CleanEarth4Kids.org

January 13th, 2025

RE: Stop 1,4-Dichlorobenzene

CleanEarth4Kids.org supports the draft Reference Exposure Levels (RELs) for 1,4-Dichlorobenzene (1,4-DCB) proposed as part of the Air Toxics Hot Spots Program.[1] We commend the California Office of Environmental Health Hazard Assessment (OEHHA) for its commitment to protecting the right to clear air, especially protecting the health of children and other vulnerable populations. However, we recommend the strengthening of the proposed RELs, to protect the air that children in the public breathe.

The draft RELs for 1,4-DCB are as follows:[2]

- Acute REL (1-hour exposure): 8,700 µg/m³
- 8-Hour REL (repeated exposures): 10 µg/m³
- Chronic REL (long-term exposure): 5 µg/m³

While recognizing that these RELs are an important step forward in protecting clear air, we urge OEHHA to consider strengthening these limits to provide a higher level of protection, especially keeping sensitive populations like children in mind. Children are particularly vulnerable to airborne toxins like 1,4-DCB. Their respiratory systems are still developing and they have higher respiratory rates relative to their body weight, which creates a higher health risk.[3]

Given this information, we suggest that new draft RELs that are informed by scientific evidence, stricter than the current draft RELs, and are more protective of sensitive populations.

The recommended draft RELs for 1,4-DCB are as follows:

- Acute REL (1-hour exposure): 2,000-4,000 µg/m³
- 8-Hour REL (repeated exposures): 3-5 µg/m³
- Chronic REL (long-term exposure): 1-2 µg/m³

1,4-Dichlorobenzene Toxicity and Prevalence

1-4,-DCB is a classification of volatile organic compounds (VOC), which is found in products like moth, lice, and mite repellant, mildew control, toilet deodorizer, mold

[1] https://oehha.ca.gov/air/air-toxics-hot-spots
[2] https://oehha.ca.gov/air/air-toxics-hot-spots
[3] https://wwwn.cdc.gov/TSP/MMG/MMGDetails.aspx

control in tobacco seedbeds, and against tree-boring insects and ants.[4] According to California's Proposition 65, it is a listed carcinogen, with inhalation identified as the primary route of exposure.[5,6] Chronic exposure to 1,4-DCB is particularly dangerous and is linked to significant health risks, including conditions such as respiratory irritation, liver damage and cancer.[7]

The European Union has already banned the use of 1,4-DCB in mothballs and air fresheners, due to its potential link to cancer and other health risks, highlighting the transnational recognition of its risks.[8]

1,4-DCB still remains prevalent in the United States, posing a serious risk to residents, especially those who live in communities that are already overburdened by environmental pollutants.

Health Disparities Caused by 1,4-DCB Pollution

1,4-DCB disproportionately affects low-income and minority populations due to higher usage rates of consumer products containing this chemical and proximity to industrial emissions.[9]

The widespread use of 1,4-DCB in everyday products like mothballs, pest repellents, and toilet-deodorizer blocks has led to significant variation in exposure levels, highlighting the need for stricter recommendations to protect public health.[10]

While workplace concentrations can reach extremely hazardous levels (e.g., 4,350 mg/m^3 in manufacturing plants), even residential indoor exposure presents concerns.[11]

U.S. homes, on average, show indoor concentrations of 24 $\mu g/m^3$, with a wide disparity between average and median levels (1.7 $\mu g/m^3$), suggesting that some households experience disproportionately high exposure.[12]

It is critical that RELs be set to ensure protection across all environments, particularly for vulnerable populations, such as children and those with pre-existing health conditions.

The current REL proposals (5 $\mu g/m^3$ for chronic exposure and 10 $\mu g/m^3$ for repeated 8-hour exposure) do not sufficiently address the risk posed by higher exposure scenarios and should be further reduced to account for the significant indoor and

[4] https://www.sciencedirect.com/topics/pharmacology-toxicology-and-pharmaceutical-science/1-4
[5] https://oehha.ca.gov/proposition-65/proposition-65-list
[6] https://wwwn.cdc.gov/TSP/MMG/MMGDetails.aspx?mmgid=1206&toxid=126#
[7] https://www.epa.gov/sites/default/files/2016-09/documents/1-4-dichlorobenzene.pdf#:~:text=Chronic
[8] https://chej.org/14-dichlorobenzene-14-dcb#
[9] https://pmc.ncbi.nlm.nih.gov/articles/PMC4335682/
[10] https://www.sciencedirect.com/topics/pharmacology-toxicology-and-pharmaceutical-science/1-4
[11] https://pmc.ncbi.nlm.nih.gov/articles/PMC4335682/
[12] https://pmc.ncbi.nlm.nih.gov/articles/PMC4335682/

occupational exposure documented globally.

Public Health Recommendations

In addition to the lower RELs recommendation, we also call for enhanced public education on 1,4-DCB. There should be more comprehensive educational campaigns about the risks of 1,4-DCB exposure, and information about safer, non-toxic alternatives.

Additionally, there should be stronger air quality monitoring programs in vulnerable communities to identify and mitigate sources of 1,4-DCB.

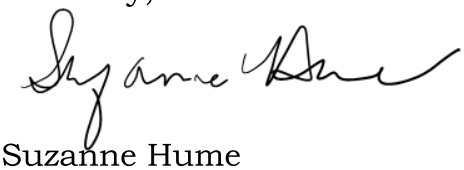
Clean Air for All

All children and people deserve to breath clear air. Exposure to air toxics like 1,4-DCB exacerbates respiratory conditions, such as asthma, which disproportionately affect children in underserved communities.[13] Strengthening the proposed RELs for 1,4-DCB is a crucial step in ensuring environmental justice and protecting the health of future generations.

We appreciate OEHHA's dedication to addressing toxic air contaminants and urge the agency to adopt stronger RELs and additional measures to protect public health.

The decisions we make today affect our children's health and future.

Sincerely,



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[13] https://pmc.ncbi.nlm.nih.gov/articles/PMC4210655/#