620	640	660
45	244	267	289	311	333	355	378	400	422	444	467	489	511	533	555	578	600	622	644	667	689	711	733
40	275	300	325	350	375	400	425	450	475	500	525	550	575	600	625	650	675	700	725	750	775	800	825
35	314	343	371	400	428	457	486	514	543	571	600	628	657	686	714	742	771	800	828	857	886	914	943
30	367	400	433	467	500	533	567	600	633	667	700	733	767	800	833	867	900	933	967	1000	1033	1067	1100
25	440	480	520	560	600	640	680	720	760	800	840	880	920	960	1000	1040	1080	1120	1160	1200	1240	1280	1320
20	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650
15	733	800	867	933	1000	1067	1133	1200	1267	1333	1400	1467	1533	1600	1667	1733	1800	1867	1933	2000	2067	2133	2200
10	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300
5	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000	5200	5400	5600	5800	6000	6200	6400	6600
3	3667	4000	4333	4667	5000	5333	5667	6000	6333	6667	7000	7333	7667	8000	8333	8667	9000	9333	9667	10000			

%	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550
100	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550
95	358	368	379	389	400	410	421	431	442	452	463	474	484	495	505	516	526	536	547	558	568	579
90	378	389	400	411	422	433	444	455	467	478	489	500	511	522	533	544	555	567	578	589	600	611
85	400	412	423	435	447	459	470	482	494	506	517	529	541	553	565	576	588	600	612	623	635	647
80	425	437	450	462	475	487	500	512	525	537	550	562	575	587	600	612	625	637	650	662	675	687
75	453	466	480	493	507	520	533	547	560	573	587	600	613	627	640	653	667	680	693	707	720	733
70	486	500	514	528	543	557	571	586	600	614	628	643	657	671	686	700	714	728	743	757	771	786
65	523	538	554	569	585	600	615	631	646	661	677	692	708	723	738	754	769	784	800	815	831	846
60	567	584	600	617	633	650	667	683	700	717	733	750	767	783	800	817	833	850	867	883	900	917
55	618	636	654	673	691	709	727	745	763	782	800	818	836	854	873	891	909	927	945	963	982	1000
50	680	700	720	740	760	780	800	820	840	860	880	900	920	940	960	980	1000	1020	1040	1060	1080	1100
45	755	778	800	822	844	867	889	911	933	955	978	1000	1022	1044	1066	1089	1111	1133	1155	1178	1200	1222
40	850	875	900	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200	1225	1250	1275	1300	1325	1350	1375
35	971	1000	1028	1057	1086	1114	1143	1171	1200	1228	1257	1286	1314	1343	1371	1400	1428	1457	1486	1514	1543	1571
30	1133	1167	1200	1233	1267	1300	1333	1367	1400	1433	1467	1500	1533	1567	1600	1633	1667	1700	1733	1767	1800	1833
25	1360	1400	1440	1480	1520	1560	1600	1640	1680	1720	1760	1800	1840	1880	1920	1960	2000	2040	2080	2120	2160	2200
20	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750
15	2267	2333	2400	2467	2533	2600	2667	2733	2800	2867	2933	3000	3067	3133	3200	3266	3333	3400	3467	3533	3600	3667
10	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500
5	6800	7000	7200	7400	7600	7800	8000	8200	8400	8600	8800	9000	9200	9400	9600	9800	10000					

Class III

TABLE B: USE IF THE ROUTE IS D (DERMAL) AND THE FORMULATION IS A SOLID

DERMAL LD_{50} OF ACTIVE INGREDIENT (MG/KG) - SOLIDS

	Class Ia				Class Ib												
	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
100	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
95	1	3	5	10	15	21	26	31	37	42	47	52	63	74	84	95	105
90	1	3	5	11	16	22	28	33	39	44	50	55	66	78	89	100	111
85	1	3	6	12	17	23	29	35	41	47	53	59	70	82	94	106	117
80	1	4	6	12	19	25	31	37	44	50	56	62	75	87	100	112	125
75	1	4	6	13	20	26	33	40	46	53	60	66	80	93	106	120	133
70	1	4	7	14	21	28	36	43	50	57	64	71	86	100	114	128	143
65	1	4	8	15	23	31	38	46	54	61	69	77	92	107	123	138	154
60	2	5	8	17	25	33	42	50	58	67	75	83	100	117	133	150	167
55	2	5	9	18	27	36	45	54	63	73	82	91	109	127	145	163	182
50	2	6	10	20	30	40	50	60	70	80	90	100	120	140	160	180	200
45	2	7	11	22	33	44	55	67	78	89	100	111	133	155	178	200	222
40	2	7	12	25	37	50	62	75	87	100	112	125	150	175	200	225	250
35	3	8	14	28	43	57	71	86	100	114	128	143	171	200	228	257	286
30	3	10	17	33	50	67	83	100	117	133	150	167	200	233	267	300	333
25	4	12	20	40	60	80	100	120	140	160	180	200	240	280	320	360	400
20	5	15	25	50	75	100	125	150	175	200	225	250	300	350	400	450	500
15	7	20	33	67	100	133	167	200	233	267	300	333	400	467	533	600	667
10	10	30	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000
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	2333	2667	3000	3333
1	100	300	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	6000	7000	8000	9000	10000
0.5	200	600	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000					
0.1	1000	3000	5000	10000													

	Class II																						
	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330
100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330
95	116	126	137	147	158	168	179	189	200	210	221	231	242	252	263	273	284	295	305	316	326	337	347
90	122	133	144	155	166	178	189	200	211	222	233	244	255	266	278	289	300	311	322	333	344	355	366
85	129	141	153	165	176	188	200	212	223	235	247	259	270	282	294	306	317	329	341	353	365	376	388
80	137	150	162	175	187	200	212	225	237	250	262	275	287	300	312	325	337	350	362	375	387	400	412
75	146	160	173	186	200	213	226	240	253	266	280	293	306	320	333	346	360	373	386	400	413	426	440
70	157	171	186	200	214	228	243	257	271	286	300	314	328	343	357	371	386	400	414	428	443	457	471
65	169	184	200	215	231	246	261	277	292	308	323	338	354	369	384	400	415	431	446	461	477	492	508
60	183	200	217	233	250	267	283	300	317	333	350	367	383	400	417	433	450	467	483	500	517	533	550
55	200	218	236	254	273	291	309	327	345	363	382	400	418	436	454	473	491	509	527	545	563	582	600
50	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500	520	540	560	580	600	620	640	660
45	244	267	289	311	333	355	378	400	422	444	467	489	511	533	555	578	600	622	644	667	689	711	733
40	275	300	325	350	375	400	425	450	475	500	525	550	575	600	625	650	675	700	725	750	775	800	825
35	314	343	371	400	428	457	486	514	543	571	600	628	657	686	714	742	771	800	828	857	886	914	943
30	367	400	433	467	500	533	567	600	633	667	700	733	767	800	833	867	900	933	967	1000	1033	1067	1100
25	440	480	520	560	600	640	680	720	760	800	840	880	920	960	1000	1040	1080	1120	1160	1200	1240	1280	1320
20	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650
15	733	800	867	933	1000	1067	1133	1200	1267	1333	1400	1467	1533	1600	1667	1733	1800	1867	1933	2000	2067	2133	2200
10	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300
5	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000	5200	5400	5600	5800	6000	6200	6400	6600
3	3667	4000	4333	4667	5000	5333	5667	6000	6333	6667	7000	7333	7667	8000	8333	8667	9000	9333	9667	10000			

	Class II																					
	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550
100	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550
95	358	368	379	389	400	410	421	431	442	452	463	474	484	495	505	516	526	536	547	558	568	579
90	378	389	400	411	422	433	444	455	467	478	489	500	511	522	533	544	555	567	578	589	600	611
85	400	412	423	435	447	459	470	482	494	506	517	529	541	553	565	576	588	600	612	623	635	647
80	425	437	450	462	475	487	500	512	525	537	550	562	575	587	600	612	625	637	650	662	675	687
75	453	466	480	493	507	520	533	547	560	573	587	600	613	627	640	653	667	680	693	707	720	733
70	486	500	514	528	543	557	571	586	600	614	628	643	657	671	686	700	714	728	743	757	771	786
65	523	538	554	569	585	600	615	631	646	661	677	692	708	723	738	754	769	784	800	815	831	846
60	567	584	600	617	633	650	667	683	700	717	733	750	767	783	800	817	833	850	867	883	900	917
55	618	636	654	673	691	709	727	745	763	782	800	818	836	854	873	891	909	927	945	963	982	1000
50	680	700	720	740	760	780	800	820	840	860	880	900	920	940	960	980	1000	1020	1040	1060	1080	1100
45	755	778	800	822	844	867	889	911	933	955	978	1000	1022	1044	1066	1089	1111	1133	1155	1178	1200	1222
40	850	875	900	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200	1225	1250	1275	1300	1325	1350	1375
35	971	1000	1028	1057	1086	1114	1143	1171	1200	1228	1257	1286	1314	1343	1371	1400	1428	1457	1486	1514	1543	1571
30	1133	1167	1200	1233	1267	1300	1333	1367	1400	1433	1467	1500	1533	1567	1600	1633	1667	1700	1733	1767	1800	1833
25	1360	1400	1440	1480	1520	1560	1600	1640	1680	1720	1760	1800	1840	1880	1920	1960	2000	2040	2080	2120	2160	2200
20	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750
15	2267	2333	2400	2467	2533	2600	2667	2733	2800	2867	2933	3000	3067	3133	3200	3266	3333	3400	3467	3533	3600	3667
10	3400	3500	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500
5	6800	7000	7200	7400	7600	7800	8000	8200	8400	8600	8800	9000	9200	9400	9600	9800	10000					

Class III

TABLE C: USE IF THE ROUTE IS O (ORAL) AND THE FORMULATION IS A LIQUID

ORAL LD_{50} OF ACTIVE INGREDIENT (MG/KG) - LIQUIDS

Class Ia (1–20) — Class Ib (25–200) — Class II (210–550)

% CONCENTRATION OF ACTIVE INGREDIENT IN FORMULATION

	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
100	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
95	1	3	5	10	15	21	26	31	37	42	47	52	63	74	84	95	105
90	1	3	5	11	16	22	28	33	39	44	50	55	66	78	89	100	111
85	1	3	6	12	17	23	29	35	41	47	53	59	70	82	94	106	117
80	1	4	6	12	19	25	31	37	44	50	56	62	75	87	100	112	125
75	1	4	6	13	20	26	33	40	46	53	60	66	80	93	106	120	133
70	1	4	7	14	21	28	36	43	50	57	64	71	86	100	114	128	143
65	1	4	8	15	23	31	38	46	54	61	69	77	92	107	123	138	154
60	2	5	8	17	25	33	42	50	58	67	75	83	100	117	133	150	167
55	2	5	9	18	27	36	45	54	63	73	82	91	109	127	145	163	182
50	2	6	10	20	30	40	50	60	70	80	90	100	120	140	160	180	200
45	2	7	11	22	33	44	55	67	78	89	100	111	133	155	178	200	222
40	2	7	12	25	37	50	62	75	87	100	112	125	150	175	200	225	250
35	3	8	14	28	43	57	71	86	100	114	128	143	171	200	228	257	285
30	3	10	17	33	50	67	83	100	117	133	150	167	200	233	267	300	333
25	4	12	20	40	60	80	100	120	140	160	180	200	240	280	320	360	400
20	5	15	25	50	75	100	125	150	175	200	225	250	300	350	400	450	500
15	7	20	33	67	100	133	167	200	233	267	300	333	400	467	533	600	667
10	10	30	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000
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	2333	2667	3000	3333
1	100	300	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	6000	7000	8000	9000	10000
0.5	200	600	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000					
0.1	1000	3000	5000	10000													

	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350
100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350
95	116	126	137	147	158	168	179	189	200	210	221	231	242	252	263	273	284	295	305	316	326	337	347	358	368
90	122	133	144	155	166	178	189	200	211	222	233	244	255	266	278	289	300	311	322	333	344	355	366	378	389
85	129	141	153	165	176	188	200	212	223	235	247	259	270	282	294	306	317	329	341	353	365	376	388	400	412
80	137	150	162	175	187	200	212	225	237	250	262	275	287	300	312	325	337	350	362	375	387	400	412	425	437
75	146	160	173	186	200	213	226	240	253	266	280	293	306	320	333	346	360	373	386	400	413	426	440	453	466
70	157	171	186	200	214	228	243	257	271	286	300	314	328	343	357	371	386	400	414	428	443	457	471	486	500
65	169	184	200	215	231	246	261	277	292	308	323	338	354	369	384	400	415	431	446	461	477	492	508	523	538
60	183	200	217	233	250	267	283	300	317	333	350	367	383	400	417	433	450	467	483	500	517	533	550	567	584
55	200	218	236	254	273	291	309	327	345	363	382	400	418	436	454	473	491	509	527	545	563	582	600	618	636
50	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700
45	244	267	289	311	333	355	378	400	422	444	457	489	511	533	555	578	600	622	644	667	689	711	733	755	778
40	275	300	325	350	375	400	425	450	475	500	525	550	575	600	625	650	675	700	725	750	775	800	825	850	875
35	314	343	371	400	428	457	486	514	543	571	600	628	657	686	714	742	771	800	828	857	886	914	943	971	1000
30	367	400	433	467	500	533	567	600	633	667	700	733	767	800	833	867	900	933	967	1000	1033	1067	1100	1133	1167
25	440	480	520	560	600	640	680	720	760	800	840	880	920	960	1000	1040	1080	1120	1160	1200	1240	1280	1320	1360	1400
20	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750
15	733	800	867	933	1000	1067	1133	1200	1267	1333	1400	1467	1533	1600	1667	1733	1800	1867	1933	2000	2067	2133	2200	2267	2333
10	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500
5	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000	5200	5400	5600	5800	6000	6200	6400	6600	6800	7000
3	3667	4000	4333	4667	5000	5333	5667	6000	6333	6667	7000	7333	7667	8000	8333	8667	9000	9333	9667	10000					

	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550
100	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550
95	379	389	400	410	421	431	442	452	463	474	484	495	505	516	526	536	547	558	568	579
90	400	411	422	433	444	455	467	478	489	500	511	522	533	544	555	567	578	589	600	611
85	423	435	447	459	470	482	494	506	517	529	541	553	565	576	588	600	612	623	635	647
80	450	462	475	487	500	512	525	537	550	562	575	587	600	612	625	637	650	662	675	687
75	480	493	507	520	533	547	560	573	587	600	613	627	640	653	667	680	693	707	720	733
70	514	528	543	557	571	586	600	614	628	643	657	671	686	700	714	728	743	757	771	786
65	554	569	585	600	615	631	646	661	677	692	708	723	738	754	769	784	800	815	831	846
60	600	617	633	650	667	683	700	717	733	750	767	783	800	817	833	850	867	883	900	917
55	654	673	691	709	727	745	763	782	800	818	836	854	873	891	909	927	945	963	982	1000
50	720	740	760	780	800	820	840	860	880	900	920	940	960	980	1000	1020	1040	1060	1080	1100
45	800	822	844	867	889	911	933	955	978	1000	1022	1044	1066	1089	1111	1133	1155	1178	1200	1222
40	900	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200	1225	1250	1275	1300	1325	1350	1375
35	1028	1057	1086	1114	1143	1171	1200	1228	1257	1286	1314	1343	1371	1400	1428	1457	1486	1514	1543	1571
30	1200	1233	1267	1300	1333	1367	1400	1433	1467	1500	1533	1567	1600	1633	1667	1700	1733	1767	1800	1833
25	1440	1480	1520	1560	1600	1640	1680	1720	1760	1800	1840	1880	1920	1960	2000	2040	2080	2120	2160	2200
20	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750
15	2400	2467	2533	2600	2667	2733	2800	2867	2933	3000	3067	3133	3200	3266	3333	3400	3467	3533	3600	3667
10	3600	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500
5	7200	7400	7600	7800	8000	8200	8400	8600	8800	9000	9200	9400	9600	9800	10000					

Class III

TABLE D: USE IF THE ROUTE IS D (DERMAL) AND THE FORMULATION IS A LIQUID

DERMAL LD_{50} OF ACTIVE INGREDIENT (MG/KG) - LIQUIDS

Class Ia (1–40) — Class Ib (45–400) — Class II (410–550) — Class III

Rows: % CONCENTRATION OF ACTIVE INGREDIENT IN FORMULATION

%	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90
100	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90
95	1	3	5	10	15	21	26	31	37	42	47	52	63	74	84	95
90	1	3	5	11	16	22	28	33	39	44	50	55	66	78	89	100
85	1	3	6	12	17	23	29	35	41	47	53	59	70	82	94	106
80	1	4	6	12	19	25	31	37	44	50	56	62	75	87	100	112
75	1	4	6	13	20	26	33	40	46	53	60	66	80	93	106	120
70	1	4	7	14	21	28	36	43	50	57	64	71	86	100	114	128
65	1	4	8	15	23	31	38	46	54	61	69	77	92	107	123	138
60	2	5	8	17	25	33	42	50	58	67	75	83	100	117	133	150
55	2	5	9	18	27	36	45	54	63	73	82	91	109	127	145	163
50	2	6	10	20	30	40	50	60	70	80	90	100	120	140	160	180
45	2	7	11	22	33	44	55	67	78	89	100	111	133	155	178	200
40	2	7	12	25	37	50	62	75	87	100	112	125	150	175	200	225
35	3	8	14	28	43	57	71	86	100	114	128	143	171	200	228	257
30	3	10	17	33	50	67	83	100	117	133	150	167	200	233	267	300
25	4	12	20	40	60	80	100	120	140	160	180	200	240	280	320	360
20	5	15	25	50	75	100	125	150	175	200	225	250	300	350	400	450
15	7	20	33	67	100	133	167	200	233	267	300	333	400	467	533	600
10	10	30	50	100	150	200	250	300	350	400	450	500	600	700	800	900
5	20	60	100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800
3	33	100	167	333	500	667	833	1000	1167	1333	1500	1667	2000	2333	2667	3000
1	100	300	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	6000	7000	8000	9000
0.5	200	600	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000				
0.1	1000	3000	5000	10000												

%	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250
100	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250
95	105	116	126	137	147	158	168	179	189	200	210	221	231	242	252	263
90	111	122	133	144	155	166	178	189	200	211	222	233	244	255	266	278
85	117	129	141	153	165	176	188	200	212	223	235	247	259	270	282	294
80	125	137	150	162	175	187	200	212	225	237	250	262	275	287	300	312
75	133	146	160	173	186	200	213	226	240	253	266	280	293	306	320	333
70	143	157	171	186	200	214	228	243	257	271	286	300	314	328	343	357
65	154	169	184	200	215	231	246	261	277	292	308	323	338	354	369	384
60	167	183	200	217	233	250	267	283	300	317	333	350	367	383	400	417
55	182	200	218	236	254	273	291	309	327	345	363	382	400	418	436	454
50	200	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500
45	222	244	267	289	311	333	355	378	400	422	444	467	489	511	533	555
40	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600	625
35	286	314	343	371	400	428	457	486	514	543	571	600	628	657	686	714
30	333	367	400	433	467	500	533	567	600	633	667	700	733	767	800	833
25	400	440	480	520	560	600	640	680	720	760	800	840	880	920	960	1000
20	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
15	667	733	800	867	933	1000	1067	1133	1200	1267	1333	1400	1467	1533	1600	1667
10	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000
3	3333	3667	4000	4333	4667	5000	5333	5667	6000	6333	6667	7000	7333	7667	8000	8333
1	10000															

%	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
100	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
95	273	284	295	305	316	326	337	347	358	368	379	389	400	410	421
90	289	300	311	322	333	344	355	366	378	389	400	411	422	433	444
85	306	317	329	341	353	365	376	388	400	412	423	435	447	459	470
80	325	337	350	362	375	387	400	412	425	437	450	462	475	487	500
75	346	360	373	386	400	413	426	440	453	466	480	493	507	520	533
70	371	386	400	414	428	443	457	471	486	500	514	528	543	557	571
65	400	415	431	446	461	477	492	508	523	538	554	569	585	600	615
60	433	450	467	483	500	517	533	550	567	584	600	617	633	650	667
55	473	491	509	527	545	563	582	600	618	636	654	673	691	709	727
50	520	540	560	580	600	620	640	660	680	700	720	740	760	780	800
45	578	600	622	644	667	689	711	733	755	778	800	822	844	867	889
40	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000
35	742	771	800	828	857	886	914	943	971	1000	1028	1057	1086	1114	1143
30	867	900	933	967	1000	1033	1067	1100	1133	1167	1200	1233	1267	1300	1333
25	1040	1080	1120	1160	1200	1240	1280	1320	1360	1400	1440	1480	1520	1560	1600
20	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000
15	1733	1800	1867	1933	2000	2067	2133	2200	2267	2333	2400	2467	2533	2600	2667
10	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000
5	5200	5400	5600	5800	6000	6200	6400	6600	6800	7000	7200	7400	7600	7800	8000
3	8667	9000	9333	9667	10000										

%	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550
100	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550
95	431	442	452	463	474	484	495	505	516	526	536	547	558	568	579
90	455	467	478	489	500	511	522	533	544	555	567	578	589	600	611
85	482	494	506	517	529	541	553	565	576	588	600	612	623	635	647
80	512	525	537	550	562	575	587	600	612	625	637	650	662	675	687
75	547	560	573	587	600	613	627	640	653	667	680	693	707	720	733
70	586	600	614	628	643	657	671	686	700	714	728	743	757	771	786
65	631	646	661	677	692	708	723	738	754	769	784	800	815	831	846
60	683	700	717	733	750	767	783	800	817	833	850	867	883	900	917
55	745	763	782	800	818	836	854	873	891	909	927	945	963	982	1000
50	820	840	860	880	900	920	940	960	980	1000	1020	1040	1060	1080	1100
45	911	933	955	978	1000	1022	1044	1066	1089	1111	1133	1155	1178	1200	1222
40	1025	1050	1075	1100	1125	1150	1175	1200	1225	1250	1275	1300	1325	1350	1375
35	1171	1200	1228	1257	1286	1314	1343	1371	1400	1428	1457	1486	1514	1543	1571
30	1367	1400	1433	1467	1500	1533	1567	1600	1633	1667	1700	1733	1767	1800	1833
25	1640	1680	1720	1760	1800	1840	1880	1920	1960	2000	2040	2080	2120	2160	2200
20	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750
15	2733	2800	2867	2933	3000	3067	3133	3200	3266	3333	3400	3467	3533	3600	3667
10	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000	5100	5200	5300	5400	5500
5	8200	8400	8600	8800	9000	9200	9400	9600	9800	10000					

Class III

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