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SEAL of TESTING ASSURANCE SUITE

STA Compost Analysis Report and Results

Client No: 1099

Southwaste Disposal
20805 Lamm Road
Elmendorf, Texas 78112-
Ben Camacho
713-303-9435

Lab No: 66691

Sample ID:	**Row 9**
Date Sampled:	**December 31, 2022**
Date Received:	**January 5, 2023**
Date Reported:	**January 16, 2023**
Email:	**bcamacho@wrmco.com**

Analysis	Unit	As Sent	Dry Weight	lbs/ton *as sent*		Analysis Method
Moisture @ 70 C	%	32.10	####	**77**		TMECC 03.09A
Dry Matter	%	67.90	####			TMECC 03.09A
Organic Matter by LOI @ 360C	%	16.31	24.02	**326**		TMECC 05.07-A
Organic Carbon by LOI @ 360C	%	8.15	12.01	**163**		
Carbon:Nitrogen (C:N) Ratio		14.86 : 1	14.86 : 1			
Soluble Salts	dS/m	1.34				TMECC 04.10-A
pH	Std Unit	7.86				TMECC 04.11-A
Total Nutrients						
Nitrogen (N)	%	0.55	0.81	10.97		TMECC 04.02-A
Nitrate-Nitrogen (ppm NO_3-N)	ppm	0.80	1.18	0.00		
Ammonium-Nitrogen (NH_4-N)	ppm	113.43	167.05	0.23		
Phosphorous (P)	%	0.30	0.44	5.94		TMECC 04.12-B
Phosphate as P_2O_5	%	0.68	1.00	13.60		
Potassium (K)	%	0.22	0.32	4.35		TMECC 04.12-B
Potash as K_2O	%	0.26	0.39	5.25		
Sodium (Na)	%	0.12	0.17	2.33		TMECC 04.12-B
Calcium (Ca)	%	6.15	9.05	122.96		TMECC 04.12-B
Magnesium (Mg)	%	0.19	0.28	3.80		TMECC 04.12-B
Zinc (Zn)	ppm	98.96	145.75	0.20		TMECC 04.12-B
Iron (Fe)	ppm	4800.40	7069.81	9.60		TMECC 04.12-B
Manganese (Mn)	ppm	61.39	90.41	0.12		TMECC 04.12-B
Copper (Cu)	ppm	36.91	54.36	0.07		TMECC 04.12-B
Boron (B)	ppm	20.79	30.62	0.04		TMECC 04.12-B
Chlorides (Cl)	ppm	22.14	32.60	0.04		
Sulfur (S)	ppm	2553.70	3760.97	5.11		TMECC 04.12-B
Trace Metals				**PASS/FAIL**	**E.P.A. Limit***	
Arsenic	mg/kg	8.62	12.70	Pass	41	SW846-6010B 04.06-As
Cadmium	mg/kg	< 0.50	< 0.50	Pass	39	SW846-6010B 04.06-Cd
Zinc	mg/kg	98.96	145.75	Pass	2800	SW846-7470 04.06-Zn
Copper	mg/kg	36.91	54.36	Pass	1500	SW846-6010B 04.06-Cu
Mercury	mg/kg	< 0.50	< 0.50	Pass	17	SW846-7471 04.06-Hg
Molybdenum	mg/kg	1.00	1.47	Pass	75	SW846-6010B 04.06-Mo
Nickel	mg/kg	< 0.05	< 0.05	Pass	420	SW846-6010B 04.06-Ni
Lead	mg/kg	8.67	12.76	Pass	300	SW846-6010B 04.06-Pb
Selenium	mg/kg	3.71	5.46	Pass	36	SW846-6010B 04.06-Se
Chromium	mg/kg	16.57	24.40	Pass	1200	SW846-6010B 04.06-Cr

Stability Indicator - TMECC 05.08-E	
Solvita Maturity Index - Stability Rating	

Sieve - TMECC 02.02-B	
% Passing 3/8 in.	100
% Passing 5/8 in.	100

Inerts - TMECC 03.06-A	
% Plastic	0.00
% Glass	0.00
% Metals	0.00

Pathogens			Analysis Method
Total Coliform (MPN/g dry)	320	Pass	TMECC 07.01-A
Fecal Coliform (MPN/g dry)	240	Pass	TMECC 07.01-B

Stability Indicator - TMECC 05.08-B		
CO2 OM Evolution - mg CO2-C/g OM/day	0.72	Very Stable
CO2 Solids Evolution - mg CO2-C/g TS/day	0.70	

Maturity Indicator: Cucumber Bioassay - TMECC 05.05-A	
Emergence - Avg. % of Control	83.00
Relative Seedling Vigor - Avg. % of Control	100.00
Plant Description	Healthy

per US EPA Class A Standard, 40 CFR § 503.13, Tables 1 and 3.

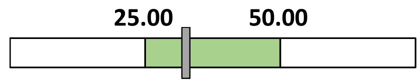
Understanding Compost Test Results
Suitability of Use

Composts are complex mixtures of feedstocks that have been decomposed by microbes. Composts have several biological, chemical, and physical properties that may be beneficial for growing plants and improving soil, but some properties may limit use. Accordingly, a range of tests have been performed on your compost to determine whether any of its properties might limit the use of product.

Analysis / Results | **Desired / Common Range (dry weight basis)**

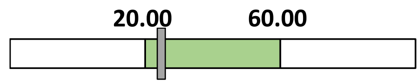
% Moisture
32.10

< 30% Compost is too dry - light and dusty
> 50% Compost is too wet - heavier and clumpy



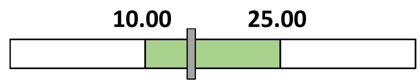
% Organic Matter by LOI
24.02

Composts contain mostly organic carbon composed of the remains of the feedstock materials and newly produced molecules generated by the microbes. Carbon compounds are the fuel microbes use to cycle nutrients in the soil. Organic Matter improves the soils physical, chemical, biological aspects providing a source of energy for soil life and enhances the nutrient bank for plants.



Carbon : Nitrogen (C:N) Ratio
14.86 : 1

Organic Matter is composed of carbon primarily with some nitrogen. The ratio of these elements is the C: N Ratio. Composting requires a balance of carbon for energy and nitrogen. If the C: N ratio is high then the decomposition rate is slowed down; if low, then the compost pile is difficult to manage. 25 to 35 preliminary composting range

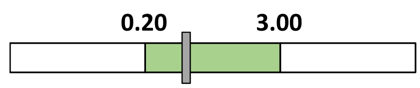


% Nitrogen
0.81

Most nitrogen in composts is in organic forms that will be released for plant use only after microbes decompose the organic compounds. Generally, 20% to 40% of the organic nitrogen becomes slowly available to plants in the first year of application.

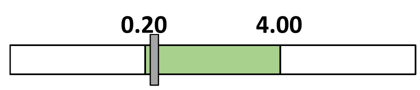
% Phosphorous as P_2O_5
1.00

Much of the phosphorous in composts is also held in organic forms. However, some compost contains significant amounts of inorganic phosphorus held in more slowly soluble forms in association with calcium and magnesium. Release of the organic portion is similar to that of organic nitrogen. Release of inorganic forms depends largely on native soil pH. Greatest solubility in the neutral region (6.2 – 7.2).



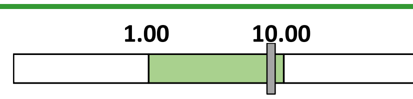
% Potassium as K_2O
0.39

In contrast to nitrogen and phosphorous, potassium is not held in organic forms, but becomes more loosely associated with the backbone of organic compounds. It does not require microbial activity for release, so it becomes available to plants at a higher rate. Most of the element becomes available for plant uptake in the first three months following application.



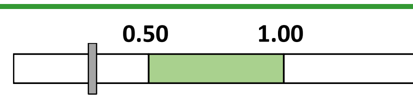
% Calcium
9.05

This nutrient does not form organic compounds but rather is present in compost as either free or in the form of inorganic compounds. Release of calcium for plants mainly depends on how soluble in water soluble (Plant Natural® – Carbonicum Media Analysis) the inorganic compound is. This in turn depends largely on the native soil pH to which the compost is applied. A more acidic pH (< 7) favors faster release. About half of this become plant available in the first three months following application.



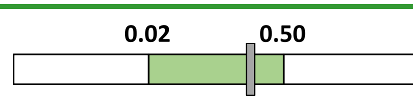
% Magnesium
0.28

This nutrient also does not form organic compounds but rather is present in compost as either free or in the form of inorganic compounds. Release of magnesium for plants mainly depends on how soluble in water soluble (Plant Natural® – Carbonicum Media Analysis) the inorganic compound is. This in turn depends largely on the native soil pH to which the compost is applied. A more acidic pH (< 7) favors faster release. About half of this become plant available in the first three months following application.



% Sulfur
0.38

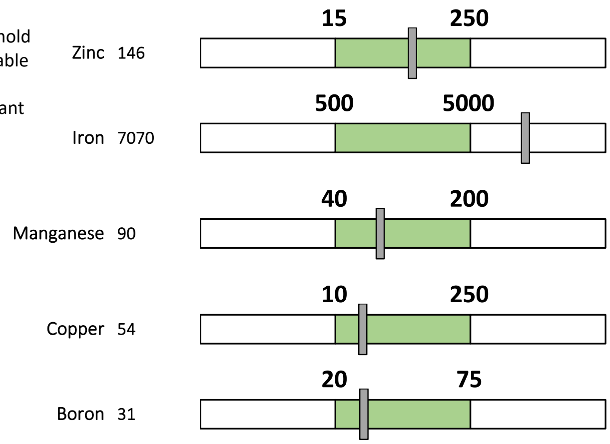
This important nutrient forms organic compounds, and also has an inorganic phase in the soil. This means that some is readily available, and some is released over time, as is the case for nitrogen and phosphorous.



Analysis / Results	Desired / Common Range (dry weight basis) *- for finished compost*

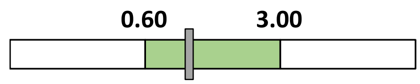
Trace Elements - ppm

Arsenic, cadmium, mercury, lead, selenium and others have a maximum threshold level (printed on the report) which, if exceeded, will render the compost unusable for food crops. Composts can be a good source of trace elements for plants because the organics in composts aid in keeping nutrients in a soluble form, plant available form.



Soluble Salts - Conductivity 1:5

1.34



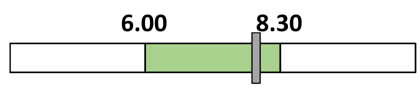
Some feedstocks contain an appreciable concentration of salts and these can increase as the volume of the pile decreases during composting. Usually, if the salts are high, they leach away over time. However, until the salts leach away, they may adversely affect plant growth. A reading of ≤ 5 dS/m suggests compost salinity should have only a marginal affect on plants.

Common Range ***depending on end-use*** – Refer to table below for optimum use.

	Interpretation
< 0.30	Very low nutrient content. Expect nutrient deficiencies.
0.30 – 0.60	Ideal as direct growing media
0.60 – 3.00	Desirable range for most plant
3.00 – 5.00	High for salt sensitive plants, some loss of vigor to be expected
5.00 – 10.00	High nutrient content. Topdressing & incorporation only.
>10.00	Extremely high nutrient content. Topdressing & incorporation only.

pH

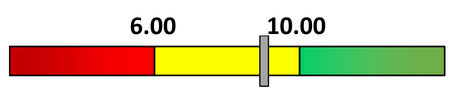
7.86



A measure of acidity is used to predict whether the compost might have an affect on native soil pH. Changes in soil pH can affect the solubility of nutrients. Composts greater than 7.0 probably contains liming agents which may affect crop management over time.

Agricultural Index

8.97



Calculation based on total N, P, K versus the quantity of soluble salts mainly sodium and chloride. The higher the Ag Index the less change of having toxic buildup of salts in the soil.

< 2: Salt injury is a possibility – although high levels of calcium and magnesium may help offset salt toxicity.

2 – 5: Adequate for application on soils with good to excellent soil tilth (structure), good irrigation water quality and low native salt content.

6 – 10: Adequate for application on soils with poor soil tilth (structure), less than desirable irrigation water quality and/or high to excessive native salt content.

>10: Ideal for application on all soil types.