

Frequently Asked Questions about Grimm's Fuel Compost Facility

1) What is released into the air from a yard debris composting facility?

The composting of yard debris releases odors, bioaerosols, dust and gases into the air.

- a) Odors: An odor is what people smell. We can smell because odor molecules bind to smell receptors in our nose. These receptors send signals to the brain, so the smell can be identified. Our brains connect emotions, memories and physical feelings with certain smells. Some odors are pleasant, and others are unpleasant.
- b) Bioaerosols: Compost facilities can release into the air a wide range of things collectively called "bioaerosols." The mix of bioaerosols is different from facility to facility. Bioaerosols include things like fungi and fungal spores, bacteria, endotoxin (a component of bacterial cell walls), dust that contains microbial components and pieces of fungal cells. Many of the components of bioaerosols are naturally occurring in the environment.
- c) Dust: Dust is small particles that can be carried by the wind. Dust from compost facilities mainly includes pieces of what is being broken down into compost (plants, wood, soil, and pollen) but can also include microorganisms involved in the composting process (bacteria, fungi, and spores).
- d) Gases: As with all decomposing organic material, the composting process releases gases into the air. These gases can include methane, carbon monoxide, ammonia, hydrogen sulfide, and alcohols and other volatile organic compounds (VOCs).

2) What are the odors that are coming from Grimm's composting facility?

Grimm's Fuel composts organic material such as leaves, grass clippings, wood, and other yard debris. Composting is a natural process where bacteria and fungi breakdown materials. If the composting process does not allow enough oxygen for the decomposition, bad smelling odors can be created and released into the air.

It can be challenging to identify all the molecules that people detect as smells. Many odors are due to volatile organic compounds (VOCs). VOC is a general name for chemicals that can easily turn into gases. Research has found that a majority of VOCs emitted from the natural decomposition processes at composting facilities similar to Grimm's are alcohols which have fairly low toxicity. Alcohols are generally hundreds to thousands of times less toxic than other VOCs such as naphthalene and benzene.

3) Are there health effects from living near a compost facility?

Odors can cause emotional and physical responses that can be pleasant or unpleasant. Smelling unpleasant odors does not necessarily mean that a person is being exposed to something that is toxic to the body. However, some people might be more sensitive to odors than others and have stronger physical or emotional reactions to bad odors. When this happens, it can worsen quality of life. The most commonly reported odor-related physical symptoms are headache, dizziness, nausea, and light headedness. Unpleasant odors can also result in an emotional response, which can be stressful and affect one's sense of wellbeing. If you experience these symptoms, they do not necessarily mean that permanent damage is being done to the body. Odor-related symptoms typically go away when the odor goes away.

Breathing in the dust particles from compost facilities can cause respiratory irritation or allergy symptoms in sensitive people. Dust from compost facilities would not be expected to pose greater health risks than dust from sources like farms or wood grinding facilities.

As noted above, compost facilities can release bioaerosols into the air. Bioaerosols are found in highest concentrations on the composting site and are more of a health concern for compost workers. Bioaerosols are heavy and settle out quickly so they do not disperse or travel far from a composting facility. A small number of studies have tried to see if living close to a composting facility has an effect on health (Pearson 2015). These studies suggest, but do not prove, that people who live near a composting facility (within about 200 meters) report symptoms such as allergic and other respiratory symptoms, eye and throat irritation, skin rashes and gastrointestinal ailments like vomiting and diarrhea more often than people further away. These studies do not tell us if these reported symptoms are due to sensitivity to odor or a health effect related to bioaerosols, dust, or other substances released into the air from composting.

There are no standards or regulatory limits for odors or for bioaerosols in the U.S. There are also no research studies to tell us what level of exposure to compost-related bioaerosols can result in symptoms.

4) Could my headaches, nausea, or dizziness be caused by living near Grimm's Fuel?

You should discuss your symptoms with your health care provider. Odors can cause people to feel these symptoms, but the cause could be something unrelated to living near Grimm's Fuel.

5) If odors make me feel sick, how can I decrease exposure to them in my home?

Closing doors and windows when the outdoor odor is strong may help in some situations. Another way to address strong odors is to turn off heating, ventilation or air conditioning (HVAC) systems because these systems draw air from the outdoors and into your home. Frequent cleaning and use of air filters may also help in some situations.

With changes being made to Grimm's Fuels operations, there should be less odor released from their composting activities. Please report odors to DEQ and Metro so they can track if changes are helping or not. Report the following: when the odor is strongest, where you smell it the most, how long it lasts, and a description of the odor.

Report odors to DEQ online at www.oregon.gov/deq/Get-Involved/Pages/File-Pollution-Complaint.aspx or by calling 1-888-997-7888.

Report odors to Metro online at www.oregonmetro.gov/facilitycomplaints or by calling 503-234-3000

6) Is the Department of Environmental Quality (DEQ) performing air monitoring?

DEQ has not conducted air monitoring at Grimm's or any compost facility in Oregon. DEQ instead is focusing on what Grimm's can do to compost in a manner that significantly reduces offsite odors.

As described in more detail in question 8, there is no scientific basis for determining which of the multiple and complex components of compost emissions are most relevant to health and which should be tested. There is also limited scientific basis that the Oregon Health Authority (OHA) can use to interpret any environmental sampling results related to composting in terms of health significance. Therefore, neither OHA nor Washington County Public Health are recommending that DEQ do environmental sampling or monitoring at Grimm's.

DEQ has determined that Grimm's needs to do more to reduce offsite odors and has drafted a permit modification that incorporates improvements that Grimm's is to take to further reduce offsite odors.

DEQ is aware that the community recommends that Grimm's obtain an air quality permit from DEQ. DEQ intends to work with Grimm's to meet the performance standards in the solid waste permit and ensure that Grimm's operates the facility in compliance with the solid waste permit. If Grimm's is still contributing to offsite concerns after complying with the solid waste permit, then DEQ will evaluate whether to require air quality permits of the compost sector as a future consideration.

7) Is DEQ performing environmental sampling?

Grimm's conducts quarterly water quality monitoring as required by the storm water permit that Clean Water Services oversees.

8) Will Oregon Health Authority (OHA) perform a public health assessment for the neighborhoods surrounding Grimm's?

To do a health assessment, OHA would need scientific information about which specific components of compost emissions could cause health effects and in what quantities. OHA has no scientific basis to determine what specific substance DEQ should test for and no scientific basis to interpret any resulting environmental sampling data in terms of health significance. Therefore, neither OHA nor Washington County Public Health are asking DEQ to perform additional environmental sampling, and OHA is unable to conduct a public health assessment related to Grimm's Compost. More information about OHA's public health assessment process is available at: www.healthoregon.org/ehap.

9) Who do I call if I have more questions?

If you have health concerns or questions, please contact your health care provider.

If you would like to report an odor or other issue to Metro visit: www.oregonmetro.gov/facilitycomplaints OR call 503-234-3000 and speak to a Metro staff person Monday – Saturday 8:30 a.m. – 5 p.m.

If you would like to report an odor or other complaint to DEQ, please visit DEQ's website at: www.oregon.gov/deq/Get-Involved/Pages/File-Pollution-Complaint.aspx. You can file a complaint on-line **or call in a complaint at 1-888-997-7888**. Report pollution problems by telephone to DEQ anytime, day or night. Please leave a detailed message, including your name and phone number. DEQ staff will return your call during regular complaint intake hours within two hours of receiving your call to complete your report. DEQ's complaint intake hours are 8 a.m. to 4 p.m. Monday through Friday.

References:

- Herr, C., zur Nieden, A., N., Bödeker, R., Gieler, U., Eikmann, T. (2003a). Ranking and frequency of somatic symptom in residents near composting sites with odor annoyance. *Int. J. Hyg. Environ. Health* 206, 61-64.
- Herr, C., zur Nieden, A., Jankofsky, M., Stilianakis, N., Bödeker, R., Eikmann, T. (2003b). Effects of bioaerosol-polluted outdoor air on airways of residents: a cross sectional study. *Occup. Environ. Med.* 60, 336–342.
- Kumar, A., Alaimo, C.P., Horowitz, R., Mitloehner, F.M., Kleeman, M.J., Green P.G. (2011). Volatile organic compound emissions from green waste composting: Characterization and ozone formation. *Atmospheric Environment* 45:1841-1848.
- Pearson, C., Littlewood, E., Douglas, P., Robertson, S., Gant, T.W., Hansell, A.L. (2015). Exposures and health outcomes in relation to bioaerosol emissions from composting facilities: a systematic review of occupational and community studies. *J. Toxicol. Environ. Health B: Crit. Rev.* 18, 43–69.
- S.M. Walser et al. (2015). Evaluation of exposure–response relationships for health effects of microbial bioaerosols – A systematic review. *International Journal of Hygiene and Environmental Health* 218, 577–589.
- Oregon Administrative Rules 340-245-8030 Table 3.