



Hennepin County Community Recycling Ambassadors

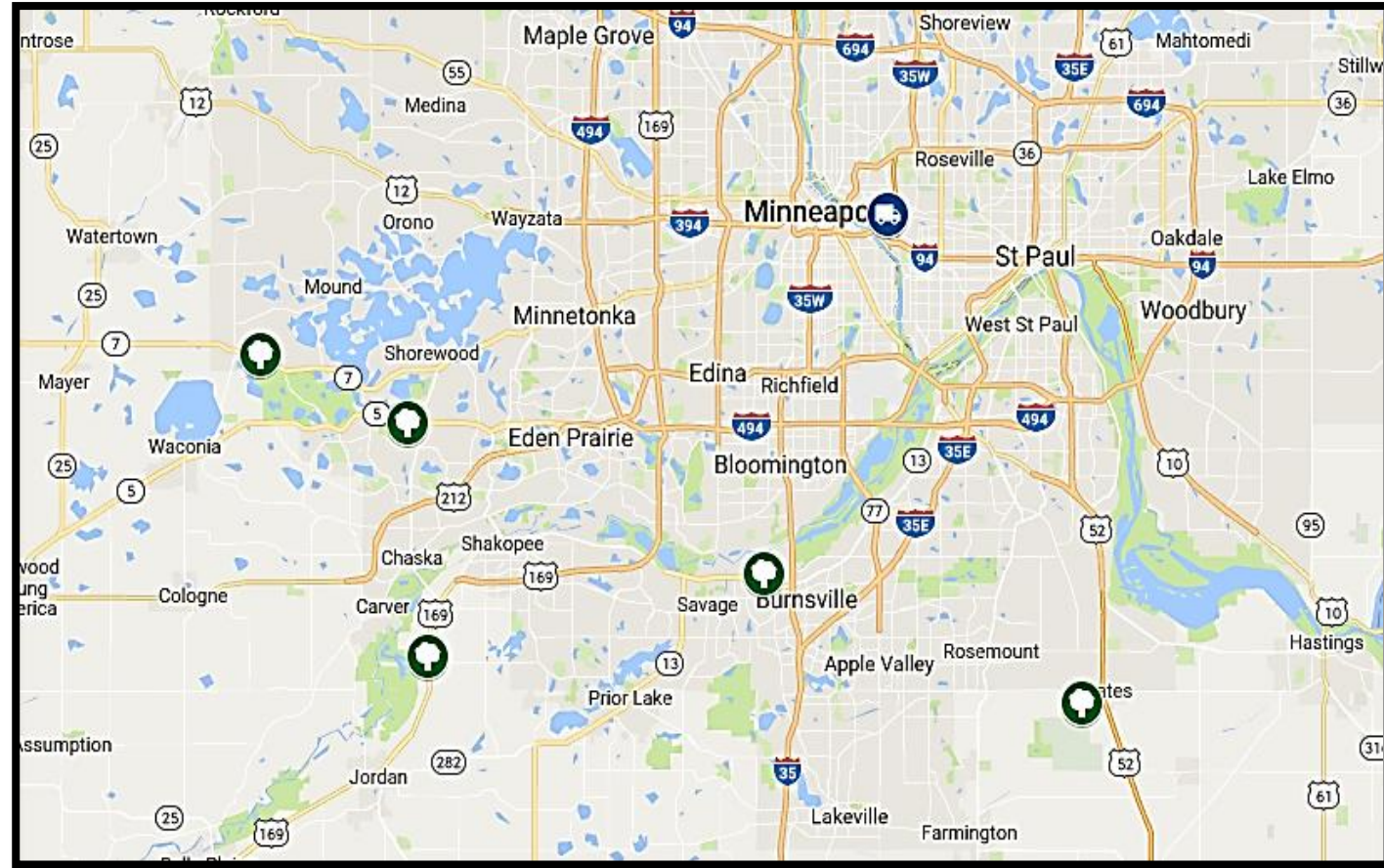
Organics Recycling and Commercial Composting

Presented by Jake Duame
Specialized Environmental Technologies, Inc.
March 1, 2023



COMPANY OVERVIEW

- Specialized Environmental Technologies, Inc. - The Mulch Store
- Privately own & operate four local composting sites
- Members of the US Composting Council and MN Composting Council
- +/-250,000 yd³ of brush and yard waste
- +/- 100,000 yd³ of compost and soil blends sold annually



The
MULCH
STORE

EMPIRE SITE OVERVIEW

- Site opened in 1997
- 15-20K tons of organics received annually
- Source Separated Organic Materials (SSOM) Permit
- Permitted and designed for food waste composting
 - Clay pad with synthetic liner
 - Contact water management
 - Reject and residual management







Activate Windows
Go to Settings to activate Windows.





Compost – Trying to Define the Term



The *beneficial* product manufactured through the *controlled* aerobic, biological decomposition of organic materials.



IS THIS COMPOST?



Composting

Speeding up the biological decomposition of organic material through a controlled process

The Ingredients of Compost

- Carbon or “browns”
 - Dry leaves
 - Wood chips
- Nitrogen or “greens”
 - grass clippings
 - food scraps
- Water
- Air

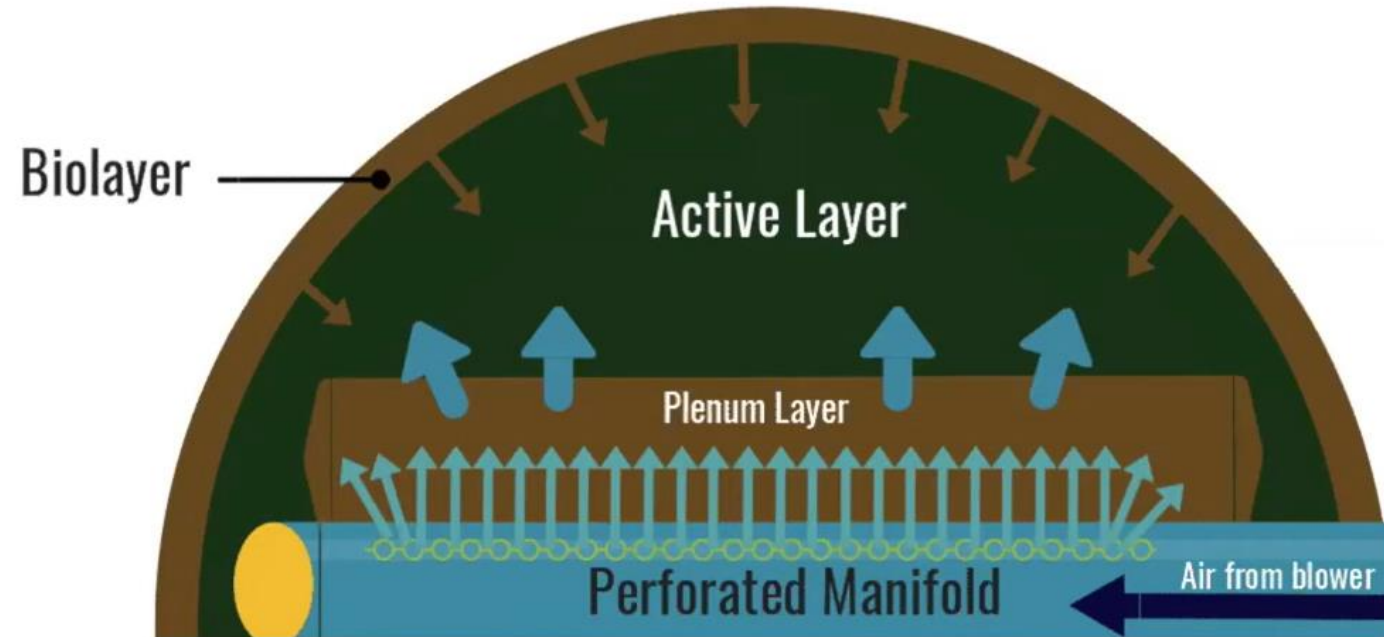


Balancing these ingredients will speed up the natural decay of organic material



Ideal Conditions for Composting

- C:N ratio of 25:1
- 40-60% Moisture Content
- Oxygen levels above 8%



1. Air exits perforations in manifold
2. Air slowed & diffused by plenum layer
3. Air promotes aerobic composting in active layer
4. Biofiltration layer traps heat and prevents odor escape



Commercial Composting	VS.	Backyard Composting
>1000 yds ³	SIZE OF PILES	+/- 1 yds ³
Sustained high heat	TEMPERATURE	~Ambient Temperatures
Greater variety of acceptable materials	FEEDSTOCK	More restrictive
Micro-organisms	BIOLOGY	Micro and macro organisms
Heavy machinery	EQUIPMENT	Hand tools
Active, high maintenance	PILE MANAGEMENT	Passive, low maintenance



Rosemount, MN Weather

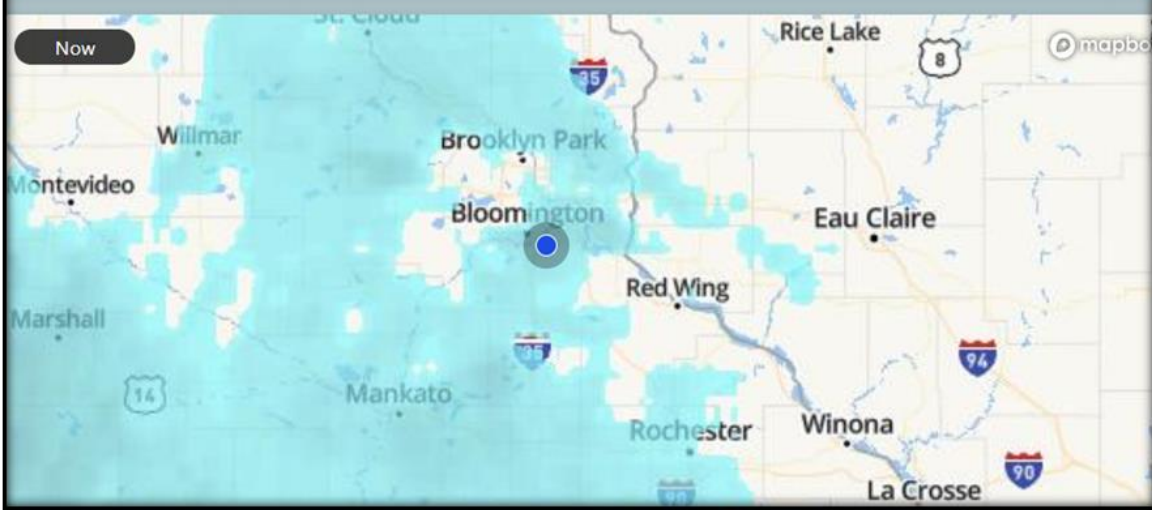
As of 9:20 am CST

2°

Snow Shower



12°/3°



ACCEPTABLE MATERIALS

- ALL food scraps including meat, bones, and dairy
- **Uncoated** paper products
- **ALL BPI certified compostable products**



Benchmark for Compostable Packaging



**BIODEGRADABLE
PRODUCTS
INSTITUTE**



Biodegradable Products Institute BPI™ Certification

- not-for-profit, third party verifier of compostable products
- Scientifically-based standards for compostable materials
- Meets international standards for compostability (ASTM D6400 and D6868)
- Restrictions on carcinogens and fluorinated compounds.



What is BPI Certified?

1. The product breaks down yielding H₂O, CO₂, and biomass
2. Biodegrades at a rate similar to other known compostable materials
3. Leaves no visible, distinguishable or toxic residue



Visit www.bpiworld.org for more resources.

Certified Compostable Products **must** have this logo stamped on the product and/or the original packaging.



ORGANICS COLLECTION

1. Separate compostables



2. Collection and transportation



3. Tipping



Organics Collection Methods

Co-collect with yard waste



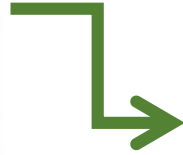
Co-collect with trash



Separate SSOM truck



The composting process



Turning raw material into finished compost



COMPOSTING PROCESS



1. Mixing Feedstocks



2. Pile Creation



3. Active Composting



COMPOSTING PROCESS (Continued)



4. Screening



5. Curing



6. 2nd Screening (Finished Compost)



Testing Finished Compost

Contaminants

Metals

- Arsenic
- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Molybdenum
- Nickel
- Selenium
- Zinc

Pathogens

- Salmonella
- Fecal Coliform

Weed seeds

PCBs

Inerts (plastic, metal, glass)

Stability and Maturity

CO₂ Evolution (respiration)

Bioassay (seedling emergence)

The US Composting Council Presents

CERTIFIED COMPOST

**TESTED.
QUANTIFIED.
TRUSTED.**

Certified Compost™
STA Seal of Testing Assurance
US Composting Council®

DO YOUR CUSTOMERS KNOW YOU SELL CERTIFIED COMPOST?

- Join the USCC's Seal of Testing Assurance Program and get Marketing Benefits that will **SELL YOUR COMPOST!**
- Specially priced (just for STA participants) *customized video ad spots with nationally known garden spokesman Joe Lamp'1*

US Composting Council
Seal of Testing Assurance

- Use of the USCC Certified Compost® Logo
- Consumer-friendly Rack Cards and promo literature for use in garden centers, landscaping/home shows, bids and customer meetings
- Customized education and meetings on marketing your product

Go to www.CompostingCouncil.org/seal-of-testing-assurance to learn more.
Join Us to expand the The Voice of the Compost Manufacturing Industry

Plant Nutrients

Nitrogen

Phosphorus

Potassium

Calcium

Magnesium

Other Characteristics

Moisture content

Organics matter content

Soluble salts

Particle size

Bulk density

C/N Ration

pH



Rejects from Composting Process



ADAPTING THE PROCESS TO MINIMIZE CONTAMINATION

Inspection Program
&
Feedstock Quality Control

Education and Feedback

Rejecting Loads

Specialized Environmental Technologies
Load Inspection Form for source separated organics

Date: _____ Time: _____ Inspection performed by: _____
Hauler: _____ Driver Name: _____ Truck #: _____
Hauler Account #: _____ Bill Account #: _____ Ticket #: _____
Net Weight (tons): _____ Source (city, county, transfer, etc.): _____

Description of Contamination (Check all that apply)

		Notes
Plastic trash bags	<input type="checkbox"/>	_____
Plastic cups or bottles	<input type="checkbox"/>	_____
Plastic wrap/film	<input type="checkbox"/>	_____
Glass	<input type="checkbox"/>	_____
Plastic coated paper/cartons	<input type="checkbox"/>	_____
Steel/aluminum cans	<input type="checkbox"/>	_____
Plastic silverware	<input type="checkbox"/>	_____
Styrofoam	<input type="checkbox"/>	_____
Tin trays	<input type="checkbox"/>	_____
Buckets/pails	<input type="checkbox"/>	_____
HHW	<input type="checkbox"/>	_____
C&D	<input type="checkbox"/>	_____
Ceramics/Dishware	<input type="checkbox"/>	_____
Yardwaste/Brush	<input type="checkbox"/>	_____

Other (describe): _____

Description of any unaccepted material that will be fee'd for disposal:

For loads rejected due to contamination:

SET discussed contaminant problems with hauler/customer Yes No
SET provided a copy of the this form to hauler/customer Yes No
SET provided photo(s) of contaminants to hauler/customer Yes No

HAULERS MUST PROVIDE THIS FEEDBACK TO THE GENERATORS CONTRIBUTING TO CONTAMINATION



COST OF REJECTED LOADS

SOURCE SEPARATED ORGANICS

- \$68 per ton (non-contract tip rate)
- NO County Fees
- NO State Taxes

MUNICIPAL SOLID WASTE

- \$138 per ton (non-contract tip rate)
- + 17.0% State Tax
- + 21.5% Hennepin County Fee

10 tons of organics from Minneapolis: \$680.00

10 ton load REJECTED from Minneapolis: \$1911.30

Added cost of having load rejected: \$1231.30



CONTAMINATION



ENVIRONMENTAL BENEFITS OF ORGANICS RECYCLING AND COMPOST

Waste Prevention

- Saves valuable landfill space
- Low BTU output through incineration
- Reduces greenhouse gas emissions
- Creates a marketable commodity out of waste

Compost Use

- Improves water holding capacity
- Increases filtration rates in soil
- Binds and degrades pollutants
- Reduces erosion and runoff
- Increases nutrients and organic matter in soil



Questions?

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STORE



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