

# The Facts About PVC Pipe & Wildfires

Hi I'm Piper, and I'm a chemical engineer. I've been seeing a lot of news articles spreading misinformation about PVC pipes and wildfires. Here's some claims I frequently encounter and why they're wrong.



PVC pipe is a primary source of benzene released into the environment during wildfires.



**WRONG.** The primary source of benzene in wildfires is from the combustion of wood. Burning homes and other structures are secondary sources. Research shows benzene is not produced in any significant amount from PVC combustion in an open-air fire.<sup>1</sup>



If PVC pipe burns or melts in a wildfire it produces benzene that contaminates the water supply.



**WRONG.** This does not happen in the conditions of a wildfire, or even a building fire. PVC pipe can soften and develop an intumescent char if directly exposed to fire, but with the heat it will exceed its maximum operating temperature well before the temperature where the material breaks down. Under wildfire conditions, other combustion reactions dominate, and benzene is typically not produced from PVC pipe involved in the fire.<sup>2</sup>



The primary cause of benzene contamination in the water supply following wildfires must come from melting PVC water pipes.



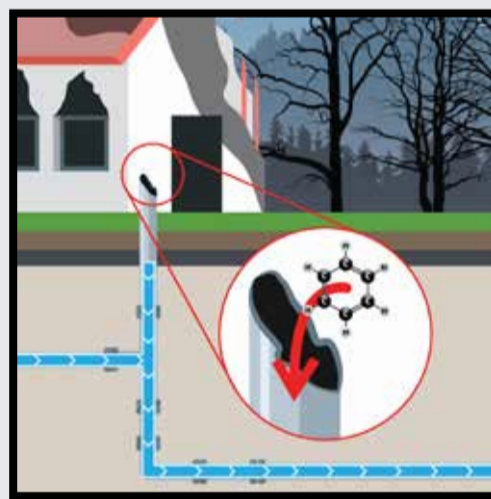
**WRONG.** The most likely source of benzene in municipal water systems after a wildfire is not from burning or melting water mains but from outside contaminants entering the system via damaged service lines.<sup>3</sup>



Forest fires create large amounts of benzene from the trees and houses that are burned. That benzene can be found in the debris and smoke.



Water flowing through the system to fight the fire creates suction in the system called 'backflow.'



Benzene rich smoke and debris is drawn into the water system by the backflow via damaged service lines.

PVC water pipes commonly melt, or are damaged, during wildfires.



**WRONG.** Santa Rosa, CA and Paradise, CA have confirmed that PVC water transmission and distribution mains were unaffected by the forest fires that impacted their communities in 2017 and 2018.<sup>4</sup>



The benzene produced by wildfires can accumulate in the soil and permeate through intact PVC pipes into the water supply.



**WRONG.** Studies confirm that gasketed PVC pipe is highly resistant to permeation from a wide range of chemicals, including benzene.<sup>5</sup>



1. Center for Disease Control and Prevention. (2018, April 18). CDC | Facts About Benzene

2. NSF International. (2015). Environmental Product Declaration for PVC Water and Sewer Pipe

3. DeCaria, D. (2019, May 23). Forest Fires Produce the Benzene Contaminating Water

4. City of Santa Rosa Water. (2018). Technical Memorandum 1, Post-Fire Water Quality Investigation: Analysis of Cause of Water Contamination

5. Berens, A. R. (1985). Prediction of Organic Chemical Permeation Through PVC Pipe. Journal American Water Works Association, 77(11), 57-64