

OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT

MEMORANDUM

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VIA: Anna Fan, Ph.D., Chief *AF*
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VIA: Michael DiBartolomeis, Ph.D., Chief *RAH for MD*
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FROM: Lubow Jowa, Ph.D. *LJ*
Staff Toxicologist
Pesticide and Environmental Toxicology Section

DATE: July 13, 1993

SUBJECT: Review of Draft Risk Characterization Document for Paclobutrazol

These comments reflect our opinion on the draft document dated May 28, 1993. We had previously reviewed the April 14, 1993 version of this document, which appears to be virtually identical with the version we reviewed again. Comments to the previous version were conveyed by telephone in separate conversations with Roger Cochran and Jim Sanborn on April 29 and 30, 1993. The comments were not extensive and consisted mostly of recommendations for improving the clarity of the exposure assessment section. Apparently, none of our previous comments were considered for potential revisions of this document. Therefore, we reiterate some of these comments here and include additional ones as well.

GENERAL COMMENTS**Exposure Evaluation (p.16-17 and Appendix B)**

Exposures are estimated based on reference to the chemical fluvalinate, because of "similar use and vapor pressure." However, it is probable they are applied to different types of plants and it is not substantiated that the frequency of application would be the same based on the types of plants. Estimates provided by the surrogate may be reasonably close, within an order of magnitude. However, since the margin of safety for worker/applicators is only about 150, uncertainties in the evaluation must be carefully considered and included in the document.



The exposure scenario (10% of the total body load from skin contact) appears to be based on workers wearing protective clothing. Is this a stipulated requirement? No label information was provided as to whether this is required for the 0.4% formulation of the chemical to be used in California. The document should include this.

No information was provided on the application methods for paclobutrazol as compared with fluvalinate. Were the reference experiments for fluvalinate carried out using similar spray equipment with similar application methods? A growth regulator like paclobutrazol might be applied in a different pattern than the contact herbicide fluvalinate, a fine mist vs. coarse drops. Whether the assumption of negligible inhalation exposure is justified for the paclobutrazol application method cannot be determined from the information given in the document.

No data are given on ingredients other than water and paclobutrazol in the formulation which was tested for dermal penetration or in the one which would be used in California. Since the chemical is only soluble at 0.002% in water (appendix 2, p.1), one must assume something is added to increase the solubility, which can affect dermal penetration. This might be the cause of the concentration dependence of dermal penetration observed in the dermal penetration experiment discussed in Appendix B. The dermal absorption value of 27.9% appears to be a reasonable assumption. More detail on the dermal experiments should be provided in the document to assess its reliability.

Dislodgeable residues depend on the properties of the chemical and its vehicle, not just the vapor pressure and application density of the chemical. Data provided were inadequate to support the presumption that the fluvalinate formulation would be a reasonable surrogate for paclobutrazol. More information is needed about these concerns in the document.

Dislodgeable residues also depend on the re-entry interval, the type of leaves, and the particular greenhouse tasks. One would not necessarily expect identical leaf surface contact with the narrow leaves of carnations for fluvalinate vs. the broad leaves of poinsettias or geraniums. The concepts of similar re-entries and greenhouse tasks were not addressed. More information in the document on conditions is necessary to evaluate the applicability of the default transfer factor of 3000 cm²/hr.

An exposure value of 17.1 mg/person/day is provided from the data on fluvalinate. Is this the actual value determined by the authors of the exposure study, or, is this a DPR estimation based on data from the exposure study? What additional assumptions were made to arrive at the estimation? What is the basis for the number of sprays per year of 35? These concerns should be addressed in the document.

A lengthy rationale is given for not employing default exposure values for the body weight of women. The principal reason for not employing such values is that women are not conventionally employed in the mixer, loader and applicator jobs. However, since women may be employed in such occupations and the toxic endpoint used for deriving the acute MOS is developmental, it appears logical that body weights of women should be used for MOS derivation. The use of female body weights would probably not affect the stated MOS by much. We recommend that both male and female representative body weights be used for risk assessment.

LARRY NELSON, PH.D., CHIEF
JULY 13, 1993
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TOXICITY ASSESSMENT

We do not agree with the decision to designate the NOEL of 15 mg/kg-day for liver effects in dogs. There are reported effects at this dose, including increase in absolute liver weights and levels of aminopyrine N-demethylase. These changes are not indicative of frank toxicity, however, it must be recognized that they are changes to the liver which indicate adaptive stress. It should be noted that the NOEL selection for this endpoint did not affect the selection of the final NOEL, which was from the rat and was approximately 10-fold less than the NOEL designated from the dog.

EDITORIAL COMMENTS

p.2 *SUMMARY* - Occupational Exposure and Risk Characterization Section

Values presented do not match exactly values presented in the text (p.18). Rounding is different for acute exposure and MOS values, whereas the chronic values are totally different from those presented in the text.

cc: James W. Stratton, M.D., M.P.H. (OEHHA)
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