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M E M O R A N D U M

TO: Marylou Verder-Carlos
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Pesticide Programs Division

HSM-19003
(No. assigned after issuance of memo)

FROM: Susan McCarthy
Environmental Program Manager II
Chief, Worker Health and Safety Branch
(916) 324-4116

(original signed by S. McCarthy)

DATE: January 7, 2019

SUBJECT: COMPLETION OF PROPOXUR MITIGATION

The propoxur mitigation memorandum (Wroblicky 2018) describes the findings of the Worker Health and Safety (WHS) Branch in regards to the need for mitigation of occupational and non-occupational exposures for propoxur.

In January 1997, the Department of Pesticide Regulation completed a risk characterization document (RCD) for propoxur (Cochran et al., 1997). The RCD estimated acute and chronic occupational and non-occupational exposure risks, and identified acute exposures of concern for pet owners/groomers.

In July 1997, the U.S. Environmental Protection Agency (U.S. EPA) issued a Reregistration Eligibility Decision for propoxur, which included new label requirements for end-use products, primarily to address occupational and residential handler and post-application exposure concerns (U.S. EPA 1997). In May 2015, U.S. EPA issued a draft human health risk assessment and concluded that propoxur posed no risks of concern for any exposure pathways, except for short-term aggregate risks for young children (1-2 years of age) from both dietary and residential post-application exposure (U.S. EPA 2015).

In March 2016, U.S. EPA issued a proposed interim registration review decision, which cancelled all technical products registered for indoor aerosol uses, spray and liquid formulations for indoor crack and crevice uses, and uses in food-handling establishments, in order to mitigate dietary and residential post-application risks of concern. In addition, U.S. EPA is currently completing the process to cancel or amend all end-use products registered for these uses (U.S. EPA 2016).

Given U.S. EPA's recent and planned product formulation and use cancellations, low historic use of propoxur both in California and nationally, and few reported illness incidents associated with propoxur, there are no exposures of concern associated with the use of propoxur when applied according to the instructions on the product labels. Thus, WHS finds that there is no need for

further mitigation action with respect to potential occupational and/or non-occupational exposures for propoxur. Your approval of this conclusion is requested.

cc: Shelley DuTeaux, Chief, Human Health Assessment Branch
Eric Kwok, Senior Toxicologist, Human Health Assessment Branch
Svetlana Koshlukova, Senior Toxicologist, Human Health Assessment Branch
Kevin Solari, Environmental Program Manager I, WHS Branch

APPROVAL

(original signed by M. Verder-Carlos) *January 7, 2019*
Marylou Verder-Carlos, Assistant Director Date

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Department of Pesticide Regulation

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M E M O R A N D U M

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TO: Susan McCarthy
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Chief, Worker Health and Safety Branch

VIA: Ann Schaffner *(Original Signed by A. Schaffner)*
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FROM: Greg Wroblicky, M.S. *(Original Signed by G. Wroblicky)*
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(916) 445-4322

DATE: November 2, 2018

SUBJECT: COMPLETION OF PROPOXUR MITIGATION

Summary

This memorandum presents facts that support a determination that no additional mitigation measures are needed for the pesticide active ingredient (AI) propoxur. These facts include recent product formulation and use cancellations by the U.S. Environmental Protection Agency (U.S. EPA), the relatively low number of illness incidents reported for propoxur, the low severity of human health impacts associated with propoxur exposure, and the low historic usage of propoxur in California. Taken together, these facts support the conclusion that there are no exposures of concern associated with the use of propoxur when applied according to the requirements and instructions on product labels. Thus, there is no need for further mitigation action with respect to potential exposure to propoxur.

Classification and Usage

Propoxur [2-(1-methylethoxy) phenol methylcarbamate] is a carbamate insecticide developed by Bayer AG, Germany that was first registered for use in the U.S. in 1963. It has been registered by the U.S. EPA and by the California Department of Pesticide Regulation (DPR) for use against ants, roaches, hornets, wasps, crickets, fleas, flies, mosquitoes, and ticks in and around residences and commercial sites, including food-handling establishments (FHEs). Although propoxur has historically been used in buildings where food is stored or prepared, it is not used on food crops (Cochran et al. 1997, U.S. EPA 2015a).

Product formulations containing propoxur include emulsifiable concentrates, wettable powders, aerosols, ready-to-use solutions, dusts, and powders used on building exteriors, granular and containerized baits, and interior crack and crevice treatments. Propoxur has also been used alone or in combination with other insecticides in room foggers, ant and cockroach traps and sprays, pest strips, insecticide tapes, shelf paper, wasp, bee, and hornet sprays, and flea and tick collars,

sprays, and dips for pets (Cochran et al. 1997; U.S. EPA 1997a, 2015a). Several of these formulations were recently canceled by U.S. EPA (U.S. EPA 2014, 2015b, 2016), leaving bait stations, pastes, impregnated shelf paper and strips, and outdoor spot treatments as the only remaining registered product formulations containing propoxur.

Regulatory History

In January 1997, DPR completed a risk characterization document (RCD) for propoxur (Cochran et al. 1997). Margins of Exposure (MOEs) for acute and chronic occupational exposures were well above 100, which is considered health protective. Excess lifetime cancer risks from occupational exposure to propoxur ranged from 1×10^{-6} to 6×10^{-6}, also considered health protective. Pet owners/groomers were the only acute non-occupational exposure group at risk with an MOE below 100 (97). Excess lifetime cancer risks from non-occupational exposures to propoxur did not exceed 1×10^{-6}. Subsequent to issuance of the RCD, DPR did not identify the need for further mitigation measures for products containing propoxur (Cochran et al. 1997).

A Reregistration Eligibility Decision (RED) for propoxur was issued by U.S. EPA in July 1997 (U.S. EPA 1997b), which included new label requirements for end-use products primarily to address handler and post-application exposure concerns, as well as wildlife and aquatic organism exposures. In 2009, U.S. EPA initiated a registration review for propoxur (U.S. EPA 2009). As part of the registration review process, U.S. EPA issued a draft human health risk assessment in May 2015, which evaluated risk associated with exposure to propoxur via dietary, occupational and residential handler, and post-application pathways. It also evaluated aggregate pesticide exposure and risks from food and drinking water, and residential exposures. U.S. EPA concluded that propoxur posed no risks of concern for all exposure pathways except for short-term aggregate risks for young children (1-2 years of age) from both dietary and residential post-application exposure (U.S. EPA 2015a).

According to U.S. EPA's 2016 proposed Interim Registration Review decision, in order to mitigate dietary and residential post-application risks of concern, the Agency cancelled all technical products registered for indoor aerosol uses, spray and liquid formulations for indoor crack and crevice uses, and FHE uses. In addition, U.S. EPA is currently completing the process to cancel or amend all end-use products registered for these uses (U.S. EPA 2016). This action would affect the two remaining California registered products with "liquid" formulations (Invader Insecticide [spray formulation] and Sungro Residual Spray [ready-to-use liquid formulation]), which are labeled for indoor applications, liquid sprays, crack and crevice use, and use in FHEs.

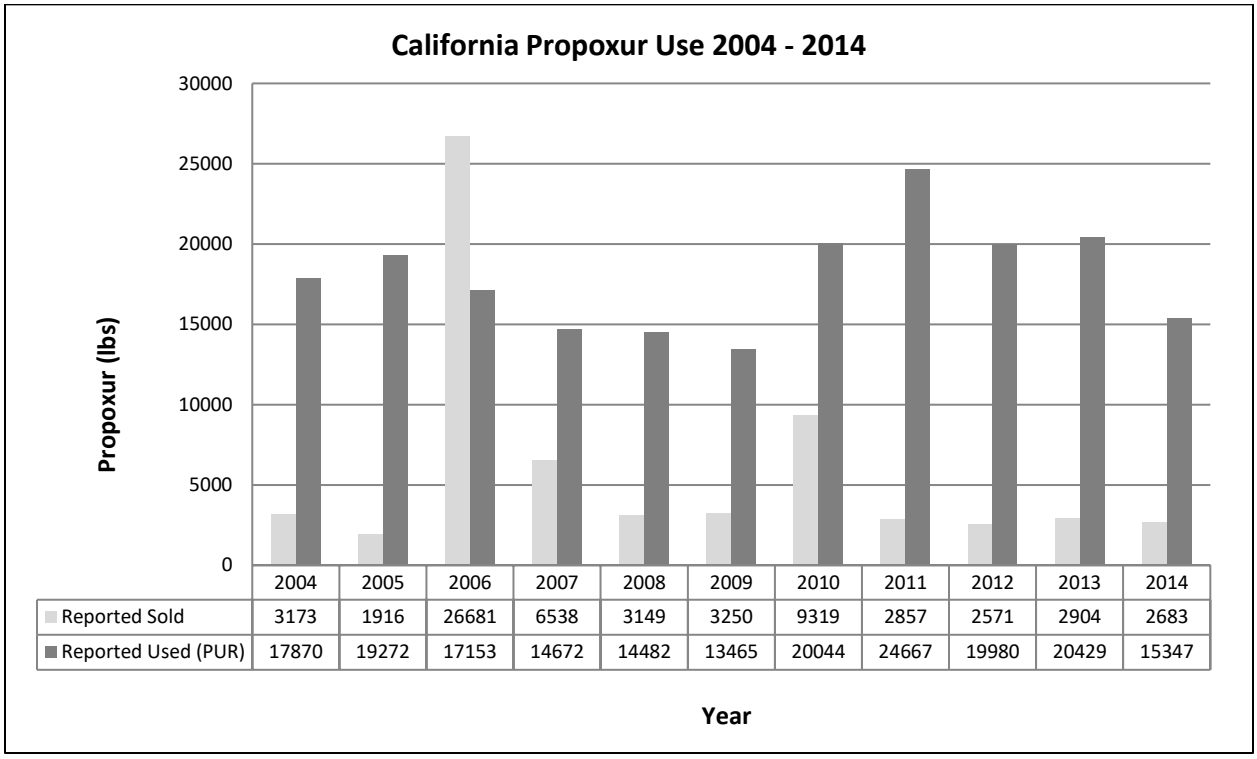
In 2014, U.S. EPA canceled pet collar products containing propoxur, effective April 1, 2015, with sale or distribution of existing stocks prohibited after April 1, 2016 (U.S. EPA 2014). As of 2016, 14 of 22 active registered labels for products containing propoxur are pet collars (DPR 2016d) and are no longer eligible for registration or sale in California. The remaining 8 product

labels registered in California are bait stations, impregnated shelf paper and strips, and liquid/spray formulations.

Use in California

Total annual use of propoxur reported in California averaged 23,700 pounds between 1997 and 2014. For the past 10 years, annual use of propoxur has remained fairly consistent between 15,000 and 25,000 pounds annually (Figure 1). Total annual sale of products containing propoxur reported in California for the past several years was much lower, remaining relatively constant between 2,500 and 3,000 pounds annually. Principle uses were for structural pest control (83.5%) and landscape maintenance (10%) (DPR 2016a, 2016b).

Figure 1: California Propoxur Use 2004 – 2014 *(Data from DPR (2016a, 2016b)*



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Reported Sold	3173	1916	26681	6538	3149	3250	9319	2857	2571	2904	2683
Reported Used (PUR)	17870	19272	17153	14672	14482	13465	20044	24667	19980	20429	15347

Illness Incident Review

A query of DPR's Pesticide Illness Surveillance Program (PISP) database found 20 human health incidents associated with propoxur exposure between 2003 and 2013 (DPR 2016c). Half (10) of these were categorized as probably related to propoxur exposure, while the other half were categorized as possibly related. No incidents during this time period were categorized as definitely related to propoxur exposure. Of the 20 incidents, 8 involved product misuse, and 1 was an intentional suicide involving products containing propoxur mixed with other AIs. Only 5 of these incidents were categorized as probably associated with exposure to a legal use of

propoxur. One of these incidents was related to occupational exposure, while the rest involved post-application exposure in residential or institutional settings. The majority of probable and possible exposures (17) were systemic (inhalation, ingestion), followed by exposure to the eye (4), and dermal exposure (3). In most cases symptoms resolved quickly, and none were fatal. U.S. EPA reviewed propoxur human health incidents during its 2015 registration review and concluded that there does not appear to be a concern at this time that would warrant further investigation due to the low frequency of incidents reported for propoxur.

Conclusion

Given the relatively low historic usage of propoxur in California and nationally and the relatively few reported illness incidents associated with propoxur when applied according to label requirements, there are minimal exposure concerns associated with propoxur.

Propoxur does not present a significant health threat for most exposure scenarios. Further, certain formulations and uses which U.S. EPA previously identified as having potentially unacceptable exposure margins have been mitigated via recent product formulation and use cancellations (indoor residential products and pet collars). Review of U.S. EPA cancellation orders (U.S. EPA 2014, 2015b), as well as product labels actively registered in California, suggest all risks identified for propoxur are fully mitigated, pending U.S. EPA completion of formal cancellation or amendment of remaining end-use products.

Therefore, DPR's 1997 RCD and all available state and federal propoxur product information reviewed since publication of the RCD, support the conclusion that pesticide products containing propoxur do not require further mitigation with respect to potential exposure.

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