

Health and Safety Precautions

Municipal Yard Waste Composting Operator's Fact Sheet #9 of 10

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Proper attention to health and safety concerns can minimize most occupational risks at yard waste recycling facilities. While composting and chipping are not inherently dangerous activities, precautions are necessary to protect against injury and possible illness.

Safety concerns relate primarily to equipment. If front-end loaders or other standard heavy equipment is used, ear protection and other normal safety precautions apply. Composting and chipping equipment have additional dangers. These typically contain powerful mixing flails, knives, or hammers that rotate at a high rate of speed, and should therefore be well shielded from human contact. Additional precautions must be followed when specialized windrow turning equipment is used. As these flails rotate through the compost windrow, they will eject foreign matter from the windrow. Stones and other foreign objects can become dangerous projectiles, and can be thrown a long distance in front of or behind the turning equipment. Thus, equipment operators must insure a safe clearance on all sides of the operating machinery.

When stockpiling chips or compost be sure to plan for the possibility of fires. Dry chips and leaves are particularly susceptible to stray sparks from cigarettes or welding equipment. Fires are rarely a problem in outdoor composting operations. Because the inside of the windrows should be damp, compost normally burns poorly. However, if the material does dry out and gets too hot, combustion can occur. Organic material can ignite spontaneously at moisture contents between 25 and 45 percent. This sometimes happens to stored hay or silage, and can happen to compost as well. First, however, the material has to heat to over 200° F (93° C), which typically requires a pile over 12 feet high. Keeping the windrows less than 10 feet tall, and turning the compost when temperatures exceed 140° F (60° C), not only constitutes good compost management, but provides fire protection as well. In the event of fire, whether by

spontaneous combustion or vandalism, the site must have delivery capacity and an adequate water supply. Maintaining clear aisles between windrows will provide easy access in case of fire.

Health concerns relating to compost are dependant both on the individual and on the material being composted. While few human pathogenic organisms are found in vegetative wastes or farm animal manures, normal sanitary measures (i.e., washing hands before touching food, eyes, etc.) are important. While many compost operations have run smoothly for years without unusual health or safety problems, there are some unique concerns in composting of which workers should be aware. By understanding these concerns, it will be easier to recognize problems early, and seek an appropriate remedy before serious complications develop.

Just as individuals vary in their resistance to disease, a few individuals may be particularly sensitive to some of the organisms in compost. The high populations of many different species of molds and fungi in an active compost process can cause allergic reactions in sensitive individuals, though most experience no adverse reaction. Conditions that may predispose individuals to infection or an allergic response include: a weakened immune system, allergies, asthma, some medications such as antibiotics and adrenal cortical hormones, or a punctured eardrum. Workers with these conditions should not normally be assigned to a composting operation.

To minimize the risk of infection, Occupational Safety and Health Administration (OSHA)-approved dust masks or respirators should be worn under dry and dusty conditions, especially when the compost is being turned. If, following these precautions, workers still develop an infection or have an allergic reaction to compost, they should consult a medical professional.

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