US Composting Council ® STA Certified Lab

soiltest farm consultants, inc.
2925 Driggs Dr., Moses Lake, Wa 98837 - www.soiltestlab.com
Office: (509)765-1622 - Fax:(509)765-0314 - (800)764-1622

Client: **City of Gustavus**	Product: **GUSTAVUS DRC**	Date Reported:	04/14/22
Attn: Paul Berry	Date Sampled:	03/28/22	**Laboratory #** **C22-451**
PO BOX 1	Date Received:	03/31/22	Reveiwed by Brent Thyssen, CPSSc
Gustavus, AK 99826	**Invoice #: C22-451**		**PO#:** **22-258**
907-697-2118			**Amount:** **$240.00**

Nutrients

	Method	As Received	Dry Wt.	Units	Low	Normal	High	Typical Range
Moisture	70 C	**44**		%	**********			15 to 40
Solids	70 C	**56**		%	**********			60 to 85
pH	1:5	**8.0**	**NA**	SU	**********			5.5 to 8.5
E.C. (Sol. Salts)	1:5	**1.9**	**3.3**	mmhos/cm	*******			below 5.0
Total N	TMECC 04.02D	**1.13**	**2.01**	%	**********			1 to 5
Organic C	TMECC 04.01A	**13.8**	**24.6**	%	**********			18 to 45
Organic Matter	TMECC 05.07A	**30.5**	**54.5**	%	**********			40 to 60
Ash	550 C	**25.5**	**45.5**	%	**********			40 to 60
Ammonium -N	TMECC 05.02C	**1**	**2**	mg/kg	***			90 to 450
Nitrate-N	TMECC 04.02B	**119**	**213**	mg/kg	**********			50 to 250
Phosphorous	TMECC 04.12B/04.14A	**0.30**	**0.54**	%				
P_2O_5	calculation	**0.69**	**1.24**	%	**********			1 to 8
Potassium	TMECC 04.12B/04.14A	**0.23**	**0.41**	%				
K_2O	calculation	**0.28**	**0.49**	%	****			3 to 12
Calcium	TMECC 04.12B/04.14A	**2.52**	**4.5**	%	**********			0.5 to 10
Magnesium	TMECC 04.12B/04.14A	**0.22**	**0.39**	%	**********			0.05 to 0.7
Sodium	TMECC 04.12B/04.14A	**0.16**	**0.29**	%	**********			0.05 to 0.7
Sulfur	TMECC 04.12B/04.14A	**0.13**	**0.23**	%	**********			0.1 to 1.0
Boron	TMECC 04.12B/04.14A	**4**	**8**	mg/kg	****			25 to 150
Zinc	TMECC 04.12B/04.14A	**44**	**78**	mg/kg	********			100 to 600
Manganese	TMECC 04.12B/04.14A	**92**	**164**	mg/kg	********			250 to 750
Copper	TMECC 04.12B/04.14A	**8**	**14**	mg/kg	***			100 to 500
Iron	TMECC 04.12B/04.14A	**4258**	**7605**	mg/kg	**********			1000 to 25000
C/N ratio			**12**	ratio	********			18 to 24
C/P Ratio			**46**	ratio	*******			80 to 140

Respiration & Stability

	Method		Units	Low	Normal	High	Normal
CO2 Evolution	TMECC 05.08	**0.3**	mg CO_2-C/g OM/day	**			1 to 7
	TMECC 05.08	**0.5**	mg CO_2-C/g TS/day	**********			0.5 to 5

Stability Rating **Very Stable**

Sample was received, handled and tested in accordance with TMECC procedures

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Cucumber Bioassay

	Method		Units	Low	Normal	Normal
Emergence	TMECC 05.05A	**100**	%	**********		80 to 100
Vigor	TMECC 05.05A	**100**	%	**********		85 to 100
Maturity		**Very Mature: safe for use in containers**				

Pathogens

	Method		Date Tested / units	4/4/2022	Low	Normal	High		Normal
Fecal Coliforms	TMECC 07.01AB	**NOT TESTED**	MPN/g						Less than 1000
Salmonella	TMECC 07.02A	**ND**	MPN/4g	**Pass**	*				Less than 3

ND = None Detected Fecal Coliforms MDL 4.1 MPN/g Salmonella MDL 1 MPN/4g

EPA 503 Metals

	Method	Dry Wt.	Units	Low	Normal	High	MDL	EPA Limit
Arsenic	TMECC 04.12B/04.14A	**2.0**	mg/kg	****			0.78	41
Cadmium	TMECC 04.12B/04.14A	**<MDL**	mg/kg				0.42	39
Chromium	TMECC 04.12B/04.14A	**8.3**	mg/kg				0.09	-
Cobalt	TMECC 04.12B/04.14A	**1.8**	mg/kg	****			0.07	1200
Copper	TMECC 04.12B/04.14A	**13.9**	mg/kg	****			0.13	1500
Mercury	TMECC 04.12B/04.14A	**0.02**	mg/kg	****			0.004	17
Molybdenum	TMECC 04.12B/04.14A	**2.2**	mg/kg	******			0.05	75
Nickel	TMECC 04.12B/04.14A	**4.6**	mg/kg	****			0.36	420
Lead	TMECC 04.12B/04.14A	**<MDL**	mg/kg				0.6	300
Selenium	TMECC 04.12B/04.14A	**5.20**	mg/kg	********			1.4	36
Zinc	TMECC 04.12B/04.14A	**78**	mg/kg	****			0.27	2800
	Metals Assay	**Pass**						

Particle Size Distribution TMECC 2.02 B & C

inches	mm	% Passing	Inerts	% by wt.
3	**76.2**	**100**		
2	**50**	**100**	Total Plastic	**0.00**
1	**25**	**100**	Film Plastic	0.00
3/4	**19.1**	**100**	Glass	**0.00**
5/8	**16**	**96**	Metal	**0.00**
1/2	**12.5**	**91**		**0.00**
3/8	**9.5**	**80**		
1/4	**6.3**	**49**	**Total**	**0.00**

Sample was received, handled and tested in accordance with TMECC procedures

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Attn: Paul Berry
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907-697-2118

DATE REC 31-Mar-22
INVOICE # 31-Mar-22
LAB # C22-451
Date Reported: 04/14/22

NUTRIENT REPORT

SAMPLE I.D.: GUSTAVUS DRC

	%SOLIDS	%WATER
As Received:	55.99	44.01

TOTAL	--------100%DRY----------		-----AS RECEIVED------	
ELEMENTS	%	lbs/ton	%	lbs/ton
TN	2.01	40.20	1.13	22.5
P	0.54	10.80	0.30	6.0
P205	1.24	24.84	0.70	13.9
K	0.41	8.20	0.23	4.6
K20	0.49	9.84	0.28	5.5
S	0.23	4.64	0.13	2.6
Ca	4.51	90.2	2.52	50.5
Mg	0.39	7.79	0.22	4.4
Na	0.29	5.81	0.16	3.3
C	24.60	492	13.8	275
	mg/kg	lbs/ton	mg/kg	lbs/ton
Zn	78	0.16	44	0.09
Mn	164	0.33	92	0.18
Cu	14	0.03	8	0.02
Fe	7605	15.21	4258	8.52
B	8	0.02	4.48	0.01
Nitrate N	213	0.43	119.0	0.24
Ammonium N	2	0.00	1	0.00
C:N Ratio			12	
pH			8.0	
E.C.	3.33		1.86	

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INTERPRETATION GUIDE

SAFETY INTERPRETATIONS

Pathogens

Fecal coliform bacteria are present in the gut and fecal mater of warm-blooded animals. Their presence is used as an indicator of the presence of possible human pathogens. The heat generated during proper composting is lethal to fecal coliform and other human pathogens. A test value below 1,000 per gram of compost is considered generally safe for human contact. As the compost is stored or transported, the temperature is no longer lethal for coliform bacteria and there is the possibility for regrowth or contamination by birds or other animals.

Your compost was not tested for fecal coliform.

Salmonella is a human pathogenic bacteria and a good indicator of other human pathogens. It is regularly used to monitor the liklihood of human pathogen presence in biosolids.

Your compost was tested for salmonella bacteria and found to be: **VERY SAFE**

Heavy Metals

9 heavy metals were identified with maximum concentration limits for land application in biosolids by USEPA in 40 CFR Part 503,B. Ongoing applications to the land are prohibited if any metal concentration exceed the limits in Table 3 of Part 503.13.

If the bars on the "Heavy Metals" for your compost are within or below the "Normal" range, your compost is safe to use as a soil amendment.

COMPOST STABILITY AND MATURITY

Respiration

Respiration is the measurement of microbially generated CO2 from the compost when incubated at optimal temperature and moisture. It provides an indication of whether the composting process is complete and whether the compost is mature and ready for use. However, other factors may be limiting microbial activity (see C:N Ratio below)

Your Compost was rated as **Very Stable: well cured, finished compost; no odors or plant toxicity**

Maturity

Bioassay

Cucumbers are grown in a fixed blend of your compost and a commercial potting mix maintained at optimum moisture and temperature. Cucumbers are relatively insensitive to salinity, but very sensative to ammonia, organic acids and herbicide residue. Emergence and Vigor are rated: results greater than 80% indicate that your compost is mature and/or contains no hervicide carryover. Very high salinity can also reduce assay results.

Your Compost Emergence %	**100**	Your Compost vigor %	**100**

Total Nitrogen, Nitrate & Ammonium

Ammonia is produced as a gas in the early stages of composting. The ammonium is nitrified to nitrate as the compost matures. Ammonia is toxic to plants at relatively low concentrations but under moist conditions is converted to ammonium which is less toxic. Nitrate is not toxic, but does contribute to overall salinity if very high. The pH of the compost typically starts out low as organic acids are released, then increases as ammonia is produced, then settles back towards nuetral (7.0) as ammonium is nitrified and the compost matures.

Your Compost Ammonium level was	**2**	Your Compost Ammonium:Nitrate ratio was	**0**
Your Compost Ammonium:Total N ratio was	**0.00**	Your Compost pH was	**8.0**

Considering all the factors above, your Compost is **Very Mature: safe for use in containers**

FERTILITY INTERPRETATIONS

C:N Ratio

The carbon to nitrogen ratio is important to determine 1) if the composting process is complete or simply stalled out because of lack of nitrogen and 2) whether the compost, when applied to the soil, will act as a source of nitrogen for the crop or become a sink causing the crops to starve for nitrogen.

Your C:N ratio was **12** **Your compost will tend to release available N for crop use.**

Electrical Conductivity/Salinity

Electrical Conductivity is a convenient way to evaluate the soluble salts or salinity of a compost. High salinity is damaging to plants.

The EC of your Compost was **3.3** **Medium: best to dilute 1:2 to 1:5 for most applications**