May 19, 2017

Dr. Tina Bahadori
Director, NCEA
USEPA Headquarters
Ariel Rios Building
1200 Pennsylvania Avenue, N. W.
Mail Code: 8601P
Washington, DC 20460

Re: 2017 Publication of a Pivotal Study that is Critical to the Formaldehyde IRIS Assessment

Dear Dr. Bahadori:

I am writing to bring to your attention the May 2017 publication titled: Does occupational exposure to formaldehyde cause hematotoxicity and leukemia-specific chromosome changes in cultured myeloid progenitor cells?[1] This new publication by Mundt et al. provides critical information to the formaldehyde science which may have an important impact on the current IRIS assessment, including the conclusions that may be drawn regarding formaldehyde and human health risk. Specifically, the new analyses reported by Mundt et al. call into question conclusions by Zhang et al. (2010)[2] regarding formaldehyde and leukemia risk. Notably, the new analyses demonstrate no association between individual formaldehyde exposure estimates and frequency of aneuploidy among those exposed to formaldehyde.

In summary, Mundt et al. secured data and exposure information from the National Cancer Institute (NCI), which had been utilized in the Zhang et al. publication and this study was also relied upon by EPA in the 2010 draft formaldehyde IRIS assessment to support a potential mode of action for leukemia. After securing the data from NCI, Mundt et al. conducted refined and additional analysis to evaluate any potential correlations between actual formaldehyde exposure measurements (not previously reported) and prevalence of aneuploidy among the exposed population. No association was observed between the individual formaldehyde exposure estimates and prevalence of aneuploidy, which in Zhang et al. (2010) the authors suggested were indicators of myeloid leukemia risk. Additionally, Mundt et al. found that differences in white blood cell, granulocyte, platelet, and red blood cell counts were not exposure-dependent. Mundt et al. also documented that most of the aneuploidy tests performed in the Zhang et al.

[1] Mundt, K. A., Gallagher, A. E., Dell, L. D., Natelson, E. A., Boffetta, P., & Gentry, P. R. (2017). Does occupational exposure to formaldehyde cause hematotoxicity and leukemia-specific chromosome changes in cultured myeloid progenitor cells? Critical Reviews in Toxicology, 1-11. Link to full text, open access article can be found here: http://www.tandfonline.com/doi/pdf/10.1080/10408444.2017.1301878?needAccess=true

[2] Zhang, Luoping, Xiaojiang Tang, Nathaniel Rothman, Roel Vermeulen, Zhiying Ji, Min Shen, Chuangyi Qiu et al. (2010)"Occupational exposure to formaldehyde, hematotoxicity, and leukemia-specific chromosome changes in cultured myeloid progenitor cells." Cancer Epidemiology and Prevention Biomarkers 19, no. 1 :80-88.

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publication failed to meet the authors' own protocol with respect to numbers of cells counted, collectively rendering results based on these tests uninformative.

This recently published study by Mundt et al. adds to an understanding of the full weight of the scientific evidence on formaldehyde and any potential association with leukemia. It is imperative that it be fully evaluated and included in the EPA's IRIS assessment's weight of evidence framework and causality assessment for formaldehyde. As noted in EPA's Stopping Rules[3] new studies can be included until a few months before an assessment is released for review. This is especially important when a strong new study provides important mechanistic insights and may change a major conclusion in the draft assessment.

Given the importance of this study to the overall weight of the formaldehyde science, EPA should provide detailed information regarding how this study will be assessed and incorporated into the IRIS assessment. Feel free to contact me by phone (202-249-6707) or email (Kimberly_White@americanchemistry.com) with any questions related to this letter. Additionally, a full copy of the publication is attached for your reference.

Sincerely,

Kimberly Wise White, PhD
Senior Director
American Chemistry Council (ACC)
Chemical Products & Technology Division
On Behalf of the ACC Formaldehyde Panel

Attachment 1 – Mundt et al. 2017 Article - Does occupational exposure to formaldehyde cause hematotoxicity and leukemia-specific chromosome changes in cultured myeloid progenitor cells?

[3] EPA IRIS Stopping Rules - https://www.epa.gov/sites/production/files/2014-06/documents/iris_stoppingrules.pdf

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