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IVON WATKINS-DOW LIMITED

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26 November 1984

Prof. Dr O Wassermann
University of Otago
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Dear Dr Wassermann

The reply to your queries concerning the toxicological properties of 2,4,5-T as sold in New Zealand are set out in the order of the questions in your letter of 19 November. I am assuming that you have access to the wide range of scientific papers published on the toxicology of the dioxin group and in particular 2,3,7,8-TCDD.

(1) The purity of the product is typically 94-96% w/w of the butyl ester isomers of 2,4,5-T.

Our method of analysis does not specifically identify the 2,3,7,8-TCDD isomer and thus our results will include certain other organically soluble neutral compounds such as dioxin isomers and thus the levels determined are considered as maximum values. We have developed the current GC method of analysis over a period of 10 years and results have been cross checked from time to time with The Dow Chemical Company in the USA who have been among the leaders in dioxin analysis. Agreement on these reference samples has been excellent. We have not checked for chlorinated dioxins other than the 2,3,7,8 isomer as published toxicological data suggest that they do not present a realistic hazard. For instance the acute oral LD 50's of other dioxins for guinea pigs reported in other sources of 2,4,5-T are:

2,7-dichloro	Micrograms/Kg
1,3,6,8 - tetra	300,000
pentachloro dioxins	100,000 (rats)
2,3,7,8-tetra	3-1100 according to isomer
	0.6

Currently all products containing 2,4,5-T on the New Zealand market have a maximum level of 0.01 ppm of 2,3,7,8-TCDD as required by law and in actual fact are most times around the 0.005 ppm level.

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(4) The limit of detection for our method is approximately 0.001 ppm.

(5) We have not searched for other highly toxic contaminants such as 2,3,7,8-TCDD as world wide experience over the years has indicated that 2,4,5-T including its contaminants have not caused ill health in those most closely associated with it such as staff in our manufacturing plant and contract spray applicators.

(6) A typical breakdown of the other impurities in 2,4,5-T is as follows:

- butyl esters of 2,4-dichloro-5-methoxy phenoxy 4%
- acetic acid
- residual solvents (mainly xylene) less than 2%
- minor amounts of methyl 2,4,5-T
- butyl 2,5-dichlorophenoxy
- acetic acid
- butyl bis-2,4,5-T
- 2,4,5-trichlorophenol
- 2,4,5-trichloro anisole

Total less than 2%

(7) As mentioned earlier our analyses have been checked on an irregular basis by Dow in the U.S.A. using a G.C. Mass Spec. Each month a person from the M.A.F. comes and collects a sample for check analysis by the D.S.I.R.

(8) The volumes vary from year to year but in general terms our annual production is in the order of 800 tonnes of 2,4,5-T with 200 tonnes being exported and the remainder used in New Zealand.

I trust this is the information you require and do not hesitate to contact me again if you have any further queries on this topic.

Yours faithfully,

R W MOFFAT
Research Manager