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Lab #	2834370	Report of Analysis		Report Number: 18-232-4009	
<b>Account:</b> 14285	HUGHES MULCH PRODUCTS HUGHES MULCH PRODUCTS 3211 KEYSTONE DR OMAHA NE 68134		 Robert Ferris Account Manager 402-829-9871		
<b>Date Sampled:</b> <b>Date Received:</b> <b>Sample ID:</b>	2018-08-03 COMPOST 2018				STA ANALYSIS
			Analysis (as rec'd)	Analysis (dry weight)	Total content, lbs per ton (as rec'd)
<b>NUTRIENTS</b>					
Nitrogen					
Total Nitrogen	%	0.54	0.87	10.8	
Organic Nitrogen	%	0.54	0.87	10.8	
Ammonium Nitrogen	%	< 0.001	----	----	
Nitrate Nitrogen	%	< 0.01	----	----	
Major and Secondary Nutrients					
Phosphorus	%	0.10	0.16	2.0	
Phosphorus as P2O5	%	0.23	0.37	4.6	
Potassium	%	0.40	0.65	8.0	
Potassium as K2O	%	0.48	0.78	9.6	
Sulfur	%	0.07	0.11	1.4	
Calcium	%	1.76	2.85	35.2	
Magnesium	%	0.33	0.53	6.6	
Sodium	%	0.020	0.032	0.4	
Micronutrients					
Iron	ppm	9640	15599	19.3	
Manganese	ppm	378	612	0.8	
Boron	ppm	< 100	----	----	
<b>OTHER PROPERTIES</b>					
Moisture	%	38.20			
Total Solids	%	61.80		1236.0	
Organic Matter	%	14.60	23.62	292.0	
Ash	%	46.60	75.40	932.0	
Total Carbon	%	7.63	12.35		
Chloride	%	0.04	0.06		
pH		7.9			
Conductivity 1:5 (Soluble Salts)	mS/cm	0.73			

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Lab #	2834370	<b>Biological &amp; Physical Properties</b>	Report Number: 18-232-4009		
<b>Account:</b> 14285	HUGHES MULCH PRODUCTS HUGHES MULCH PRODUCTS 3211 KEYSTONE DR OMAHA NE 68134		 Robert Ferris Client Service Representative 402-829-9871		
<b>Date Sampled:</b> <b>Date Received:</b> <b>Sample ID:</b>	2018-08-03 COMPOST 2018		STA ANALYSIS		
	Analysis (as rec'd)	Analysis (dry weight)	Units	Detection Limit	Method
<b>Biological Properties</b>					
Germination	100		%	1	TMECC 05.05A
Germination Vigor	100		%	1	TMECC 05.05A
CO <sub>2</sub> OM Evolution	0.14		mgCO <sub>2</sub> -C/gOM/day	0.01	TMECC 05.08B
CO <sub>2</sub> Solids Evolution	0.08		mgCO <sub>2</sub> -C/gTS/day	0.01	TMECC 05.08B
Fecal Coliform		798	mpn/g	0.2	EPA 1681
Salmonella		1	mpn/4g	0.01	EPA 1682
Stability Rating	Stable		N/A	N/A	TMECC 05.08B
<b>Physical Properties</b>					
Bulk Density (Loose)	1264		lbs/cu yard	1	WT/VOL
Bulk Density (Packed)	1820		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		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"		96	%	0.01	TMECC Sieve
Sieve % Passing 1/4"		81	%	0.01	TMECC Sieve

Compost Results Interpretations

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Organic Matter %		Greater than 20% indicates a desirable range for compost on a dry weight basis.
14.60	As Received	
23.62	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.
14.1:1		

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
38.20		

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

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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
0.7

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

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pH Value

7.9

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)

2.02

Average Nutrient Content Dry Weight

<2 = Low, >5 = High

0.5-0-0.5

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%.

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**Aug 20, 2018**  
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ISSUE DATE  
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**HUGHES MULCH PRODUCTS  
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 3211 KEYSTONE DR  
 OMAHA NE 68134**

**REPORT OF ANALYSIS**  
 For: (14285) HUGHES MULCH PRODUCTS  
 STA ANALYSIS

Analysis	Level Found			Reporting			Analyst- Date	Verified- Date
	As Received	Dry Weight	Units	Limit	Method			

Sample ID: **COMPOST 2018** Lab Number: **2834370**

Cadmium (total)	n.d.	n.d.	mg/kg	0.50	EPA 6010	ras7-2018/08/06	bab2-2018/08/08
Chromium (total)	13.3	21.6	mg/kg	1.00	EPA 6010	ras7-2018/08/06	bab2-2018/08/08
Mercury (total)	n.d.	n.d.	mg/kg	0.05	EPA 7471	com2-2018/08/07	bab2-2018/08/08
Lead (total)	9.5	15.4	mg/kg	5.0	EPA 6010	ras7-2018/08/06	bab2-2018/08/08
Molybdenum (total)	1.2	2.0	mg/kg	1.0	EPA 6010	ras7-2018/08/06	bab2-2018/08/08
Nickel (total)	9.8	15.9	mg/kg	1.0	EPA 6010	ras7-2018/08/06	bab2-2018/08/08
Selenium (total)	n.d.	n.d.	mg/kg	10.0	EPA 6010	ras7-2018/08/06	bab2-2018/08/08
Zinc (total)	45.6	73.7	mg/kg	2.0	EPA 6010	ras7-2018/08/06	bab2-2018/08/08
Copper (total)	11.1	17.9	mg/kg	1	EPA 6010	ras7-2018/08/06	bab2-2018/08/08
Arsenic (total)	5.41	8.76	mg/kg	0.5	EPA 6020	th1-2018/08/10	kkh9-2018/08/12
Percent solids	61.80		%	0.01	SM 2540 G-(1997) *	bjs0-2018/08/07	cmw2-2018/08/07

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

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Analysis	Level Found		Units	Reporting Limit	Method	Analyst- Date	Verified- Date
	As Received	Dry Weight					

EPA 1681 holding time of < 24 hours from sampling to laboratory set up of samples for biosolids and compost has been exceeded. Individual states enforce different holding times for compost or biosolids so please contact the regulatory body in your state for their requirements.

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:

Stacie Nelson  
Account Manager  
snelson@midwestlabs.com (402)829-9840

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