Comments of the American Chemistry Council Formaldehyde Panel on Scientific and Legal Issues with EPA's Forthcoming Peer Review of Draft Evaluation of Formaldehyde under the Toxic Substances Control Act (TSCA) and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Docket ID EPA-HQ-OPPT-2023-0613

March 8, 2024

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EXECUTIVE SUMMARY

The American Chemistry Council (ACC) Formaldehyde Panel (Panel)[1] appreciates the opportunity to provide additional scientific and legal comments on EPA's December 26, 2023 Federal Register solicitation of nominees[2] and notice of forthcoming peer review (the Notice) including an ad hoc Science Advisory Committee on Chemicals (SACC)[3] review of its draft risk evaluation of formaldehyde under Section 6 of the Toxic Substances Control Act (TSCA) as well as formaldehyde review under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) in 2024. While we await details on other planned actions from EPA discussed in its December 26 notice,[4] this letter identifies key issues for the forthcoming peer review and includes several Panel recommendations, including critical charge questions, to ensure a robust, independent peer review process consistent with TSCA, FIFRA, the Federal Advisory Committee Act (FACA), and EPA policies and guidance.

This communication provides more context on concerns raised by the Panel in its January 17, 2024 letter to Assistant Administrator Freedhoff regarding the December 26 solicitation of ad hoc reviewers for formaldehyde[5] as well as its subsequent nomination of several expert reviewers. The January 17 letter called on EPA to extend the nomination period by at least 30 days and to ensure that the sequencing of other planned actions to better reflect EPA's peer review policies. This letter also identified numerous required steps that should precede EPA's selection of peer reviewers or solicitation of public comment on a draft risk evaluation, including requirements under the White House Office of Management and Budget's (OMB) *Final Information Quality Bulletin for Peer Review*, EPA's *Peer Review Handbook*, Section 9 of TSCA related to interagency and intra-agency consultation and coordination (also reflected in long-standing Executive Orders and OMB guidance), the *Small Business Regulatory Enforcement Flexibility Act*, and tribal consultation pursuant to long-standing executive orders, EPA policies, and TSCA commitments.[6]

EPA denied that request. The Panel asks EPA to consider these comments, which provide more details on the "myriad scientific and legal issues with EPA's forthcoming peer review of limited elements of a draft risk evaluation for formaldehyde" mentioned in the January 17 correspondence. These comments are in addition to those made in the January 17 request and in the Panel's comments about peer review of formaldehyde science in Docket EPA-HQ-OPPT-2018-0438 dated November 7, 2023.[7] The Panel supports EPA's plans to solicit public comment on the candidate list of ad hoc expert reviewers for this

[1] The ACC Formaldehyde Panel represents producers, suppliers and users of formaldehyde and formaldehyde products, as well as trade associations representing key formaldehyde applications. Its primary activities are scientific research, regulatory and legislative advocacy, and outreach. The Panel is also committed to informing and educating regulators, policymakers, the value chain and the media on the weight of the scientific evidence surrounding formaldehyde exposure and safety.
[2] 88 Fed. Reg. 88910 (Dec. 26, 2023).
[3] The SACC was established in Section 26(o) of the 2016 amendments to TSCA (15 U.S.C. § 2625(o)).
[4] "EPA's plans to publish separate documents in the Federal Register in early 2024 to announce the planned activities related to this peer review that are briefly discussed in this unit," including "Planned Public Review of a Candidate List of ad hoc Reviewers Being Considered," "Planned Public Meeting," and "Planned Public Review of Materials Submitted for Peer Review" (88 FR 88913).
[5] https://www.americanchemistry.com/industry-groups/formaldehyde/resources/acc-fa-panel-extension-request-for-sacc-nominations.
[6] Please note that the Panel has also sought extension of the comment period on candidates for membership on the standing Science Advisory Committee on Chemicals (SACC), noting the relationship between these panels: https://www.regulations.gov/comment/EPA-HQ-OPPT-2023-0521-0008.
[7] The Panel's November 7 comments are available at https://www.regulations.gov/comment/EPA-HQ-OPPT-2018-0438-0130.

peer review as well as the draft documents and related materials submitted to the SACC. However, the Panel has significant concerns that EPA's planned peer review path is beset by major scientific issues and inconsistencies with EPA scientific and peer review policies, and is in violation of statutory requirements under TSCA, FACA, and other laws.

DISCUSSION

1) EPA's Plan for Peer Review for Formaldehyde Risk Evaluation Violates TSCA and the Risk Evaluation Framework Rule Requirements

The Notice indicated that EPA is "leveraging" and "deferring" to prior limited peer reviews by the National Academies of Science, Engineering and Medicine (NASEM),[8] EPA's Human Studies Review Board (HSRB),[9] and the SACC. According to the Notice, this means that the SACC peer review will focus only on a few specific issues and likely exclude both key elements of the draft risk evaluation as well as consideration of TSCA scientific standards. As a result, no peer review of the draft risk evaluation as a whole would be made.

Unfortunately, the Notice suggests a retreat from the full, transparent, external, and comprehensive peer review required under TSCA and EPA's operative risk evaluation framework rule for several reasons:

- EPA indicates that it "intends to defer to the draft 2022 Integrated Risk Information System [IRIS] Toxicological Review of Formaldehyde and associated 2023 review by the NASEM"[10] for virtually all chronic cancer and non-cancer determinations related to formaldehyde. The Panel has comprehensively catalogued scientific, procedural, and legal deficiencies of this draft IRIS assessment and its peer review.[11]
- The Notice indicates that EPA "is not intending to request review on the modeling methods used to estimate formaldehyde exposure in ambient (outdoor) air as the methods have previously been peer reviewed."[12]
- EPA indicates that its "updated hazard characterization takes into consideration" recommendations from its HSRB,[13] which provided critical comments on EPA's approach to peer review, as well as the underlying weight of scientific evidence approach as not constituting the "best available science."
- EPA also states that it "will not be soliciting review of" its acute inhalation science.[14] This ignores the fundamental concerns issued by HSRB in 2023 as well as Panel comments regarding the significance

[8] NASEM, Review of EPA's 2022 Draft Formaldehyde Assessment, https://www.nationalacademies.org/our-work/review-of-epas-2022-draft-formaldehyde-assessment.
[9] HSRB, May 18 and July 26, 2023, EPA Human Studies Review Board Meeting Report (Oct. 5, 2023), https://www.epa.gov/system/files/documents/2023-10/july-2023-hsrb-report-woe-formaldehyde.pdf.
[10] 88 FR 88911.
[11] See compiled comments here and in attendant IRIS, TSCA, and NASEM dockets: https://www.regulations.gov/comment/EPA-HQ-OPPT-2018-0438-0130.
[12] Relatedly, EPA appears to be planning on using the same flawed fenceline approach and exclude it from the scope peer review. EPA has not responded to SACC recommendations related to fenceline exposures. It has not updated its approach and there are still many flaws in the process that lead them to the wrong conclusions. At minimum, this violates Section 26(h) which requires "…to the extent that the Administrator makes a decision based on science, the Administrator… shall consider as applicable—(5) the extent of independent verification or peer review of the information or of the procedures, measures, methods, protocols, methodologies, or models." Additionally, under these circumstances, not only does the Agency need to conduct peer review, it needs to be conducting independent verification of the application of the procedures for each risk evaluation.
[13] 88 FR 88911.
[14] 88 FR 88911.

> of these recommendations for many endpoints, durations, and elements of a draft risk evaluation for formaldehyde.[15]

A peer review process that excludes key elements of the draft risk evaluation is inconsistent with Section 26(h) of TSCA as well as the Agency's current rule, Procedures for Chemical Risk Evaluation Under the Amended Toxic Substances Control Act ("Risk Evaluation Framework Rule").[16] Section 26(h) requires EPA, in the context of risk evaluations, to "use scientific information, technical procedures, measures methods, protocols, methodologies, or models, employed in a manner consistent with the best available science," including consideration of "the extent of independent verification or peer review of the information or the procedures, measures, methods, protocols, methodologies, or models." EPA's Risk Evaluation Framework Rule establishes the process by which the Agency will conduct risk evaluations on chemical substances under TSCA.[17] It "identifies the steps of a risk evaluation process including: scope, hazard assessment, exposure assessment, risk characterization, and finally a risk determination," and makes clear that for chemical substances like formaldehyde that have been "designated as High-Priority Substances during the prioritization process… will always be subject to this process" laid out in the Framework Rule.[18] The final rule also includes the required "form and criteria" applicable to such manufacturer requests. The rule requires peer review on all risk evaluations and underscores the importance of fulsome peer review stating, "EPA agrees with comments that peer reviewed evaluations will instill greater confidence and provide transparency to the process."[19]

TSCA and EPA's Risk Evaluation Framework Rule make clear that Congress and EPA intended to conduct full, transparent peer review of all elements of its risk evaluations, as opposed to a piecemeal approach that may not satisfy TSCA's rigorous scientific standards. The preamble to Agency's final Risk Evaluation Framework Rule considered and rejected the type of peer review described in the Notice as failing to meet TSCA's scientific standards:

> EPA postulated in the proposed rule that there may be circumstances that may not necessitate peer review (e.g., where a chemical substance is found to not present an unreasonable risk or that findings are similar or the same as other jurisdictions (states or countries) that have reached similar conclusions based on the same information). Public comment presented arguments to why this is not appropriate. Although a substance may not present an unreasonable risk, the consequence of a "false negative" could be extremely problematic. For the second scenario where EPA's results may be similar to another jurisdiction's, commenters argued that it will also be necessary to peer review the evaluation. It would be necessary to make certain the best available science and weight of the scientific evidence approaches were used properly, as they may not have been required under the process by which the comparable evaluation was conducted. As such, EPA will require peer review on all risk evaluations.[20]

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[15] https://www.americanchemistry.com/chemistry-in-america/news-trends/blog-post/2023/the-epa-human-studies-review-board-scientific-peer-review-highlights-that-major-revisions-are-needed-to-epa-s-draft-iris-formaldehyde-assessment; https://www.americanchemistry.com/chemistry-in-america/news-trends/press-release/2023/epa-scientific-advisory-body-raises-fundamental-issues-about-agency-s-draft-formaldehyde-assessment

[16] 82 FR 33726 – 33753.

[17] https://www.ecfr.gov/current/title-40/chapter-I/subchapter-R/part-702/subpart-B/section-702.45.

[18] 82 FR 33726.

[19] https://www.federalregister.gov/documents/2017/07/20/2017-14337/procedures-for-chemical-risk-evaluation-under-the-amended-toxic-substances-control-act#p-164.

[20] 82 FR 33744.

These same concerns dictate a full review here as neither NASEM or the HSRB "mad[e] certain the best available science and weight of the scientific evidence were used properly."

EPA's Risk Evaluation Framework Rule also states that its scoping plan will "include the plan for peer review the Agency expects to consider," including "the Agency's plan to have any methods or models peer reviewed, along with the risk evaluation, as well as the EPA's anticipated use of the SACC or another peer review body or whether the Agency anticipates a letter peer review or a committee consensus peer review."[21] EPA's 2020 *Final Scope of the Risk Evaluation for Formaldehyde* states:

> Peer review will be conducted in accordance with EPA's regulatory procedures for chemical risk evaluations, including using EPA's Peer Review Handbook (U.S. EPA, 2015b) and other methods consistent with Section 26 of TSCA (see 40 CFR 702.45). As explained in the Risk Evaluation Rule, the purpose of peer review is for the independent review of the science underlying the risk assessment. Peer review will therefore address aspects of the underlying science as outlined in the charge to the peer review panel such as hazard assessment, assessment of dose-response, exposure assessment, and risk characterization. The draft risk evaluation for formaldehyde will be peer reviewed.[22]

EPA's planned peer review in the Notice runs afoul of this plan, as it does not involve an independent review of key elements of the hazard, dose-response, or exposure assessments.

This robust approach to peer review for all risk evaluations is also currently enshrined in EPA's TSCA regulations at 40 CFR 702.45 which states "Peer review will be conducted on the risk evaluations for the chemical substances identified pursuant to 15 U.S.C. 2605(b)(4)(A)."[23]

EPA's *Peer Review Handbook*[24] and the OMB Bulletin[25] set high standards for peer review of influential documents such as the draft formaldehyde risk evaluation. It is clear that Congress, the *Peer Review Handbook*, and the OMB Bulletin contemplate that all, not just parts, of a document be peer reviewed.

In addition to the applicability of the 2017 Risk Evaluation Framework Rule as promulgated, EPA has more recently publicly committed to this process to the Panel and the public. In November 2023, EPA "confirmed it will conduct its TSCA risk evaluation of formaldehyde following procedures in its existing risk evaluation 'framework' rule, rather than those set out in a recent regulatory proposal."[26] EPA has previously made similar statements to the Panel in October 2023.[27] ACC and Panel members have relied upon these indications that EPA will follow the Risk Evaluation Framework Rule on the books, including

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[21] https://www.federalregister.gov/documents/2017/07/20/2017-14337/procedures-for-chemical-risk-evaluation-under-the-amended-toxic-substances-control-act#p-142.
[22] https://www.epa.gov/sites/default/files/2020-09/documents/casrn_50-00-0-formaldehyde_finalscope_cor.pdf (pg. 77).
[23] 40 CFR 702.51 also establishes docketing requirement for peer review, including "response to peer review and public comments received during peer review."
[24] EPA, *Peer Review Handbook*, 4th edition (2015), https://www.epa.gov/osa/peer-review-handbook-4th-edition-2015
[25] OMB, Final Information Quality Bulletin for Peer Review, 70 Fed. Reg. 2664 (Feb. 14, 2005).
[26] Chemical Watch, "TSCA Risk Evaluation for Formaldehyde Will Follow Existing Procedural Rule," November 17, 2023, https://chemicalwatch.com/894510/tsca-risk-evaluation-for-formaldehyde-will-follow-existing-procedural-rule. This article also noted the move raising "broader questions about how the EPA plans to apply its shifting policies and rules to 33 ongoing risk evaluations."
[27] https://downloads.regulations.gov/EPA-HQ-OPPT-2018-0438-0130/attachment_1.pdf.

a fulsome peer review process for all steps of the risk evaluation, as they have prepared for the risk review including in deciding what comments to file and in connection with peer review nominations.

EPA's recent actions suggest that it may intend to integrate some of the recently proposed changes to the framework rule[28] into its formaldehyde rule. ACC comments on that proposal highlighted procedural and scientific defects with other science policy decisions that EPA may intend to adopt in a draft risk evaluation for formaldehyde.[29] More generally, a large cross-section of commenters soundly rejected moving away from comprehensive peer review of its draft risk evaluations, concerns that EPA should heed here.[30]

2) EPA's Deference to Other Reviews Violates TSCA and Other Requirements

In addition to the explicit exclusions of key elements of the risk evaluation from the scope of the peer review, the Notice establishes EPA intention to "defer" to other reviews including the "draft 2022 Integrated Risk Information System Toxicological Review of Formaldehyde and associated 2023 review by the NASEM." This deference to other reviews excludes key aspects from the forthcoming formaldehyde risk evaluation from peer review and delegates EPA's scientific requirements to peer reviews that do not square with TSCA standards for several reasons:

- The NASEM peer review focused on the draft IRIS assessment of formaldehyde.[31] This draft IRIS assessment ignored or dismissed over 70 key peer-reviewed studies, most international formaldehyde assessments, and comment from authors of key studies.[32] NASEM was not asked to comment on the excluded information. This circumstance has importance to the draft risk evaluation, as TSCA Section 26(j) requires EPA to consider all reasonably available information in taking actions under Section 6, and Section 6(b)(3)(F) requires EPA to "integrate and assess available information" in its risk evaluations.[33]

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[28] https://www.federalregister.gov/d/2023-23428/p-150.

[29] ACC's comments on the proposed revisions to EPA's framework rule outline how other important policy changes, including an indication that EPA will not exclude any exposures, will adopt a "whole chemical" approach, and assumptions regarding the absence of personal protective equipment, are inconsistent with TSCA as well as the existing framework rule (and have not been promulgated in a relevant final rule).

[30] These comments included ACC (https://www.regulations.gov/comment/EPA-HQ-OPPT-2023-0496-0249), the Small Business Administration (https://www.regulations.gov/comment/EPA-HQ-OPPT-2023-0496-0208), the American Industrial Hygiene Association (https://www.regulations.gov/comment/EPA-HQ-OPPT-2023-0496-0058), and 90 experts surveyed on the proposal (https://www.regulations.gov/comment/EPA-HQ-OPPT-2023-0496-0245).

[31] IRIS Toxicological Review of Formaldehyde-Inhalation (External Review Draft, 2022), https://iris.epa.gov/document/&deid=248150.

[32] See the Panel's June 13, 2022 comments and Appendix A for list of excluded studies, https://www.regulations.gov/comment/EPA-HQ-ORD-2010-0396-0103; Appendix A can also be found at the following link: https://www.americanchemistry.com/industry-groups/formaldehyde/resources/appendix-a-list-of-excluded-studies; https://www.americanchemistry.com/chemistry-in-america/news-trends/blog-post/2023/nasem-meetings-highlight-broad-scientific-criticism-for-epa-s-draft-formaldehyde-assessment.

[33] 15 U.S.C. 2605((b)(3)(F): "Requirements. In conducting a risk evaluation… the Administrator shall… integrate and assess available information on hazards and exposures for the conditions of use of the chemical substance, including information that is relevant to specific risks of injury to health or the environment and information on potentially exposed or susceptible subpopulations identified as relevant by the Administrator"; 15 U.S.C. 2625(j): "The Administrator shall make available to the public… a list of the studies considered by the Administrator in carrying out each such risk evaluation, along with the results of those studies."

- The HSRB peer review focused on a few specific studies and, while HSRB advice had broader import for the TSCA and FIFRA peer reviews as well as other endpoints, EPA appears to be limiting this process to consideration of acute sensory irritation and dermal exposure. This leaves many more aspects of the draft risk evaluation to be peer reviewed, not just the limited topics identified in the Notice.
- Neither the NASEM or HSRB reviews included a scope, statement of task, or charge questions that seek peer reviewer comment on whether these elements of EPA's risk evaluation achieve Section 26(h) standards for "best available science," as required under TSCA.
- EPA excluded key issues from other peer reviews that render them irrelevant to TSCA or FIFRA standards for scientific quality or independent validation. For example, neither the draft IRIS assessment of formaldehyde nor the NASEM review of the draft IRIS assessment references TSCA or "best available science."[34] Additionally, EPA's statement of task for the NASEM review of formaldehyde in 2022 and 2023 indicated that the Committee "shall not conduct an independent assessment separately from the IRIS document nor shall the NAS comment on the broader aspect of the IRIS program" and also restricted the Committee to "responding only to the materials provided by the EPA."[35]
- Importantly, NASEM's review of EPA's draft IRIS assessment for formaldehyde did not resolve scientific issues relevant to TSCA and the issuance of a draft risk evaluation for formaldehyde.[36] For example:
    - NASEM did not evaluate if EPA's assessment meets requirements for the use of the "best available science." Instead, the NASEM committee indicates that many EPA methods were "consistent with EPA's state-of-practice approach," a distinction which is irrelevant to the statutory scientific standards in TSCA.
    - NASEM did not address validity of the toxicity values in EPA's 2022 draft IRIS assessment, stating "the committee did not conduct an independent hazard evaluation or dose-response assessment, and therefore does not recommend alternative hazard identification conclusions or toxicity values."
    - NASEM did not determine if EPA had resolved past NASEM recommendations, conceding that "the present committee did not review specific changes in the 2022 Draft Assessment against the recommendations in the 2011 NRC report…" The Panel has previously documented numerous ways in which EPA's draft assessment failed to fix key issues identified by NASEM in 2011.[37]
    - NASEM criticized EPA for deviating from its own guidelines, including in ways that irreconcilably violate TSCA standards for "best available science" and the "weight of scientific evidence." NASEM noted that "the assessment does not satisfactorily follow

[34] https://iris.epa.gov/document/&deid=248150; https://nap.nationalacademies.org/booksearch.php?record_id=27153&term=%22best+available+science%22.
[35] https://www.americanchemistry.com/industry-groups/formaldehyde/resources/acc-comments-on-the-charge-questions-and-committee-task-for-peer-review-of-draft-formaldehyde-assessment.
[36] https://www.americanchemistry.com/chemistry-in-america/news-trends/blog-post/2023/national-academies-buries-the-lede-in-review-of-epa-formaldehyde-assessment; https://www.americanchemistry.com/industry-groups/formaldehyde/resources/nasem-excerpts-of-key-critiques; https://www.americanchemistry.com/industry-groups/formaldehyde/resources/summary-of-nas-tiered-recommendations.
[37] https://www.americanchemistry.com/industry-groups/formaldehyde/resources/2023-nas-2011-recommendations-summary-033123; https://www.americanchemistry.com/chemistry-in-america/news-trends/blog-post/2023/did-epa-dismiss-recommendations-from-the-national-academy-of-sciences-and-its-own-best-practices-in-its-draft-formaldehyde-assessment; https://www.americanchemistry.com/industry-groups/formaldehyde/resources/formaldehyde-panel-follow-up-letter-to-epa; https://www.regulations.gov/comment/EPA-HQ-ORD-2010-0396-0103.

> recommendations for problem formulation and protocol development. EPA did not develop a set of specific protocols for the 2022 Draft Assessment in a fashion that would be consistent with the general state of practice that evolved during the prolonged period when the assessment was being developed... prepublished protocols are essential for future IRIS assessments to ensure transparency for systemic reviews in risk assessment." ACC has further documented the inconsistent approach to pre-established systematic review protocols, a requirement under TSCA's definition of the "weight of scientific evidence," for EPA's IRIS assessment of formaldehyde.[38]

In summary, the Panel has identified two types of issues. First, key issues have been identified in the NASEM and/or HSRB peer reviews; EPA has indicated that those issues will be taken into consideration but given the Agency's history of the formaldehyde IRIS assessment there is reason to believe that these issues will either not be addressed or inadequately addressed. Secondly, other issues remain that have not been examined to date by an independent body; including studies that EPA IRIS did not account for, those issues should be addressed in the upcoming SACC peer review.

3) EPA's Exclusion of Key Scientific Issues and Deference to Other Reviews Violates FACA

The scope of the intended peer review may also violate key provisions of FACA and other statutes. ACC and the Panel have extensively documented the numerous ways in which the NASEM review of the 2022 draft assessment of formaldehyde under IRIS violated standards for independence, balance, transparency, and public participation under Section 15 of FACA.[39] Despite these issues being repeatedly raised to EPA

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[38] See the Panel's March 31, 2023 letter to NASEM, https://www.americanchemistry.com/industry-groups/formaldehyde/resources/2023-inconsistencies-between-fa-assessment-and-iris-handbook-033123; and the Panel's June 13, 2023 letter to Dr. Wayne Cascio in the Office of Research and Development, https://www.regulations.gov/comment/EPA-HQ-ORD-2010-0396-0103. 40 CFR § 702.33 states: "Weight of scientific evidence means a systematic review method, applied in a manner suited to the nature of the evidence or decision, that uses a pre-established protocol to comprehensively, objectively, transparently, and consistently, identify and evaluate each stream of evidence, including strengths, limitations, and relevance of each study and to integrate evidence as necessary and appropriate based upon strengths, limitations, and relevance."

[39] https://www.regulations.gov/comment/EPA-HQ-OPPT-2018-0438-0127; https://www.regulations.gov/comment/EPA-HQ-ORD-2010-0396-0103; https://www.americanchemistry.com/industry-groups/formaldehyde/resources/acc-comments-on-the-charge-questions-and-committee-task-for-peer-review-of-draft-formaldehyde-assessment; https://www.americanchemistry.com/media/files/acc/industry-groups/formaldehyde/files/acc-v-nas-stamped-amended-complaint; https://www.americanchemistry.com/media/files/acc/industry-groups/formaldehyde/files/pi-motion-memo-order; https://www.americanchemistry.com/media/files/acc/industry-groups/formaldehyde/files/nas-litigation-reply-response-on-file; https://www.americanchemistry.com/media/files/acc/industry-groups/formaldehyde/files/supplemental-filing-to-address-epa-intent-to-defer-to-iris-and-nasem-report-1-10-24; https://www.americanchemistry.com/chemistry-in-america/news-trends/press-release/2023/acc-challenges-lack-of-independence-transparency-for-peer-review-of-epa-s-draft-formaldehyde-iris-assessment; https://www.americanchemistry.com/industry-groups/formaldehyde/resources/formaldehyde-panel-follow-up-letter-to-epa; https://www.americanchemistry.com/content/download/11780/file/NASEM-Committee-Composition-Comment.pdf; https://www.americanchemistry.com/content/download/11781/file/NASEM-Committee-Procedural-Comment.pdf; https://www.americanchemistry.com/content/download/11716/file/Formaldehyde-Panel-Extension-Request-to-NASEM.pdf; https://www.americanchemistry.com/content/download/12904/file/2023-Letter-to-NASEM-Post-Jan-30th-Public-Meeting.pdf; https://www.americanchemistry.com/content/download/12230/file/Letter-to-NASEM-Post-101222-Public-Meeting.pdf; https://www.americanchemistry.com/content/download/12102/file/Formaldehyde-Panel-Letter-to-Samet.pdf; https://www.americanchemistry.com/content/download/11908/file/Letter-to-NASEM-on-Information-

and NASEM,[40] EPA indicated in the Notice that it intends to "defer" to the draft IRIS assessment, which underwent a questionable review for the most important cancer and noncancer conclusions in its TSCA risk evaluation. In spite of a prohibition in Section 15 of FACA on Agency use of "any advice or recommendation provided by the National Academy of Sciences" that does not meet critical requirements or independence, balance, and public participation, the Notice states EPA "is leveraging these peer reviews to support further development of the risk evaluation of formaldehyde."

The Panel has similarly laid out the ways in which the draft IRIS assessment and its associated NASEM review failed to resolve previous NASEM recommendations, thus violating FACA, TSCA, Clean Air Act, and EPA policy requirements.[41] NASEM acknowledged this limitation in its approach,[42] noting "the present committee did not review specific changes in the 2022 Draft Assessment against the recommendations in the 2011 NRC report…"

4) EPA's Planned Peer Review is Inconsistent with Section 26(o) of TSCA and Other Requirements for SACC Balance and Diversity

EPA's December 26 Notice soliciting ad hoc SACC reviewers excludes key information related to the SACC, including Congressional direction in Section 26(o) of TSCA on committee composition and role and the SACC's charter and membership balance plan, stakeholder and Congressional input on key expertise to achieve balance, and lacks coordination with more appropriate EPA advisory committees for elements of EPA's TSCA and FIFRA assessments of formaldehyde. As made clear in the SACC charter, these requirements apply equally to any SACC subcommittee or workgroup.[43]

Section 26(o) of TSCA establishes that "[t]he Committee shall be composed of representatives of such science, government, labor, public health, public interest, animal protection, industry, and other groups as the Administrator determines to be advisable…" Unfortunately, the Notice makes no mention of this nondiscretionary directive from Congress regarding representation, balance, and diversity. Instead, it describes the SACC as being "comprised of experts in toxicology; environmental risk assessment; exposure assessment; and related sciences" and says that EPA is only seeking expertise within narrow scientific disciplines. This emphasis appears to also be inconsistent with the current SACC charter, which states: "In accordance with the Act, the SACC shall be composed of representatives of such science, government, labor, public health, public interest, animal protection, industry, and other groups…. To the extent feasible, the members will include representation of the following disciplines, including, but not limited to: toxicology, pathology, environmental toxicology and chemistry, exposure assessment, risk assessment and related sciences…."[44]

Gathering-Session.pdf; https://www.americanchemistry.com/content/download/11862/file/Letter-to-NASEM-on-Info-Request.pdf.

[40] In addition to these concerns being raised in multiple letters, they are also the basis for ongoing litigation regarding NAS and EPA non-compliance with FACA, concerns that were most recently addressed in a February 8th oral argument in the United States District Court for the District of Columbia Circuit.

[41] https://www.americanchemistry.com/industry-groups/formaldehyde/resources/formaldehyde-panel-follow-up-letter-to-epa; https://www.americanchemistry.com/industry-groups/formaldehyde/resources/2023-nas-2011-recommendations-summary-033123.

[42] https://www.americanchemistry.com/chemistry-in-america/news-trends/blog-post/2023/national-academies-buries-the-lede-in-review-of-epa-formaldehyde-assessment.

[43] https://www.epa.gov/system/files/documents/2022-04/2022-sacc-charter-renewal-final-_0.pdf.

[44] https://www.epa.gov/system/files/documents/2022-04/2022-sacc-charter-renewal-final-_0.pdf.

EPA also appears to have excluded geographic considerations reflected in the SACC charter, membership balance plan, and Executive Order 14035 in its solicitation for members on the SACC and ad hoc review panel. EPA's current membership balance plan for the SACC lists geographic location as a balance factor that "EPA identifies as important in achieving a balanced FAC."[45] The SACC charter also commits that in accordance with Executive Order 14035, "EPA values and welcomes opportunities to increase diversity, equity, inclusion and accessibility on its federal advisory committees." Executive Order 14035 calls on EPA to ensure diversity on advisory committees, including for underserved geographic communities and persons who live in rural areas.[46]

The Notice also appears to ignore bipartisan calls from Congress to include certain key backgrounds and areas of expertise for the review of formaldehyde. For example, consider the following congressional requests:

- Representatives Don Davis and David Rouzer of North Carolina: "EPA must go through a comprehensive interagency review process for any draft or final risk evaluation for formaldehyde… Any peer review of EPA's risk evaluation or risk management rules should include perspectives from agriculture and aquaculture stakeholders familiar with the potential impact on producers and consumers."[47]
- Rep. Sanford Bishop of Georgia: "Given the substantial impact of this assessment on the agricultural sector and the requirement that the scientific review process be balanced and geographically diverse, EPA should also ensure that at least 2 of the 12 peer reviewers for this assessment have a background in an agriculture-related science."[48]
- Rep. Jack Bergman of Michigan: "Any peer review of EPA's risk evaluation or risk management rules should be balanced and include perspectives from the national security community familiar with the potential defense implications."[49]

EPA must ensure that the TSCA Section 26(o) requirements are fully taken into account when empaneling peer review experts.

[45] https://www.facadatabase.gov/FACA/s/FACACommittee/a10t0000001gzrwAAA/com000531?tabset-dc44e=4e859; https://gsa-geo.my.salesforce.com/sfc/p/t0000000Gyj0/a/t0000000edtb/rQcBPKrR8j2X5unThhaQElLDWZpsdcbp.7Cx_D6Z1A8

[46] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/06/25/executive-order-on-diversity-equity-inclusion-and-accessibility-in-the-federal-workforce/.

[47] Letter from Reps. Davis and Rouzer to Administrator Regan and Agriculture Secretary Vilsack (Dec. 21, 2023, https://www.americanchemistry.com/media/files/acc/industry-groups/formaldehyde/files/representative-davis-and-rouzer-letter-to-usda-and-epa-on-formaldehyde-and-agriculture, https://www.regulations.gov/comment/EPA-HQ-ORD-2010-0396-0066.

[48] Letter from Rep. Bishop to Administrator Regan (June 7, 2022), https://www.regulations.gov/comment/EPA-HQ-ORD-2010-0396-0066.

[49] Letter from Rep. Bergman to Administrator Regan and Defense Secretary Austin, https://bergman.house.gov/news/documentsingle.aspx?DocumentID=1121.

5) EPA Must Respond to Past Peer Reviewer Comments and Public Comments to Other Peer Review Bodies, and the SACC Review Should Incorporate these Comments

As the Panel documented in a November 2023 letter to EPA,[50] EPA is obligated to meaningfully consider and incorporate voluminous public and peer review comments relevant to a draft risk evaluation of formaldehyde, including comments provided on versions of EPA's draft IRIS assessment of formaldehyde, comments and recommendations from NASEM reviews, and comments and recommendations from the HSRB. This letter also laid out several steps that EPA should take to ensure a robust, open, independent peer review of the forthcoming formaldehyde risk evaluation satisfies TSCA and other requirements for use of the best available science. Unfortunately, the Notice suggests that EPA has not adopted these important recommendations.

6) EPA Should Better Coordinate Selection of Experts for the Standing SACC and the Ad Hoc Formaldehyde Review

EPA needs to coordinate between the solicitation and selection of members of the standing SACC and the formaldehyde ad hoc panel to ensure that EPA is achieving TSCA, FACA, and EPA requirements for a "fairly balanced" panel as well as identifying gaps in expertise or diversity for the suit of reviewers who will be involved in review of formaldehyde.

7) EPA Has Failed to Clarify the Nature of This Review of General Applicability and Relevance for Ethics and Financial Disclosure Requirements

EPA's Peer Review Handbook states: "To apply ethics regulations to [Federal Advisory Committee] members properly, it is important to know whether the charge to a committee is a 'matter,' a 'particular matter of general applicability' or a 'particular matter concerning specific parties.' …. When a charge is not a particular matter, then 18 U.S.C. § 208 does not apply, and a [Conflict of Interest] cannot arise."[51] EPA's December 26 Notice fails to provide this clarity and instead indicates that prospective candidates "will be asked to submit confidential financial information" including stocks, bonds, and sources of research support and indicating that EPA will evaluate and remove candidates for associated conflicts of interest. Given the nature of the draft risk evaluation and likely charge, this review appears to meet EPA and Office of Government Ethics requirements[52] for "general applicability" as opposed to a "particular matter" with a direct or predictable effect on any potential peer reviewer's financial interest. EPA clarity and extension of the nomination period would ensure that the pool of qualified reviewers was not negatively impacted by this uncertainty. Given the conflicting language between TSCA, the SACC charter, and the December 26 Notice, EPA should also clarify if these reviewers will serve as "special government employees," "regular government employees," or representatives.

[50] ACC letter to Dr. Freedhoff (Nov. 7, 2023), https://www.regulations.gov/comment/EPA-HQ-OPPT-2018-0438-0130.
[51] https://www.epa.gov/sites/default/files/2020-08/documents/epa_peer_review_handbook_4th_edition.pdf (pg. 77).
[52] https://www.oge.gov/web/oge.nsf/News+Releases/84B69E98832F055E852585BA005BED07/$FILE/do-06-02_9.pdf; https://19january2017snapshot.epa.gov/sites/production/files/2015-02/documents/ethicsadvisory.pdf.

8) EPA's Planned Peer Review is Inconsistent with EPA and OMB Information Quality and Peer Review Agenda Requirements

ACC's December 14, 2023 comments on EPA's proposed changes to the TSCA risk evaluation framework rule[53] outlined why draft risk evaluations are "influential" scientific products subject to information quality and public notice of early peer review plans:

> All TSCA risk evaluations are "highly influential scientific assessments" or "influential scientific information" that should follow EPA and OMB peer review and information quality guidelines. EPA is required under the White House Office of Management and Budget's *Final Information Quality Bulletin for Peer Review*[54] to post on their web site a Peer Review Agenda[55] that includes all planned and ongoing "influential scientific information" developed by EPA and an attendant "Peer Review Plan," in part to provide the public an opportunity to comment on peer review timing as well as which peer review bodies will be engaged. These requirements are also discussed in detail in EPA's *Peer Review Handbook*. "Influential scientific information" is defined as "scientific information the agency reasonably can determine will have or does have a clear and substantial impact on important public policies or private sector decisions."[56]

ACC also noted that EPA has agreed with this view for other TSCA risk evaluations. EPA's Peer Review Agenda includes peer review plans for TSCA risk evaluations for perchloroethylene, carbon tetrachloride, asbestos, methylene chloride, NMP, and trichloroethylene.[57] Unfortunately, EPA has not issued a similar required peer review plan for its formaldehyde risk evaluation. This lack of required transparency has contributed to the numerous issues outlined in this letter. EPA should rectify this oversight by issuing a peer review plan for public comment and identifying the forthcoming draft risk evaluation as a "Highly Influential Scientific Assessment" or "Influential Scientific Information."

9) EPA Ignores Other Relevant or Required Federal Advisory Committees and Peer Review Bodies and EPA's Use of the SACC for FIFRA Review is Inappropriate

EPA indicates in the Notice that it expects to ask the SACC to consider the TSCA and FIFRA hazard assessments for human and ecological health.[58] The SACC is not the appropriate body for OPP's FIFRA assessment. Section 26(o) of TSCA clearly establishes that "[t]he purpose of the Committee shall be to provide independent advice and expert consultation, at the request of the Administrator, with respect to the scientific and technical aspects of issues relating to the implementation of this title," i.e., TSCA. This is also reflected in the current EPA Charter for the SACC, which identifies the objectives, scope of activities, and duties as being limited to TSCA and advice to OPPT.[59] Even the Notice acknowledges this focus, noting that "EPA established SACC in 2016 in accordance with TSCA section 26(o), 15 U.S.C. 2625(o), to provide independent advice and expert consultation with respect to the scientific and technical aspects of issues relating to the implementation of TSCA.[60]

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[53] https://www.regulations.gov/comment/EPA-HQ-OPPT-2023-0496-0249.
[54] https://cfpub.epa.gov/si/m05-03.pdf.
[55] https://cfpub.epa.gov/si/si_public_pr_agenda.cfm.
[56] https://www.epa.gov/osa/peer-review-handbook-4th-edition-2015.
[57] https://cfpub.epa.gov/si/si_public_pr_agenda.cfm.
[58] 88 FR 88911.
[59] https://www.epa.gov/system/files/documents/2022-04/2022-sacc-charter-renewal-final-_0.pdf.
[60] 88 FR 88911.

There are several reasons that EPA's use of the SACC for the FIFRA assessment of formaldehyde is inappropriate:

- As noted above, Congress and EPA established the SACC and any subcommittees to provide advice related to TSCA.
- TSCA and FIFRA (and, in turn, OPPT and OPP) have differing statutory standards for scientific quality, peer review, critical uses and other exemptions, and other key methodologies. Other differences include science policy choices ranging from duration adjustments to the use of human research to the set of uncertainty factors to the interpretation of "unreasonable risk" to assumptions about the "whole chemical" and use of personal protective equipment.
- There are numerous EPA advisory committees established by Congress and EPA to render advice related to FIFRA or which may be more appropriate for the review of a joint hazard assessment across multiple statutes:
    - EPA's FIFRA Scientific Advisory Panel is a Congressionally mandated advisory committee created in 1975 pursuant to Section 25(d) of FIFRA in order to "provide comments, evaluations, and recommendations on pesticides and pesticide-related issues as to the impact on health and the environment of regulatory actions."[61] In addition, FIFRA also establishes a Science Review Board "consisting of sixty scientists who shall be available… on an ad hoc basis to assess in reviews conducted by the Panel." It is chartered to "provide comments, evaluations, and recommendations" to EPA on: "[t]he impact on health and the environment of matters arising" under provisions of FIFRA; improving "the effectiveness and quality of" of scientific analyses and testing by EPA; methods to ensure that pesticides do not cause "unreasonable adverse effects on the environment" under FIFRA; and [m]ajor scientific studies (whether conducted by EPA or other parties) supporting actions" under FIFRA; and [m]ajor pesticide and pesticide-related scientific studies and issues in the form of a peer review."
    - In the 2014 Farm Bill,[62] Congress amended the Environmental Research, Development, and Demonstration Authorization Act (ERDDAA) to establish a permanent, standing agriculture-related committee as part of EPA's Science Advisory Board to "provide scientific and technical advice" for EPA matters with "a significant direct impact on enterprises that are engaged in the business of the production of food and fiber, ranching and raising livestock, aquaculture, and all other farming- and agriculture-related industries."[63]
    - EPA has also operated since 1995 the Pesticide Program Dialogue Committee to "provide a cooperative public forum to collaboratively discuss a wide variety of pesticide regulatory development and reform initiatives, evolving public policy and program implementation issues, and policy issues associated with evaluating and reducing risks from use of pesticides" as well as "OPP's work related to environmental justice, climate change, and pollinator and endangered species."[64]
    - EPA's HSRB is chartered to "review human research… to be used for regulatory purposes under FIFRA"[65] EPA has engaged HSRB on formaldehyde in relation to narrow issues

[61] https://www.epa.gov/system/files/documents/2022-08/2022-FIFRA-SAP-Charter-Renewal-FINAL8.17.22.pdf.
[62] Pub. L. 113–79, title XII, § 12307.
[63] 42 U.S.C. 4365.
[64] https://www.epa.gov/system/files/documents/2021-10/ppdc-2021-charter.pdf.
[65] https://www.epa.gov/system/files/documents/2022-04/2022-hsrb-renewal-charter-final-.pdf.

around acute sensory irritation and dermal exposures,[66] but its advice is highly relevant to the broader FIFRA assessment.

- EPA's Farm, Ranch, and Rural Communities Advisory Committee provides "advice, information, and recommendations to the Administrator on a range of environmental issues and policies that are of importance to agriculture and rural communities."[67]
- Finally, EPA's Science Advisory Board, established by Congress in 1978, provides "independent advice and peer review to EPA's Administrator on the scientific and technical aspects of environmental issues" and consults and coordinates its work with other EPA peer review bodies.[68] ERDDAA also established that with respect to any proposed criteria document, standard, limitation, or regulation under TSCA "or any other authority of the Administrator," EPA "shall make available to the Board" the proposal and associated scientific and technical information for their review and comment.[69]

10) EPA Should Seek Public Comment on Draft Charge Questions and Finalize the Charge Questions and Reinitiate Solicitation and Selection of Peer Reviewers

As noted in the Panel's January 17, 2023 letter, the Notice suggests that EPA plans to publish separate documents including "draft documents and related materials submitted to the SACC for peer review." In order to ensure provide consistency with EPA's Peer Review Handbook and OMB Bulletin, EPA should take public comment on draft charge questions and finalize the charge and restart the process of prior to soliciting and selecting of members for the formaldehyde ad hoc panel or the standing SACC. In the absence of such a reinitiation of the process, EPA must, at a minimum, after it has finalized the charge questions, reopen the nomination process to address potentially missing expertise suggested by the charge question. By necessity this would require that EPA also providing additional opportunity for comment on the existing proposed panel as the finalized questions may suggest that certain potential members lack relevant expertise and that others have additional relevant qualifications.

The Peer Review Handbook states: "The charge should be developed prior to the selection of the peer reviewers to ensure availability of appropriate scientific and technical expertise and skills for reviewing the specific work product."[70] It further explains the benefits of this sequencing for a peer review like this: "the Agency can consider public comments on the scope of the charge before the selection of peer reviewers so that appropriate expertise is included to address all charge questions"; and "the Agency's public comment process is kept distinct from the peer review panel's comment process."[71] Similarly, the OMB Bulletin states: "The charge to the reviewers should be determined in advance of the selection of the reviewers."

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[66] https://www.epa.gov/system/files/documents/2023-10/july-2023-hsrb-report-woe-formaldehyde.pdf; https://www.americanchemistry.com/chemistry-in-america/news-trends/blog-post/2023/epa-human-studies-review-board-peer-review-shows-that-not-all-peer-reviews-are-equal-a-tale-of-two-peer-reviews-on-formaldehyde; https://www.americanchemistry.com/chemistry-in-america/news-trends/blog-post/2023/the-epa-human-studies-review-board-scientific-peer-review-highlights-that-major-revisions-are-needed-to-epa-s-draft-iris-formaldehyde-assessment.

[67] https://www.epa.gov/system/files/documents/2022-02/2022-frrcc-renewal-charter-final_.pdf.

[68] https://sab.epa.gov/ords/sab/r/sab_apex/sab/0?file_id=SRV0277ASR8LIUQOPYSUE355N4N86IED&request=APPLICATION_PROCESS%3DSHARED_FILE&session=16777464841903.

[69] 42 U.S.C. § 4365(c)(1).

[70] https://www.epa.gov/sites/default/files/2020-08/documents/epa_peer_review_handbook_4th_edition.pdf (pg. 82).

[71] https://www.epa.gov/sites/default/files/2020-08/documents/epa_peer_review_handbook_4th_edition.pdf (pg. 86).

11) EPA Should Seek Federal Agency Comment on the Draft Charge Questions Prior to Release as well as Substantive Interagency Review of the Draft Risk Evaluation

Consistent with Section 9 of TSCA, as well as past EPA practice for assessments of formaldehyde,[72] OPPT should consult and coordinate with other federal agencies and other parts of EPA by seeking their comments on EPA's draft charge questions (as well as the draft risk evaluation) prior to public comment on the draft charge questions or on the pool of ad hoc peer reviewers. In the past, other parts of EPA, including the Office of Air and Radiation (OAR) and OPPT, have raised fundamental questions about EPA's assessment of formaldehyde, including whether their approaches constitute "best available science."[73]

Consistent with Section 9 of TSCA and Executive Order 12866, EPA should also seek interagency comments on all aspects of the draft risk evaluation prior to public dissemination or peer review. The Small Business Administration recently filed comments with EPA on its Risk Evaluation Framework Rule proposal cataloguing the lack of "a robust interagency process for review of the draft and final risk evaluations. SBA warned that EPA's risk evaluations "create a significant risk that the resulting risk management regulations will impose unnecessary and duplicative burdens on small businesses with minimal public health benefits" and "it is not a good use of EPA's resources to duplicate the effort and expertise of these other federal offices."[74]

In addition, federal agencies have provided significant recommendations regarding fundamental scientific issues that need resolution for EPA assessments of formaldehyde as well as specific charge questions appropriate for peer review. For example:

- In early 2022, the Small Business Administration and OMB both provided feedback on charge questions related to lymphohematopoietic cancers and mode of action (MOA).[75]
- In 2010, OMB provided more than a dozen suggestions on specific peer review questions that needed to be incorporated in EPA's IRIS assessment of formaldehyde, all of which continue in relevance.[76] Along with identifying a wide variety of charge questions of value,[77] OMB emphasized that a

[72] https://iris.epa.gov/document/&deid=223603; https://iris.epa.gov/document/&deid=353316.
[73] ACC's comments on the proposed Air Emissions Reporting Requirements rule include detailed documentation of these interagency comments: https://www.regulations.gov/comment/EPA-HQ-OAR-2004-0489-0263 (pg. 11-24).
[74] https://www.regulations.gov/comment/EPA-HQ-OPPT-2023-0496-0208.
[75] https://ordspub.epa.gov/ords/eims/eimscomm.getfile?p_download_id=544470; https://ordspub.epa.gov/ords/eims/eimscomm.getfile?p_download_id=544467.
[76] https://ordspub.epa.gov/ords/eims/eimscomm.getfile?p_download_id=496579.
[77] These topics included: "comment on the specific non-cancer endpoints EPA has chosen and if reviewers agree with EPA's characterization of their health significance"; significant confounders and peak exposure approach for key cancer epidemiology; plausible mode of action for sensory irritation, pulmonary function, development and reproductive effects; benchmark dose (BMD) modeling approaches; which "alternate values are most scientifically supported" and comment on "application of uncertainty factors for each alternate derivation"; "whether or not [age-dependent adjustment factors] should be applied to formaldehyde, and if this application, based on the MOA discussions, should perhaps be dependent on exposure levels. In addition, EPA should ask reviewers to comment on whether it would be appropriate to apply this factor to all tumors or perhaps just specific cancer endpoints"; "conclusions regarding the weight of evidence supporting the findings related to formaldehyde exposures and each non-cancer endpoint"; "EPA's evaluation of the rodent modeling relating to toxicokinetics, dosimetry modeling and the evaluation of dose response models of DPX, cell replication and genomics data, and BBDR models for risk estimations using animal models"; charge questions derived from Information Quality guidelines, including whether or not information is "accurate, clear, complete, transparently and objectively described, and scientifically justified";

thorough discussion of other regulatory values and differences with EPA's approach "may be very informative for public commenters and peer reviewers who may be grappling with how to handle risk levels that are in the same range as background exposure levels." They further called on EPA to "ask the peer reviewers to comment on the [significance] of risk values that are at or below background," concluding that "[t]his may have impacts for how EPA may recommend the values be used and considered by risk managers."

- Similarly, the White House Council on Environmental Quality (CEQ) commented on the scope of peer review for EPA formaldehyde assessments, noting "CEQ supports EPA's plans for a full and robust peer review process to solicit impartial feedback and evaluation of EPA's conclusions by experienced subject matter experts who are well-versed in this chemical and its related research with respect to health effects."[78]
- The Department of Defense raised critical issues around the interpretation of EPA's guidance and MOA, recommending charge questions to "address development of the inhalation unit risk to get the panel's opinion on whether this approach is valid" and to determine if it "would be useful to have a quantitative analysis using the current paradigm that aplastic anemia is the cause of leukemia."[79]
- NASA identified other available information excluded from EPA formaldehyde assessments, and urged that "the Peer Review evaluate EPA's approach… against these alternative approaches and EPA models."[80] They further called on EPA to "revisit outstanding issues by ensuring independent Peer Review" on issues related to background formaldehyde concentrations, integration of prior peer review recommendations, points of departure derivation, reliance on a linear, low-dose extrapolation, and alternate models used by the EPA Office of Air and Radiation.
- The Consumer Product Safety Commission specifically identified key scientific uncertainty that needed resolution related to the focus on peak exposure for the key NCI studies EPA continues to rely upon.[81]

12) The Scope of Review and of the Charge Questions Must Not be Unduly Narrow

The Panel has previously provided detailed information to EPA regarding its policies on the scope of peer review and improving the quality of charge questions while noting key deficiencies for prior EPA assessment of formaldehyde.[82] For example, for over a decade, EPA has committed that "advisory committees will not accept a charge from the agency that unduly narrows the scope of an advisory activity."[83] Similarly, EPA's Peer Review Handbook includes important instructions like:

"comment on the conclusions related to each specific cancer endpoint"; "a charge question asking about EPA"s choice to use the NCI cohort over other studies"; "a question to reviewers regarding the uncertainties in the cancer derivations… and how these uncertainties may affect the interpretation of the results and use of the results"; "a specific question regarding how EPA grouped and treated leukemia subtypes"; and a "a charge question regarding EPA"s approach to combining cancer risks for all sites."

[78] https://ordspub.epa.gov/ords/eims/eimscomm.getfile?p_download_id=496606.

[79] https://ordspub.epa.gov/ords/eims/eimscomm.getfile?p_download_id=496580; https://ordspub.epa.gov/ords/eims/eimscomm.getfile?p_download_id=496576.

[80] https://ordspub.epa.gov/ords/eims/eimscomm.getfile?p_download_id=496577.

[81] https://ordspub.epa.gov/ords/eims/eimscomm.getfile?p_download_id=496575.

[82] https://www.americanchemistry.com/industry-groups/formaldehyde/resources/acc-comments-on-the-charge-questions-and-committee-task-for-peer-review-of-draft-formaldehyde-assessment; https://www.americanchemistry.com/industry-groups/formaldehyde/resources/formaldehyde-panel-follow-up-letter-to-epa; https://downloads.regulations.gov/EPA-HQ-OPPT-2018-0438-0108/attachment_16.pdf.

[83] https://sab.epa.gov/ords/sab/r/sab_apex/sab/publicinvolvementinaa?session=16116971367508.

- "It should be noted that certain questions posed in charges can be responded to with a yes or no answer. Clearly, that is not the type of response the agency generally wants; therefore, it is important to phrase charge questions carefully to ensure a fully satisfactory and thoughtful response." (pg. h-1)
- "Peer review is most powerful when the charge is specific and steers the reviewers to specific technical questions while also directing reviewers to offer a broad evaluation of the overall product." (pg. B-15)
- "A well-prepared charge includes: A concise overview or introduction describing the work product, its development and its intended use; Issues to be addressed and areas of concern or specific advice sought (in the form of charge questions), such as:
    - The soundness of the method(s) used or proposed.
    - The scientific support for the assumptions employed.
    - The identification of scientific uncertainties and the potential implications of those uncertainties for the stated conclusions and for influential scientific information (ISI) and highly influential scientific assessments (HISAs), that scientific uncertainties are clearly identified and characterized.
    - Recommendations for research that would reduce key uncertainties.
    - The sensitivity of the results to alternative assumptions (i.e., sensitivity analysis).
    - The comprehensiveness and utility of the literature reviewed.
    - In addition, a request may be made for the reviewers to raise issues that might not have been considered by the authors in their charge questions." (g. 83).
- "The charge should ask that peer reviewers ensure that scientific uncertainties are clearly identified and characterized." (pg. B-16)

In addition to following the instructions above for the charge, the Panel recommends that EPA take the following actions:

- EPA should utilize key recommendations from other peer review bodies, including NASEM and the HSRB, and independently validate, through the SACC, whether these recommendations have been fully addressed in the draft risk evaluation.
- EPA should adopt statutorily derived charge questions. In Section 26(h) of TSCA, Congress established standards for scientific quality that should be at the crux of any peer review. Congress intended for independent validation of key methods. EPA should also strive to provide this legal context to peer review bodies, consistent with the best practices recommended by other organizations that have weighed in on improvements to the science advisory process at agencies like EPA.[84] This is consistent with framework guidance adopted by EPA in the context of setting National Ambient Air Quality Standards.[85]
- Consistent with EPA's approach when the SACC was first empaneled for its first review in 2019,[86] EPA should spend a day educating the new SACC panel on TSCA requirements, including the important science standards and the Risk Evaluation Framework Rule which incorporates these requirements.
- As noted above, EPA should seek feedback on the charge from other federal agencies and incorporate past recommendations regarding key scientific issues to be resolved.

[84] https://www.keystone.org/wp-content/uploads/2015/08/ResearchIntegrityRountableReport.pdf ("Panelists should be periodically reminded of the statutory requirements that govern the questions the panel is addressing.")
[85] https://www.epa.gov/sites/default/files/2018-05/documents/image2018-05-09-173219.pdf.
[86] See the agenda provided by EPA for the PV29 meeting which spent a full day explaining TSCA to new SACC members, available at: https://www.regulations.gov/document/EPA-HQ-OPPT-2018-0604-0070.

- EPA should incorporate the suggested charge questions provided to the Agency in April 2022, nearly all of which were excluded from other peer review processes and continue to be relevant.[87]

13) Potential Additional Charge Questions to Incorporate

The Panel requests EPA to include the following charge questions for the SACC peer reviewers:

1. BEST AVAILABLE SCIENCE[88]

As required under Section 26(h) of TSCA, for each element of the draft risk evaluation of formaldehyde, peer reviewers should evaluate the degree to which "scientific information, technical procedures, measures, methods, protocols, methodologies, or models" are "employed in a manner consistent with the best available science." Responses to these charge questions should consider:

- "the extent to which the scientific information, technical procedures, measures, methods, protocols, methodologies, or models employed to generate the information are reasonable for and consistent with the intended use of the information";
- "the extent to which the information is relevant for the Administrator's use in making a decision about a chemical substance or mixture";
- "the degree of clarity and completeness with which the data, assumptions, methods, quality assurance, and analyses employed to generate the information are documented";
- "the extent to which the variability and uncertainty in the information, or in the procedures, measures, methods, protocols, methodologies, or models, are evaluated and characterized"; and
- "the extent of independent verification or peer review of the information or of the procedures, measures, methods, protocols, methodologies, or models."

2. WEIGHT OF SCIENTIFIC EVIDENCE

Section 26(i) of TSCA requires that decisions related risk evaluations "be based on the weight of scientific evidence" and Section 6(b)(3)(F) requires that "In conducting a risk evaluation under this subsection, the Administrator shall… describe the weight of the scientific evidence for the identified hazard and exposure."

EPA defines the "weight of scientific evidence" for TSCA as meaning: "a systematic review method, applied in a manner suited to the nature of the evidence or decision, that uses a pre-established protocol to comprehensively, objectively, transparently, and consistently, identify and evaluate each stream of evidence, including strengths, limitations, and relevance of each study and to integrate evidence as necessary and appropriate based upon strengths, limitations, and relevance" (40 CFR § 702.33). Please comment on whether each element (including chemistry and fate; environmental releases; environmental risk assessment; human health risk assessment including exposure, hazard, dose-response, weight of the evidence conclusions, risk characterization; and unreasonable risk determinations) of the draft risk evaluation, including the assessment of chronic cancer and noncancer effects incorporated from the draft IRIS assessment, achieved this standard?

[87] https://www.americanchemistry.com/industry-groups/formaldehyde/resources/acc-comments-on-the-charge-questions-and-committee-task-for-peer-review-of-draft-formaldehyde-assessment.

[88] To the extent that EPA thinks that the ultimate determination that something constitutes the best available science is a mixed issue of law and policy for the Agency to decide, this does not undermine the need to seek peer review of relevant technical issues that would inform such a determination.

3. INCLUSION OF AVAILABLE INFORMATION AND IDENTIFICATION OF KEY STUDIES

Section 6(b)(3)(F) of TSCA requires that "In conducting a risk evaluation… the Administrator shall… integrate and assess available information on hazards and exposures for the conditions of use of the chemical substance, including information that is relevant to specific risks of injury to health or the environment and information on potentially exposed or susceptible subpopulations identified as relevant by the Administrator." Section 26(j) further requires that "The Administrator shall make available to the public… a list of the studies considered by the Administrator in carrying out each such risk evaluation, along with the results of those studies."

Please comment on whether each element of EPA's draft risk evaluation appropriated and integrated available information as well as considered key studies. Please include consideration of how EPA's draft risk evaluation included alternative "scientific information, technical procedures, measures, methods, protocols, methodologies, or models". This should include comments on EPA's incorporation of relevant work by other authoritative bodies, including the European Union or World Health Organization.

4. EPA'S APPROACH TO CHRONIC CANCER RISKS

EPA's cancer guidelines state that "Where alternative approaches have significant biological support, and no scientific consensus favors a single approach, an assessment may present results using alternative approaches." The draft IRIS assessment recognizes the contribution of multiple key events in the biological progression of URT cancers, including cytotoxicity, cell proliferation, and mutations. However, the draft IRIS assessment did not consider a newer publication which provides a mode of action analysis that shows a progression from cytotoxicity and cell proliferation to mutation with strong dose-temporal concordance, thus showing that if you prevent cytotoxicity you can prevent mutagenicity (Thompson et al., 2020).

Based on reasonably available information, EPA used linear low-dose extrapolation for evaluating potential cancer risks, specifically nasal cancer, from chronic exposures to formaldehyde.

Please comment on the scientific rationale for using a linear low-dose extrapolation and discuss any potential alternative approaches that should be considered. In doing so, please consider the scientific standards required under TSCA in terms of decision-making based on the weight of the scientific evidence and if warranted, provide suggestions for an alternative modeling approach.

Please comment on the clarity and scientific support for the characterization of uncertainties and assumptions EPA provided related to the quantitative risk estimates using linear low-dose extrapolation and on the alternate biologically-based model. In particular, has EPA presented a clear explanation of the underlying assumptions, uncertainties, strengths, and weakness of the estimates derived by each model?

5. INDEPENDENT VALIDATION OF PAST PEER REVIEW RECOMMENDATIONS

TSCA requires that the EPA's actions be based on best available science, including "the extent of independent verification or peer review of the information or of the procedures, measures, methods, protocols, methodologies, or models." Based on your review of all elements of the draft risk evaluation,

please comment on whether EPA fully addressed relevant peer review recommendations, including for underlying assessment materials.[89] Please consider:

- October 2023 recommendations from the EPA HSRB[90]
- 2007, 2011, 2014, 2021, 2022, and 2023 recommendations from NASEM committees[91]

6. MODE OF ACTION

EPA's guidance on Application of Systematic Review in TSCA Risk Evaluations notes that "[m]echanistic evidence may provide support for biological plausibility and help explain differences in tissue sensitivity, species, gender, life-stage or other factors" and calls the "availability of a fully elucidated mode of action" or adverse outcome pathway "highly preferred" for TSCA risk evaluations. Please comment on the MOA and mechanistic evidence supporting the hazard and dose-response determinations for all endpoints.

7. TSCA IMPLEMENTATION

Section 26(o) of TSCA established the Science Advisory Committee on Chemicals to provide "independent advice and expert consultation … with respect to the scientific and technical aspects of issues relating to the implementation of" TSCA. Based upon your review of this draft risk evaluation, please provide additional advice regarding the scientific and technical aspects of issues relating to the implementation of TSCA for existing chemicals.

8. FIFRA SCIENTIFIC STANDARDS[92]

Section 25 of FIFRA contains specific scientific and peer review standards. Do you have "comments, evaluations, and recommendations" in order to "improve the effectiveness and quality of scientific analyses" and testing by EPA, based on your review of the risk evaluation? Do you have advice "with respect to the design, protocols, and conduct" of scientific studies?

9. RESOLVING PRIOR EPA DETERMINATIONS ON FORMALDEHYDE AND BEST AVAILABLE SCIENCE

OAR and OPP have repeatedly found that EPA's earlier IRIS assessment of formaldehyde was not "best available science" (as required under TSCA), noting that it "substantially lags the current scientific knowledge," excluded the best cutting-edge models "in publicly available, peer-reviewed information,"

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[89] Other peer review bodies have not been asked to resolve these issues. For example, NASEM acknowledged this limitation in 2023, noting "the present committee did not review specific changes in the 2022 Draft Assessment against the recommendations in the 2011 NRC report…" More information: https://www.americanchemistry.com/chemistry-in-america/news-trends/blog-post/2023/national-academies-buries-the-lede-in-review-of-epa-formaldehyde-assessment.

[90] https://www.epa.gov/system/files/documents/2023-10/july-2023-hsrb-report-woe-formaldehyde_0.pdf.

[91] 2023: https://nap.nationalacademies.org/27153; 2022: https://nap.nationalacademies.org/catalog/26289/review-of-us-epas-ord-staff-handbook-for-developing-iris-assessments; 2021: https://nap.nationalacademies.org/catalog/25952/the-use-of-systematic-review-in-epas-toxic-substances-control-act-risk-evaluations; 2014: https://nap.nationalacademies.org/catalog/18764/review-of-epas-integrated-risk-information-system-iris-process;2011: https://nap.nationalacademies.org/13142; and 2007: https://nap.nationalacademies.org/read/11170/chapter/7

[92] Inclusion of this question does not resolve the previously discussed issues around the role of FIFRA-specific advisory bodies.

and that other authoritative bodies have used these alternatives.[93] In addition, NASEM and the EPA HSRB have provided other comments on EPA's previous formaldehyde assessments.

Please comment on the extent to which this draft risk evaluation and underlying assessment materials address previous external review concerns.

CONCLUSION

As reflected in the above comments, EPA should conduct a full and transparent review of the science of formaldehyde. Unfortunately, the December 26 Notice sets up a process that is in in tension with important scientific and peer review standards related to best available science, balance, diversity, transparency and inconsistent with TSCA, FACA, EPA's own policies. EPA should reset this process based on the recommendations above.

[93] See the OAR, OPP, and other agency critiques of the earlier IRIS assessment of formaldehyde in ACC's November 17, 2023 comments to OAR, https://www.regulations.gov/comment/EPA-HQ-OAR-2004-0489-0263.