



Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Date Report Printed: 4/30/2019 3:51:10 PM
<http://www.analyticallaboratories.com>
These test results relate only to the items tested.

Laboratory Analysis Report

Sample Number: 1917129

Attn: CHRISTOPHER BATISTE
CARGILL MPLS RES CENT
HWY 329 SOUTH
LOS ANGELOS, CA 70513

Collected By:
Submitted By: FEDEX

Source of Sample:
LANSING ANNUAL TESTING MGCL2 LIQUID
ADDITIONAL TESTING OF LAB ID #1905198

Time of Collection:

Date of Collection:

Date Received: 4/16/2019

Report Date: 4/30/2019

Field pH: **Lab pH:**
Field Temp: **Temp Rcvd in Lab:**

PWS#:
PWS Name:

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Freezing Point Specific Gravity Chart		*			ASTM	4/30/2019	JH

Email: CHRISTOPHER_BATISTE@CARGILL.COM

MCL = Maximum Contamination Level
MDL = Method/Minimum Detection Limit
UR = Unregulated

Thank you for choosing Analytical Laboratories for your testing needs.

If you have any questions about this report, or any future analytical needs, please contact your client manager:

James Hibbs



Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

<http://www.analyticallaboratories.com>

Date Report Printed: 4/30/2019

Attn: CHRISTOPHER BATISTE
CARGILL MPLS RES CENT
HWY 329 SOUTH
LOS ANGELOS, CA 70513

Collected By:
Submitted By: UPS

Source of Sample:
LANSING ANNUAL TESTING MGCL LIQUID

Time of Collection: 18:00
Date of Collection: 1/23/2019
Date Received: 2/5/2019
Report Date: 3/25/2019
Field pH: Lab pH:
Field Temp: Temp Rcvd in Lab:

PWS:

Laboratory Analysis Report

Sample Number: 1905198

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
% Total Solid		47.8	%		SM 15.10	2/27/2019	RME
Percent Ash		14.5	%		AOAC	2/27/2019	RME
* % Ash performed with 1g for 2 hr @ 550 degrees C. Crucibles, preheated to reduce foaming.							
Arsenic, As	< 1.0		mg/L	1.0	EPA 200.7	2/27/2019	JMS
Barium, Ba	< 0.5		mg/L	0.5	EPA 200.7	2/27/2019	JMS
Cadmium, Cd	< 0.05		mg/L	0.05	EPA 200.7	2/27/2019	JMS
Chromium, Cr	< 0.5		mg/L	0.5	EPA 200.7	2/27/2019	JMS
Copper, Cu	< 0.1		mg/L	0.1	EPA 200.7	2/27/2019	JMS
Corrosion Rate, 3 Day, TSI Coupons	25.9		%		NACE PNS	3/1/2019	JH
Corrosion Rate Duplicate = 26.1 %							
Freezer Settleable Solids	< 1.0		%	1.0	PNS	2/28/2019	JH
There was no visible settleable material in a dark green one liter sample. There was no density layer felt at any level in a very viscous sample. Freezer temperature = 0 °F (-17.8 °C).							
Lead, Pb	< 0.5		mg/L	0.5	EPA 200.7	2/27/2019	JMS
Magnesium Chloride	27.7		% wt		PNS	2/12/2019	JMS
Mercury, Hg	< 0.02		mg/L	0.02	EPA 245.1	2/21/2019	JD
Metals Digestion	*				SW 846 3050	2/22/2019	JMS
Selenium, Se	< 1.0		mg/L	1.0	EPA 200.7	2/27/2019	JMS
Zinc, Zn	0.2		mg/L	0.1	EPA 200.7	2/27/2019	JMS

MCL = Maximum Contamination Level
MDL = Method/Minimum Detection Limit
UR = Unregulated

Email: CHRISTOPHER_BATISTE@CARGILL.COM

Laboratory Analysis Report

Sample Number: 1905198

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Ammonia Direct (as N)		19.0	mg/L	0.04	EPA 350.1	2/25/2019	SMC
Nitrate (as N)		6.9	mg/L	5.0	EPA 353.2	2/26/2019	SMC
Nitrite (as N)	<	2.5	mg/L	2.5	EPA 353.2	2/25/2019	SMC
A 1/250 by volume dilution was required to negate the large color interference in the sample, making the new RDL 2.5 mg/L.							
Nitrogen, Total Kjeldahl (TKN)		190	mg/L	10	EPA 351.2	2/11/2019	DS
Total Phosphate (as P)		14	mg/L	5	EPA 365.4	2/11/2019	DS
Chemical Oxygen Demand		<15,000	mg/L	15000	EPA 410.4	2/24/2019	SMC
Cyanide, Total	<	0.05	mg/L	0.05	EPA 335.4	2/22/2019	DS
pH, Deicer 1 + 4		8.0	S.U.		ASTM D1293	2/25/2019	JH
Biochemical Oxygen		3,600	mg/L	3	SM 5210 B	2/26/2019	EH

MCL = Maximum Contamination Level
MDL = Method/Minimum Detection Limit
UR = Unregulated

Email: CHRISTOPHER_BATISTE@CARGILL.COM


James Hibbs

Thank you for choosing Analytical Laboratories for your testing needs.
If you have any questions concerning this report,
please contact your client manager.

**Analytical Laboratories, Inc.**

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208)342-5515

Cargill**Source: LANSING ANNUAL TESTING MGCL LIQUID****Analytical Lab Sample Number:1917129**

Percentage of MgCl₂	Specific Gravity (g/mL)	Freezing Point (°C)	Freezing Point (°F)
5%	1.0571	-3.5	25.7
6%	1.0683	-4.5	23.9
7%	1.0792	-5.5	22.1
8%	1.0902	-7.5	18.5
9%	1.1007	-8.5	16.7
10%	1.1111	-10	14
11%	1.1224	-12	10.4
12%	1.1324	-14.5	5.9
13%	1.1430	-16	3.2
14%	1.1489	-20.5	-4.9
15%	1.1610	-23	-9.4
16%	1.1715	-25	-13
17%	1.1801	-29.5	-21.1
18%	1.1934	-30	-22
19%	1.2037	-34	-29.2
20%	1.2131	-33	-27.4
21%	1.22.4	-30.5	-22.9
22%	1.2305	-29	-20.2
23%	1.2406	-27	-16.6
24%	1.2521	-25	-13
25%	1.2600	-24	-11.2
26%	1.2694	-22.5	-8.5
27%	1.2764	-21.5	-6.7
27.7%	1.2833	-20.5	-4.9

Thank you for choosing Analytical Laboratories for your testing needs.

If you have any questions about this report, or any future analytical
needs, please contact: James Hibbs

1917129 Cargill- Source: Lansing Annual Testing MgCl Liquid

