

## 2,4-D Formulants fact sheet

A pesticide is rarely used by itself. It is formulated with one to several active ingredients (pesticides) and several others, which are added to make the pesticide more potent or easier to use. (1. p1) Solvents, surfactants, propellants and carriers are some of the kinds of ingredients commonly used as formulants. (1, exec summary and p1)

The U.S. EPA estimates that, on average, 2/3 of every pesticide product is made of formulants. (1, p.2- 32 % of active ingredients)

Knowing the toxicity of an individual chemical in its pure form is therefore only a small part of the the toxicity of its formulations.

In Canada, domestic pesticide formulations are the ones available for sale at stores or garden centers (to people without pesticide applicator licenses such as homeowners). (PMRA domestic labels definition as different from commercial)

Domestic pesticide formulations tend to contain much less active pesticide ingredient, and much more formulants than commercial ones, up to 99 % formulants. (2)

In Canada, as in the U.S., formulants are classified in lists by their toxicity. While most formulants have never been studied for their toxicity, many formulants have a toxicity of their own. List 1 are known toxins (identified as being of significant concern), list 2 - potentially toxic, list 3 - formulants that do not meet the criteria of any other list, list 4A - minimum risk, list 4B - some may be toxic but no sufficient data. (3)

In Canada, even under the New Pesticide Act (4), formulants remain trade secrets, and no one is allowed to know in which product each formulant is used. Only list 1 formulants (known toxins) had to be listed on labels (3), as well as a few allergenic substances (3). List 2 formulants (potentially toxic) must be listed on pest control product labels by January 9, 2006. (5)

### Formulants in 2.4-D

In the U.S., at least 34 formulants were known to be used in various 2.4-D formulations. (6, 7) In Canada, while we don't know if these formulants are actually used in 2,4-D formulations, it is likely that they are. We do know that 30 out of these 34 formulants are registered and allowed for use in pesticide formulations in Canada. (8)

Of these 30 secret formulants (we don't know which is used where), 20% (7/30) are listed by the PMRA (or government of Canada) as potentially toxic (List 2) and 6.6 % (2/30) as "may be toxic but insufficient data" (list 4B). One only is a minimum risk product (list 4A), and 66% (20/30) are on List 3. (8)

However, in the U.S., 70% (21/30) of these same formulants are already recognized as chemically, biologically, or toxicologically active. These chemicals are able to cause cancer, reproductive and nervous system harm, and other health and environmental problems. 43 % (13/30) are or have been used as pesticide active ingredients in the U.S. (1)

Several like *antifreeze*, *wood alcohol (methanol)* and *xylene* can be readily absorbed through the skin or by breathing them in, as well as by ingestion. *Glutaraldehyde* is very toxic when breathed in or ingested. (9) Negative health effects of two of these toxic formulants are as follows:

*Xylene* causes eye and skin irritation, headaches, nausea, and confusion. In laboratory tests, they have caused kidney damage and fetal death.(1)

*Glutaraldehyde* is very destructive to eyes, skin, and the lining of the nose and lungs. It causes wheezing, headaches and nausea. In laboratory tests, it has caused genetic damage and fetal toxicity. (1)

### Conclusion

Neither buyer or user of any pesticide product knows what ingredients it contains, or how much more dangerous or toxic the formulation is than the individual pesticide active ingredient tested.

**Use at your own risk**

## REFERENCES

1. Northwest Coalition for Alternatives to Pesticides; 1998; Toxic Secrets Inert Ingredients in Pesticides 1987-1997; report by Californians for Pesticide Reform
2. Vacco, Dennis C, Attorney General; revised 1994; The Secret Hazards of Pesticides: Inert Ingredients; New York State Dept of Law  
Canadian label comparisons: the first 4 mixed amines on the list all contain less than .4% active ingredients (AI) total ( including dicamba and mecoprop) versus the first 3 commercial products listed which contain between 19.4 to 58.2 % AI. Most Weed-and-feed products contain less than 2 % active ingredients.
3. PMRA PRO2000-04; <http://www.pmra-arla.gc.ca/english/pdf/pro/pro2000-04-e.pdf>
4. Bill C-8; Pesticide Act – Canada; Thursday, December 12, 2002

5. PMRA personal communication

### Labelling of List 2 formulants and other questions

Date: Wed, 02 Mar 2005 16:32:36 -0500  
From: PMRA INFOSERV <PMRA\_INFOSERV@hc-sc.gc.ca>  
To: Dale & Paule Hjertaas

Hello Ms. Hjertaas,

In response to your first question, please be advised that List 2 formulants must be listed on pest control product labels by January 9, 2006.

Regarding your second and third questions, I am sorry to inform you that the PMRA does not have any statistics as to pesticide use or pesticide composition. You may wish to address these questions to Statistics Canada.

I trust this is satisfactory.

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Dale & Paule Hjertaas  
To: PMRA INFOSERV <PMRA\_INFOSERV@hc-sc.gc.ca>  
Subject: when list 2 formulants on labels? + othe rquestions  
01/03/2005 04:42 PM

Hi ,

1. I was checking REG 2004-1 and did not find in it whether list 2 formulants were currently identified on labels, and when it started. PRO2000-04 indicated they should be by Dec 31, 2001. Was it enforced as planned?

2. Do you know how many pounds/year of formulants ( in general, for for individual ones) are used ?

3. The US EPA estimates that formulants make up on average 32 % of pesticide formulations. Is it the same in Canada?

If you have the information, it would be interesting to get an average composition ( AI versus formulants) of domestic products versus commercial, and also Canadian sales of domestic products versus commercial.

6. Cox, Carolyn; summer 1999; 2,4-D: Toxicology, part 2; Journal of Pesticide Reform. Vol 19, NO 2

7. Inert Ingredients in Commercial 2,4-D Products;( as of June 1999) <http://pesticide.org/24Dinerts.html> (NCAP does not list it any more on their site, but I obtained it from them)

8. PMRA REG-2004-01

9. various MSDS sheets and other toxicological information for individual products