## BACKGROUND
## The Pest Management Regulatory Agency has refused to review the following:

**Chlorthal-dimethyl** is a herbicide used in three products in Canada for controlling weeds and grasses in agricultural operations — especially vegetables — and on turf. The commercially-registered chlorthal-dimethyl product in Canada is called **Dacthal.**

Chlorthal has been banned in Europe since September 2009 because of concerns regarding its potential impacts on groundwater, due to its persistent and mobile metabolites that may exceed the European groundwater limit. Québec has also banned the use of chlorthal on lawns since 2003 because it is a possible human carcinogen.

The Pest Management Regulatory Agency (PMRA) last re-evaluated chlorthal in 2008. According to PMRA, the re-evaluation assessed the risk of the metabolites and found no concern at levels exceeding the European limit that prompted the ban. No groundwater and surface water monitoring data were included in the PMRA re-evaluation report even though groundwater contamination in the U.S. and surface water contamination in Canada have been reported (see more below).

The technical grade chlorthal contains highly toxic impurities, specifically hexachlorobenzene (HBC), pentachlorobenzene and dioxins and furans. All three are considered persistent organic pollutants under the Stockholm Convention, which requires Canada, as a party to the convention, to eliminate use and release of these substances. Furthermore, HBC and dioxins such as 2,3,7,8-TCDD are considered carcinogenic.

### Environmental Monitoring

- **British Columbia**
  Chlorthal was detected in 72 per cent of surface water samples from the Lower Fraser Valley area and 87 per cent of surface water samples from the Okanagan Basin. Samples were taken during periods of pesticide application between 2003 and 2005.

- **Ontario**
  Chlorthal was detected 37 per cent of the time in water samples taken from 10 isolated lakes in Ontario from 2003 to 2005, and in four of 12 air samples taken in Ontario.

- **Quebec**
  Chlorthal has been detected in the air near Quebec City.

- **Arctic**
  Chlorthal has been detected in remote areas of Canada including Hudson Bay, Labrador Sea and Resolute Bay, confirming its ability to travel long distances through the atmosphere and contaminate regions where it has never been produced or used.

**Trifluralin** is a herbicide used in 17 registered pesticide products in Canada and is approved for use on a variety of crops. Trifluralin is one of the top selling herbicides in the Prairie provinces.

Trifluralin was initially banned in Europe in 2007, and after further examination the ban was upheld in 2010. Trifluralin was banned due to its high toxicity to aquatic organisms and benthic organisms, in particular fish; high persistence in soil; high potential for bioaccumulation, and the potential to be transported long distances in the atmosphere, resulting in widespread distribution around the earth.

The last re-evaluation of trifluralin by PMRA was completed in 2009. The PMRA, as with Europe, found it to be highly toxic to fish and invertebrates. But rather than ban trifluralin — even though there is evidence that it has contaminated surface water in Canada — the PMRA set out to manage the risk by requiring no-use buffer zones around water bodies and precautionary labels on products.

Based on an environmental risk assessment, trifluralin was found to be "CEPA-toxic Equivalent" under the *Canadian Environmental Protection Act 1999* because of the risk it poses to aquatic organisms.

**Environmental Monitoring**

- **British Columbia**
  In surface water samples taken between 2003 and 2005 in British Columbia, trifluralin was detected in 53 per cent of samples from the Lower Fraser Valley area and 23 cent of samples from the Okanagan Basin. Samples were taken during the periods of pesticide application.

- **Prairies**
  The PMRA re-evaluation report cites several studies that detected trifluralin in bodies of water in the Prairie provinces. One study reports detections ranging from 59 to 88 per cent of samples in the Red River and its tributaries in southern Manitoba.

- **Ontario**
  Trifluralin was also detected in 26 per cent of samples taken from 10 isolated lakes, and in 92 per cent of precipitation samples in Ontario from 2003 to 2005.

- **Quebec**
  According to the Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs du Québec, trifluralin has been detected in four monitored rivers in Quebec soya and corn areas and in surface water near vegetable-growing areas.

- **Arctic**
  Trifluralin has been detected in remote regions of Canada, including in the Arctic. A 2007 study reported trifluralin in snow pits in the Devon Island ice cap, confirming its ability to travel great distances through the atmosphere.

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**Trichlorfon** is an organophosphate insecticide approved for use in Canada on balsam fir and spruce woodlots, rights-of-way, Christmas tree plantations, and beef and non-lactating dairy cattle.

Trichlorfon was banned in Europe in 2007 for human health and environmental reasons due to concerns regarding its effects on consumers, operators, workers and bystanders, and an incomplete assessment of its behaviour and ecotoxicological properties in the environment. Additional concerns were raised with respect to impurities in the technical grade and the risk it poses to aquatic organisms.

The PMRA last completed a re-evaluation of trichlorfon in 2008 and has since refused to conduct a special review of products containing it, stating that registrants have voluntarily discontinued trichlorfon. It is, however, is still registered for use in three products in Canada according to the PMRA database, and can still be used in Canada under the conditions of its last re-evaluation approval.

Trichlorfon has been shown to cause central nervous system malfunctions in test animals and human data show exposures may lead to a myriad of neurological effects. Trichlorfon is also toxic to bees, freshwater aquatic organisms and birds.

Trichlorfon will transform into dichlorvos (an even more toxic pesticide, for which our request for review has yet to be answered). Dichlorvos was banned in Europe due to genotoxic and carcinogenic properties.

**Environmental Monitoring**

- **Ontario**
  While trichlorfon was only detected at a frequency of three per cent in precipitation in Ontario between 2003 and 2005, its concentration was among the highest of the pesticides detected. Similarly, while it was detected in only two per cent of samples taken from isolated Ontario lakes, it was found at a much higher concentration than other pesticides.

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