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Carcinogen Identification Committee
OEHHA
Cal/EPA

Dear Distinguished Committee Members:

I am writing to urge you to list fluoride in the Prop 65 list of carcinogens. There is extensive research which has been completed to lead to this conclusion, though is not included in OEHHA's current research document. This information has lead many other countries to ban the very existence of fluoridation. California needs to begin by leading the way in registering the toxic and carcinogenic effects of fluoride by including it on the Prop 65 list.

As fluorine is a very complex and prevalent element, it warrants more inclusivity of the foundation of its structure and constitution than is represented in the document "Evidence on the Carcinogenicity of Fluoride and Its Salts." Because of fluoride's ubiquitous nature, wide range of industrial and municipal applications, and prevalence in many aspects of society with multiple opportunities for public exposure, it deserves a much broader scope and expanded depth of introduction and overview, and a stronger and more comprehensive presentation to explore fluoride's multi-faceted characteristics which contribute to its carcinogenic properties.

Additional information which needs to be included in the "Evidence on the Carcinogenicity of Fluoride and Its Salts" is listed below in the applicable categories.

2.1 Introduction – Identity of Fluoride and Its Salts

It is important to more clearly identify fluoride's elemental properties. Fluorine not only has an electronegative nature, but is also the most negatively charged and interactive of all the elements and is the most active seeker of an additional electron. Fluorine does not exist in its separate elemental state in nature despite its being the 13th most abundant element on the earth's crust, but attaches to other elements creating fluoride compounds. When fluoride is recovered from industrial waste streams, including uranium enrichment, phosphoric acid plants, etc. and becomes a compound such as fluorosilicic acid, it regularly attaches to other chemicals including cadmium, lead, uranium and arsenic, many of which are already currently on the Prop 65 list. When fluorosilicic acid is used for water fluoridation, cadmium, lead, arsenic, and other attached heavy metals also

infuse into the public water system along with the fluoride. Fluoride is listed as more toxic than lead and slightly less toxic than arsenic.

2.2 Introduction – Occurrence and Use

Additional uses for fluoride compounds are important to note. Fluoride is prized by commercial and military interests for its extreme corrosivity, high toxicity, ability to inhibit enzyme activity and ability to disrupt and re-configure molecular bonds. Industrially, fluoride is used to etch glass, ceramics and computer chips; separate uranium isotopes; crack petroleum products; inhibit fermentation in breweries and wineries; make ceramics more porous; refine almost all metals; and is used in rocket fuels and household rust removers.

Sulfuryl fluoride (Vikane) is one of the most widely used insecticides and pesticides and is used as a fumigant for termites, roaches, insects, and bedbugs. It is also currently sprayed on non-organic walnuts, raisins, dried eggs (nearly 30% of all eggs used), and wheat flour among hundreds of other food products and commodities, and in a 2005 risk assessment by the U.S. Environmental Protection Agency (USEPA) was calculated as becoming the second largest source of fluoride exposure after fluoridated drinking water. In an unprecedented step and response to public petitions to end its use, on January 10, 2011 USEPA announced a proposal for a phase-out ban of sulfuryl fluoride as a food fumigant.

The fluoride-based pesticide cryolite has a uniform fluoride tolerance of 7 ppm and is used in the growing of all non-organic berries and most, if not all, non-organic fruits and vegetables, and is in concentrated levels of fruit juices, food and wine.

Fluoride is used in many psychotropic drugs and the majority of general anesthetics, in some cases for its toxic properties, in others for its ability to potentiate.

Fluoride is cumulative, and it is estimated that for a healthy individual, 50% of fluoride consumed is retained in the body, primarily in the bones, and has an estimated half-life of 20 years.

It is important to note that on January 7, 2011 the U.S. Department of Health and Human Services proposed to reduce its recommended maximum level of fluoride in tap water from 1.2 to 0.7 parts per million (ppm), a 42 percent decrease. Evidence of health concerns regarding public exposure to fluoride and its compounds is mounting.

Another concern is fluoride's synergistic effects and ability to potentiate other chemicals. This may cause accelerated carcinogenic activity with chemicals and compounds formed with fluoride.

See Appendix 1 for an extended partial list of fluoride compounds.

3. Data on Carcinogenicity

It is important to note that there has been a rocky history in the United States regarding efforts to determine carcinogenicity of fluoride compounds over the past two decades. As use of fluoride, particularly for water fluoridation, has been a generally contentious and politicized issue, it is important to note areas in question, particularly by notable sources, where questions of concern regarding accuracy of findings may exist. This has particularly been notable in connection with objections by unions representing scientists and technical staff at USEPA regarding positions and decisions made by USEPA in lieu of scientific data. Some examples are below.

Excerpts from a Motion for Leave to File Brief as Amicus Curiae for the National Federation of Federal Employees, Local 2050, 1986

b) Carcinogenicity

The Agency's decision not to consider carcinogenic effects of fluoride when calculating the fluoride RMCL was inappropriate. As EPA acknowledged in issuing its final RMCL, eleven out of thirteen papers it considered when assessing the cancer risk of fluoride concluded that fluoride is oncogenic. The Agency relied solely on one report, however, in concluding that

There is not adequate information to conclude that fluoride presents a cancer risk to humans.

EPA never adequately dealt with the eleven studies showing that fluoride is oncogenic. Among the studies which were ignored is a paper showing that fruit flies treated with fluoride had an increased occurrence of cancer. This study was funded by the National Cancer Institute and was conducted by a leading geneticist in the United States who is also an author of several textbooks on genetics. EPA dismissed the findings of this report by concluding that the relevance of data showing incidence of melanotic tumors in fruit flies as a result of sodium fluoride "has not been scientifically determined." This blanket dismissal of the findings of Herskowitz and Norton is inconsistent with the protective nature of an RMCL and displays a lack of professional review. Certainly the fact that sodium fluoride produced melanotic tumors in fruit flies is not insignificant. A professional charged with assessing human cancer risk of a substance should deem such data relevant enough to produce concern.

Another paper demonstrated an increase in tumor growth in mice who received ½ to 1 ppm of fluoride in their drinking water. EPA summarily dismissed these findings and stated that since independent statistical analysis of this data demonstrated that the effects were not dose-related, it was suggested that the effects of this study were not related to the administration of sodium fluoride

after all. As a scientific or purely logical matter, however, the fact that the test data do not show a dose-response relationship, does not preclude the possibility that the effect stemmed from the substance administered. Thus EPA's objection to dismiss its implications in light of the protective purpose of an RMCL.

Still another study suggested that fluoridation of drinking water supplies is responsible for 10,000 to 20,000 excess cancer deaths per year in the United States. . . .

Finally, one study not used by EPA, by Duffey et al., which appeared in a well respected medical journal, reported that a human patient on sodium fluoride therapy for osteoporosis was found to have giant cells in her bone marrow "suggestive of a reticuloendothelial malignancy..." By way of response to NFFE's objection to the omission of the latte report, the Director of the Office of Drinking Water stated by letter that the Duffey report "is not concerned with cancer or tumor growth." The first page of the article contains the following sentence:

A few giant monocytoïd cells, suggestive of a reticuloendothelial malignancy were discovered.

Once again the lack of professional review is evident.

Excerpts from Legal Affidavit Filed in 1993 by Dr. Robert Carton, Past President of EPA Headquarters Union in Washington D.C. (the National Federation of Federal Employees, Local 2050)

7. In the spring of 1985, allegations of scientific misconduct in the development of EPA's fluoride in drinking water standard were made to the union by an EPA professional intimately familiar with the work on the standard.
8. In November of that year, EPA set a new Recommended Maximum Contaminant Level (RMCL) for fluoride in drinking water of 4 mg/l, which approximately doubled the dose considered to be safe (the previous standard was 1.4 to 2.4 mg/l).
9. As union president-elect, I investigated these allegations and concluded that the scientific documents supporting the decision to raise the RMCL were fraught with tendentious errors and omissions of key data, to the point of constituting scientific fraud. [. . .]
14. My conclusions regarding the lack of safety of both EPA standards and of fluoridation are based in part on the following: [. . .]

G. It is clear that fluoride is mutagenic, and that it may well cause cancer, although both are continuously denied by the government. Buried in the report of the National Toxicology Program study on the effects of fluoride in rats and mice were the results of a battery of four genetic toxicology studies showing fluoride to be a mutagen. Three studies were positive for mutagenicity and one was negative. The negative study was invalid based on testimony of the originator of the test itself, Dr. Bruce Ames.

Excerpts from Testimony of Dr. J. William Hirzy, Vice President of National Treasury Employees Union Chapter 280 (as of 1998 this Union Represents EPA Employees) Before the Subcommittee on Wildlife, Fisheries and Drinking Water, United States Senate, June 29, 2000

Summary of Recommendations

- 1) We ask that you order an independent review of a cancer bioassay previously mandated by Congressional committee and subsequently performed by Battelle Memorial Institute with appropriate blinding and instructions that all reviewers independent determinations be reported to this Committee. [. . .]

Cancer Bioassay Findings

In 1990, the results of the National Toxicology Program cancer bioassay on sodium fluoride were published (10), the initial findings of which would have ended fluoridation. But a special commission was hastily convened to review the findings, resulting in the salvation of fluoridation through systematic down-grading of the evidence of carcinogenicity. The final, published version of the NTP report says that there is, “equivocal evidence of carcinogenicity in male rats,” changed from “clear evidence of carcinogenicity in male rats.”

The change prompted Dr. William Marcus, who was then Senior Science Adviser and Toxicologist in the Office of Drinking Water, to blow the whistle about the issue (22), which led to his firing by EPA. Dr. Marcus sued EPA, won his case and was reinstated with back pay, benefits and compensatory damages. I am submitting material from Dr. Marcus to this Subcommittee dealing with the cancer and neurotoxicity risks posed by fluoridation.

We believe the Subcommittee should call for an independent review of the tumor slides from the bioassay, as was called for by Dr. Marcus (22), with the results to be presented in a hearing before a Select Committee of the Congress. The scientists who conducted the original study, the original reviewers of the study, and the “review commission” members should be called, and an explanation given for the changed findings.

There are numerous additional studies connecting fluoride with cancer, which are not addressed in the current review document. The very existence of cumulative fluoride that is stored in the bones and effects the immune system properties which are attributed to bone marrow, and which have a critical role in arresting carcinogenic development have also not been addressed here.

Fluoride exposure is a known cause of carcinogenicity in humans and it is critical to include fluoride on the Prop 65 list of carcinogens. Thank you for your attention to this matter.

Sincerely,

Kim Glazzard
Director of Organic Sacramento
Environmental Scientist

Attachment 1

Partial List of Fluoride Compounds

Fluorinated Propellants and Refrigerants

Trichlorofluoromethane
Dichlorodifluoromethane
Chlorotrifluoromethane
Tetrafluoromethane
Dichlorofluoromethane
Chlorodifluoromethane
Tetrachlorodifluoromethane
Trichlorofluoroethane
Dichlorofluorotetraethane
Chloropentafluoroethane
Difluoroethane

Fluorinated Pharmaceuticals

Fludrocortisone
Triamcinilone

Fluorinated Tranquilizers

Benperidol
Droperidol
Fluanisone
Flubuperone Hydrochloride
Flunitrazepam
Fluopromazineh
Fluoestone
Flurbiprofen
Flupenthixol Decanoate
Flupenthixol Hydrochloride
Fluphenazine Decanoate
Fluphenazine Enanthate
Fluphenazine Hydrochloride
Flurazepam Hydrochloride
Fluspiriline
Haloperidol
Penfluoridol

Pipamperone
Trifluoperazine Hydrochloride
Trifluoperidol
Trifluoperidol Hydrochloride

Fluorinated Anesthetics

Floxene
Isofluorane
Methoxyflurane
Enflurane
Halothane

Fluorinated Exterminators

Isopropyl methyl-phosphonfluoridate
Pinacolyl methylphosphonofluoridate
Di-isopropyl Fluorophosphate
Fluorouracil
Fluoroacetamide
Hydrofluorosilicic Acid
Sodium Fluoride
Sodium Fluoroacetate
Sodium Silicofluoride