



UNEP



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**Rotterdam Convention on the Prior Informed  
Consent Procedure for Certain Hazardous  
Chemicals and Pesticides in International Trade  
Chemical Review Committee**

First meeting

Geneva, 11–18 February 2005

Item 7 (f) of the provisional agenda\*

**Inclusion of chemicals in Annex III of the Rotterdam Convention:  
review of notifications of final regulatory actions to ban  
or severely restrict a chemical: methyl parathion**

**Methyl parathion: supporting documentation from Japan**

**Note by the secretariat**

The secretariat has the honour to provide, in the annex to the present note, the supporting documentation supplied by Japan in support of its final regulatory action on methyl parathion.

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\* UNEP/FAO/RC/CRC.1/1.

## Annex

The Japanese DNA for the PIC Convention would like to submit the following information on our notification of final regulatory action on Methyl-Parathion.

### I. Supporting Documentation

1. Properties referenced in Section 1.8 of the notification form  
See Annex 1 and 2 to this document.
2. Risk or hazard evaluation referenced in Section 2.3 of the notification form  
See Annex 3 to this document.
3. Relevant documentation for Section 2.4.1, referring to protecting human health  
“Guidance on handle of poisonous and deleterious substances (Japanese),” Jijitsushinsha, 2001  
Summary:  
The Ministry of Health, Labour and Welfare conducted the acute toxicity tests of Methyl-Parathion and found that the substance has strong toxicity and may be harmful to human health when misused. If inhaled in large quantity, Methyl-Parathion causes poisoning, headache, nauseous, fever, palsy and convulsion. Since 1955, Methyl-Parathion has been banned under the Poisonous and Deleterious Substances Control Law, which regulates acutely toxic or corrosive substances.
4. Any other information used in making the decision to ban this chemical  
No information

### II. Trade Information

1. Ongoing trade  
There is no ongoing trade occurring.
2. Manufacture within Japan and the export destination if manufactured  
16, 535t of Metyl-Parathion was manufactured in Japan between 1966 and 1969 as agricultural chemicals.
3. The date the chemicals were last imported into Japan  
No information

### Focused Summary

#### 1. Introduction

- a) The events that led to the regulatory action  
The regulation on manufacture, import and possession of Methyl-Parathion was banned under the Poisonous and Deleterious Substances Control Law, as a result of the Ministry of Health, Labour and Welfare’s tests finding that the substance has strong toxicity and may be harmful to human health when misused.
- b) Significance of regulatory action

Since 1955, manufacture, import and possession of Methyl-Parathion have been banned except for the use as agricultural pesticide. After the regulation took effect, the substance's use ceased. Between 1967 and 1971, the production of highly toxic agricultural pesticide phased out in accordance with the instruction by Ministry of Agriculture, Forestry and Fisheries.

In 1971, the pesticide registration of the end products of Methyl-Parathion was voluntarily cancelled by the registrant. Therefore, since 1971, the end products of Methyl-Parathion have not been distributed.

In addition, in 2003, the distribution and the use of Methyl-Parathion were formally banned in accordance with Ministerial ordinance of Ministry of Agriculture, Forestry and Fisheries.

Currently, any uses are banned except for research or analysis purposes.

- c) An overview of the regulatory system of the notifying country

The Ministry of Health, Labour and Welfare is responsible for the regulation of chemical substances with acute toxicity likely to cause health hazard. Once a chemical is classified as Specified Toxic Substance, manufacture, import, sale, use, transfer and possession of the chemical is severely restricted. Registration standards are pre-determined, publicly available selection criteria for facility and usage.

The Ministry of Agriculture, Forestry and Fisheries is responsible for the regulation of any kinds of chemicals used as agricultural pesticide. Under the Agricultural Chemicals Regulation Law, manufacture, process and import of such chemical is banned unless registered. Pre-determined, publicly available selection criteria are applied to the data a registrant is required to submit.

- d) Scope of the regulatory action

Since 1955, Methyl-Parathion's use, manufacture, etc. have been banned for any purposes and all formulations, and there is no product including the chemical in Japan.

## 2. Risk Evaluation

- a) Key findings of the national risk evaluation,  
 b) Key data reviews consulted and a brief description,  
 and c) Reference to national studies

See Annex 3 to this document.

- d) Summary of actual human exposure / environmental fate

As a result of the final regulatory action, the use of Methyl-Parathion has phased out, resulting in reduced human exposure to the substance.

### 4. Risk Reduction and Relevance to Other States

- a) Estimates of the quantity of chemicals used, or imported/exported at the time of the regulatory action, info on ongoing trade

There was no case of international trade of Methyl-Parathion at the time of the regulation. There is no information on ongoing trade.

- b) Relevance to other states

No information

- c) Comments on the typical use of the chemical within the notifying country, possible misuse

Until 1971, Methyl-Parathion had been used as pesticide against harmful insects of citrus fruits. Possible misuses are overuse and the use without safeguard.

## **Annex 1**

### **Physico-chemical properties of the chemical**

Appearance: colorless or light yellow liquid

Degree of solubility: Organic solvent; easy, Water; hardly

(Guidance on handle of poisonous and deleterious substances in Japanese, p.762, jijituushinsya (2001))

CAS Number : 000298-00-0 Chem Name: PARATHION METHYL Mol Formula: C<sub>8</sub>H<sub>10</sub>NO<sub>5</sub>P  
Mol Weight: 263.21 Melting Pt: 35.5 deg C Boiling Pt: 154 deg C at 1.00E+00 mm Hg  
Water Solubility: Value: 37.7 mg/L Temp: 20 deg C Type: EXP Ref: BOWMAN,BT & SANS,WW (1983)  
Log P (octanol-water): Value: 2.86 Type: EXP Ref: HANSCH,C ET AL. (1995)  
Vapor Pressure: Value: 3.5E-006 mm Hg Temp: 25 deg C Type: EXP Ref: TOMLIN,CDS (1997)  
pKa Dissociation Constant: Value: 7.15 Temp: Type: EXP Ref: WOLFE,NL (1980)  
Henry's Law Constant: Value: 1E-007 atm-m<sup>3</sup>/mole Temp: 25 deg C Type: EXP Ref: METCALFE,CD ET AL. (1980)  
Atmospheric OH Rate Constant: Value: 5.9E-011 cm<sup>3</sup>/molecule-sec Temp: 25 deg C Type: EST Ref: MEYLAN,WM & HOWARD,PH (1993)

### **Reference: Interactive PhysProp Database Demo**

<http://esc.syrres.com/interkow/webprop.exe?CAS=298-00-0&submit=Submit+CAS>

## Annex 2

### Toxicological properties of Methyl Parathion

LD50 Oral: 22mg/kg (Mouse)

If mistakenly eaten, inhaled in large spray, or deposited on skin, Methyl-Parathion harms human health.

Organic phosphorus is not only taken inside the body from a mouth or a trachea, but is also taken from skin considerably. As it combines with acetylcholine esterase in blood, its actions are inhibited. Acetylcholine, if accumulated, causes excessive stimulus effects on the nerve.

(Guidance on handle of poisonous and deleterious substances in Japanese, p.762, jijituushinsya (2001))

Acute toxicity

| Animal | Route           | LD <sub>50</sub> mg/kg<br>body-weight | References  |
|--------|-----------------|---------------------------------------|---|
| Rat    | Oral            | 9.0-42.0*                             | Deichmann et al., 1952<br>Gaines, 1960<br>Metcalf, 1955 |
| Rat    | Oral            | 9.7-14.8<br>(pure product)            | Deichmann et al., 1952<br>Gaines, 1960<br>Metcalf, 1955 |
| Rat    | Intraperitoneal | 3.5                                   | DuBois & Coon, 1952                                     |
| Mouse  | Oral            | 32.1                                  | Ikeda, 1962   |

Dependent on the sex of the animal, the vehicle used and the purity of the sample.

**Reference: IPCS INCHEM JMPR-Monographs & Evaluations**

<http://www.inchem.org/documents/jmpr/jmpmono/v065pr35.htm>

## Annex 3

### Risk or hazard evaluation

The Poisonous and Deleterious Substances Control Law regulates acutely toxic or corrosive substances. Hazardous properties of substances are examined by the existing knowledge and the acute toxicity tests are carried out by the government. It was found that this substance has strong toxicity and may be harmful to human health when misused.

Dog. Groups of 2 dogs, one male and one female, were maintained on diets containing 5, 20 and 50 ppm of methyl parathion for 12 weeks. The two highest dosage levels produced significant depression in erythrocyte cholinesterase activity. Plasm cholinesterase activity was significantly depressed at 50 ppm but only a doubtful change was seen at 20 ppm. The 5 ppm level produced no significant inhibition of cholinesterase activity (Williams et al., 1959).

Man. A group of 5 subjects was given 3 mg of methyl parathion orally per day for 28 days, 3.5 mg per day for 28 days, and 4.0 mg per day for 43 days. No depression of erythrocyte or plasm cholinesterase activity occurred and no side-effects were seen (Moeller & Rider, 1961).

A group of 5 subjects was given daily 4.5 mg during 30 days followed by 5 mg for 29 days. Another group received 5.5 mg for 20 days followed by 6 mg for 29 days and the last group received 6.5 mg for 35 days, followed by 7 mg for 24 days. The maximum depression of whole -blood cholinesterase activity was 15% (Moeller & Rider, 1962).

Groups of 5 subjects were given methyl parathion for 30 days in the following amounts: 7 mg per day, 7.5 mg per day, 8 and 9 mg per day. The plasma and erythrocyte cholinesterase activities remained within 20% of the control values (Moeller & Rider, 1963).

### Reference

IPCS INCHEM JMPR-Monographs & Evaluations

<http://www.inchem.org/documents/jmpr/jmpmono/v065pr35.htm>

### Reference to the relevant documentation

Guidance on handle of poisonous and deleterious substances in Japanese, p. 762, jijituushinsya (2001)

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