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ABSTRACT

USING OLFACTOMETRY TO EVALUATE ODOR PERSISTENCY FROM SITES EMITTING ODOR

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Summary

An “Odor Attribution Study” gathering data from a series of specific odor sources that impacted a community has been completed. The odor sources included a landfill, a material recovery operation, a composting facility and a wastewater treatment plant. These facilities are located upwind of the impacted community.

The objectives were to identify from each odor source of each facility the odor characteristics and if possible, the odorant compounds causing the odor impacting the community. Then, to determine the relative contribution and variability of the odors from the different emitting sources. The method includes using the Odor Profile Method to identify each gas sample’s odor character, intensity and its dilution (persistency). Odor persistence by olfactometry follows the ASTM E679-04 standard practice with a flow rate of 20 L/min.

Odor persistency is a term used to describe the rate of decrease of how an odor is perceived. Intensity decreases as the odor characteristic is diluted, i.e. in the atmosphere downwind from the odor source. Odor intensities decrease with dilution at different rates for different odors. Thus, olfactometer was used to dilute each sample from different locations with 7 dilution steps. This generated a persistency curve for each odor character and its intensity for each sample.

The results showed that with higher dilution ratio, many of the odor characteristics disappeared. An interesting finding was that musty odor can be masked by other odors that are of higher odor intensity e.g., fecal or rancid odors.

Indicate preference of kind of presentation
- x Oral Communication
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Indicate topic of your work for the conference:

- □ Policy and associated regulations for odour and air quality.
- x Odour/VOC measurement, monitoring & sensor technologies.
- x Odour/VOC perception, impact, formation and dispersion.
- □ GHG emissions particulate matter and industrial emissions.
- □ Source characterization and odour/VOC mapping.
- □ Odour/VOC abatement, mitigation and neutralization.
- □ Odour/VOC from waste water, sewer systems and livestock.
- □ Air emissions and sustainable solutions for waste handling
- □ Community engagement, social media and citizen action.
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