





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

Lab #	8790347	Report of Analysis		Report Number: 20-233-4168																																																																																																																																																	
Account: 27791	DOUG BULLOCK CITY OF RICHLAND PO BOX 190 RICHLAND WA 99352		 Robert Ferris Account Manager 402-829-9871																																																																																																																																																		
Date Sampled: Date Received: Sample ID:	2020-08-06 2020-08-07 3RD QUARTER 2020				STA ANALYSIS																																																																																																																																																
Total content, lbs per ton (as rec'd)																																																																																																																																																					
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Lab #	8790347	Biological & Physical Properties			Report Number: 20-233-4168
Account: 27791	DOUG BULLOCK CITY OF RICHLAND PO BOX 190 RICHLAND WA 99352			 Robert Ferris Client Service Representative 402-829-9871	
Date Sampled:	2020-08-06			STA ANALYSIS	
Date Received:	2020-08-07				
Sample ID:	3RD QUARTER 2020				
	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	0.47		mgCO ₂ -C/gOM/day	0.01	TMECC 05.08B
CO ₂ Solids Evolution	0.53		mgCO ₂ -C/gTS/day	0.01	TMECC 05.08B
Salmonella		< 0.26	mpn/4g	0.26	EPA 1682
Stability Rating	Stable		N/A	N/A	TMECC 05.08B
Physical Properties					
Bulk Density (Loose)	792		lbs/cu yard	1	WT/VOL
Bulk Density (Packed)	1011		lbs/cu yard	1	WT/VOL
Film Plastics	n.d.		%	0.25	Microscopic
Glass Fragments	n.d.		%	0.25	Microscopic
Hard Plastics	n.d.		%	0.25	Microscopic
Metal Fragment	n.d.		%	0.25	Microscopic
Sharps	Absent		---	---	Microscopic
Max. Particle Length		1.5	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"		98	%	0.01	TMECC Sieve

Compost Results Interpretations

Page 1

Report #:

20-233-4168

DATE RECEIVED:

2020-08-07

Organic Matter %		Greater than 20% indicates a desirable range for compost on a dry weight basis.
48.70	As Received	
60.86	Dry Weight	

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		20-30 indicates an ideal range for the initial compost process. 10-20 indicates an ideal range for a finished compost.
10.4:1		

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 %		<35% = Indicates overly dry compost >55% = Indicates overly wet compost
19.98		

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 #:

20-233-4168

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2020-08-07

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
5.8

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 #:

20-233-4168

DATE RECEIVED:

2020-08-07

pH Value

6.2

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

Nutrients (N+P205+K20)

5.32

Average Nutrient Content Dry Weight

<2 = Low, >5 = High

2-1-1

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%.

20-2333-4168

REPORT DATE
Aug 20, 2020
 RECEIVED DATE
Aug 07, 2020

SEND TO
27791



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 www.midwestlabs.com

ISSUE DATE
Aug 20, 2020

**CITY OF RICHLAND
 DOUG BULLOCK
 PO BOX 190
 RICHLAND WA 99352**

REPORT OF ANALYSIS
 For: (27791) CITY OF RICHLAND
 STA ANALYSIS

Sample ID: **3RD QUARTER 2020** Lab Number: **8790347** Date Sampled: **2020-08-06**

Analysis	Level Found		Units	Reporting Limit	Method	Analyst-Date	Verified-Date
	As Received	Dry Weight					
Cadmium (total)	1.15	1.44	mg/kg	0.50	EPA 6010	ery3-2020/08/14	th1-2020/08/17
Chromium (total)	11.4	14.3	mg/kg	1.00	EPA 6010	ery3-2020/08/14	th1-2020/08/17
Mercury (total)	0.09	0.11	mg/kg	0.05	EPA 7471	pld8-2020/08/12	th1-2020/08/17
Lead (total)	341	426	mg/kg	5.0	EPA 6010	ery3-2020/08/14	th1-2020/08/17
Molybdenum (total)	4.8	6.0	mg/kg	1.0	EPA 6010	ery3-2020/08/14	th1-2020/08/17
Nickel (total)	19.8	24.8	mg/kg	1.0	EPA 6010	ery3-2020/08/14	th1-2020/08/17
Selenium (total)	n.d.	n.d.	mg/kg	10.0	EPA 6010	ery3-2020/08/14	th1-2020/08/17
Zinc (total)	198.7	248.3	mg/kg	2.0	EPA 6010	ery3-2020/08/14	th1-2020/08/17
Copper (total)	111	139	mg/kg	1.0	EPA 6010	ery3-2020/08/14	th1-2020/08/17
Arsenic (total)	4.00	5.00	mg/kg	0.50	EPA 6020	ras7-2020/08/17	th1-2020/08/17

EPA 1682 holding time of < 6 hours from sampling to laboratory set up of samples for biosolids and compost has been exceeded. If a level of Salmonella was reported, the value would be considered an estimate. Individual states enforce different holding times for compost or biosolids so please contact the regulatory body in your state for their requirements.
 n.d. = not detected , ppm = parts per million, mg/kg

For questions please contact:

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

The result(s) issued on this report only reflect the analysis of the sample(s) submitted.

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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 St. FAX: (402) 334-9121
 Email: _____
 City, State Zip code: Omaha, Nebraska 68144-3693

Client/Reporting Company: City of Richland Tel: (509) 942-7481
 Contact Name: Steve Brewer FAX: (509) 942-7346
 Billing Address: 625 Swift Blvd. Email: SBREWER@Ct.Richland.
MS# 27 Wt. U.S.
 City, State Zip code: Richland, Wa 99352

Send Results to: Steve Brewer 625 Swift Blvd. MS# 27
 City, State Zip code: Richland, Wa 99352

Name or Source of Sample(s): City of Richland Compost Facility
 Name of Person(s), Sample Collector(s): DOUG BULLOCK

LABORATORY USE ONLY

Freezer _____

8790347-347
 Samples: Page: 1 / 2
 age Shelf _____
 Nicholas Free 2020 08 07 16:13

Sample Condition: _____
 Temperature: RT Malodor: _____ Moisture: _____

Sample Type: POINT COMPOSITE STRATIFIED INTERVAL

P.O. Number: _____

USCC Member: YES NO

SELECTION OF ANALYSIS. Refer to <http://www.tmecc.org/cap/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

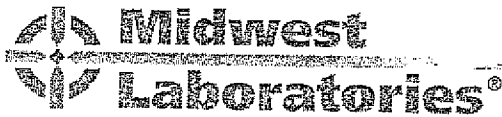
Client Sample ID and Special Instructions	1. List Feedstocks 2. Check all that apply 3. List % by volume. (Optional)	Collection Date/Time	Sample Matrix	Composting Operation Type	Shipping Temperature	Indicate Compost Analysis Requirements (*identify state)	LAB USE ONLY Job Number & Sample Status
<u>3rd QUARTER 2020</u>	<input checked="" type="checkbox"/> Green waste <input type="checkbox"/> Manure <input type="checkbox"/> Food <input checked="" type="checkbox"/> Biosolids <input type="checkbox"/> MSW <input type="checkbox"/> Wood <input type="checkbox"/> Carcass <input type="checkbox"/> Fish Waste <input type="checkbox"/> Grease, Fats	Date: <u>8-6-20</u> Time: <u>6:45 AM</u> Initials: <u>DB</u>	<input checked="" type="radio"/> Compost <input type="radio"/> Feedstock <input type="radio"/> Mulch	<input type="radio"/> Windrow <input checked="" type="radio"/> Static pile <input type="radio"/> In-Vessel	<input type="radio"/> Ambient <input checked="" type="radio"/> Wet Ice <input type="radio"/> Dry Ice	STA Suite State DOT Identify State A B C	<u>8790347</u>

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.

SALMONELLA ONLY, NO FERAL

Releasing Signature 1	<u>Doug Bullock</u>	Date	<u>8-6-20</u>	Time	<u>1300</u>	Receiving Signature 1	<u>SD</u>	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	



Sample Acceptance Checklist

Document Number: RC CHKLIST 00

Revision No.:

Effective Date: 1/31/201

Page 1 of



Lab Number: _____

Thermometer Used: Therm Fisher IR 1

Cooler Intact: Yes No
 Received on Ice: Yes No
 Hand Delivered: Yes No

Sample Temperature (°C): 9.0

Date & Initials of person accepting samples: JA 8/7/20

Comments

Chain of Custody present?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Sample ID(s):	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Sample Location(s):	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Client contact:	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Analysis Requested:	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Date & Time of collection:	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Sampler name on COC?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Chain of custody relinquished with signature?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Chain of custody complete?	<input checked="" type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Sample labels match COC?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Written in indelible ink?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Labels indicate proper preservation?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Samples arrived within hold time?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Samples arrived within correct temperature?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Sufficient volume?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Appropriate containers used?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>	N/A	
Headspace in VOA vials?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>	N/A	
Trip Blank present?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	N/A	

Client Notification/Resolution: _____ Date/Time Contacted: _____

Person Contacted: _____ Contacted By: _____

Comments/Resolution: _____

