



THE AMERICAN HERBAL PRODUCTS ASSOCIATION'S

GUIDANCE

DO THE NATURALLY OCCURRING BOTANICAL CONSTITUENTS PULEGONE AND β -MYRCENE REPRESENT "EXPOSURE" UNDER CA PROPOSITION 65?

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While AHPA believes that all of the information contained herein is accurate, any company that uses this information does so as its own choice; is wholly responsible for any policies established therefrom; and is advised to discuss all aspects related to compliance with Proposition 65 with a qualified attorney or consultant.

Regulatory background.

On April 18, 2014, the California Office of Environmental Health Hazard Assessment (OEHHA), the agency responsible for the administration of Proposition 65 (the Safe Drinking Water and Toxic Enforcement Act of 1986, hereinafter Prop 65) listed pulegone as a chemical “known to cause cancer.”¹ On March 27, 2015, OEHHA also listed β -myrcene (beta-myrcene) as a chemical “known to cause cancer.”²

Under Prop 65 regulations, a person who causes an exposure to a listed carcinogen must provide a “clear and reasonable warning” within 12 months from the date of OEHHA’s listing unless otherwise exempted. Under the current rules this warning, when required, would be deemed to be “clear and reasonable” if it states: “WARNING: This product contains a chemical known to the State of California to cause cancer.”

What are these natural botanical constituents and where are they found?

Pulegone

Pulegone is a ketonic monoterpene that is a naturally present constituent in numerous plant species, especially mints (e.g., peppermint and spearmint) and particularly concentrated in the essential oils derived from these plants. Use of these plants and their essential oils as ingredients in foods, supplements, cosmetics and other consumer products may therefore result in the presence of small amounts of pulegone in these products.

It is important to acknowledge that the studies that resulted in OEHHA’s listing of pulegone as a carcinogen were tests of the toxicity of 96% pure pulegone on laboratory animals that were force-fed over virtually their entire lifetime doses that far exceed any human exposure related to common uses of mints and other plants and their essential oils. While appropriate as a hazard identification exercise, this research study does not constitute an appropriate risk assessment applicable to human exposure through normal dietary intake of this natural botanical constituent.

β -Myrcene

β -Myrcene is an acyclic, unsubstituted monoterpene found in numerous plant species such as hops, lemongrass, thyme, verbena, parsley, cannabis, and mangoes. It is used as

¹ OEHHA Notice of Chemical Listed Effective April 18, 2014, http://www.oehha.org/prop65/prop65_list/files/041814ListingNoticeLCSet%2020Pulegone.pdf.

² OEHHA Notice of Chemical Listed Effective March 27, 2015, http://oehha.ca.gov/prop65/CRNR_notices/list_changes/032415listbetamyrcene.html

an intermediate in the production of flavorings and fragrances. Use of these plants and their essential oils as ingredients in foods, supplements, beverages, cosmetics and other consumer products may therefore result in the presence of small amounts of β -myrcene in these products.

It is important to acknowledge that the studies that resulted in OEHHA's listing of β -myrcene as a carcinogen were tests of the toxicity of over 90% pure β -myrcene on laboratory animals that were force-fed over virtually their entire lifetime doses that far exceed any human exposure related to common uses of β -myrcene containing plants and their essential oils. While appropriate as a hazard identification exercise, this research study does not constitute an appropriate risk assessment applicable to human exposure through normal dietary intake of this natural botanical constituents.

β -Myrcene can also be produced through synthetic chemical pathways. The presence of synthetically produced β -myrcene in products sold in the State of California is not addressed by this guidance.

While appropriate as hazard identification exercises, these research studies do not constitute appropriate risk assessments applicable to human exposure through normal dietary intake of these natural botanical constituents.

What exemptions apply to Prop 65 warnings for naturally occurring botanical constituents?

There are several means to be exempted from Prop 65's warning rule for chemicals listed by California as known to cause cancer. For example, warnings are not required to be provided by companies with less than 10 employees or for exposures below the level at which there is no significant risk of cancer (defined in the law as the level of exposure at which not more than one excess case of cancer would occur in an exposed population of 100,000, assuming 70-year lifetime exposure at the level in question³).

But the most relevant exemption in the case of naturally occurring botanical constituents is for chemicals that are "naturally occurring" food constituents. OEHHA's regulations clarify that an exposure to a Prop 65 listed chemical does not occur, such that no warning is required, in the following situations:

³ OEHHA itself may establish an NSRL (no significant risk level) for chemicals listed as known to the state to cause cancer; it has not done so for pulegone or β -myrcene. Independent persons and companies may also make an NSRL determination but this would be a complex undertaking and could be subject to challenge by the State of California or by a private plaintiff purportedly acting in the public interest.

PROPOSITION 65/NATURALLY OCCURRING BOTANICAL CONSTITUENTS

- For a food, when the chemical is naturally occurring in the food and is a natural constituent of the food;^{4,5}
- For a consumer product other than food, when the chemical is a naturally occurring chemical in food, and the food was used in the manufacture, production, or processing of the consumer product. Where a consumer product contains a listed chemical, and the source of the chemical is in part from a naturally occurring chemical in food and in part from other sources, “exposure” can only occur as to that portion of the chemical from other sources.⁶

Importantly, OEHHA’s 2014 Notices of Intent to List these chemicals^{7,8} cite that they are naturally occurring botanical constituents. Pulegone is noted as being “a natural constituent of various plants, including mint and other herbs, and of their essential oils” and β -myrcene is described being a constituent of “food plants, such as hop, bay, verbena, lemongrass, citrus, pomegranate, and carrot, and of their juices and essential oils.”

In addition, a 2002 letter OEHHA commented on naturally occurring regulatory exemptions as applicable to methyleugenol. This article is a constituent of basil and other plants in commerce and listed in 2001 as a chemical known to the State of California to cause cancer. OEHHA agreed in this letter that methyleugenol was found to be a natural constituent of basil and thereby the “naturally occurring” exemption was applicable. OEHHA additionally concluded that by adding the naturally occurring methyleugenol to a food or a consumer product would not create an “exposure” within the meaning of Prop 65, and thereby such food or consumer product would also qualify for the “naturally occurring” exemption.

⁴ Title 27 California Code of Regulations §25501(a)(1).

⁵ Note that other rules apply to a Prop 65 listed chemical that is a “contaminant” (see CA HSC §25501(a)(4)).

⁶ Title 27 California Code of Regulations §25501(b).

⁷ OEHHA Notice of Intent to List Pulegone by the Labor Code Mechanism, 02/07/14, http://oehha.ca.gov/prop65/CRNR_notices/admin_listing/intent_to_list/noilLCset20pulegone.html.

⁸ OEHHA Notice of Intent to List beta-Myrcene, 02/07/14, http://oehha.ca.gov/prop65/CRNR_notices/admin_listing/intent_to_list/noilpkg44betamycene.html

For products sold in California, should Prop 65 warnings be provided on products that contain herbs and essential oils in which chemicals are present as a naturally occurring botanical constituent?

OEHHA's regulations for providing warnings for exposures to Prop 65 listed chemicals can be read to mean:

- A food that contains a chemical due to the presence of an herb or botanical, or an essential oil in which the chemical is known to be a natural constituent does not constitute an exposure to the chemical for the purposes of Prop 65, as clearly established by 27 CCR § 25501(a)(1); no Prop 65 warning should be required for such foods.
- A dietary supplement is a food for purposes of the naturally occurring provisions of OEHHA's regulation on Prop 65 warnings⁹ such that 27 CCR § 25501(a)(1) also established that a dietary supplement that contains a chemical due to the presence of an herb or botanical, or an essential oil in which the chemical is known to be a natural constituent does not constitute an exposure to the chemical for purposes of Prop 65; no Prop 65 warning should be required for such dietary supplements.
- A cosmetic or other consumer product that contains a chemical due to the presence of a food ingredient consisting of an herb or botanical, or an essential oil in which the chemical is known to be a natural constituent does not constitute an exposure to the chemical for purposes of Prop 65, as clearly established by 27 CCR § 25501(b); no Prop 65 warning should be required for such cosmetics or other consumer products.

On April 20, 2015 several marketers of essential oil of pennyroyal intended to be applied topically to the skin were given notice alleging violations of Proposition 65 for failure to provide warnings for these products. The plaintiff who issued this notice apparently takes the position that pennyroyal (or pennyroyal oil) is not a food or food ingredient so that while pulegone is known to be naturally occurring in pennyroyal the above discussed exemption should not apply. Note however that both European pennyroyal (*Mentha pulegium*) and American pennyroyal (*Hedeoma pulegioides*) are listed in federal regulation as "natural flavoring substances ... [that] may be safely used in food" under certain conditions (21 CFR 172.510). This issue has not been resolved as of the date of issuance of this document and readers are advised to consult with qualified Proposition 65 counsel.

⁹ *Gillett v. Garden Of Life, Inc. et al.* (San Francisco Superior Court, Case No. CGC-08-479027).

