Midwest Laboratories, Inc.®
13611 B Street • Omaha, Nebraska 68144-3693 • (402) 334-7770 • FAX (402) 334-9121 • www.midwestlabs.com

Lab # 70076624 | **Report of Analysis** | Report Number: 22-074-4239

Account: 25124	RUSTY WILLARD CITY OF DENTON 1100 SOUTH MAYHILL RD DENTON TX 76208
Date Sampled:	2022-03-01
Date Received:	2022-03-02
Sample ID:	Sept, Oct, Nov, and Dec. Curing Piles

Robert Ferris
Account Manager
402-829-9871

Sept, Oct, Nov, Dec. Curing Piles

		Analysis (as rec'd)	Analysis (dry weight)	Total content, lbs per ton (as rec'd)
NUTRIENTS				
Nitrogen				
Total Nitrogen	%	1.10	1.54	22.0
Organic Nitrogen	%	0.90	1.25	17.9
Ammonium Nitrogen	%	0.203	0.283	4.1
Nitrate Nitrogen	%	< 0.01	----	----
Major and Secondary Nutrients				
Phosphorus	%	0.56	0.78	11.2
Phosphorus as P2O5	%	1.28	1.79	25.6
Potassium	%	0.33	0.46	6.6
Potassium as K2O	%	0.40	0.56	8.0
Sulfur	%	0.39	0.54	7.8
Calcium	%	4.05	5.65	81.0
Magnesium	%	0.21	0.29	4.2
Sodium	%	0.080	0.112	1.6
Micronutrients				
Iron	ppm	22600	31551	45.2
Manganese	ppm	383	535	0.8
Boron	ppm	< 100	----	----
OTHER PROPERTIES				
Moisture	%	28.37		
Total Solids	%	71.63		1432.6
Organic Matter	%	34.40	48.02	688.0
Ash	%	35.80	49.98	716.0
Total Carbon	%	17.46	24.38	
Chloride	%	0.04	0.06	
pH		8.1		
Conductivity 1:5 (Soluble Salts)	mS/cm	2.86		

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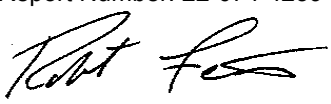
Lab # 70076624 **Biological & Physical Properties** Report Number: 22-074-4239

Account: 25124	RUSTY WILLARD CITY OF DENTON 1100 SOUTH MAYHILL RD DENTON TX 76208
Date Sampled:	2022-03-01
Date Received:	2022-03-02
Sample ID:	Sept, Oct, Nov, and Dec. Curing Piles



Robert Ferris
Client Service Representative
402-829-9871

Sept, Oct, Nov, Dec. Curing Piles

	Analysis (as rec'd)	Analysis (dry weight)	Units	Detection Limit	Method
Biological Properties					
Germination	100		%	1	TMECC 05.05A
Germination Vigor	100		%	1	TMECC 05.05A
CO_2 OM Evolution	0.28		$mgCO_2$-C/gOM/day	0.01	TMECC 05.08B
CO_2 Solids Evolution	0.32		$mgCO_2$-C/gTS/day	0.01	TMECC 05.08B
Fecal Coliform		5	mpn/g	0.2	EPA 1681
Salmonella		< 1.2	mpn/4g	1.2	TMECC 07.02
Stability Rating	Stable		N/A	N/A	TMECC 05.08B
Physical Properties					
Bulk Density (Loose)	843		lbs/cu yard	1	WT/VOL
Bulk Density (Packed)	994		lbs/cu yard	1	WT/VOL
Film Plastics	n.d.		%	0.1	TMECC 03.08
Glass Fragments	n.d.		%	0.1	TMECC 03.08
Hard Plastics	n.d.		%	0.1	TMECC 03.08
Metal Fragment	n.d.		%	0.1	TMECC 03.08
Sharps	absent		---	0.1	TMECC 03.08
Max. Particle Length		2.0	inches	N/A	TMECC Sieve
Sieve % Passing 3"		100	%	0.01	TMECC Sieve
Sieve % Passing 2"		100	%	0.01	TMECC Sieve
Sieve % Passing 1.5"		100	%	0.01	TMECC Sieve
Sieve % Passing 1"		100	%	0.01	TMECC Sieve
Sieve % Passing 3/4"		100	%	0.01	TMECC Sieve
Sieve % Passing 5/8"		100	%	0.01	TMECC Sieve
Sieve % Passing 3/8"		100	%	0.01	TMECC Sieve
Sieve % Passing 1/4"		99	%	0.01	TMECC Sieve

Compost Results Interpretations

Page 1

Report #:	22-074-4239
DATE RECEIVED:	2022-03-02

Organic Matter %

34.40 As Received

48.02 Dry Weight

Greater than 20% indicates a desirable range for compost on a dry weight basis.

Compost is a significant source of Organic Matter, which is an important supplier of carbon. Organic Matter improves soil and plant efficiency by improving soil physical properties, providing a source of energy to beneficial organisms, and enhancing the reservoir of soil nutrients.

C/N Ratio

15.9:1

20-30 indicates an ideal range for the initial compost process.

10-20 indicates an ideal range for a finished compost.

All organic matter is made up of substantial amounts of carbon with lesser amounts of nitrogen. The balance of these two elements is called the Carbon/Nitrogen Ratio. For the best performance, the compost pile requires the correct proportion of carbon for energy and nitrogen for protein production. If the C:N ratio is too high (excess carbon) decomposition slows down. If the C:N ratio is too low (excess Nitrogen) the compost pile could be difficult to manage.

Moisture %

28.37

<35% = Indicates overly dry compost

>55% = Indicates overly wet compost

Moisture Percent is the measure of water present in the compost and expressed as a percentage of total weight. Moisture present affects handling and transport. Overly dry will be light and dusty while overly wet will be heavy and clumpy. A desirable moisture content of finished compost will range between 40 to 50%.

Compost Results Interpretations

Page 2

Report #:	22-074-4239
DATE RECEIVED:	2022-03-02

Conductivity or Soluble Salts measures the conductance of electrical current in a liquid compost slurry. Excessive soluble salt content in a compost can prevent or delay seed germination and proper root growth. Conductivity analysis is done on a 1:5 basis.

Conductivity 1:5
2.9

Conductivity Level	**Interpretation**
Greater than 10	Very High nutrient content. Use for Ag Applications
5 - 10	High nutrient content. Use for Ag Applications
3 - 5	Higher than desirable for salt sensitive plants, some loss of vigor
0.6 - 3	Desirable range for most plants
0.3 - 0.6	Ideal range for greenhouse growth media
0.0 - 0.3	Very Low: Indicates very low nutrient status: plants may show deficiencies.

Compost Results Interpretations

Page 3

Report #: 22-074-4239

DATE RECEIVED: 2022-03-02

pH Value

8.1

0 to 14 scale with 6 to 8 as normal pH levels for compost

A pH in the 6 to 8 pH range indicates a more mature compost

pH measures the acidity or alkalinity of the compost, and is a measurement of the hydrogen ion activity of a soil or compost on a logarithmic scale. The pH scale ranges from 0 to 14 and 7 indicates a neutral pH. Growing media with a higher pH or pH greater than 7 can benefit from a compost that has a more acidic pH or pH below 7. This type of application will possibly lower the soil pH making the soil more conducive to plants that thrive in a more acidic soil condition.

Nutrient Index (Ag Index)

>10

The Nutrient Index normally runs between 1 and 10.

The Nutrient Index is obtained by dividing the total nutrients (N,P,K) by the amount of salt (Sodium and Chloride). The higher the Nutrient Index the less chance of having a toxic buildup of Sodium (salt) in the soil.

AG INDEX CHART

salt injury possible	*use on soils with excellent drainage characteristics, good water quality and low salts*				*you may use on soils with poor drainage, poor water quality, or high salts*					*for all soils*
1	2	3	4	5	6	7	8	9	10	> 10

Nutrients (N+P205+K20)

3.88 Average Nutrient Content Dry Weight <2 = Low, >5 = High

1-1.5-0.5 Rating As Received

The most commonly used compost data is the amount of Nitrogen, Phosphate, and Potash (abbreviated as N,P,K) present and the information is similar to that found in common fertilizers. If a compost result has the rating 1-2-2 it means that the compost has 1% Nitrogen, 2% Phosphate and 2% Potash. Most compost tests will have a average nutrient level (N+P+K) of < 5%.

REPORT NUMBER
22-074-4239

REPORT DATE
Mar 15, 2022

SEND TO
25124

RECEIVED DATE
Mar 02, 2022

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ISSUE DATE
Mar 18, 2022

CITY OF DENTON
RUSTY WILLARD
1100 SOUTH MAYHILL RD
DENTON TX 76208

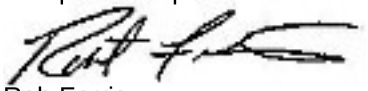
REPORT OF ANALYSIS

For: (25124) CITY OF DENTON
Sept, Oct, Nov, Dec. Curing Piles

Analysis	Level Found As Received	Level Found Dry Weight	Units	Reporting Limit	Method	Analyst-Date	Verified-Date
Sample ID: **Sept, Oct, Nov, and Dec. Curing Piles**	Lab Number: **70076624**			Date Sampled: **2022-03-01 1345**			
Cadmium (total)	0.91	1.27	mg/kg	0.50	EPA 6010	ery3-2022/03/07	kkh9-2022/03/15
Chromium (total)	35.4	49.5	mg/kg	1.00	EPA 6010	ery3-2022/03/07	kkh9-2022/03/15
Mercury (total)	0.18	0.25	mg/kg	0.05	EPA 7471	mrs3-2022/03/09	kkh9-2022/03/15
Lead (total)	7.7	10.7	mg/kg	5.0	EPA 6010	ery3-2022/03/07	kkh9-2022/03/15
Molybdenum (total)	2.1	2.9	mg/kg	1.0	EPA 6010	ery3-2022/03/07	kkh9-2022/03/15
Nickel (total)	9.1	12.7	mg/kg	1.0	EPA 6010	ery3-2022/03/07	kkh9-2022/03/15
Selenium (total)	n.d.	n.d.	mg/kg	10.0	EPA 6010	ery3-2022/03/07	kkh9-2022/03/15
Zinc (total)	148.8	207.7	mg/kg	2.0	EPA 6010	ery3-2022/03/07	kkh9-2022/03/15
Copper (total)	122	170	mg/kg	1	EPA 6010	ery3-2022/03/07	kkh9-2022/03/15
Arsenic (total)	3.58	5.00	mg/kg	0.50	EPA 6020	ras7-2022/03/15	kkh9-2022/03/15

n.d. = not detected , ppm = parts per million, ppm = mg/kg

For questions please contact:



Rob Ferris
Account Manager
rferris@midwestlabs.com (402)829-9871

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70076624-624
Samples: 1 Page: 1/2
Ashlyn Himan
2022 03 02 10:04

SUBMITTAL FORM

Order Number: 5007264
Order Date: 2022-03-01 13:58:55
Submitted By: Billy Downey

Account: 25124
CITY OF DENTON
1100 SOUTH MAYHILL RD
DENTON, TX 76208

Sample Description: Sept, Oct, Nov, Dec. Curing Piles

SAMPLES FOR ANALYSIS

Compost

5007264-1 Date Sampled: 2022-03-01 **70076624**
Sample ID: Sept, Oct, Nov, and Dec. Curing Piles
Time Sampled: 1345
Analysis Requested:

STA COMPOST *(Carbon (total), Loss on ignition (OM), Nitrogen (total), Ammonium nitrogen (total), Germination vigor, Sieve (ret) 3-8 in. 9.25 mm, Salmonella, CO2 OM Evolution, CO2 Solids Evolution, Stability rating, % passing - 3" sieve (DW), % passing - 3/4" sieve (DW), Fecal coliforms, % passing - 1" sieve (DW), % passing - 1.5" sieve (DW), % passing - 1/4" sieve (DW), Sieve maximum particle length (Inches), Cadmium (total), Chromium (total), Mercury (total), Lead (total), Molybdenum (total), Nickel (total), Germination, % passing - 5/8" sieve (DW), Conductivity 1:5 dilution, Sulfur (total), Magnesium (total), Iron (total), Calcium (total), Sodium (total), Manganese (total), Bulk density (packed), Bulk density (loose), Film plastic, Glass fragments, Hard plastic, Metal fragments, Sharps, Chloride, Boron (total), Phosphate (P2O5), Nitrate-nitrogen, Ash, Moisture, % passing - 2" sieve (DW), Selenium (total), Zinc (total), Potash (K2O), Copper (total), Arsenic (total), pH)*

7.0" AN

70076624-624 Samples: 1 Page: 2/2
Ashlyn Himan 2022 03 02 10:04

US COMPOSTING COUNCIL

OFFICIAL Seal of Testing Assurance Compost Sample Chain of Custody Form

STA Laboratory: Midwest Laboratories Tel: 402-334-7770
Address: 13611 B Street FAX:
Email:
City, State Zip code: Omaha NE 68144

Client/Reporting Company: City of Denton Tel: 940-349-8626
Contact Name: Billy Downey FAX:
Billing Address: 1100 South Mayhill Road Email:
City, State Zip code: Denton, Texas 76208

Send Results to:
City, State Zip code:

Name or Source of Sample(s):
Name of Person(s), Sample Collector(s): Billy Downey

LABORATORY USE ONLY *Storage Locations*
Freezer ____ Cold Room ____ Storage Shelf ____
Sample Condition: ____
Temperature: ____ Malodor: ____ Moisture: ____
Sample Type: O POINT O COMPOSITE O STRATIFIED O INTERVAL
P.O. Number: ____
USCC Member: O YES O NO

SELECTION OF ANALYSIS. *Refer to http://www.tmecc.org/cop/methods.html for details.* STA Suite; State DOT Tests (indicate State); A, B, C – Specify other tests in fields A through C, (e.g., tests required for regulated samples, etc.). **NOTE!** *STA analytical results via the STA Compost Technical Data Sheet and this Chain of Custody form are submitted to STA program management.*

A	B	C

Client Sample ID and Special Instructions	*1. List Feedstocks 2. Check all that apply 3. List % by volume. (Optional)*		*Collection Date/Time*	*Sample Matrix*	*Composting Operation Type*	*Shipping Temperature*	*Indicate Compost Analysis Requirements (*identify state)*				LAB USE ONLY *Job Number & Sample Status*
Sept. Oct. Nov. Dec. 2021 Curing Piles	X Green waste	___ Carcass	Date 3/1/2022	Compost X	Windrow X	Ambient O	STA Suite	State DOT Identify State	A	B	C
	___ Manure	___ Fish Waste		Feedstock O	Static pile O						
	___ Food	___ Grease, Fats	Time 1:45pm	Mulch O	In-Vessel O	Wet Ice X					
	X Biosolids	___		____ O	____ O	Dry Ice O					
	___ MSW	___	Initials BD	____ O	____ O						
	___ Wood	___									

INFORM THE STA LABORATORY AND SPECIFY THE REQUIRED LABORATORY TESTS WHEN SUBMITTING REGULATED COMPOST SAMPLES (please use spaces A, B and C provided above).

PLEASE PROVIDE SPECIFIC FEEDSTOCK AND OPERATIONAL DETAIL IN THE SPACE PROVIDED.
YOUR VOLUNTEERED INFORMATION PROVIDES USCC STANDARDS AND PRACTICES COMMITTEE WITH CRUTIAL DATA NEEDED TO BETTER UNDERSTAND THE COMPOSTING PROCESS AND COMPOST END USES.

Releasing Signature 1		Date 3/1/2022	Time 2:10 pm	Receiving Signature 1		Date	Time
Releasing Signature 2		Date	Time	Receiving Signature 2		Date	Time
Releasing Signature 3		Date	Time	Receiving Signature 3		Date	Time
Releasing Signature 4		Date	Time	Receiving Signature 4		Date	Time