

## Butyl acrylate discussion

On February 6, residents in both Ohio and Pennsylvania were evacuated from their homes to protect their health and safety as Norfolk Southern conducted a vent and burn due to concerns over a potential uncontrolled explosion of cars carrying vinyl chloride.

On February 8 around 5 p.m., it was announced that residents in both Ohio and Pennsylvania would be allowed back into their homes for a voluntary re-entry.

As residents were allowed back into their homes, they had the ability to request in-home air monitoring. Norfolk Southern's contractor, CTEH, used handheld photoionization detectors (PIDs) to detect the presence of chemicals as part of that in-home air monitoring.

These PIDs can detect total volatile organic compounds (VOCs), including vinyl chloride and n-butyl acrylate, two of the chemicals of concern from the derailment. However, federal and state officials learned on March 10 that the handheld PIDs were not sensitive enough to measure the n-butyl acrylate at the public health air screening threshold set for the chemical. The current understanding is that the PID equipment used to clear homes may have only been able to detect n-butyl acrylate at approximately 160 parts per billion (ppb). However, the health and safety standard established for residents to safely occupy their homes is 20 ppb for intermediate exposure (15-364 days of continuous exposure). Therefore, at the time when these assessments were conducted, no data was available to determine if residents returning to their homes near the site were exposed to n-butyl acrylate above the intermediate exposure threshold of 20 ppb.

N-butyl acrylate is a clear, flammable liquid with a strong, fruity odor. It has a low odor threshold, which means it can be smelled at very low concentrations. For example, n-butyl acrylate has reported odor thresholds (when you can start to smell it) of 0.1 – 35 ppb. Mild irritation of the eyes, nose, throat, and respiratory tract may occur for some individuals exposed for short time periods to n-butyl acrylate above 50 ppb.

In the time since home testing originally occurred, additional monitoring has been included in the area of the derailment, such as the EPA Trace Atmospheric Gas Analyzer (TAGA) bus, sorbent tubes and passive badges, which have been used for monitoring and sampling of n-butyl acrylate at the health and safety standard level. While the TAGA bus, which has been on location in since the beginning of March, has reported some exceedances of the 20 ppb intermediate exposure threshold (exposures lasting 15 – 364 days), these have been largely related to work going on directly at the site cleanup efforts, and only within a short distance (<100 feet) from the work being done. Additionally, in the event an exceedance is met for an extended period of time, emission mitigation methods are utilized at the site during excavation activities.

Federal agencies including the EPA and Agency for Toxic Substances and Disease Registry/CDC (ATSDR), as well as state agencies in Ohio and Pennsylvania are committed to protecting the health and safety of residents.

We know from the Assessment of Chemical Exposure (ACE) surveys conducted in both Pennsylvania and Ohio that many residents have reported symptoms that are similar to those related to exposure to n-butyl acrylate. We want you to know that your voices have been heard. In fact, nearly XX% of people surveyed in Ohio and XX% of people surveyed in Pennsylvania reported irritation to nose, throat, eyes,

and other symptoms that would be consistent with exposure to n-butyl acrylate. No long-term effects are expected from any potential short-term exposure. However, because n-butyl acrylate is a “sensitizer,” repeated exposure may increase further sensitivity to this chemical. Further, individuals with pre-existing respiratory conditions, such as asthma, emphysema, and chronic obstructive pulmonary disease (COPD), may be more sensitive to exposure to this class of chemicals or this type of exposure may exacerbate pre-existing conditions.

Currently, members of the public are recommended to contact their primary care physician or visit a clinic if they have health concerns. If you have specific questions about potential exposures related to n-butyl acrylate, you can call:

- Poison Control Center (made up of Pittsburgh and Ohio poison centers) incident hotline at 1-877-603-0170, press 2 for PA residents.
- 1-877-PA-HEALTH (1-877-724-3258)

As part of this response, work will continue to protect the health and safety of residents affected in Ohio and Pennsylvania.