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SEAL of TESTING ASSURANCE
SUITE

STA Compost Analysis Report and Results

Client No: 1099

Southwest 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 ₂ O ₅	%	0.68	1.00	13.60	
Potassium (K)	%	0.22	0.32	4.35	TMECC 04.12-B
Potash as K ₂ O	%	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		Pathogens		Analysis Method	
Solvita Maturity Index - Stability Rating		Total Coliform (MPN/g dry)		320 Pass	TMECC 07.01-A
		Fecal Coliform (MPN/g dry)		240 Pass	TMECC 07.01-B
Sieve - TMECC 02.02-B		Stability Indicator - TMECC 05.08-B			
% Passing 3/8 in.	100	CO2 OM Evolution - mg CO2-C/g OM/day		0.72	Very Stable
% Passing 5/8 in.	100	CO2 Solids Evolution - mg CO2-C/g TS/day		0.70	
Inerts - TMECC 03.06-A		Maturity Indicator: Cucumber Bioassay - TMECC 05.05-A			
% Plastic	0.00	Emergence - Avg. % of Control		83.00	
% Glass	0.00	Relative Seedling Vigor - Avg. % of Control		100.00	
% Metals	0.00	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.

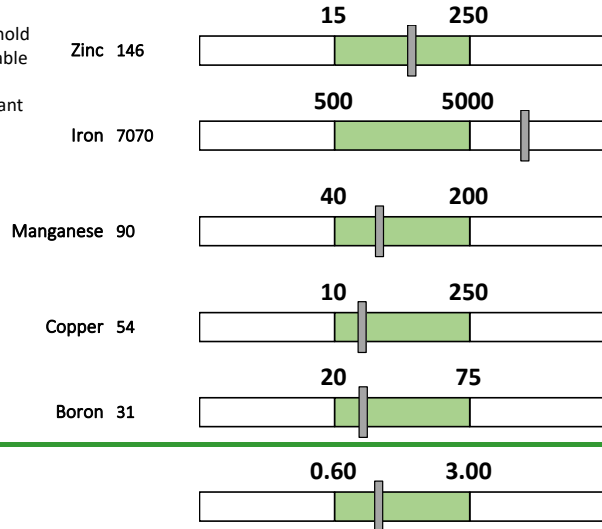
Analysis / Results	Desired / Common Range (dry weight basis)
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> % Moisture </div> 32.10 < 30% Compost is too dry - light and dusty > 50% Compost is too wet - heavier and clumpy	
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> % Organic Matter by LOI </div> 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.	
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> Carbon : Nitrogen (C:N) Ratio </div> 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	
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> % Nitrogen </div> 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.	
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> % Phosphorous as P₂O₅ </div> 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).	
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> % Potassium as K₂O </div> 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.	
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> % Calcium </div> 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.	
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> % Magnesium </div> 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.	
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> % Sulfur </div> 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.

