



## Product Technical Specification Sheet

**Product Name:** Magic Minus Zero

### Physical Characteristics:

No.	Properties	Test Method	Typical Values	Specification	
				min	max
1	Appearance	-	Brown	-	-
2	pH, deicer 1+4	ASTM D-1293	4.0	3.0	6.0
3	Specific Gravity (15°C   60°F)	ASTM D-1429	1.300	1.290	1.310
4	Weight (lbs/gal)	ASTM D-1429	10.85	10.76	10.93
5	Freeze Point Temperature	PNS	-45°C   -49°F	-	-
6	% Freezer Settable Solids	PNS	<1.0	0.0	1.0
7	% Solids Passing #10 Sieve	PNS	>99.0	99.0	100.0
8	Total Dissolved Solids	-	38.4	37.4	45.4
9	Corrosion % effectiveness	NACE PNS	9.8	-	<30.0

### Chemical Characteristics:

No.	Properties	Test Method	Typical Values	Specification	
				min	Max
10	% Magnesium Chloride	PNS	22.4	21.0	24.0
11	% Sodium Chloride	PNS	-	0.0	1.0
12	% Calcium Chloride	PNS	-	0.0	1.0
13	% Potassium Chloride	PNS	-	0.0	1.0
14	Arsenic (ppm)	EPA 200.7	<1.0	0.0	5.0
15	Barium (ppm)	EPA 200.7	<0.5	0.0	100.0
16	Cadmium (ppm)	EPA 200.7	<0.05	0.0	0.2
17	Chromium (ppm)	EPA 200.7	<0.5	0.0	1.0
18	Copper (ppm)	EPA 200.7	1.3	0.0	4.0
19	Cyanide (ppm)	EPA 335.4	<0.05	0.0	0.2
20	Lead (ppm)	EPA 200.7	<0.5	0.0	1.0
21	Mercury (ppm)	EPA 245.1	<0.02	0.0	0.05
22	Selenium (ppm)	EPA 200.7	<1.0	0.0	5.0
23	Zinc (ppm)	EPA 200.7	<0.1	0.0	10.0
24	Phosphorus (ppm)	EPA 365.4	15.9	0.0	2500.0

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Magic Minus Zero  
Effective Date: January 2015  
www.innovativecompany.com

78 Orchard Road  
Ajax, Ontario L1S 6L1  
1-800-387-5777

454 River Road  
Glenmont, NY 12077  
1-800-257-5808



# Analytical Laboratories, Inc.

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

Date Report Printed: 7/19/2018 3:59:00 PM

<http://www.analyticallaboratories.com>

These test results relate only to the items tested.

## Laboratory Analysis Report

Sample Number: 1828452

Attn: INAM SIDDIQI  
INNOVATIVE MUNICIPAL U S  
78 ORCHARD RD  
AJAX, ON L1S 6L1, CANADA

Collected By:

Submitted By: FEDEX

Source of Sample:

MAGIC O/ICE B GONE II

Time of Collection:

Date of Collection: 6/18/2018

Date Received: 6/21/2018

Report Date: 7/19/2018

Field pH:

Lab pH:

PWS#:

Field Temp:

Temp Recd in Lab:

PWS Name:

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Arsenic, As		<1.0	mg/L	1.0	EPA 200.7	6/27/2018	JMS
Barium, Ba		0.7	mg/L	0.5	EPA 200.7	6/27/2018	JMS
Cadmium, Cd		<0.05	mg/L	0.05	EPA 200.7	6/27/2018	JMS
Chromium, Cr		<0.5	mg/L	0.5	EPA 200.7	6/27/2018	JMS
Copper, Cu		1.1	mg/L	0.1	EPA 200.7	6/27/2018	JMS
Corrosion Rate, 3 Day, TSI Coupons		12.0	%		NACE PNS	6/29/2018	JH
Freezer Settleable Solids		<1.0	%	1.0	PNS	7/9/2018	JH
There was no visible settleable material in a dark brown 800 mL sample. There was no density layer felt at any level. Freezer temperature = 0 °F (-17.8 °C).							
Lead, Pb		<0.5	mg/L	0.5	EPA 200.7	6/27/2018	JMS
Magnesium Chloride		21.3	% wt		PNS	7/2/2018	JMS
Metals Digestion		*			EPA 3050	6/25/2018	JD
Molybdenum, Mo		<1.0	mg/L	1.0	EPA 200.7	6/27/2018	JMS
Selenium, Se		<1.0	mg/L	1.0	EPA 200.7	6/27/2018	JMS
Specific Gravity		1.2928			ASTM D 1429	6/26/2018	JD
Zinc, Zn		1.8	mg/L	0.1	EPA 200.7	6/27/2018	JMS
Total Phosphate (as P)		54	mg/L	10	EPA 365.4	7/11/2018	DS
Chemical Oxygen Demand		218,000	mg/L	20	EPA 410.4	6/23/2018	SMC
Cyanide, Total		<0.05	mg/L	0.05	EPA 335.4	7/13/2018	DS
pH, Deicer 1 + 4		4.4	S.U.		ASTM D1293	7/19/2018	JH
Biochemical Oxygen		120,000	mg/L	3	SM 5210 B	6/27/2018	EH

Email: [isiddiqi@innovativecompany.com](mailto:isiddiqi@innovativecompany.com)

MCL = Maximum Contamination Level

MDL = Method/Minimum Detection Limit

UR = Unregulated

Notary Public Signature



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





## CERTIFICATE OF ANALYSIS

Nr.	068 / 2018
VESSEL	" SAROCHA NAREE "
LOADING DATE	APRIL 18 <sup>TH</sup> / 20 <sup>TH</sup> , 2018
PORT	PATILLOS, CHILE
CARGO	DE-ICING SALT
NOC	NOC 001 H
BUYER	MORTON SALT INC
COUNTRY	U.S.A.
HOLDS	1 - 2 - 3 - 4 - 5
TOTAL LOADING	51,300 MT

K+S Chile S. A., hereby, certifies that salt shipped in the vessel and date indicated, was conveniently sampled during the loading and the analysis of the composite sample is in compliance with the following specifications

### 1.- Chemical Analysis (dried basis)

Determination	Unit	Specification	Result
Sodium Chloride (as NaCl)	(%)	97.00 Min	99.02
Total Moisture	(%)	0.4 Max	0.3 <sup>(*)</sup>
YPS	(mg/kg)	85 ± 15	87

(\*) Natural moisture before the loading = 0.15 % . Additional moisture according to buyer requirement

### 2.- Sieve Analysis

Sieve size	Unit	Specification	Result
USA Sieve 1/2"	(%)	100 Passing	100
USA Sieve 3/8"	(%)	95 - 100 Passing	96
USA Sieve 4	(%)	20 - 90 Passing	66
USA Sieve 8	(%)	10 - 60 Passing	42
USA Sieve 30	(%)	0 - 12 Passing	9

### TEST METHODS

NaCl	= ASTM NORM E 534-98 (2003), K+S METHOD MAL Nr 20
Total Moisture	= GRAVIMETRIC METHOD, K+S METHOD MAL Nr 43
Decahydrate YPS	= SPECTROPHOTOMETRIC METHOD, K+S METHOD MAL Nr 19
Sieve analysis	= ASTM NORM D 632 - 01, K+S METHOD MAL Nr 26

Copy To : VP Operations and Supply Chain

Head of Technical Center  
Head of North Operations  
Head of Industrial Bulk  
Maritime Department  
Transportation and Storage Department  
Quality Assurance Area

  
Chief of Quality Assurance Area

Patillos, April 23<sup>rd</sup>, 2018

  
Notary Public Signature

23<sup>rd</sup> Day, April 2018





## CERTIFICATE OF ANALYSIS

Nr.	092 / 2018
VESSEL	" SINOP "
LOADING DATE	MAY 23 <sup>RD</sup> / 25 <sup>TH</sup> , 2018
PORT	PATILLOS, CHILE
CARGO	DE-ICING SALT
NOC	NOC 001 H
BUYER	MORTON SALT INC
COUNTRY	U.S.A.
HOLDS	1 - 2 - 3 - 4 - 5
TOTAL LOADING	61,200 MT

K+S Chile S. A., hereby, certifies that salt shipped in the vessel and date indicated, was conveniently sampled during the loading and the analysis of the composite sample is in compliance with the following specifications

### 1.- Chemical Analysis (dried basis)

Determination	Unit	Specification	Result
Sodium Chloride (as NaCl)	(%)	97.00 Min	98.02
Total Moisture	(%)	0.4 Max	0.3 <sup>(*)</sup>
YPS	(mg/kg)	85 ± 15	89

(\*) Natural moisture before the loading = 0.14 % . Additional moisture according to buyer requirement

### 2.- Sieve Analysis

Sieve size	Unit	Specification	Result
USA Sieve 1/2"	(%)	100 Passing	100
USA Sieve 3/8"	(%)	95 - 100 Passing	96
USA Sieve 4	(%)	20 - 90 Passing	68
USA Sieve 8	(%)	10 - 60 Passing	45
USA Sieve 30	(%)	0 - 12 Passing	10


### TEST METHODS

NaCl	= ASTM NORM E 534-98 (2003), K+S METHOD MAL Nr 20
Total Moisture	= GRAVIMETRIC METHOD, K+S METHOD MAL Nr 43
Decahydrate YPS	= SPECTROPHOTOMETRIC METHOD, K+S METHOD MAL Nr 19
Sieve analysis	= ASTM NORM D 632 - 01, K+S METHOD MAL Nr 26

Copy To : VP Operations and Supply Chain  
Head of Technical Center  
Head of North Operations  
Head of Industrial Bulk  
Maritime Department  
Transportation and Storage Department  
Quality Assurance Area

  
Chief of Quality Assurance Area

Patillos, May 31<sup>st</sup>, 2018

  
Notary Public Signature

