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TO: INTERESTED PARTIES

SUBJECT: FINAL NOTICE ON ACTIVE INGREDIENTS PRIORITIZED FOR RISK ASSESSMENT INITIATION

This notice finalizes the Department of Pesticide Regulation's (DPR's) list of the next 10 active ingredients (AIs) prioritized for risk assessment initiation. When additional AI candidates are needed for the risk assessment prioritization list, DPR consults with various stakeholders to select and rank the next 10 AIs that will be added to the list.

On September 20, 2013, DPR sought input from the Pesticide Registration and Evaluation Committee (PREC) and other interested parties for recommendations on AIs to consider adding to the list of AIs prioritized for risk assessment initiation.

During October and November 2013, the Risk Assessment Prioritization Work Group (RAPWG) discussed the recommendations and developed a ranked list of 10 AIs. The RAPWG consisted of two senior scientists from DPR's Medical Toxicology Branch (supervising risk assessment and toxicology data review), two senior scientists from the Worker Health and Safety Branch (supervising exposure assessment and pesticide illness reporting), and a senior scientist from the Environmental Monitoring Branch, as well as one senior scientist from the Air Resources Board (ARB) and one from the Office of Environmental Health Hazard Assessment (OEHHA). In August 2014, DPR moved the exposure assessment scientists from the Worker Health and Safety Branch to the Medical Toxicology Branch and renamed the Medical Toxicology Branch the Human Health Assessment Branch.

Since DPR only received recommendations for 10 AIs, there was not a need for the RAPWG to reduce the number of AIs to 10, only to rank them. DPR sent the list of 10 AIs, along with a brief description of each chemical, to the members of the RAPWG for ranking. The brief descriptions are at the end of this notice. The ranking scores were tallied and a list of the composite ranking of the 10 AIs are (same number indicates tie ranking):

1. Mancozeb
2. Paraquat dichloride
3. Dimethoate
4. Iprodione
5. Propylene oxide
5. Ziram
7. Glufosinate ammonium
8. Cypermethrin
9. Glutaraldehyde
10. PCNB



This information was presented to the PREC on January 17, 2014, and released for public comment on that date. The comment period closed on February 17, 2014. During the 30-day comment period, DPR received two comments by telephone: 1) Henry Buckwalter, representing FMC, asked about the process and when they should submit data; DPR replied that data should be supplied when the risk assessment is initiated. 2) Rachel Kubiak, representing the Western Plant Health Association, asked about the process in general and about glufosinate ammonium specifically. No other comments were received.

Based on the comments, the RAPWG discussions, and the lack of comments indicating a need for change, the list of active ingredients and their ranking were not changed. This information was presented to and accepted by DPR management. Thus, the final list of active ingredients prioritized for risk assessment initiation and their ranking are as follows (same number indicates tie ranking):

1. Mancozeb
2. Paraquat dichloride
3. Dimethoate
4. Iprodione
5. Propylene oxide
5. Ziram
7. Glufosinate ammonium
8. Cypermethrin
9. Glutaraldehyde
10. PCNB

Brief Description of Active Ingredients

Cypermethrin

Cypermethrin is a pyrethroid insecticide. It is primarily used for structural pest control. Approximately 45,000 pounds out of a total of approximately 49,000 pounds were reported used for structural pest control in California in 2011. Approximately 22,000 pounds of S-cypermethrin were reported used on crops, primarily alfalfa. The U.S. Environmental Protection Agency (U.S. EPA) has classified cypermethrin as a Group C, possible human carcinogen. The primary toxicity concern, as with most pyrethroids, is for neurotoxicity caused by disruption of nerve conduction. DPR's Pesticide Illness Surveillance Program (PISP) shows an increase in illness reports over the time period of 2006-2010.

Dimethoate

Dimethoate is an organophosphate insecticide. Approximately 270,000 pounds were reported used in California in 2011 on a variety of crops including cotton, alfalfa, corn, tomatoes and wheat. U.S. EPA has classified dimethoate as a Group C, possible human carcinogen. The

primary toxicity concern for dimethoate is neurotoxicity. This concern is heightened by dimethoate's low no-observed-effect levels (NOELs) for neurotoxic effects.

Glufosinate ammonium

Glufosinate ammonium is an herbicide used on a variety of crops, including almonds, grapes, pistachios, walnuts, and rights of way. A total of approximately 740,000 pounds were reported used in California in 2011. U.S. EPA has classified glufosinate ammonium as not likely to be a human carcinogen. The primary toxicity concerns are developmental toxicity and neurotoxicity, with relatively low NOELs demonstrated in several animal studies. The effects include, but are not limited to increased fetal mortality in a rat developmental toxicity study, altered electrocardiograms and mortality in a chronic dog study, brain morphometric changes in a rat developmental neurotoxicity study, and retinal atrophy and behavioral alterations in a rat neurotoxicity study.

Glutaraldehyde

Glutaraldehyde is a disinfectant with approximately 126,000 pounds reported used for industrial water disinfection in 2011. Approximately 1,282,000 pounds were reported sold in California in 2011. The difference is due to the preponderance of non-industrial/agricultural uses, which would not require use reporting. Currently, 105 products are registered in California, all with disinfectant uses. U.S. EPA has classified glutaraldehyde as not likely to be a human carcinogen. Glutaraldehyde is corrosive to eyes and skin and is a sensitizer. PISP reports a total of 375 illness cases in the period 1992-2010 (most of which involved irritation to eyes and mucous membranes). Oral animal studies have resulted in non-neoplastic lesions of the respiratory tract and stomach. Inhalation studies have resulted in pathological alterations of the nasal and respiratory tracts.

Iprodione

Iprodione is a fungicide used primarily on almonds, lettuce, carrots, peaches, and onions. Approximately 353,000 pounds were reported as used in 2011. U.S. EPA has classified iprodione as likely human carcinogen due to liver tumors in mice and testicular (Leydig cell) tumors in rats. It is identified under Proposition 65 as known to the state to cause cancer. In addition, various animal studies have shown pathological changes in male sexual glands as well as perturbations of testosterone.

Mancozeb

Mancozeb is a fungicide used on a wide variety of crops including apples, grapes, landscape maintenance, lettuce, onions, pears, potatoes, tomatoes and walnuts. Approximately 1,045,000 pounds were reported used in 2011. Mancozeb is a "hazardous air pollutant" and is administratively listed as a toxic air contaminant. U.S. EPA has classified mancozeb as a probable human carcinogen, and it is identified under Proposition 65 as known to the state to cause cancer. Mancozeb is an ethylene bisdithiocarbamate (EBDC) fungicide. EBDCs degrade to

ethylenethiourea (ETU) which is primarily responsible for the potential carcinogenic, developmental, and thyroid effects. U.S. EPA has examined these ETU-related effects in detail. In some recent open literature studies, scientists have raised questions regarding a connection between mancozeb exposure and Parkinson's disease and regarding the potential effects from exposure to manganese.

PCNB

Pentachloronitrobenzene (PCNB) is a low-use fungicide in California, with less than 25,000 pounds applied per year. It is used primarily on Brussels sprouts and nursery grown ornamental plants. PCNB is moderately volatile, is identified as a "hazardous air pollutant," and is administratively listed as a toxic air contaminant. U.S. EPA classifies PCNB as a possible human carcinogen. The carcinogenicity concern is based on rat liver and rat thyroid tumors. While overall use may be low, there is concern regarding air levels that may be present at the sites of use. DPR has done some screening air modeling of the largest applications documented in pesticide use reports and assuming that 100% of the amount applied is released to the air. These worst-case air concentrations may be high relative to health screening levels or reference concentrations.

Paraquat dichloride

Paraquat dichloride is a desiccant and herbicide. Approximately 915,000 pounds were reported used in 2011. The primary crops were alfalfa, almonds, cotton, and grapes. Paraquat is highly acutely toxic. Subchronic and chronic toxicity studies in rats, dogs, and mice showed lesions in the lungs, kidneys, and eyes, with the lungs being the primary target organ.

Propylene oxide

Propylene oxide is a fumigant with food and non-food uses. A total of approximately 422,000 pounds were reported used in 2011. U.S. EPA has classified propylene oxide as a probable human carcinogen, and it is also listed under Proposition 65 as known to the state to cause cancer. Propylene oxide is identified as a "hazardous air pollutant," and is administratively listed as a toxic air contaminant. Animal studies have indicated developmental effects in the rat and rabbit (increased minor skeletal variations) and oncogenic effects (forestomach tumors in rats, hemangiomas and hemangiocarcinomas in mice).

Ziram

Zinc dimethyldithiocarbamate (Ziram) is a fungicide with a total of approximately 799,000 pounds reported used in 2011, primarily on almonds, nectarines, and peaches. Ziram is also used as a preservative in adhesives, caulks, sealants, latex paint, etc. U.S. EPA has classified ziram as being "suggestive of carcinogenicity in humans based on the occurrence of hemangiomas and, possibly, preputial gland adenomas in male CD and F344 rats, respectively." There is some evidence of reproductive effects (decreased body weight in pups) and evidence of

decreased body weight gain in several animal studies. Ziram is a severe eye irritant and a moderate skin sensitizer. The primary target organs are the thyroid, nervous system, and liver.