



To: Oregon Department of Environmental Quality
Subject: Cleaner Air Oregon Hazard Index Rulemaking Comment
Submitted via email: caohi2019@deq.state.or.us
Tuesday, December 17th, 2019

Oregon Physicians for Social Responsibility (PSR) is a statewide organization of more than 2000 health professionals and public health advocates working to protect human health from the gravest threats to health and survival. We have a 38-year history of advocating for environmental health for all Oregonians.

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We are submitting comments because of our grave concerns about the inadequacy of the proposed rules in protecting public health and the permissiveness to industry demonstrated by the proposed Hazard Index rules. We incorporate by reference the comments of the Multnomah County Health Department submitted on this matter on November 22, 2019.

We are concerned that the proposed rules are inadequate in that they do not consider the adverse effects of exposure to endocrine disrupting chemicals (EDCs) that have well known and well documented adverse effects on reproduction and development. There is no mention of endocrine disrupting chemicals in the documents providing the basis for this rulemaking, only a cursory mention of effects on the endocrine system as a target organ like any other, when in fact there is growing consensus in the scientific community that chemicals acting through this mechanism do not exert their effects in a simple dose response manner. Furthermore, "...chemicals with hormonal activity can have effects at external doses that are often considered safe by the regulatory community."^{1,2} EDCs exert their adverse effects at levels of ambient exposure that were previously not thought to be harmful, that is, at reference concentrations (RfCs). Because DEQ bases the Hazard Index of 1 for each air contaminant on previously established reference concentrations and these do not represent a 'safe' dose for endocrine disrupting chemicals which can have adverse effects on reproduction and development at the reference concentration, the proposed rules for hazard indices fail to regulate on the basis of current scientific understanding an entire class of toxic air contaminants.

We are also concerned that there are errors in DEQ's categorization of chemicals as non-cancer causing when the evidence for their potential to cause cancer is well documented. For example, from the list of 26 toxic air contaminants that DEQ does not expect to have developmental or other severe health effects:

- 1 Linda Birnbaum. 2012. Environmental chemicals: evaluating low dose effects. *Environmental Health Perspectives* 120(4):A143-4.
- 2 Laura N. Vandenberg, Theo Colborn, Tyrone B. Hayes et al. 2013. Regulatory decisions on endocrine disrupting chemicals should be based on the principles of endocrinology. *Reproductive Toxicology* 38:1-15.



- acrolein is a bladder and lung carcinogen,³
- crystalline silica is a known human carcinogen,⁴
- strong acid mists containing sulfuric acid (including Oleum, fuming sulfuric acid) are carcinogenic,⁵ and
- vinyl bromide is classified by the EPA as a probable human carcinogen.⁶

Furthermore, the list of 26 toxic air contaminants not expected by DEQ to have developmental or other severe health effects includes acrolein, fuming sulfuric acid, glutaraldehyde, difluoroethane, and hexamethylene diisocyanate. Please understand that :

- acrolein forms DNA adducts and inhibits DNA repair, and can cause acute lung injury and chronic obstructive pulmonary disease (COPD) and may cause asthma;^{7, 8}
- potential symptoms of overexposure to fuming sulfuric acid (oleum) are eye, skin, nose and throat irritation, pulmonary edema, bronchitis, emphysema, conjunctivitis, stomatitis, dental erosion, tracheobronchitis, skin and eye burns, dermatitis;⁹
- exposure to glutaraldehyde may cause throat and lung irritation, asthma and difficulty breathing, dermatitis, nasal irritation, sneezing, wheezing, burning eyes, and conjunctivitis;¹⁰
- exposure to difluoroethane can cause irritation of the skin, eyes, nose, throat and lungs causing pulmonary edema;¹¹
- hexamethylene diisocyanate can cause pulmonary edema, coughing, and shortness of breath.¹²

Astoundingly, included in this DEQ list of toxic air contaminants *not* expected to have developmental or other severe health effects is diesel particulate matter! Please accept our attached fact sheets on the adverse health effects of exposure to Particulate Matter in which we present current scientific evidence on the adverse effects of exposure to diesel particulate matter on development as well as cardiovascular, pulmonary and other systems.

It is baffling how DEQ can characterize these air contaminants as not having severe health effects. COPD, asthma, and pulmonary edema are life threatening health effects. Under what definition are they not severe? We have not reviewed the whole list to determine where there are other misclassifications of air contaminants, but

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- 3 Moon-shong Tang, Hsiang-tsui Wang, et al. 2011. Acrolein induced DNA damage, mutagenicity and effect on DNA repair. *Mol Nutr Food Res*. 55(9): 1291–1300.
- 4 National Toxicology Program. Silica, Crystalline (Respirable Size), Report on Carcinogens, 14th Edition. Research Triangle Park, NC: National Institute of Environmental Health Sciences, 2016.
- 5 Toxnet, HSDB Database. Oleum CASRN 8014-95-7 <https://toxnet.nlm.nih.gov/cgi-bin/sis/search/a?dbs+hsdb:@term+@DOCNO+1236>
- 6 <https://www.epa.gov/sites/production/files/2016-09/documents/vinyl-bromide.pdf>
- 7 Moon-shong Tang, Hsiang-tsui Wang, et al. 2011. Acrolein induced DNA damage, mutagenicity and effect on DNA repair. *Mol Nutr Food Res*. 55(9): 1291–1300.
- 8 Bein K, Leikauf GD. (2011) Acrolein - a pulmonary hazard. *Mol Nutr Food Res* 55(9):1342-60. doi: 10.1002/mnfr.201100279.
- 9 Toxnet, HSDB Database. Oleum CASRN 8014-95-7 <https://toxnet.nlm.nih.gov/cgi-bin/sis/search/a?dbs+hsdb:@term+@DOCNO+1236>
- 10 <https://www.cdc.gov/niosh/topics/glutaraldehyde/default.html>
- 11 <https://nj.gov/health/eoh/rtkweb/documents/fs/0715.pdf>
- 12 <https://www.epa.gov/sites/production/files/2016-09/documents/hexamethylene-diisocyanate.pdf>



simply present these as evidence of the shortcomings of DEQ's analysis and conclusions on the assignment of Hazard Indices.

We agree with the comments submitted by the Multnomah County Department of Health and strongly urge DEQ to accept the recommendation of its own HI Technical Advisory Committee and amend the proposed rules to include the 26 'orphaned-toxic' chemicals in those regulated at a Hazard Index of 3 as the most health protective permitted by current state law.

Finally, if, as DEQ staff have stated, "the overarching goal of Cleaner Air Oregon is to protect the public from exposure to toxic air contaminants emitted from industrial facilities", then Cleaner Air Oregon has failed to meet that goal. The proposed rules do not and cannot prevent exposure to toxic air contaminants by this method as long as emissions are permitted that exceed a Hazard Index of 1.

Thank you for this opportunity to provide comments.

Kelly Campbell, Executive Director
Damon Motz-Storey, Healthy Climate Program Director
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Theodora Tsongas, PhD, MS, Environmental Health Working Group

Oregon Physicians for Social Responsibility

Attachments (3):

[Airborne Particulate Matter and Public Health Factsheet](#)

[Diesel Exhaust & Neurodevelopmental Disorders Resources](#)

[Diesel, Small Particulate Matter and Public Health Factsheet](#)

https://www.oregonpsr.org/environmental_health_factsheets

