

January 25th, 2024

Alexander Hoehn-Saric, Chair
U.S. Consumer Safety Product Commission
4330 East-West Highway
Bethesda, MD 20814

RE: Docket No. CPSC-2019-0020 - “Safety Standard for Residential Gas Furnaces and Boilers”

Dear Chair Hoehn-Saric,

On behalf of Physicians for Social Responsibility (PSR) and the over 120 undersigned health professionals, thank you for the opportunity to comment on the newly proposed safety standard for residential gas furnaces and boilers. PSR is a national advocacy organization that represents over 28,000 physicians, nurses, health care professionals, medical students and concerned citizens throughout the United States. We strongly urge the CPSC to implement and strengthen the new standard in the interest of protecting public health and preventing illnesses such as carbon monoxide poisoning from furnaces and boilers.

The new standard is intended to limit the amount of carbon monoxide (CO) produced by and leaking from furnaces and boilers. Reducing any amount of ambient CO in residences is important to protecting the health of consumers and those who maintain and repair these appliances, as CO poses a real and tangible threat to health.

Severe health threats from CO exposure

Exposure to CO can lead to CO poisoning, a potentially fatal and disabling illness. According to the Center for Disease Control and Prevention, each year more than 400 Americans die annually due to unintentional CO poisoning, and CO poisoning causes more than 100,000 emergency room visits and more than 14,000 hospitalizations.¹ CO's harms are due to oxygen displacement in the blood. CO binds to the hemoglobin in red blood cells, which normally binds to oxygen and distributes it to every cell in the human body. When CO displaces oxygen and binds to hemoglobin instead, the body has no way of ridding itself of carbon dioxide waste and nourishing cells with oxygen, thus preventing cellular respiration. This causes widespread tissue damage across all body systems. Even when a person survives a CO poisoning event, they can be left permanently weakened and disabled from damaged cardiac, nerve, and/or brain tissue.²

CO poisoning can also lead to devastating neurological and cognitive impacts. Survivors of CO poisoning are at higher risk of dementia than those without CO poisoning, and the oxidative

¹ Center for Disease Control and Prevention. 2023. *Carbon Monoxide Poisoning*. <https://www.cdc.gov/co/faqs.htm>

² Eichhorn L, Thudium M, Jüttner B. The Diagnosis and Treatment of Carbon Monoxide Poisoning. *Dtsch Arztebl Int*. 2018 Dec 24;115(51-52):863-870. doi: 10.3238/arztebl.2018.0863.

stress and inflammatory responses to CO poisoning can cause widespread damage to both brain tissue and nerve tissue throughout the body.³ Prolonged exposure to moderate to high concentrations of CO causes reduced brain function, impaired vision and coordination, headaches, dizziness, confusion, and nausea. Even at low concentrations, CO exposure can cause acute fatigue in healthy people and chest pain in people with heart disease.⁴ Chronic low-level CO concentration exposure is associated with adverse cardiovascular, central nervous system and fetal development effects such as heart attacks, congestive heart failure, ischemic heart disease, sensory-motor deficits, emotional changes, congenital defects, and low birthweight.⁵ Yet because CO poisoning and CO exposure effects can present as flu-like symptoms, they are often misdiagnosed and wrongly attributed.

Since CO is generated from the combustion of fossil fuels like those used in furnaces and boilers across the country, it is critically important for the CPSC to ensure these home appliance CO sources are as safe as possible and held to the highest standard of safety to prevent injury and impairment. Passing and implementing the new safety standard for residential furnaces and boilers will actively protect consumers and maintenance workers from the “silent killer” that is CO.

PSR and the undersigned health professionals strongly urge the CPSC to adopt and strengthen the safety standard for residential gas furnaces and boilers in the interest of consumer and maintenance personnel health and wellbeing. We propose the following recommendation to strengthen the standard:

- Carbon monoxide alarm thresholds should be lowered to align with health organization & safety science industry guidelines: **2% COHb concentration (Centers for Disease Control & Prevention guideline⁶)**

Thank you again for the opportunity to comment on the proposed safety standard for residential furnaces and boilers. We look forward to your prompt and strong action.

Sincerely,

Physicians for Social Responsibility

³ Wong CS, Lin YC, Hong LY, Chen TT, Ma HP, Hsu YH, Tsai SH, Lin YF, Wu MY. Increased Long-Term Risk of Dementia in Patients With Carbon Monoxide Poisoning: A Population-Based Study. *Medicine* (Baltimore). 2016 Jan;95(3):e2549. doi: 10.1097/MD.0000000000002549.

⁴ Environmental Protection Agency. 2023. *Carbon Monoxide's Impact on Indoor Air Quality*. https://www.epa.gov/indoor-air-quality-iaq/carbon-monoxides-impact-indoor-air-quality#Health_Effects

⁵ Wilbur, S., Williams, M., Williams, R., Scinicariello, F., Klotzbach, J. M., Diamond, G. L., & Citra, M. (2012). Toxicological Profile for Carbon Monoxide. Agency for Toxic Substances and Disease Registry. <http://www.ncbi.nlm.nih.gov/books/NBK153693/>

⁶ Centers for Disease Control and Prevention. 2023. *Clinical Guidance for Carbon Monoxide (CO) Poisoning*. https://www.cdc.gov/disasters/co_guidance.html

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