

MEMORANDUM

TO: Val F. Siebal
Chief Deputy Director

VIA: George V. Alexeeff, Ph.D., D.A.B.T.
Deputy Director for Scientific Affairs

VIA: Anna M. Fan, Ph.D., Chief
Pesticide and Environmental Toxicology Section

Robert A. Howd, Ph.D., Chief
Water Toxicology Unit
Pesticide and Environmental Toxicology Section

FROM: Javier Avalos, Ph.D., Staff Toxicologist
Water Toxicology Unit
Pesticide and Environmental Toxicology Section

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SUBJECT: UPDATE OF PHG - LINDANE

Under the Calderon-Sher California Safe Drinking Water Act of 1996, the Office of Environmental Health Hazard Assessment (OEHHA) develops public health goals (PHGs) for regulated chemicals in drinking water and reviews and updates the risk assessments every five years (Health and Safety Code Section 116365(e)(1)). This memorandum represents an update of the literature review and evaluation for the existing PHG for lindane (OEHHA, 1999). No information specific to children or other sensitive populations was observed in the literature review. Our re-evaluation supports the previous PHG derivation in 1999, and no new data would justify a significant change to the document.

Summary of review

We have surveyed the scientific literature for recently published lindane research studies to determine if there may be available studies that would have some impact on the existing non-carcinogenic and carcinogenic PHG calculations (See Appendix 1 for complete list of articles reviewed). No relevant new studies were found that might affect the PHG value calculated in 1999 or would give significant added value to the PHG review document.

In the previous PHG document (OEHHA, 1999), the most appropriate study of sufficient quality used to calculate the carcinogenic PHG value was the study of Thorpe and Walker (1973). This study was used as the basis of the risk specific intake level of 0.7 µg/day and a potency of 1.1 (mg/kg-day)⁻¹, and remains the study of choice for the current reassessment. The cancer potency was determined using the linear multistage model for carcinogenicity and the potency estimate was converted to a human equivalent using a body weight to two-thirds (2/3) power scaling. If we were to revise the PHG document, we would redo the cancer potency slope estimate using a body weight to three-fourths (¾) power scaling, for consistency with our present practices. This would increase the PHG value somewhat (from 0.032 to 0.06 ppb).

However, when the California Department of Health Services (DHS) reviewed the 1999 PHG for lindane, they maintained the Maximum Contaminant Level (MCL) for lindane in drinking water at 0.2 ppb. DHS determined that the MCL for lindane should not be decreased to more closely approximate the PHG because the PHG level is below the Detection Limit for the Purpose of Reporting (DLR), currently 0.2 ppb (DHS, 2005b). Thus a recalculation of the PHG value would have no regulatory significance, and a reopening and revision of the document for this non-productive result was judged to be unnecessary. The PHG value is therefore reaffirmed at 0.032 ppb. The federal MCL is the same as the state MCL, at 0.2 ppb, and the federal Maximum Contaminant Level Goal is also 0.2 ppb (U.S. EPA, 2005).

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