

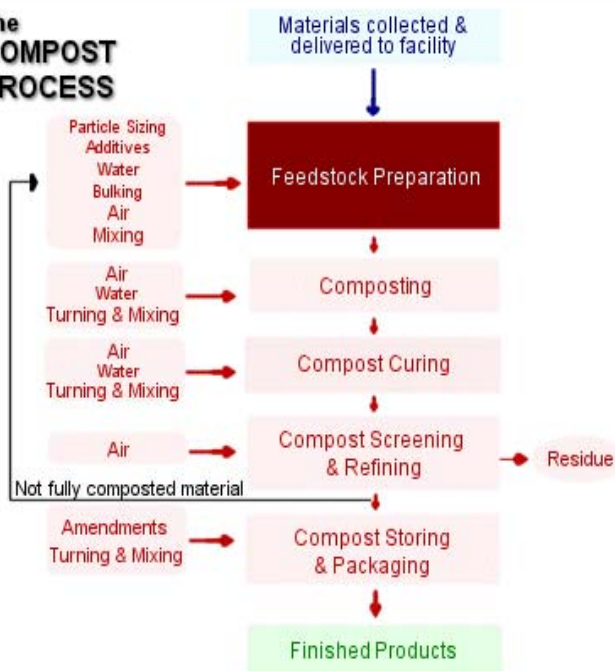
Composting Operations (Screenshot 1)

Introduction 1.1p1

Feedstock Preparation

Primarily the preparation of feedstock is to enhance microbial activity by establishing an environment that is optimum for microbial growth and diversification. Under optimum conditions, the decomposition of waste can be relatively fast and odor free.

The COMPOST PROCESS



The preparation of feedstock includes several physical and biological observations and adjustments. It is important for the quality of the end product and the health of the microbial population to remove as much inert (inorganic) and toxic material as possible.

The feedstock can be sized and its density adjusted to provide for an optimum microbial environment. Moisture, inoculants, and nutrients can be adjusted to optimize the feedstock.

The waste material can be aerated and mixed increasing the oxygen content and distributing nutrients and oxygen throughout the feedstock. After the feedstock has been cleaned and adjusted, it is placed in a vessel or used to construct a pile or windrow.

There are various preparations specific to the construction of a pile or windrow that can optimize the microbial environment.

Composting Operations (Screenshot 2)

Constructing Windrows 2.1p12

Constructing Windrows

Construct windrow or load vessel with the mixed and aerated compost. This is the final step of the feedstock preparation phase.

Windrows are designed to let the feedstock breathe while maintaining an optimum temperature. Large windrows can limit aeration to the middle of the pile while small windrows may not reach and maintain an optimum temperature. The optimum size for a windrow varies by the type of feedstock, seasonal conditions, and type of equipment used to farm the compost. As a rule of thumb, most windrows constructed with a bucket loader are twice as wide as they are high. The length of a windrow is only restricted by the site boundaries.

Care should be turned when constructing a windrow not to travel over the material and compact it.

It is important to consider existing weather conditions when constructing windrows. The weather plays an integral part in all phases of the composting process. During cold winter weather conditions, windrows should be constructed so that the top angles to a peak. This design will enable the windrow to trap more heat. During the warm summer weather conditions, windrows should be constructed so that the top is more flat. This design enables the windrow to dissipate an increased amount of excess heat.



Constructing windrows



Windrows

Landfill Operations (Screenshot 1)

The Hydrologic Cycle

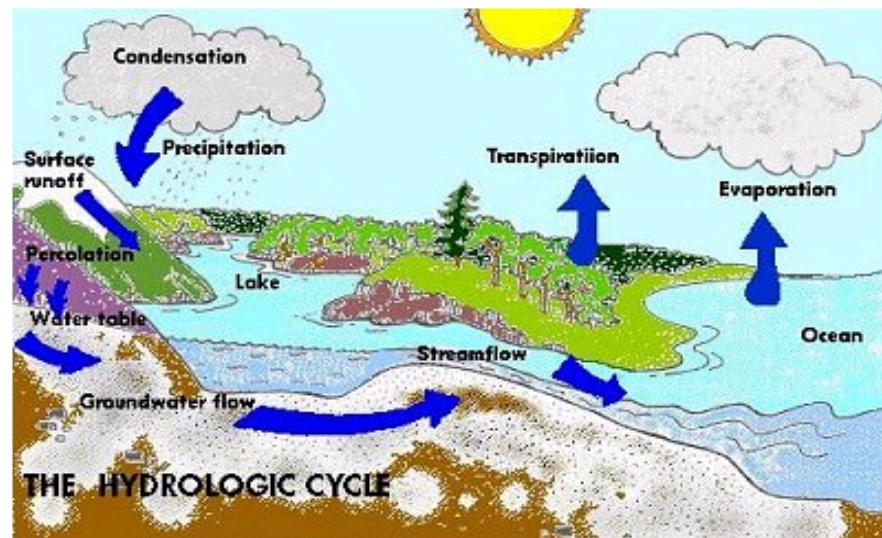
3.1

The Hydrologic Cycle

Related web sites: [The Hydrologic Cycle](#) and [Natl Weather Service](#)

Hydrology is the study of water and its distribution on the Earth. The hydrological cycle consists of water entering the atmosphere through evaporation and evapotranspiration and returning through condensation and precipitation.

The largest amount of water vapor enters the atmosphere by evaporation from the ocean surfaces. The oceans cover about 70 percent of the Earth's surface. Additional water evaporates from lakes, rivers, moist soil, and other surfaces.



Landfill Operations (Screenshot 2)

Quiz: Question 3.1q1



Water covers _____ of the Earth's surface.

- 40%
- 50%
- 70%
- 90%

Click the button beside your choice. The answer will be displayed here.

Solid Waste Management (Screenshot 1)

Landfill Operations: Site Work 3.1p1

Site Work

Site work (below) for the construction of a landfill can include a wide variety of general activities. Some of the activities in this category are clearing, grubbing, debris removal, excavation and embankment, road development, installation of stormwater controls, preparation of building pads and other miscellaneous construction items.



Clearing and grubbing is sometimes required on a site before earthwork excavations can begin. Trees, brush, buildings, and other objectionable material must be removed from the construction limits of the landfill. After the construction limits have been cleared, grubbing provides for additional preparation of the work areas by removal of stumps, roots, and other matter that exists below ground. Clearing and grubbing is important to the structural integrity of earthwork construction.

Earthwork excavation is used to obtain design subgrade of the landfill cell and trenches and to acquire materials necessary for borrow, liner, and collection layers. During the excavation process, exposed material should be examined and compared to the soil report and soil profile.

Solid Waste Management (Screenshot 2)

Composting: Maturity and Post-Processing 3.7p1

Maturity and Post-Processing

Designing the curing pad also begins with calculating the area requirement. The planner or designer will calculate the area for the curing pad using the same formulas listed in the previous topics. The difficulty with calculating the area for the curing pad is in determining the volume of compost and the time requirement for maturity. This will depend on the level of curing required by the user or market. A shrinkage value for the maturity phase may be required to accurately determine the area requirement. However, the shrinkage rate will be much smaller than with the active composting phase.



Designing the post-processing phase can be as detailed and complex as the preprocessing phase depending on the technology used and the requirements of the end user. Post-processing can include screening, testing, inert removal, and bagging (*photo at left*).

Solid Waste Management (Screenshot 9)

Household Hazardous Waste: Toxicology – L3_2T

Toxicology

Toxicology is the study of chemical toxicity, or the degree to which a chemical or substance has a harmful effect on us or other living things. Current information about the toxic effects of chemicals comes from the following two sources:

- Epidemiological studies in which numbers of affected people in one group are compared to numbers of affected people in another group.
- Animal studies, which provide most of what we know about the dangerous effects of toxic substances.

