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

Fourth meeting

Geneva, 10–13 March 2008

Item 5 (b) (ii) of the provisional agenda*

**Inclusion of chemicals in Annex III of the Rotterdam
Convention: review of notifications of final regulatory
action to ban or severely restricted a chemical: aldicarb**

Aldicarb: supporting documentation provided by Jamaica

Note by the Secretariat

The Secretariat has the honour to provide, in the annex to the present note, the supporting documentation provided by Jamaica in support of its notification of final regulatory action on aldicarb.

* UNEP/FAO/RC/CRC.4/1

Annex

- **Pesticide Control Authority report on prohibition of Aldicarb (December 1994)**

The following document will be made available at the meeting:

- **Aldicarb: EPA Special Review Technical Support Document**
- **Environmental and Health Criteria 121 (EHC): Aldicarb**
(<http://www.inchem.org/documents/ehc/ehc/ehc121.htm>)

File - Aldicarb

PESTICIDES CONTROL AUTHORITY

REPORT

ON

PROHIBITION OF ALDICARB

December, 1994

In considering the use of the pesticide aldicarb, the following parameters were assessed during a benefit/risk analysis to arrive at the decision to prohibit this pesticide from importation and use into the country.

1. PRODUCT DETAIL

- 1.1. Name: Temik
1.2. Formulation: Granular
1.3. Concentration: 15%
1.4. Active Ingredient: Aldicarb
1.5. Family: N-Methyl Carbamate
1.6. Action/Use: Systemic insecticide, acaricide, nematicide

2. TOXICITY

	ORAL LD ₅₀ mg/kg	DERMAL LD ₅₀ mg/kg	INHALATION LD ₅₀ mg/kg
Rat	0.9 - 1	5 - 20 (24h)	0.03 (0.5h)
Rabbit	1.3	20	---
Bird (duck)	4.4	---	---

	LC ₅₀ mg/l
Fish (Rainbow trout)	8.8mg/l (96h)
(Bluegill)	1.5mg/l (98h)

Toxicity Class: I (WHO Classification)
Signal Word: Very Toxic (WHO Classification)

1. ENVIRONMENTAL FACTORS

- 1.1. Soil Particle Adsorption: Mobile in fine to coarse soils
1.2. Solubility: In water, 0.6% at 25°C
1.3. Half-life: 30-40 days by microbial degradation
1.4. Metabolites: Aldicarb Sulfone - Toxicity Class I
Aldicarb Sulfoxide

4. RISKS

Aldicarb represents a major risk to humans due to its high level of toxicity. This substance is quite soluble in water and readily leaches through soil into the groundwater and poses a serious threat to surface water pollution. The product is available only in the granular form due to the extreme toxicity of the parent compound and its use is highly restricted in other countries due to the possible risk to handlers of the chemical.

4.1. Environmental contamination

Aldicarb is registered for use in the United States of America under very restricted conditions: This entails strong enforcement measures under environmental conditions that are less susceptible to contamination as for an island ecology like Jamaica. Even so, Aldicarb has been found in the groundwater in Florida and other States where the chemical is used. In New York where the pesticide was being used for potatoes, over ten times the Health Advisory level for drinking water (100ppb as against 10ppb) was found in the groundwater.

Aldicarb is now banned in the State of New York.

In Florida where Aldicarb is still used on citrus, levels in excess of 30ppb have been found in groundwater (Haddad, EPA, 1995). In fact, aldicarb has now contaminated groundwater in at least fourteen States including California. Defenders of aldicarb maintained that the pesticide would quickly degrade in the environment. However, aldicarb is still found in groundwater on Long Island fifteen years after it was banned there. The threat to avian species that ingest aldicarb granules in error is great. Aldicarb is very toxic to birds and poses a danger to endangered species as well as to those species that are indigenous to Jamaica.

4.2. Residue risks

Adults, but especially infants and children may be exposed to dangerous levels of aldicarb due to its pollution in groundwater combined with aldicarb residues in popular foods. In citrus, where most of the chemical is used, up to .20ppm of aldicarb was found in fruit in the USA. This is alarming considering that a positive displacement equipment is used to ensure consistent deposit of the pesticide in the ground. Even with this and severe restriction of use to highly trained persons, aldicarb is still being found in citrus fruit. Aldicarb is responsible for the largest single pesticide food poisoning incident ever reported in North America. In 1985, 1,000 people were poisoned on the July 4 weekend as a result of consuming tainted watermelons

4.3 Risk to workers

Aldicarb is the most acutely toxic agricultural chemical currently being used in both Jamaica and the United States. By comparison, Aldicarb is twice as acutely toxic as one of the most hazardous organophosphate pesticides, parathion (LD₅₀ 2mg/kg) which is banned from use in

this country. Aldicarb, in fact, is 1500 times as toxic as malathion. Just one drop of aldicarb absorbed through the skin is enough to kill the average adult. Some of the symptoms associated with aldicarb poisoning are headaches, nausea, blurred vision, stomach cramps, diarrhoea, severe muscle twitching, sweating, salivation, seizures, respiratory arrest and death. Aldicarb is extremely toxic to the human nervous system. Aldicarb poisoning causes a dramatic drop in a key enzyme, cholinesterase, required for normal functioning of the body's nervous system. Reducing cholinesterase levels prevents the relaxation of the nerves between transmissions. The National Academy of Sciences in the United States (NAS) estimated that exposure to 0.01mg/kg or less of aldicarb would not disrupt the nervous system in humans. However State scientists are startled by recent epidemiological studies of actual human poisoning incidents that found ill effects caused at aldicarb exposure levels even lower than the NAS estimated safe levels (Goldman, Beller, Jackson, 1990).

A particularly hazardous characteristic of aldicarb is its very steep dose-response curve. This means there is very little distance between the dose that causes no clinical signs or mild clinical signs and severe clinical signs, like death (EPA, 1988). Additional concern is raised by the varied impact that aldicarb has on different persons. The history of poisoning incidents indicates a broad range of sensitivities of individuals to aldicarb's toxic effects (Goldman, Beller, Jackson, 1990). Aldicarb can make you ill faster than any other agricultural chemical on the market. Aldicarb can cause casualties whether by oral contact, through the skin or via inhalation.

While numerous aldicarb poisoning incidents have been reported, most aldicarb poisonings go unreported because the mild symptoms resemble those of other illnesses and most doctors would be more inclined to misdiagnose the poisoning. It has been reported in Jamaica that Temik is in the hands of persons that are not capable of handling the product and is being used on vegetables and other products for which the health consequences to both user and consumer as well as the environment may be regrettable.

Aldicarb is prohibited from use in, Belize, Israel, Philippines and Russia due to the severity of risk associated with its use.

5. BENEFITS

Aldicarb provides blanket control of sucking aphids, mites and nematodes on citrus and ornamentals. Aldicarb is applied to the soil, taken into the food portion of crops via the roots to kill nematodes, mites and insects that pierce the plant or fruit. It is especially useful for the control of the leaf miner in citrus. However, the use of Temik for control of aphids transmitting the Tristeza virus in citrus is not effective as contaminated vectors will transmit the virus upon sucking before the chemical can act to kill such insects. The granular formulation is less hazardous than liquid formulations, requiring less protective gear.

6. ALTERNATIVES

There are other products registered that will allow chemical control of the pests in question. Furadan granular which is of the same carbamate family of chemicals, may be used as a systemic acaricide/insecticide and as an effective nematocide. Neoron, Agri-Mek and Vendex all represent acaricides that are effective against red spider mites. Shell White Oil along with Diazinon are effective against scales. The use of Integrated Pest Management programmes will reduce the necessity of toxic pesticides for control of pests and represent the way forward for efficient cultivation. Improved management regarding the monitoring of the infestation of pests, the level of the population and the early and proper timing of contact and systemic sprays will provide effective control of insects pests and reduce the requirement for highly toxic chemicals

7. CONCLUSION

Based on the facts above, it is recommended that the use of aldicarb be prohibited in keeping with the decision that the Legislators made during the enactment of the Pesticides Act in 1975.

REFERENCES

- Environmental Protection Agency, (1988). Aldicarb Special Review Technical Support Document, Office of Pesticide and Toxic Substances, Washington DC, June, 1988.
- Goldman M.D., Lynn, Michael Beller M.D. and Richard Jackson M.D., (1990). "Aldicarb Food Poisonings in California-1985-88: Toxicity Estimates for Humans." In press to be published.
- Haddad, Sephr, (1995). Personal Communication.4