OPERATION OF THE PRIOR INFORMED
CONSENT PROCEDURE FOR BANNED
OR SEVERELY RESTRICTED CHEMICALS
IN INTERNATIONAL TRADE

DECISION GUIDANCE DOCUMENTS

Methyl parathion (emulsifiable concentrates at or above 19.5% active ingredient and dusts at or above 1.5% active ingredient).

JOINT FAO/UNEP PROGRAMME
FOR THE OPERATION OF
PRIOR INFORMED CONSENT

United Nations Environment Programme
UNEP

Food and Agriculture Organization
of the United Nations

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Food and Agriculture Organization of the United Nations
United Nations Environment Programme
Rome - Geneva 1991; amended 1996

DISCLAIMER

The inclusion of these chemicals in the Prior Informed Consent Procedure is based on reports of control action submitted to the United Nations Environment Programme (UNEP) by participating countries, and which are presently listed in the UNEP-International Register of Potentially Toxic Chemicals (IRPTC) database on Prior Informed Consent. While recognizing that these reports from countries are subject to confirmation, the FAO/UNEP Joint Working Group of Experts on Prior Informed Consent has recommended that these chemicals be included in the Procedure. The status of these chemicals will be reconsidered on the basis of such new notifications as may be made by participating countries from time to time.

The use of trade names in this document is primarily intended to facilitate the correct identification of the chemical. It is not intended to imply approval or disapproval of any particular company. As it is not possible to include all trade names presently in use, only a number of commonly used and published trade names have been included here.

This document is intended to serve as a guide and to assist authorities in making a sound decision on whether to continue to import, or to prohibit import, of these chemicals because of health or environmental reasons. While the information provided is believed to be accurate according to data available at the time of preparation of this Decision Guidance Document, FAO and UNEP disclaim any responsibility for omissions or any consequences that may flow therefrom. Neither FAO or UNEP, nor any member of the FAO/UNEP Joint Group of Experts shall be liable for any injury, loss, damage or prejudice of any kind that may be suffered as a result of importing or prohibiting the import of these chemicals.

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ABBREVIATIONS WHICH MAY BE USED IN THIS DOCUMENT

(N.B. : chemical elements and pesticides are not included in this list)

ADI	acceptable daily intake
ai	active ingredient
b.p.	boiling point
bw	body weight
^{o}C	degree Celsius (centigrade)
CCPR	Codex Committee on Pesticide Residues
DNA	Designated National Authority
EC	emulsion concentrate
EEC	European Economic Community
EPA	U.S. Environmental Protection Agency
ERL	extraneous residue limit
FAO	Food and Agriculture Organization of the United Nations
g	gram
μg	microgram
GAP	good agricultural practice
GL	guideline level
ha	hectare
IARC	International Agency for Research on Cancer
i.m.	intramuscular
i.p.	intraperitoneal
IPCS	International Programme on Chemical Safety
IRPTC	International Register of Potentially Toxic Chemicals
JMPR	Joint FAO/WHO Meeting on Pesticide Residues (Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and a WHO Expert Group on Pesticide Residues)

k	kilo- (x 103)
kg	kilogram
l	litre
LC_{50}	lethal concentration, 50%
LD_{50}	lethal dose, median
m	metre
mg	milligram
ml	millilitre
m.p.	melting point
MRL	Maximum Residue Limit.
MTD	maximum tolerated dose
ng	nanogram
NOEL	no-observed-effect level
NOAEL	no-observed-adverse-effect level
NS	Not Stated
OP	organophosphorus pesticide
PHI	pre-harvest interval
ppb	parts per billion
ppm	parts per million (Used only in reference to the concentration of a pesticide in an experimental diet. In all other contexts the terms mg/kg or mg/l are used).
ppt	parts per trillion
sp gr	specific gravity
STEL	Short Term Exposure Limit
TADI	Temporary Acceptable Daily Intake
TLV	Threshold Limit Value
TMDI	theoretical maximum daily intake
TMRL	Temporary Maximum Residue Limit
TWA	Time Weighted Average
UNEP	United Nations Environment Programme
WHO	World Health Organization

WP	wettable powder
wt	weight
<	less than
<<	much less than
≤	less than or equal to
>	greater than
≥	greater than or equal to

PIC Decision Guidance Document for acutely hazardous pesticides of concern to human health under conditions of use in developing countries

Methyl parathion

Published: June 97

Common Name	Methyl parathion
Other names/ Synonyms	Parathion methyl
CAS-No.	298-00-0
Use	Agricultural chemical, insecticide, acaricide
Trade Names	A-Gro, Azofos, Azaophos, Bladan-M, Cekumethion, Dalf, Devithion, dimethyl parathion, Drexel Methyl parathion 4E & 601, Dygun, Dypar, E-601, Ekatox, Folidol M, M40 & 80, Fosferno M, Fostox Metil, Gearphos, Kilex Parathion, Kriss Liquide M, Metaphos, methyl parathion, Methyl-bladan, Methyl Fosferno, Methylthiophos, Metron, Mepaton, Mepatox, Metacide, Niletar, Niran M-4, Nitran, Nitrox, Nitrox 80, Oleovofotox, Parapest M50, Parataf, Paratox, Paridol, Partron M, Penncap M & MLS, Penntox MS, Sinafid M-48, Sixty-Three Special EC, Tekwaisa, Thiophenit, Thylpar M-50, Toll, Thylpar M-50, Unidol, Vertac Methyl parathion, Wofatox, Wolfatox
Formulation Types	Dusts, emulsifiable concentrates, ULV liquid, wettable powders. Formulations range from 1.5% dusts to 75% ECs, with 50 per cent EC being a common formulation.
Basic Manufacturers	All India Medical Co. (India), Bayer India, Bayer Mexico, Cheminova (Denmark) Rallis India Ltd. (India), Sundat (S) Pte. Ltd. (Singapore), Velpol Company (Mexico)

Reasons for Inclusion in the PIC Procedure

The pesticide is included because of its acute hazard classification and concern as to its impact on human health under conditions of use in developing countries.

After review by the FAO/UNEP Joint Expert Group on PIC, it was decided that certain formulations of parathion methyl emulsifiable concentrates (EC) with 19.5%, 40%, 50%, 60% active ingredient (a.i.) and dusts containing 1,5%, 2% and 3% (a.i.) should be placed in that category. A typically used formulation is 50% EC which falls into WHO Class Ib, Highly Hazardous. Dust formulations were included for consideration even though in WHO Class III because of the great variation of concentrations and uncertainty over potential doses by inhalation, especially because formulations of this pesticide are produced by many manufacturers with varying degrees of control over the proportion of respirable particles.

Some reports attribute specific cases of poisoning to methyl parathion. These reports refer both to occupational exposure and accidental poisoning (See Annex 1, section 3 for details).

Registrars need to carefully consider the formulations actually used in each country in determining the risks of continued use of this pesticide. The toxicity of the active ingredient is high, but many formulations will fall into a much lower category of hazard.

Hazard Classification by International Organisms

WHO	Technical product. Class Ia (extremely hazardous), classification based on oral toxicity				
(WHO,1996)	*Classification of formulations*				
		oral toxicity		dermal toxicity	
		LD_{50}: 3 mg/kg bw (see Ann. 1)		LD_{50}: 40 mg/kg bw (see Ann. 1)	
	formulation	a.i. (%)	hazard class	a.i. (%)	hazard class
	liquid	>15	Ia	>90	Ia
		>1	Ib	>5	Ib
		<1	II	>1	II
	solid	>50	Ia	>40	Ib
		>5	Ib	>3	II
EPA	Category 1 (highly toxic)				
EU	T+ (very Toxic)				
IARC	Group 3; not classifiable as to their carcinogenicity to humans				

Protective Measures That Have Been Applied Concerning the Chemical

Measures to Reduce Exposures

Personal

WHO recommends that for the health and welfare of workers and the general population, the handling and application of methyl parathion should be entrusted only to competently supervised and well-trained applicators, who must follow adequate safety measures and use the chemical according to good application practices. Regularly exposed workers should receive appropriate monitoring and health evaluation. (*IPCS 1986, IPCS 1993)*

Protection

Protective clothing as indicated in the *FAO Guidelines for Personal Protections when Working with Pesticides in Tropical Climates (FAO,1990)* is required; a respirator should also be worn by mixers and when spraying tall crops. The use of flaggers should be avoided; if used, they need full protective clothing including a respirator. All equipment and protective clothing should be washed thoroughly after use; clothing should be laundered separately from family clothing.

Unprotected workers should be kept out of treated areas for 48 hours. *(FAO 1990)*

Application

The manufacture, formulation, agricultural use and disposal of methyl parathion should be carefully managed to minimize contamination of the environment. To minimize risks for all individuals, a 48-hour interval between spraying and re-entry into any sprayed area is recommended.

Pre-harvest intervals should be established and enforced by national authorities.

In view of the high toxicity of methyl parathion, this agent should not be considered in hand-applied ULV spraying practices. *(IPCS ,1993)*

WHO concludes that with good work practices, hygienic measures and safety precautions, methyl parathion is unlikely to present a hazard for those occupationally exposed. DNAs evaluating the use of methyl parathion in a specific country will need to consider whether the necessary precautions can be ensured in the country as part of the risk assessment of the use of the methyl parathion formulations subject to this Decision Guidance Document. *(IPCS,1975; IPCS,1986; WHO,1993)*

Regulatory measures

Although the chemical has been included in the PIC procedure because it is a highly toxic pesticide that is likely to cause problems under conditions of storage, transportation and use in developing countries, some countries have reported control actions that may be of interest when considering its use as a pesticide (see below).

Control actions regarding methyl parathion have been reported by Colombia, the Congo, Indonesia, Japan, Sri Lanka and Tanzania (see Annex 2).

Not all of the reports have been determined to be of control actions which conform with the FAO/UNEP definitions of banned or severely restricted for health or environmental reasons. However, all reports are provided here since the FAO/UNEP Joint Expert Group on Prior Informed Consent decided that methyl parathion should be included in the PIC procedure due to its potential to cause problems under conditions of use in developing countries regardless of the number of qualifying actions.

For further information on the control actions provided in Annex 2, contact the Designated National Authorities (Annex 3) in the country reporting the control action.

Alternatives

No information on alternatives has been provided by countries taking regulatory actions. Alternatives have been reported in literature. *(Gips, 1990)*

It is essential that before a country considers substituting any of the reported alternatives, it ensures that the use is relevant to their national needs. A first step may be to contact the DNA in the country where the alternative has been reported (see addresses of DNAs Annex 3). It will then be necessary to determine the compatibility with national crop protection practices.

Packaging and Labelling

Follow *FAO Revised Guidelines on Good Labelling Practice for Pesticides (FAO, 1995)*.

The United Nations Committee of Experts on the Transportation of Dangerous Goods *(IPCS, 1993)* classifies the chemical in:

Hazard Class 6.1	poisonous substance
Packing Group 2:	substances and preparations presenting a serious risk of poisoning, for formulations containing 12-100% methyl parathion

Packing Group 3: harmful substances and preparations presenting a serious risk of poisoning, for solid formulations containing 3-12% active material, and liquid formulations containing 1.2 -12 % active material.

Waste Disposal

Avoid skin contamination and inhalation of vapour. Absorb spilled liquid and cover contaminated areas with a 1:3 mixture of sodium carbonate crystals and damp sawdust, lime, sand or earth. Sweep up and place it in an impervious container. Ensure that the container is tightly closed and labelled before transfer to a safe place for disposal. *(IPCS, 1992)*

Large amounts should be incinerated at high temperature in a unit with effluent gas scrubbing or should be adsorbed on vermiculite and disposed of in an approved landfill, if incineration is impossible. *(IPCS, 1992)*

See *FAO Guidelines on Prevention of Accumulation of Obsolete Pesticide Stocks* and *The Pesticide Storage and Stock Control Manual*. (FAO,1996)

It must be considered that the methods recommended in literature often are not suitable in a specific country. High temperature incinerators or secure landfills may not be available.

Exposure Limits

	Type of limit	Value
Food	MRL's (Maximum residue limits in mg/kg) in specified products *(FAO/WHO, 1996)*	0.01 - 0.2
	JMPR_ADI (acceptable daily intake) in mg/kg diet *(JMPR, 1995)*	0.003
Workplace	USA (ACGIH) TLV-TWA (Threshold limit Value, Time-weighted average in mg/m^3)	0.2
Environment	Japanese environmental water quality standard 1981	not detectable

First Aid

Early symptoms of poisoning may include excessive sweating, headache, weakness, giddiness, nausea, vomiting, hypersalivation, stomach pains, blurred vision and slurred speech. If these symptoms occur, the person should remove contaminated clothes and wash the affected skin with soap and water, and flush with large quantities of water. If in the event of collapse artificial resuscitation is used, vomit may contain toxic amounts of the substance. In case of ingestion, the stomach should be emptied as soon as possible by careful gastric lavage. Do not induce vomiting if the formulation contained hydrocarbon solvents.

Persons who have been poisoned (accidentally or otherwise) must be transported immediately to a hospital and put under surveillance of properly trained medical staff.

Antidotes are atropine sulfate and pralidoxime chloride.

General surveillance and cardiac monitoring must be maintained for at least 14 days. *(IPCS, 1986)*

Annexes

Annex 1 - Further Information on the Substance

1 Chemical and Physical Properties

1.1	Identity	The pure active ingredient is a white crystalline odourless material; the technical grade material (approx 80% purity) is a yellowish - brown liquid with characteristic odour
1.2	Formula	$C_8H_{10}NO_5PS$
	Chemical Name	O,O-dimethyl O-(4-nitrophenyl) phosphorothioate (CAS.)
		O,O-dimethyl O-4-nitrophenylphosphorothioate (IUPAC)
	Chemical Type	Organophosphate
1.3	Solubility	Solubility in water 55 - 60 mg/l (20ºC); soluble in most organic solvents, slightly soluble in petroleum and mineral oils
	$logP_{ow}$	3 - 3.43
1.4	Vapour Pressure	Vapour pressure 0.41 mPa (25 ºC)
1.5	Melting Point	35 -36 °C
1.6	Reactivity	Rapidly hydrolysed in alkaline conditions
		further information in *Worthing, 1994* and *IPCS, 1993*

2 Toxicity

2.1 General

2.1.1	Mode of action	Contact and stomach insecticide, inhibiting cholinesterase activity *(Worthing, 1994)*
2.1.2	Uptake	Methyl parathion is readily absorbed via all routes of exposure (oral, dermal, inhalation) and is rapidly distributed to the tissues of the body. *(IPCS, 1993)*
2.1.3	Metabolism	Conversion of methyl parathion to methyl paraoxon, the active inhibitor of the acetylcholinesterase, occurs within minutes of administration. Both substances are mainly detoxified in the liver. *(IPCS, 1993)*

2.2 Known Effects on Human Health

2.2.1 Acute Toxicity

Symptoms of poisoning

The organophosphate insecticides are cholinesterase-inhibitors. They are highly toxic by all routes of exposure. When inhaled, the first effects are usually respiratory and may include bloody or runny nose, coughing, chest discomfort, difficult or short breath and wheezing due to constriction or excess fluid in the bronchial tubes. Skin contact with organophosphates may cause localized sweating and involuntary muscle contractions. Eye contact will cause pain, bleeding, tears, pupil constriction and blurred vision. Following exposure by any route, other systemic effects may begin within a few minutes or be delayed for up to 12 hours. These may include pallor,

nausea, vomiting, diarrhoea, abdominal cramps, headache, dizziness, eye pain, blurred vision, constriction or dilation of the pupils, tears, salivation, sweating and confusion. Severe poisoning will affect the central nervous system, producing incoordination, slurred speech, loss of reflexes, weakness, fatigue, involuntary muscle contractions, twitching, tremors of the tongue or eyelids, and eventually paralysis of the body extremities and the respiratory muscles. In severe cases there may also be involuntary defecation or urination, psychosis, irregular heart beat, unconsciousness, convulsions and coma. Respiratory failure or cardiac arrest may cause death.

(IPCS, 1993, Occupational Health Services, 1991)

2.2.2 Short and long term exposure

Doses of 28 or 30 mg methyl parathion a day (study conducted with 5 volunteers) caused a significant decrease in the cholinesterase activity in three subjects. *(IPCS, 1993)*

Some organophosphates may cause delayed symptoms beginning 1 to 4 weeks after an acute exposure that may or may not have produced immediate symptoms. In such cases, numbness, tingling, weakness and cramping may appear in the lower limbs and progress to incoordination and paralysis. Improvement may occur over months or years, but some residual impairment will remain.

No cases of organophosphorous-induced, delayed peripheral neuropathy induced by methyl parathion have been reported *(IPCS, 1993).*

2.2.3 Epidemio-logical studies

There are no epidemiological studies on effects related only to methyl parathion exposure

2.3 Toxicity studies with laboratory animals and *in vitro* systems

2.3.1 Acute Toxicity

oral: LD_{50} (a.i.; mg/kg b.w.): 3-400 in different test species. *(IPCS, 1993)*

dermal: LD_{50} (a.i.; mg/kg b.w.): 40-300 in different test species. *(IPCS, 1993)*

inhalation: LC_{50} (a.i.; mg/m^3 air- exposure 1 - 4 hrs) 34-320 (rats and mice)

(IPCS, 1993)

irritation: The irritation potential of methyl parathion was studied according to the guidelines of the OECD. It was concluded that methyl parathion had no primary irritation potential. *(IPCS, 1993)*

2.3.2 Short-term exposure

Dietary, dermal and inhalatory studies with different test species show a dose dependent inhibition of plasma Cholinesterase. The NOEL Value was 01.1 mg/kg b.w./day in rats (oral) and 10 mg/kg b.w./ day in rabbits (dermal) *(IPCS, 1993).*

2.3.3 Long term exposure

Retinal and sciatic nerve damage at high dose levels (50 mg/kg diet) was observed in a rat study. *(IPCS, 1993)*

2.3.4 Effects on reproduction

In a three generation study with rats fed dietary levels of 0, 0.5, or 1.5 mg/kg b.w./day, there was reduced weanling survival, reduced weanling weights and an increase in the number of stillbirths at the 1.5 mg/kg b.w.. Some of these effects also occurred at the 0.5 mg/kg b.w. dosage level. In rats and mice, a single injection of LD_{50} rates during pregnancy caused suppression of foetal growth and bone formation in the offspring that survived. These injections

also caused high foetal mortality. The rats had been injected with 15 mg/kg b.w. on day 12 of pregnancy, and the mice were injected with 60 mg/kg b.w. on day 10. In another study, there were no adverse effects observed in the offspring of rats given oral doses of 4 or 6 mg/kg b.w. on day 9 or 15 of pregnancy .

No primary teratogenic or embryotoxic effects were noted.

(IPCS, 1993; Hayes, 1990)

2.3.5 Mutagenicity

US EPA noted limited evidence of genotoxicity. The results of most of the *in vitro* genotoxicity studies on both bacterial and mammalian cells were positive. IARC concluded there is sufficient evidence of mutagenicity in some cellular systems. *In vivo* studies produced equivocal results. (11,18,21,22)

2.3.6 Carcinogenicity

No evidence of carcinogenicity was found in rat or mouse studies. The available data provide no evidence of carcinogenicity to experimental animals and no evidence that methyl parathion is likely to present a carcinogenic risk to humans. *(IARC, 1983)*

3 Exposure

3.1 Food

Residues are generally below Codex MRLs. Residues in leafy vegetables and some fruit (e.g. citrus) have been reported in monitoring data from several countries but these were generally less than 0.1 mg/kg.

3.2 Occupational

Skin absorption, and to a lesser extent inhalation and ingestion, are important routes of exposure. Mixers, loaders, flaggers, applicators and field workers are particularly at risk. Dermal, ocular and inhalation exposure can occur during mixing, loading and application, cleaning and repair of equipment, and during early reentry in treated areas.

In a US study, methyl parathion was among the first 25% of pesticides ranked on the most measures of occupational hazards and for which cases of poisoning were referred to Health Care Facilities.

In a study conducted in the Philippines, it was demonstrated that in the course of a normal spraying operation farmers are exposed to contamination of their clothing and potential dermal absorption. *(IPCS, 1993; US-EPA, 1996; Forget, 1990)*

3.3 Environment

Levels of methyl parathion vaporizing from treated cotton fields have been detected 12 hours (12.6 ng/litre) and 24 hours (0.2 ng/l) after spraying.

3.4 Accidental Poisoning

The analysis of 375 pesticide poisonings in Bulgaria during 1965-68 showed that 82.5% of all cases were due to organophosphates. Six of the intoxications were attributed to methyl parathion.

Sixteen cases (of a total of 118) of methyl parathion poisoning were reported in the lower Rio Grande Valley (Texas, USA) in 1968. Toxicity following dermal exposure was predominant. *(IPCS, 1993)*

A combination of dermal, respiratory and possibly oral exposure led to the poisoning of a rural family. Nine days after symptoms appeared, one 26-year-old man died and a 17-year old was hospitalized and successfully treated with atropine. Methyl parathion was applied inside the home to kill cockroaches. *(Hayes, 1990)*

In Parana State (Brazil), pesticide incidents compiled by the Toxicological Information Centre and Health Clinics noted 1,243 incidents involving methyl parathion between 1982 and 1991. *(Dinham, 1993)*

4 Effects on the Environment

4.1 Fate

4.1.1	Persistence	Half-lives in soil are in the range of 1 - 18 days under laboratory conditions, degradation being mainly by microbial action and chemical hydrolysis. In aquatic ecosystems, methyl parathion is eliminated from the water phase with DT_{50} values of 2 - 22 days via adsorption on organic substance and microbial degradation. Methyl parathion is rapidly metabolized by both plants and animals and it is not expected to persist. *(Howard, 1989)*
4.1.2	Bioconcentration	Methyl parathion has no potential to bioconcentrate due to the low log K_{OW} and to its short environmental persistence.

4.2 Ecotoxicity

4.2.1	Fish	Most fish species in both fresh and sea water have LC_{50}s of between 6 and 25 mg/l, with a few species substantially more or less sensitive to methyl parathion. *(IPCS, 1993)*
4.2.2	Aquatic invertebrates	Methyl parathion is highly toxic for aquatic invertebrates with most LC_{50}s ranging from < 1 µg to about 40 µg/l. *(IPCS, 1993)*
4.2.3	Birds	Methyl parathion was toxic to birds in laboratory studies, with acute oral LD_{50}s ranging between 3 an 8 mg/kg body weight. Dietary LC_{50}s ranged from 70 to 680 mg/kg diet.
4.2.4	Bees	Methyl parathion is toxic to bees (LD_{50}: 0.17µg/bee) *(IPCS, 1993)*

Annex 3 - Details on reported control actions

COLOMBIA

Effective:	1991
Control Action:	The substance is severely restricted for use. Only use on tobacco and beans is allowed.
Uses still allowed:	The use is restricted to cultures of cotton and rice for technical.
Reasons:	Incorrect use of the substance on cultures of tobacco, beans and soya.

CONGO, REPUBLIC OF THE

Effective:	1993
Control Action:	Use restricted.
Uses still allowed:	
Reasons:	

INDONESIA

Effective:	
Control Action:	Prohibited for all uses.
Uses still allowed:	No.
Reasons:	Extremely toxic to human beings, mammalian and other animals.

JAPAN

Effective:	1955
Control Action:	The substance is banned for use.
Uses still allowed:	No remaining uses are allowed.
Reasons:	In accordance with Judgement Criteria for Poisonous and Deleterious Substances(*), it was found by the Central Pharmaceutical Affairs Council that these chemicals are specified poisonous substances for their very strong toxicity. Those poisonous substances which have very strong toxicity and are commonly used, or thought to be commonly used, and are feared to be apt to cause harm are designated to be specified poisonous substances. (*)Judgement Criteria for Poisonous and Deleterious Substances (abstract).

SRI LANKA

Effective:	1984
Control Action:	Banned for use as a pesticide. No remaining uses allowed.
Uses still allowed:	
Reasons:	Fatal and non-fatal poisoning of farmers.

TANZANIA, UNITED REPUBLIC OF	
Effective:	1986
Control Action:	Total ban.
Uses still allowed:	
Reasons:	Highly toxic chemicals.

Annex 3 - List of Designated National Authorities

COLOMBIA

P	***Phone***	57 1 285 5520
Ministerio de Agricultura Instituto Colombiano Agropecuario (ICA),	***Fax***	57 1 285 4351
Calle 37 No. 8-43 Piso 4 y 5	***Telex***	
Bogotá Apartado aéreo 6984	***e-mail***	
P	***Phone***	571 284 2427
Director General		
Ministerio de Agricultura Instituto Nacional de los Recursos Naturales Renovables,	***Fax***	571 285 9987
Carrera 10 No. 20-30 Of. 204	***Telex***	44428 INDE
Bogotá Apt. aereo 13458	***e-mail***	
CP	***Phone***	57 1 245 9228
Jefe	***Fax***	57 1 282 0003
Ministerio de Salud División Sustancias Potencialmente Tóxicas,	***Telex***	MINSALUD
Calle 55 No. 10-32 - Bloque B piso 3	***e-mail***	
Bogotá		

CONGO, REPUBLIC OF THE

CP	***Phone***	242 83 30 46
Monsieur le Directeur général	***Fax***	242 83 71 50
Direction générale de l'environnement ,	***Telex***	5282 KG
Brazzaville B.P. 958	***e-mail***	
P	***Phone***	242 832908
Monsieur le Directeur	***Fax***	242 832908
Ministère de l'Agriculture, des eaux et fôrets Direction de la Protection des Végétaux	***Telex***	
Brazzaville B.P.387	***e-mail***	

INDONESIA

P	***Phone***	62 (21) 7805652 /7806213
Chairman	***Fax***	62 (21) 7805652
Direktorat Bina Perlindungan Tanaman Pesticide Committee,	***Telex***	
Jln. AUP. Pasar Minggu	***e-mail***	
12520 Jakarta		

CP	***Phone***	021 583918
Bapedal Offices , Ms. Masnellyarti Hilman	***Fax***	021 5703365
Arthaloka Building, 11th Floor, Jl. Jend Sudirman No. 2	***Telex***	62 21 583918
Jakarta Pusat	***e-mail***	

JAPAN

P	***Phone***	81 3 35013964
The Director		
Ministry of Agriculture, Forestry and Fisheries Plant Protection	***Fax***	81 3 35916640
Kasumigaseki 1-2-1 Chiyoda-ku	***Telex***	
100 Tokyo	***e-mail***	
CP	***Phone***	81 3 35803311
The Director		
Ministry of Foreign Affairs Global Issues Division, Multilateral	***Fax***	81 3 35920364
Cooperation Dept., Mr. Toshiki Kanamori		
2-2-1 Kasumigaseki, Chiyoda-ku	***Telex***	
100 Tokyo	***e-mail***	

SRI LANKA

P	***Phone***	94 (08) 88135
Registrar of Pesticides		
Pesticides Registration Office ,	***Fax***	94 (08) 88206
Getambe	***Telex***	
Peradeniya P.O. BOX 49	***e-mail***	
C	***Phone***	94 (1) 549455
The Director-General		
Central Environmental Authority ,	***Fax***	
Maligawatte New Town	***Telex***	22775 NHDA
10 Colombo	***e-mail***	

TANZANIA, UNITED REPUBLIC OF

P	***Phone***	057 8813/4/5
The Registrar of Pesticides	***Fax***	057 8217
Tropical Pesticide Research Institute , Mr. H.A. Lyatuu	***Telex***	42002 TPRI TZ
Arusha 3024	***e-mail***	

CP Registrar of Pesticides Tropical Pesticides Research Institute , *Arusha P.O. Box 3024*	***Phone*** ***Fax*** ***Telex*** ***e-mail***	057 8813/4/5 057 8217 42002 TPRI TZ
C The Chief Goverment Chemist Government Chemical Laboratory , Ms. Mpore *Dar-es-Salaam P.O. Box 164*	***Phone*** ***Fax*** ***Telex*** ***e-mail***	255 51 29406, 25021/2 255 51 39951

C Industrial and consumer product chemicals
CP Pesticides
P Pesticides, industrial and consumer product chemicals

Annex 4 - References

The information on methyl parathion given in this DGD is mainly based on documents published by WHO, FAO and the International Programme on Chemical Safety (IPCS). If important information from other sources has been used, these references are noted in the text. The following list also includes other publications containing useful information.

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