

# ROTTERDAM CONVENTION

SECRETARIAT FOR THE ROTTERDAM CONVENTION  
ON THE PRIOR INFORMED CONSENT PROCEDURE  
FOR CERTAIN HAZARDOUS CHEMICALS AND PESTICIDES  
IN INTERNATIONAL TRADE



## FORM FOR NOTIFICATION OF FINAL REGULATORY ACTION TO BAN OR SEVERELY RESTRICT A CHEMICAL

Country:

Brazil

### SECTION 1 IDENTITY OF CHEMICAL SUBJECT TO THE FINAL REGULATORY ACTION

1.1 Common name

Trichlorfon

1.2 Chemical name according to an internationally recognized nomenclature (e.g. IUPAC), where such nomenclature exists

Dimethyl 2,2,2-trichloro-1-hydroxyethylphosphonate

01/03 Trade names and names of /11 preparations

Dipterex Br Técnico, Dipterex 500 and Trifonal 500

1.4 Code numbers

1.4.1 CAS number

52-68-6

1.4.2 Harmonized System customs code

OPP Chemical Code 057901

1.4.3 Other numbers (specify the numbering system)

EC Number: 200-149-3  
CIPAC Number: 68

1.5 Indication regarding previous notification on this chemical, if any

1.5.1  This is a first time notification of final regulatory action on this chemical.

1.5.2  This notification replaces all previously submitted notifications

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on this chemical.

Date of issue of the previous notification: \_\_\_\_\_

## SECTION 2

## FINAL REGULATORY ACTION

2.1 The chemical is:  banned OR  severely restricted

### 2.2 Information specific to the final regulatory action

#### 2.2.1 Summary of the final regulatory action

In August 2010, the Committee on Pesticide Reassessment, composed by the National Health Surveillance Agency (ANVISA), the Ministry of Agriculture, Livestock and Food Supply (MAPA), and the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) decided to cancel the registers of all technical products and formulated based on trichlorfon active ingredient, including its domestic usage. So, the production, trade and import of trichlorfon had been banned. The decision was based on the Technical Note of Toxicological Reassessment on Trichlorfon prepared by ANVISA.

Before that, in 2009, during the process of Environmental Reassessment, the agrochemical companies of products made of this active ingredient expressed no interest in supplying information or studies that could prove that there is no danger on the evidence of adverse effects of Trichlorfon to the environment, to non-target organisms, birds, bees and aquatic organisms. So, the reassessment process could not be completed and IBAMA has canceled all assessment of Trichlorfon products.

#### 2.2.2 Reference to the regulatory document, e.g. where decision is recorded or published

- Resolution RDC No. 37 of 16 August of 2010, from the National Health Surveillance Agency;
- Act nº 08 of 19 of february of 2010, from the Ministry of Agriculture, Livestock and Food Supply and
- Communication of IBAMA, published on the Federal Official Gazette in 28 of september of 2009.

#### 2.2.3 Date of entry into force of the final regulatory action

August, 18, 2010 - date of the publication of the Resolution

### 2.3 Category or categories where the final regulatory action has been taken

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## 2.3.1 All use or uses of the chemical in your country prior to the final regulatory action

The active ingredient was registered for use in aerial parts of crops in the following: avocado, pineapple, squash, lettuce, alfalfa, cotton, prunes, peanuts, rice, banana, eggplant, broccoli, cocoa, coffee, cashew nuts, cane sugar, persimmon, carrot, chicory, citrus, coconut, cauliflower, carnation, peas, beans, figs, custard apple, sunflower, guava, apple, mango, quince, melon, cantaloupe, corn, pastures, cucumber, pear, peach, peppers, cabbage, rose, rubber, soybeans, tomatoes, wheat and grapes

2.3.2 Final regulatory action has been taken for the category  Industrial

Use or uses prohibited by the final regulatory action

Use or uses that remain allowed (only in case of a severe restriction)

2.3.3 Final regulatory action has been taken for the category  Pesticide

Formulation(s) and use or uses prohibited by the final regulatory action

All uses as pesticide for agricultural purposes

Formulation(s) and use or uses that remain allowed  
(only in case of a severe restriction)

None

2.4 Was the final regulatory action based on a risk  Yes or hazard evaluation?

No (If no, you may also complete section 2.5.3.3)

## 2.4.1 If yes, reference to the relevant documentation, which describes the hazard or risk evaluation

Technical Note of the Toxicological Reassessment on Trichlorphon - ANVISA (National Health Surveillance Agency)/Brazil -

link:  
<http://portal.anvisa.gov.br/wps/wcm/connect/ba4b32004580690bbbaabb7a281c7538/Nota+t%C3%A9cnica.pdf?MOD=AJPERES>

2.4.2 Summary description of the risk or hazard evaluation upon which the ban or severe restriction was based.

2.4.2.1 Is the reason for the final regulatory action relevant to human health?  Yes  No

If yes, give summary of the hazard or risk evaluation related to human health, including the health of consumers and workers

Trichlorfon is an organophosphate insecticide that has high potential to cause neurotoxic effects (neurobehavioral and neurochemical features), anatomical and cell damage in humans. The main mechanism of neurotoxicity of trichlorfon is the acetylcholinesterase inhibition, an essential enzyme for the normal transmission of nerve impulses. It can overstimulate the nervous system causing nausea, dizziness, confusion, and at very high exposure, respiratory paralysis and death.

Trichlorfon is also genotoxic, immunotoxic, carcinogenic, teratogenic, causes adverse effects on reproduction and on the endocrine system. Experimental studies indicate that trichlorfon, as well as dichlorvos, its main metabolite, lead to depletion of the immune response.

These immunosuppressive effects may increase the susceptibility of individuals exposed to trichlorfon on infections by pathogens and increase the cases of neoplasms.

Many cases of intoxication of farm workers are reported and population living nearby the areas with extensive use.

Comparative studies between intoxicated humans and animals after acute exposure to trichlorfon, have shown that the neurotoxic effect is more aggressively in humans than in animals, thus conforming a situation susceptible to ban this active ingredient in Brazil.

The Brazilian Law nº 7.802/89, in Article 3 establishes that a pesticide may be banned when: (...), (c) it is teratogenic, mutagenic or carcinogenic according to updated results experiences of the scientific community; (d) when it causes hormonal disorders, damages to the reproductive system, according to updated procedures and experiences in the scientific community; (...), (f) when it causes damage to the environment.

Source: Technical Note of the Toxicological Reassessment on Trichlorphon - ANVISA (National Health Surveillance Agency)/Brazil -  
 link:<http://portal.anvisa.gov.br/wps/wcm/connect/ba4b32004580690bbbaabb7a281c>

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Expected effect of the final regulatory action

Do not use, trade nor import the product for agricultural purposes .  
Prohibited: research in all stages, production, package, labelling, transport, tra  
importation and exportation.

2.4.2.2 Is the reason for the final regulatory action relevant to the  Yes  
environment?

No

If yes, give summary of the hazard or risk evaluation related to the environment

Expected effect of the final regulatory action

**2.5 Other relevant information regarding the final regulatory action**

2.5.1 Estimated quantity of the chemical produced, imported, exported and used

	Quantity per year (MT)	Year
produced	ZERO	2009
imported	ZERO	2009
exported	ZERO	2009
used	ZERO	2009

2.5.2 Indication, to the extent possible, of the likely relevance of the final regulatory  
action to other states and regions

2.5.3 Other relevant information that may cover:

2.5.3.1 Assessment of socio-economic effects of the final regulatory action

2.5.3.2 Information on alternatives and their relative risks, e.g. IPM, chemical and non-

chemical alternatives

[Empty box for chemical alternatives]

2.5.3.3 Basis for the final regulatory action if other than hazard or risk evaluation

[Empty box for basis for final regulatory action]

2.5.3.4 Additional information related to the chemical or the final regulatory action, if any

[Empty box for additional information]

**SECTION 3 PROPERTIES**

3.1 Information on hazard classification where the chemical is subject to classification requirements

International classification systems  
e.g. WHO, IARC, etc.

International classification systems	Hazard class
WHO	II - Moderately Hazardous
IARC	3, Unclassifiable

Other classification systems  
e.g. EU, USEPA

Other classification systems	Hazard class
USEPA	II - Warning - Moderately Toxic
ANVISA/Brazil	Class II: Highly toxic
IBAMA/Brazil	Class III: Dangerous to the environment

3.2 Further information on the properties of the chemical

3.2.1 Description of physico-chemical properties of the chemical

Empirical Formula	C <sub>4</sub> H <sub>8</sub> Cl <sub>3</sub> O <sub>4</sub> P
Molar mass	257,4g mol
Vapor pressure	7,8 x 10 <sup>-6</sup> mmHg a 20°C

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Water solubility	15,4 g/100ml a 25°C
Log P <sub>ow</sub>	5,75
Density	1,73
Volatility	0,11mg/m <sup>3</sup> a 20°C

## Reference

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## 3.2.2 Description of toxicological properties of the chemical

Trichlorfon belongs to the chemical group of Organophosphates (OP), used as insecticide, acaricide and anthelmintic, used in agriculture, veterinary medicine and domestic usage. The OPs has high toxicity, acting as inhibitors of acetylcholinesterase (AChE) and cause toxic effects on various systems of living beings exposed.

## Reference

Technical Note of the Toxicological Reassessment on Trichlorphon - ANVISA (National Health Surveillance Agency)/Brazil- ANVISA (National Health Surveillance Agency)/Brazil

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## 3.2.3 Description of ecotoxicological properties of the chemical

Studies of abiotic degradation in water (hydrolysis and photolysis) indicate that trichlorfon and its main degradate (dichlorvos) exhibit characteristics of high mobility. Trichlorfon has a high potential for mobility due to its high water solubility and low adsorption in soil. It is therefore likely to contaminate groundwater, but are considered not persistents in aquatic environments.

Trichlorfon is not persistent in soil. Biologic degradation is the most important route in the process of mineralization. The hydrolysis contributes for the degradation in neutral to acidic conditions.

Regarding with air compartment, considering the test results of vapor pressure, the trichlorfon is considered as non-volatile. According references, it is not expected that both trichlorfon and dichlorvos (which is considered volatile) be transported for long distances or persist in the air for a long time.

Bioconcentration in fish has not been evaluated because its log K<sub>ow</sub> is less than 2 but

references did not show a potential for trichlorfon to accumulate in fish.

Trichlorfon is considered not toxic to earthworms, but the formulation can cause effects in the soil microorganisms involved in the carbon and nitrogen cycle.

Trichlorfon is moderately to highly toxic to birds (DL<sub>50</sub> single dose for *Coturnix coturnix japonica* = 110,1 mg/kg). The acute toxicity through diet vary from 720 mg a.i./kg (*Colinus virginianus*) to more than 5000 mg a.i./kg (*Anas platyrhynchos*). Studies indicate that Trichlorfon may affect reproduction with low levels (30 mg i.a./kg).

Trichlorfon is very highly toxic to aquatic organisms such *Daphnias* (EC<sub>50</sub> 48h *Daphnia similis* = 0,00045 mg/L) but considered slight toxic to the fish *Brachydanio rerio* (LC<sub>50</sub> 96h = 759 mg/L) and to the algae *Scenedesmus subspicatus* (EC<sub>50</sub> 96h a.i. = 1367 mg a.i./L).

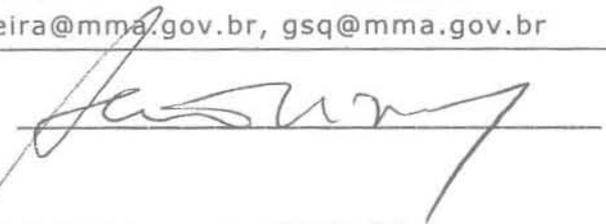
According to references, Trichlorfon is considered very toxic to bees (LD<sub>50</sub> to *Apis mellifera* = 3,6 µg a.i./bee)

Reference

IBAMA Technical Staff

**SECTION 4 DESIGNATED NATIONAL AUTHORITY**

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Date, signature of DNA and official seal: 

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