

**CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT
SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986
(PROPOSITION 65)**

**NOTICE OF INTENT TO LIST CHEMICALS BY THE LABOR CODE MECHANISM:
TETRACHLORVINPHOS, PARATHION, MALATHION, GLYPHOSATE**

SEPTEMBER 4, 2015

The California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) intends to list the chemicals identified in the table below as known to the state to cause cancer under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65¹). This action is being proposed pursuant to the "Labor Code" listing mechanism². OEHHA has determined that tetrachlorvinphos, parathion, malathion, and glyphosate meet the criteria for listing by this mechanism.

Chemical	CAS No.	Endpoint	References
Tetrachlorvinphos	22248-79-9	cancer	IARC (2015a); Guyton <i>et al.</i> (2015)
Parathion	56-38-2	cancer	IARC (2015a); Guyton <i>et al.</i> (2015)
Malathion	121-75-5	cancer	IARC (2015a); Guyton <i>et al.</i> (2015)
Glyphosate*	1071-83-6	cancer	IARC (2015a;b); Guyton <i>et al.</i> (2015)

* The International Agency for Research on Cancer (IARC) indicates the following chemicals are "also relevant: 38641-94-0 (glyphosate-isopropylamine salt) 40465-66-5 (monoammonium salt) 69254-40-6 (diammonium salt) 34494-03-6 (glyphosate-sodium) 81591-81-3 (glyphosate-trimesium)" (IARC, 2015b), because these salts dissociate to free glyphosate.

Background on listing by the Labor Code mechanism: Health and Safety Code section 25249.8(a) incorporates California Labor Code section 6382(b)(1) into Proposition 65. The law requires that certain substances identified by the International Agency for Research on Cancer (IARC) be listed as known to cause cancer under Proposition 65. Labor Code section 6382(b)(1) refers to substances identified as human or animal carcinogens by IARC. As the lead agency for the implementation of Proposition 65, OEHHA evaluates whether a chemical's listing is required by Proposition 65.

OEHHA's determination: *Tetrachlorvinphos, parathion, malathion, and glyphosate* each meet the requirements for listing as known to the state to cause cancer for purposes of Proposition 65.

¹ Health and Safety Code section 25249.5 *et seq.*

² Health and Safety Code section 25249.8(a) and Title 27, Cal.Code of Regs., section 25904.

IARC has published on its website a list entitled "[Agents classified by the IARC Monographs, Volume 1-112](#)" (IARC, 2015a) and [the glyphosate monograph in Volume 112 of the IARC Monographs series](#) (IARC, 2015b). IARC concludes that *malathion* and *glyphosate* are classified in Group 2A ("probably carcinogenic to humans") and that *tetrachlorvinphos* and *parathion* are classified in Group 2B ("possibly carcinogenic to humans"). IARC concludes that there is sufficient evidence of carcinogenicity in experimental animals for *tetrachlorvinphos*, *parathion*, *malathion*, and *glyphosate* ([Guyton et al., 2015; IARC, 2015a & b](#)).

Opportunity for comment: OEHHA is providing this opportunity to comment as to whether the chemicals identified above meet the requirements for listing as causing cancer specified in Health and Safety Code section 25249.8(a) and Labor Code section 6382(b)(1). Because these are ministerial listings, comments should be limited to whether IARC has identified the specific chemical or substance as a known or potential human or animal carcinogen. Under this listing mechanism, OEHHA cannot consider scientific arguments concerning the weight or quality of the evidence considered by IARC when it identified these chemicals and will not respond to such comments if they are submitted.

Written comments must be received by 5:00 p.m. on Monday, October 5, 2015 to be considered. We encourage you to submit comments in electronic form, rather than in paper form. Comments transmitted by e-mail should be addressed to P65Public.Comments@oehha.ca.gov, and should include "NOIL" and the chemical name in the subject line. Comments submitted in paper form may be mailed, faxed, or delivered in person to the address below.

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Comments received during the public comment period will be posted on the OEHHA web site after the close of the comment period.

If you have any questions, please contact Esther Barajas-Ochoa at Esther.Barajas-ochoa@oehha.ca.gov or at (916) 445-6900.

References

Guyton KZ, Loomis D, Grosse Y, El Ghissassi F, Benbrahim-Tallaa L, Guha N, Scoccianti C, Mattock H, and Straif K, on behalf of the International Agency for Research on Cancer Monograph Working Group. (2015). Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate. *The Lancet Oncology*. Published online March 20, 2015, doi: [http://dx.doi.org/10.1016/S1470-2045\(15\)70134-8](http://dx.doi.org/10.1016/S1470-2045(15)70134-8). [Available at URL:

<http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045%2815%2970134-8/fulltext>]

International Agency for Research on Cancer (IARC, 2015a). Agents Classified by the *IARC Monographs*, Volumes 1-112. Available at URL:

<http://monographs.iarc.fr/ENG/Classification/ClassificationsAlphaOrder.pdf>.

International Agency for Research on Cancer (IARC, 2015b). *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans* Volume 112. *Glyphosate*. IARC, World Health Organization, Lyon, France. Available at URL:

<http://monographs.iarc.fr/ENG/Monographs/vol112/mono112-02.pdf>