

RE: sodium

From: Steve Masalin (pwd@ledyardct.org)

To: dieter.gardner@yahoo.com

Date: Wednesday, January 18, 2023 at 12:42 PM EST

Hi Pete,

Ledyard is a member of CRCOG (Capitol Region Council of Governments) and use their bidding for several commodities, including treated salt. From this bid, we have used the Morton offering (formerly offered by International Salt) of Ice-B-Gone (also known as Blizzard Wizard). I've attached documentation provided by Morton as part of their submission. There appears to be some duplication.

Steve




Steven E. Masalin, P.E.



Public Works Director, Town of Ledyard  
741 Colonel Ledyard Hwy.  
Ledyard, CT 06339  
(860) 464-3238  
www.ledyardct.org

**From:** Peter Gardner <dieter.gardner@yahoo.com>  
**Sent:** Wednesday, January 18, 2023 12:25 PM  
**To:** Steve Masalin <pwd@ledyardct.org>  
**Subject:** sodium

Steve, what is the mix you put on town roads, trying to get some way of responding to inland wetlands comments on Avery Brook subdivision. Pete

-  Morton Treated Salt Materials.pdf  
2.6MB
-  Non-Staining Guarantee.pdf  
172.7kB
-  Environmental.pdf  
214.7kB



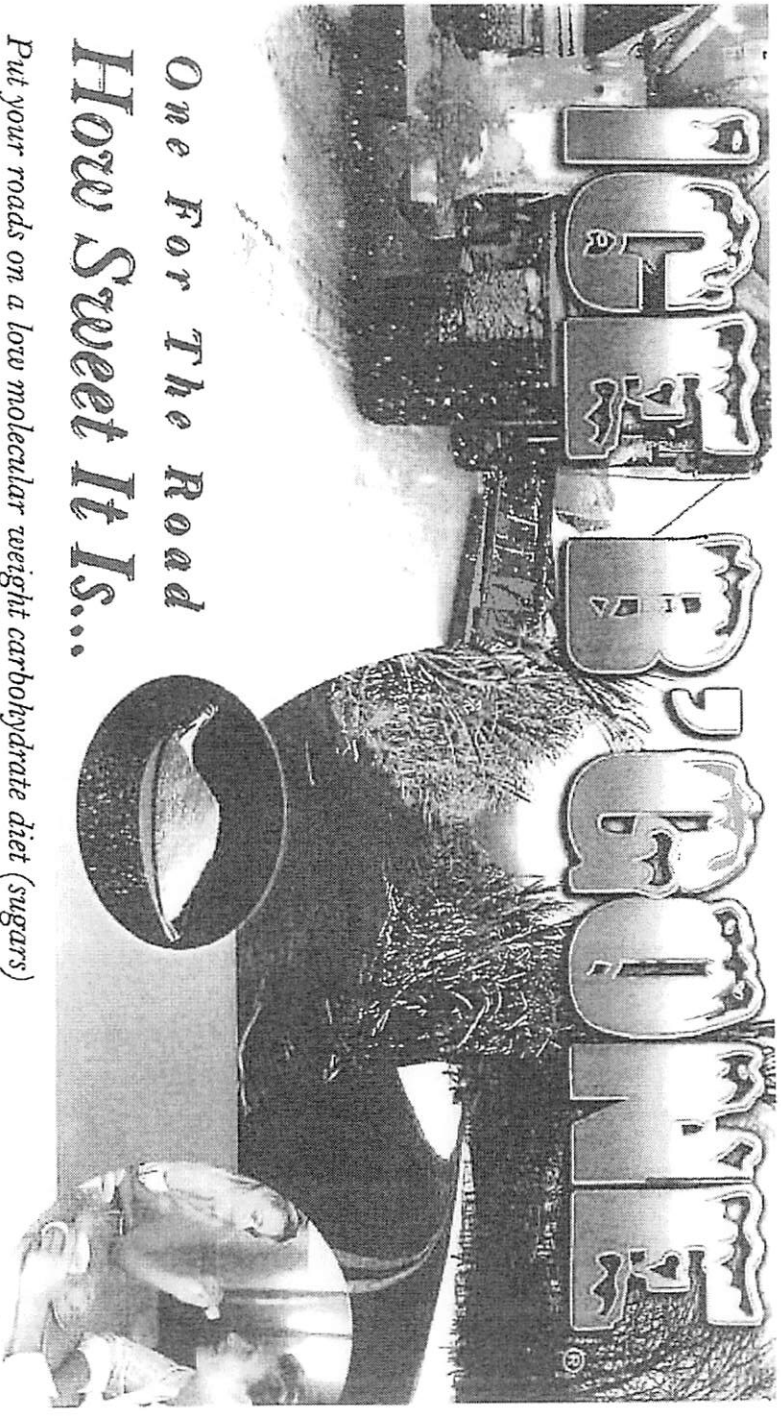
**MORTON SALT**

21, June 2022

Environmental Considerations & Anti-Fracking Material Ordinances

I, Anthony T. Patton, who is Director, US Gov't Bulk Deicing Sales & Marketing of Morton Salt, Inc., duly swears that Morton Salt's Blizzard Wizard product is ecologically safe and is in compliance with applicable CT Department of Environmental Protection & US Environmental Protection Agency regulations. Morton Salt does not sell or manufacture any material obtained through fracking.

Anthony T. Patton  
Director, US Bulk Deicing Gov't Sales



## One For The Road How Sweet It Is...

*Put your roads on a low molecular weight carbohydrate diet (sugars)  
and see how sweet it is!*

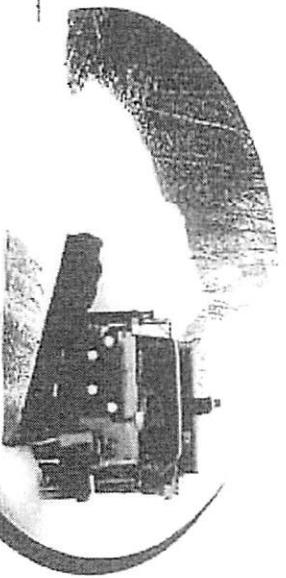
*From the original suppliers of anti-icers, ICE B'GONE II, we've come a long way and now we've come a long way from conventional systems. ICE B'GONE II*

*Through our extensive research and development program we have determined that sugars added to salt in specific proportions will significantly lower the working temperature of chloride salt, allowing longer working time and greatly reducing corrosion. ICE B'GONE II use allows for lower salt application rates and has less impact on the environment which leads to cost savings. ICE B'GONE II will meet the stringent requirements of the PNS (Pacific Northwest Snowfighters) for corrosion, toxicity and effectiveness.*

*ICE B'GONE II is a renewable, economical and environmentally effective way to keep your roads safe - less salt use, lower cost, better service and significant corrosion reduction!*

# ICE B'GONE II

## Safer Roads!

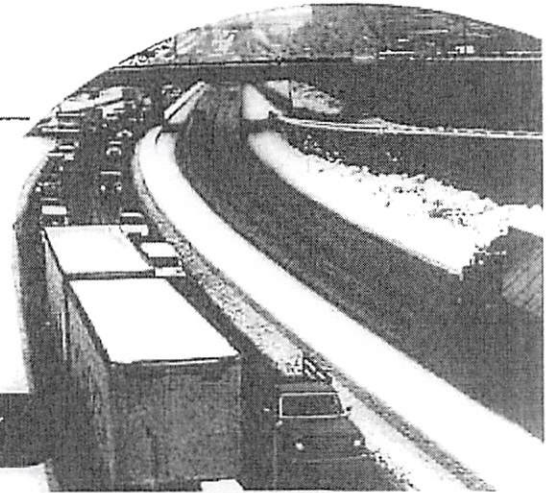


- ...improves winter road conditions*
- ...treated salt works to lower temperature (-0°F) than dry salt alone*
- ...treated salt stays on the road better by reducing bounce and scatter*
- ...can safely be applied prior to a storm event (anti-icing) thus preventing a bond from forming between the pavement and the snow accumulation*
- ...has a residual effect that is superior to other de-icers on the market. This fact is attributable to the higher viscosity of Ice B'Gone reducing chloride brine leaching to the road shoulders*
- ...is ideal for treating black ice and clear weather frost on road and bridge surfaces*
- ...can also be used as a concentrate with salt brines to reduce corrosion, lower freeze point and increase working time*



## Reduces Costs!

- Saves Time, Labor and Materials
- Lower working temperatures coupled with better adherence and residual effect results in a 30-40 percent salt saving
- Eliminates the need for sand, its cleanup and disposal
- Drastically reduces the corrosivity of salt and its effect on chains, bearings, frames, brakes, and electrical components



*"ICE B'GONE - The evolution of high performance deicers"*

### Typical Corrosion Performance

Deicer / Fluid	PNSDGT Relative Corrosion Rate
ICE B'GONE®	5.1
Distilled Water	0
Rock Salt (NaCl)	100
Calcium Chloride (CaCl <sub>2</sub> )	127
Magnesium Chloride (MgCl <sub>2</sub> )	80

### Typical Analysis

Solids	48.5%
MgCl <sub>2</sub>	22.5%
Carbohydrates	2.5%
Spec Gravity	1.2215
PH	4.8 (pH)
Solubility	>18%
Appearance	Clear Amber
Odor	Slight Sweet
Biological Oxygen Demand (most to 6.1 mgO <sub>2</sub> /l @ 20°C)	

### Environmental Benefits

- ...is safe to use around animals and humans. It does not affect skin, leather, clothing, or carpets. No special handling equipment is required. It is water soluble.
- ...reduces the levels of sodium and chloride ion exposure to wells, vegetation, surface water.
- ...eliminates the need for sand, a major source of phosphorus and PM-10 contamination.
- ...Very low BOD values assure low impact on water and vegetation; compare to the effects of untreated chloride salts!
- ...A full winter's use of Ice B'Gone II uses less oxygen than one hour of traffic!"

# ICE B'GONE II



*You Can't Afford Not To Use Ice B'Gone!*

*North America's Leader in research and development of snow and ice technology.*

Sears warrants that ICE B'GONE® shall be fit for the purpose for which such goods are ordinarily intended. Such warranty is in lieu of all other warranties, express or implied, all of which are hereby disclaimed and excluded by Sears. In no event shall Sears be liable for any special, indirect, incidental or consequential losses or damages of any kind.

This technology is covered by various US and foreign patents which are owned by:  
Sears Ecological Applications Company, LLC (SEACO) and Sears Petroleum and Transport Corp. (SEARS) 1514 Black River Blvd, Rome, NY 13440 - 1-888-847-3228  
www.seaco.com



INTERNATIONAL SALT  
an SPL company

## INTERNATIONAL SALT BULK ICE-MELT WITH ICE B'GONE® II

International Salt's bulk salt treated with Ice B'Gone® II is one of the most effective and efficiently priced ice-melt products available in the industry and is designed to help create a safer travel environment during inclement winter weather. A U.S. EPA-designated "Design for the Environment" product, the proprietary formulation contains sodium chloride and Ice B'Gone® II, manufactured from a molasses, high fructose corn syrup or other carbohydrate base. Unlike other ice-melt products whose ancillary ingredients usually are added topically, International Salt's bulk treated salt is distinctive as all components are thoroughly blended, resulting in salt crystals that are uniformly encapsulated with Ice B'Gone® II.

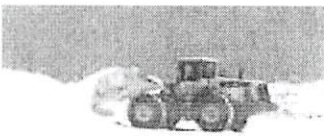
### Product Features & Benefits\*

- Faster melting action
- Low-temperature melting performance to well below  $-0^{\circ}$  F
- Reduced bounce and scatter
- Longer lasting adhesion to road surfaces with continued residual effects
- Fleet optimization
  - ◆ Free-flowing spreader
  - ◆ Less equipment corrosion

### Environmental and Safety Benefits and Effectiveness\*

- Eliminates the use of sand and related residual cleanup
- More efficient use of salt with lower environmental impact
- Approved for use in watershed areas
- Prolonged effectiveness minimizes refreeze providing for safer travel conditions
- Ice-melting characteristics are 3.5 times more effective than rock salt in commonly occurring temperatures

### Available at Strategic U.S. East Coast Salt Storage Facilities



INTERNATIONAL SALT  
an SPL company

888-388-4726

[www.internationalsalt.com](http://www.internationalsalt.com)

A K+S Group Company



\* Source: Sears Ecological Applications Co., LLC--Ice B'Gone® II is protected and licensed under U.S. Patent Nos. 6,299,793; 6,582,622; 7,147,797, and related patents owned by Sears Ecological Applications Co. LLC.





SEARS  
ECOLOGICAL  
APPLICATIONS  
COMPANY, LLC



*Environmentally Safe and Sound Road Maintenance*

---

Sears Petroleum & Transport Corp., through its 100% owned LLC, Sears Ecological Applications Company, LLC, (together Sears) is the exclusive manufacturer of Ice B' Gone® liquid, either in its own facilities or through authority of third party manufacturing facilities.

Sears hereby authorizes International Salt Company, LLC (ISCO) to market and sell Ice B' Gone® liquid as a treatment of ISCO's granular sodium chloride.

This data is furnished under the authority of:

David H. Wood, President

Sears Ecological Applications Company, LLC

May 14, 2013



SEARS  
ECOLOGICAL  
APPLICATIONS  
COMPANY, LLC



*Environmentally Safe and Sound Road Maintenance*

---

Item E: Non-staining Guarantee: Ice B'Gone® is a water soluble material which is a combination of an agricultural based product and magnesium chloride, all of which are water soluble and therefore are washable with ordinary laundry detergents, and will not stain clothing if cleaned in a normal period of time.

Item F: Environmental Safety System: Ice B'Gone® meets the specific limitations of Section II, Technical Specification/Additional Requirements, CRPC, Page 5. Ice B'Gone® is the only deicer in the US to have received the EPA designation "Design for the Environment".

This data is furnished under the authority of:

David H. Wood, President

Sears Ecological Applications Company, LLC

May 14, 2013



**SURVEY & CERTIFICATION**

Head Office: Prat 814, Office 311, Valparaiso / Phone: (56-32) 250585 - Fax: 254579  
 E-mail: [marssvap@marss.cl](mailto:marssvap@marss.cl) / Web Site: [www.marss.cl](http://www.marss.cl) / Member of Marss International Group ( MIG)  
 Arica - Iquique - Antofagasta - Coquimbo - Valparaiso - San Antonio - Talcahuano - Puerto Montt - Punta Arenas  
 Iquique agency: Sotomayor 625 Oficina 709, Edificio Contadores / Phone: (56-57) 576520 / Fax: (56-57) 576521  
 E-mail: [Iquique@marss.cl](mailto:Iquique@marss.cl) / [operacionesiq@marss.cl](mailto:operacionesiq@marss.cl)

**CERTIFICATE OF ANALYSIS**

Nr.	IQQ-1304-0104
VESSEL	" ATLANTIC SPIRIT "
LOADING DATE	APRIL 02 <sup>nd</sup> , 2013
PORT	PATILLOS, CHILE
CARGO	DE-ICING GRADE
NOC	NOC 001 - C
BUYER	INTERNATIONAL SALT COMPANY
COUNTRY	U.S.A.
TOTAL LOADING	10,800 MT
HOLDS	2 - 4

**1.- Chemical Analysis (Dried Basis)**

Determination	Unit	Specification	Result
Sodium Chloride (as NaCl)	(%)	97.00 Min	99.20
Total Moisture	(%)	0.4 Max	0.3 <sup>(*)</sup>
Anticaking (as YPS)	(mg/kg)	100 ± 10	108

<sup>(\*)</sup> Natural moisture before the loading = 0.07%. 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	98
USA Sieve 4	(%)	20-90 Passing	73
USA Sieve 8	(%)	10-60 Passing	40
USA Sieve 30	(%)	0-10 Passing	8

**STANDARD AND TEST METHODS**

NaCl	= ASTM NORM E 634-98 (2003), SPL METHOD MAL Nr 20
Total Moisture	= GRAVIMETRIC METHOD; SPL METHOD MAL Nr 2
Decahydrate YPS	= SPECTROPHOTOMETRIC METHOD, SPL METHOD MAL Nr 19
Sieve analysis	= ASTM NORM D 632 - 01, SPL METHOD MAL Nr 28

Copy to: Chief Executive Officer  
 Commercial Management  
 Operational Management  
 Maritime Div.  
 Lab. File

  
**JUAN ALVAREZ SILVA**  
**MARSS/IQUIQUE**

Patillos, April 04<sup>th</sup>, 2013

In accepting this certificate it is agreed that the extent of the obligation of this Company with respect thereto is limited to furnishing a surveyor believed to be competent, and in the making of this certificate the surveyor is acting impartially and to the best of his ability and no liability shall attach to the Company or the surveyor for the accuracy thereof. Our responsibility can never exceed the amount of our fees.





# Analytical Laboratories, Inc.

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

Attn: KYLE SULLWOLD  
INNOVATIVE SURFACE SOLUTIONS  
454 RIVER ROAD  
GLENMONT, NY 12077

Collected By: KYLE S.  
Submitted By: FED EX

Source of Sample:  
Magic Minus Zero/Ice B' Gone II

Time of Collection: 12:00  
Date of Collection: 1/4/2016  
Date Received: 1/13/2016  
Report Date: 2/3/2016

Field Temp:                      Temp Rcvd in Lab:  
PWS:                                PWS Name

## Laboratory Analysis Report

Sample Number: 1601683

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
% Solid Passing #10 Sieve		> 99.0	%		PNS	2/2/2016	JH
100 percent passing the #10 sieve. Freezer temperature = 0 °F (-17.8 °C).							
Arsenic, As		< 1.0	mg/L	1.0	EPA 200.7	1/25/2016	JMS
Barium, Ba		1.3	mg/L	0.5	EPA 200.7	1/25/2016	JMS
Cadmium, Cd		< 0.05	mg/L	0.05	EPA 200.7	1/25/2016	JMS
Chromium, Cr		< 0.5	mg/L	0.5	EPA 200.7	1/25/2016	JMS
Copper, Cu		1.5	mg/L	0.1	EPA 200.7	1/25/2016	JMS
Value verified by duplication.							
Corrosion Rate, 3 Day, TSI Coupons		14.3	%		NACE PNS	1/22/2016	JH
Corrosion Rate Duplicate = 14.3 %							
Freezer Settleable Solids		< 1.0	%	1.0	PNS	2/2/2016	JH
There was no visible settleable material in a dark brown 800 mL sample. There was no density layer felt at any level.							
Lead, Pb		< 0.5	mg/L	0.5	EPA 200.7	1/25/2016	JMS
Magnesium Chloride		22.3	% wt		PNS	1/26/2016	JMS
Mercury, Hg		< 0.02	mg/L	0.02	EPA 245.1	1/15/2016	KC
Selenium, Se		< 1.0	mg/L	1.0	EPA 200.7	1/25/2016	JMS
Specific Gravity		1.2999	wt/vol		Pycnometer	1/19/2016	JD

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

# Laboratory Analysis Report


Sample Number: 1601683

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Zinc, Zn		3.4	mg/L	0.1	EPA 200.7	1/25/2016	JMS
Metals Digestion		*			SW 846 3050	1/18/2016	JD
Total Phosphate (as P)		91	mg/L	10	EPA 365.4	1/21/2016	DS
Cyanide, Total		< 0.05	mg/L	0.05	EPA 335.4	1/26/2016	DS
pH, Deicer 1 + 4		4.4	S.U.		ASTM D1293	1/25/2016	JH
Chemical Oxygen Demand		198,000	mg/L	4000	EPA 410.4	1/20/2016	CJS

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

CC: KSULLWOLD@INNOVATIVECOMPANY.COM

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



---

September, 2010

## ICE B Gone II Freeze Point/Specific Gravity Chart

%Dissolved Solids	Specific Gravity	Freeze Pf (°F)	Freeze Pl (°C)
5	1.01	29.0	-1.7
6	1.02	28.5	-1.9
7	1.02	28.0	-2.2
8	1.03	27.0	-2.8
9	1.04	26.0	-3.3
10	1.05	25.0	-3.9
11	1.06	24.5	-4.2
12	1.07	24.0	-4.4
13	1.07	23.6	-4.7
14	1.08	23.0	-5.0
15	1.08	22.0	-5.6
16	1.09	21.0	-6.1
17	1.10	20.5	-6.4
18	1.10	20.0	-6.7
19	1.11	18.0	-7.8
20	1.12	16.0	-8.9
21	1.13	15.0	-9.4
22	1.14	14.0	-10.0
23	1.15	12.0	-11.1
24	1.16	10.0	-12.2
25	1.17	7.8	-13.6
26	1.18	5.0	-15.0
27	1.19	3.5	-15.9
28	1.20	2.5	-16.4
29	1.21	1.0	-17.2
30	1.22	0.0	-17.8
31	1.23	-2.0	-18.9
32	1.24	-4.0	-20.0
33	1.25	-5.0	-20.6
34	1.26	-7.0	-21.7
35	1.27	-12.0	-24.4
36	1.28	-18.0	-27.8
37	1.29	-24.0	-31.1
38	1.29	-28.0	-33.3
39	1.30	-33.0	-36.1
40	1.31	-39.0	-39.4

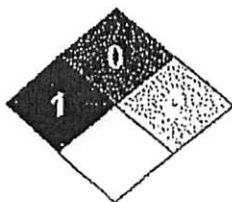
# Material Safety Data Sheet

Version: 2.0

Preparation Date: July, 2012

Supersedes All Previous Versions

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION



**Product Name:** IBG II (ICEBGONE ENHANCE)  
**Product Use:** De-icing, anti-icing  
**Manufacturer/Distributor:** Innovative Surface Solutions  
78 Orchard Road 454 River Road  
Ajax, Ontario Glenmont, NY  
L1S 6L1 12077  
**Telephone:** 1-800-387-5777 1-800-257-5808  
**24-Hour Emergency Telephone:** 613-996-6666  
**WHMIS Classification:** Not controlled  
**Chemical Family:** Inorganic salt solution

## SECTION 2: COMPOSITION AND INFORMATION ON INGREDIENTS

Components	CAS #	% by Weight
Magnesium Chloride	7786-30-3	24.0%
Melasses	-	20.0%

## SECTION 3: PHYSICAL DATA

**Physical State:** Liquid  
**Appearance | Odor:** Brown liquid | Pleasant odor  
**Odor Threshold:** n/a  
**Specific Gravity:** 1.290g/mL  
**pH:** 3.0 to 5.0  
**Vapor Pressure:** n/a  
**Solubility in Water:** Soluble in water  
**% Volatile:** n/a  
**Vapor Density:** n/a

## SECTION 4: FIRE AND EXPLOSION HAZARD

**Flammability:** No  
**If yes, under what conditions:** n/a  
**Means of Extinguishing:** n/a  
**Special Procedure:** None. Product can be used to extinguish fire.  
**Flash Point:** n/a  
**Upper Explosion Limit:** n/a  
**Lower Explosion Limit:** n/a  
**Auto Ignition Temperature:** n/a  
**Sensitivity to Mechanical Impact:** n/a  
**Sensitivity to Static Discharge:** n/a



---

**SECTION 5: REACTIVITY DATA**

Chemical Stability:	Yes
If no, under what conditions:	n/a
Incompatibility With Other Substances:	No
If so, which ones:	n/a trifluoride, sulphuric acid, sodium, methyl vinyl zinc
Reactivity Under What Conditions:	n/a
Hazardous Decomposition Products:	n/a

---

**SECTION 6: HEALTH HAZARDS**

Route of Entry:	Ingestion
Effect of Acute Exposure to Material:	Very low toxicity value may cause irritation of eyes or skin.
Effect of Chronic Exposure to Material:	Unknown
Exposure Limit:	Unknown
Synergistic Material:	None
Irritancy of Material:	Minor irritant
Sensitivity of Material:	Does not occur
Carcinogenic, Reproductive Effects:	None

---

**SECTION 7: FIRST AID MEASURES**

Eye Contact:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Seek medical attention immediately.
Skin Contact:	Remove from skin by wiping and washing thoroughly with water.
Inhalation:	Remove victim to fresh air.
Ingestion:	If discomfort exists, induce vomiting. Seek medical attention immediately.

---

**SECTION 8: PREVENTATIVE MEASURES**

Eye Contact:	Wear safety goggles.
Skin Contact:	Wear rubber gloves, boots and long sleeve shirts.
Inhalation:	For dusty or misty conditions, wear NIOSH approved dust or mist respirator.
Engineering Controls:	Mechanical ventilation recommended in enclosed areas.
Waste Disposal:	Dispose of material in government approved landfill site in accordance with local laws.
Handling Procedures and Equipment:	Wash skin and equipment with water.
Storage Requirements:	Store in cool dry area.
Special Shipping Information:	No special shipping procedures.

---

**SECTION 9: PREPARATION INFORMATION**

Prepared by:	Innovative Surface Solutions
Telephone:	905-427-0318
Preparation Date:	July, 2012
Superseded Date:	ALL PREVIOUS VERSIONS



## Material Safety Data Sheet

### 1-CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	SODIUM CHLORIDE
COMPANY IDENTIFICATION	SPL S.A.
ADDRESS	Tajamar #183 Of 601 Las Condes Santiago - Chile
EMERGENCY TELEPHONE	(56)(2) 468 6000 - (56)(2) 600 369 6000

### 2.-COMPOSITION / INFORMATION ON INGREDIENTS

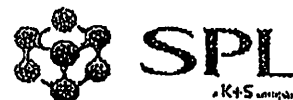
CHEMICAL NAME	SODIUM CHLORIDE
CHEMICAL FORMULA	NaCl
SYNONYM	SALT, ROCK SALT
CAS # :	7647-14-5
EC # :	231-698-3
MOLECULAR WEIGHT	58,45 g/mol
PRODUCT CODES :	NOC 001 C
% BY WEIGHT	> 97%

### 3.-HAZARDS IDENTIFICATION

POTENTIAL ACUTE HEALTH EFFECTS: SLIGHTLY HAZARDOUS IN CASE OF SKIN CONTACT (IRRITANT), OF EYE CONTACT (IRRITANT), OF INGESTION, OF INHALATION

### 4.- FIRST AID MEASURES

**INHALATION:** REMOVE TO FRESH AIR. GET MEDICAL ATTENTION FOR ANY BREATHING DIFFICULTY  
**INGESTION:** IF LARGE AMOUNTS WERE SWALLOWED, GIVE WATER TO DRINK NO GET MEDICAL ADVICE  
**SKIN CONTACT:** WASH EXPOSED AREA WITH SOAP AND WATER. GET MEDICAL ADVICE IF IRRITATION DEVELOPS.  
**EYE CONTACT:** IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AL LEAST 15 MINUTES, LIFTING UPPER AND LOWER EYELIDS OCCASIONALLY. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.



#### 6-FIRE FIGHTING MEASURES

FIRE: NOT CONSIDERED TO BE A FIRE HAZARD  
EXPLOSION: NOT CONSIDERED TO BE AN EXPLOSION HAZARD  
FIRE EXTINGUISHING MEDIA: USE ANY MEANS SUITABLE FOR EXTINGUISHING SURROUNDING FIRE

#### 6-ACCIDENTAL RELEASE MEASURES

VENTILATE AREA OF LEAK OR SPILL. WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT. SWEEP UP AND CONTAINERIZE FOR RECLAMATION OR DISPOSAL. VACUUMING OR WET SWEEPING MAY BE USED TO AVOID DUST DISPERSAL. SMALL AMOUNTS OF RESIDUE MAY BE FLUSHED TO SEWER WITH PLENTY WATER

#### 7-HANDLING AND STORAGE

KEEP IN A TIGHTLY CLOSED CONTAINER, STORED IN A COOL, DRY, VENTILATED AREA. PROTECT AGAINST PHYSICAL DAMAGE. CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTY SINCE THEY RETAIN PRODUCT RESIDUES (DUST SOLIDS); OBSERVE ALL WARNINGS AND PRECAUTIONS LISTED FOR THE PRODUCT

#### 8-EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL RESPIRATORS : FOR CONDITIONS OF USE WHERE EXPOSURE TO DUST OR MIST IN APPARENT AND ENGINEERING CONTROLS NOT FEASIBLE, PARTICULATE RESPIRATOR (NIOSH TYPE 95 OR BETTER FILTERS) MAY BE WORN  
SKIN PROTECTION: WEAR GLOVES AND CLEAN BODY-COVERING CLOTHING  
EYE PROTECTION; USE CHEMICAL SAFETY GOGGLES. MAINTAIN EYE WASH FOUNTAIN AND QUICK-DRENCH FACILITIES IN WORK AREA

#### 9-PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE  
ODOR

WHITE CRYSTALS  
ODORLESS

pH

5 - 8

MELTING POINT

800 °C

BOILING POINT (1013 hPa)

1461 °C

SPECIFIC GRAVITY (20 °C)

2.17 g/cc

SOLUBILITY (WATER, 20 °C)

358 g/L



#### 10-STABILITY AND REACTIVITY DATA

**STABILITY:** STABLE UNDER CONDITIONS OF USE AND STORAGE. HYGROSCOPIC.  
**INCOMPATIBILITIES:** LITHIUM, BROMINE TRIFLUORIDE  
**SPECIAL REMARKS ON REACTIVITY:** REACT WITH MOST NONNOBLE METALS SUCH AS IRON OR STEEL BUILDING MATERIALS (SUCH AS CEMENT)

#### 11-TOXICOLOGICAL INFORMATION

**ACUTE TOXICITY :** LD 50 ( ORAL,RAT ) : 3000 mg / Kg  
**SPECIFIC SYMPTOMS IN ANIMAL STUDIES:** EYE IRRITATION TES (RABBIT): SLIGHT IRRITATIONS  
**SUBACUTE TO CHRONIC TOXICITY**  
NONCARCINOGENIC IN ANIMAL EXPERIMENTS  
NO MUTAGENIC EFFECT IN ANIMAL EXPERIMENTS  
NO IMPAIRMENT OF REPRODUCTIVE PERFORMANCE SUSPECTED  
NO TERATOGENIC EFFECT IN ANIMAL EXPERIMENTS  
**FURTHER TOXICOLOGICAL INFORMATION**  
**AFTER EYE CONTACT:** SLIGHT IRRITATIONS  
**AFTER SWALLOWING OF LARGE AMOUNTS:** NAUSEA, VOMITING

#### 12-ECOLOGICAL INFORMATION

**BIOLOGIC DEGRADATION:** METHODS FOR DETERMINATION OF BIODEGRADABILITY ARE NOT APPLICABLE TO INORGANIC SUBSTANCES  
**BEHAVIOR IN ENVIRONMENTAL COMPARTMENTS:** CONCENTRATION IN ORGANISM IS NOT TO BE EXPECTED  
**FURTHER ECOLOGICAL DATA:** NO ECOLOGICAL PROBLEMS ARE TO BE EXPECTED WHEN THE PRODUCT IS HANDLED AND USED WITH DUE CARE AND ATTENTION

#### 13-DISPOSAL CONSIDERATIONS

**PRODUCT:** SWEEP IN DRY. IF NECESSARY DISPOSED THE WASTE IN COMPLIANCE WITH THE RESPECTIVE NATIONAL REGULATIONS, ELSE DISPOSE OF THE WASTE WITH PLENTY OF WATER

**PACKAGING:** MUST BE DISPOSED OF IN COMPLIANCE WITH THE COUNTRY SPECIFIC REGULATIONS





**14-TRANSPORT INFORMATION**

NOT SUBJECT TO TRANSPORT REGULATIONS

**15-REGULATORY INFORMATION**

EINECS: THIS PRODUCT IS ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES  
WHMIS (CANADA): NOT CONTROLLED UNDER WHMIS

**16-OTHER INFORMATION**

THE MATERIAL SAFETY DATA SHEET (MSDS) RELATES TO SAFETY REPORT AND CAN NOT TAKE ACCOUNT ALL POSSIBLE SITUATIONS TO HAPPEN IN A PLACE OF SPECIFIC WORK, THUS, THE MSDS IS ONLY PART OF PREVENTION PROGRAM RISK  
THE DATA SUPPLIED BY SPL S. A. ARE BASED UPON OUR CURRENT KNOWLEDGE. THESE DATAS ONLY DESCRIBE THE PRODUCT WITH REGARD TO THE APPROPRIATE SAFETY PRECAUTIONS. IT DOES NOT REPRESENT A GUARANTEE OF THE PROPERTIES OF THE PRODUCT

DATE OF EMISSION: OCTOBER 10<sup>TH</sup> OF 2011

# Material Safety Data Sheet

WEGO CHEMICAL & MINERAL CORP

239 Great Neck Road

Great Neck, NY 11021

Phone: (516) 487 3510; email: sales@wegochem.com

Date of Revision: 2/2011

Sodium Ferrocyanide

## Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Sodium Ferrocyanide

Chemical Formula:  $\text{Na}_4\text{Fe}(\text{CN})_6 \cdot 10\text{H}_2\text{O}$

CAS Number: 13601-19-9

Other Designations: Sodium ferrocyanide; sodium hexacyanoferrate; YPS

Derivation:

General Use: Manufacture of sodium ferricyanide, blue pigments, blueprint paper, anti-caking agent for salt, ore flotation, pickling metals, polymerization catalyst, photographic fixing agent.

Emergency Telephone: (ChemTel) Contract MIS0000335; 800 255-3924; INTL 813 248-0585

## Section 2 - Hazards Identification

### ☆☆☆☆ Emergency Overview ☆☆☆☆

MAY CAUSE EYE AND SKIN IRRITATION. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. MAY BE HARMFUL IF SWALLOWED.

#### HMIS

H 2

F 0

R 0

PPE†

†Sec. 8

### Potential Health Effects

Primary Entry Routes: Inhalation, Ingestion

Target Organs: None listed

Acute Effects

Inhalation: May cause respiratory tract irritation. May cause anoxia, characterized by weakness, headache, dizziness, confusion, cyanosis, weak and irregular heartbeat, collapse, unconsciousness, convulsions, coma and death.

Eye: May cause mild eye irritation.

Skin: May cause skin irritation.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

Carcinogenicity: IARC, NTP, and OSHA do not list sodium ferrocyanide as a carcinogen.

Medical Conditions Aggravated by Long-Term Exposure:

Chronic Effects: unknown

## Section 3 - Composition / Information on Ingredients

Ingredient Name	CAS Number	EINECS/ELINCS	% wt or % vol
Sodium Ferrocyanide	13601-19-9	237-081-9	100

Limit values: No limit values have been established for this product for use in the USA and Canada.

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
	TWA	STEL	TWA	STEL	TWA	STEL	IDLH
Sodium Ferrocyanide	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.

## Section 4 - First Aid Measures

Inhalation: Supply fresh air. If required, provide artificial respiration.

Eye Contact: Rinse opened eye for several minutes under running water. Then consult a doctor if irritation persists.

Skin Contact: Immediately wash with water and soap and rinse thoroughly. Seek medical advice if irritation persists.

Ingestion: If material is swallowed, induce vomiting if patient is conscious. Never give anything by mouth to an unconscious person. Seek medical advice.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treat symptomatically and supportively.

## Sodium Ferrocyanide

### Section 5 - Fire-Fighting Measures

Flash Point: not applicable  
Flash Point Method:  
Burning Rate:  
Auto-ignition Temperature: not determined  
LEL: not determined  
UEL: not determined



Flammability Classification: Product is not flammable.  
Extinguishing Media: Product is not flammable. Use firefighting measures that suit the surrounding fire.  
Unusual Fire or Explosion Hazards: none  
Hazardous Combustion Products:  
Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.  
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face-piece operated in pressure-demand or positive-pressure mode.

### Section 6 - Accidental Release Measures

Spill/Leak Procedures: Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation. Avoid raising dust. Eliminate flammables. Eliminate all ignition sources. Dispose contaminated material as waste according to official regulations.

#### Large Spills

Containment: For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.  
Cleanup: Water, if necessary with cleansing agents.  
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

### Section 7 - Handling and Storage

Handling Precautions: Keep container tightly sealed.  
Storage Requirements: Store in a cool, dry, well-ventilated area away from incompatible substances.

### Section 8 - Exposure Controls / Personal Protection

#### Engineering Controls:

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

#### Administrative Controls:

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.

*Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

## Sodium Ferrocyanide

### Section 9 - Physical and Chemical Properties

Physical State: solid	Water Solubility: 318.5 g/l @ 20 °C
Appearance and Odor: yellow semi-transparent crystals/odorless	Other Solubilities:
Odor Threshold:	Boiling Point: N/A
Vapor Pressure:	Freezing/Melting Point: N/A
Vapor Density (Air=1):	Decomposition Point: 815 °F (435 °C)
Formula Weight: 303.91	Viscosity:
Density/Specific Gravity (H <sub>2</sub> O=1, at 4 °C): 1.458	Refractive Index:
pH:	Surface Tension:
Molecular weight: 484.06	% Volatile:
	Evaporation Rate:

### Section 10 - Stability and Reactivity

**Stability:** Sodium Ferrocyanide is stable at room temperature in closed containers under normal storage and handling conditions.  
**Polymerization:** Hazardous polymerization cannot occur.  
**Chemical Incompatibilities:** Oxidizing agents, ammonia, chromic acid and strong acids.  
**Conditions to Avoid:** Incompatibilities. **ACIDS:** Evolution of highly toxic and flammable hydrogen cyanide gas. **OXIDIZERS (STRONG):** Fire and explosion hazard.  
**Hazardous Decomposition Products:** Thermal oxidative decomposition of Sodium Ferrocyanide can produce oxides of nitrogen, carbon monoxide, carbon dioxide and hydrogen cyanide.

### Section 11- Toxicological Information

#### SODIUM FERROCYANIDE:

**ADDITIONAL DATA:** Because of the strong chemical bond between the cyanide group and the iron, ferrocyanides do not release cyanide under normal conditions. However, certain industrial processes may release hydrogen cyanide which is a chemical asphyxiant.

#### Toxicity

Oral (rat) LD<sub>50</sub>: 5100 mg/kg

#### HEALTH EFFECTS:

##### INHALATION:

**ACUTE EXPOSURE: SODIUM FERROCYANIDE:** May cause irritation to the respiratory tract. Ferrocyanides have a low order of toxicity. However, certain industrial processes may release hydrogen cyanide which is a chemical asphyxiant.

**CHRONIC EXPOSURE: SODIUM FERROCYANIDE:** No data available.

##### SKIN CONTACT:

###### ACUTE EXPOSURE:

**SODIUM FERROCYANIDE:** May cause irritation.

###### CHRONIC EXPOSURE:

**SODIUM FERROCYANIDE:** No specific data available. No dermatitis was reported in workers handling potassium ferrocyanide over a number of years.

##### EYE CONTACT:

###### ACUTE EXPOSURE:

**SODIUM FERROCYANIDE:** Dust may cause irritation.

###### CHRONIC EXPOSURE:

**SODIUM FERROCYANIDE:** No data available.

##### INGESTION:

###### ACUTE EXPOSURE:

**SODIUM FERROCYANIDE:** The reported probable lethal dose in humans is 0.5-5.0 gm/kg. Ferrocyanide salts are rapidly excreted in urine without metabolic alteration.



## Sodium Ferrocyanide

### CHRONIC EXPOSURE:

SODIUM FERROCYANIDE: No data available.

\* See NIOSH, RTECS, for additional toxicity data.

### Section 12 - Ecological Information

Ecotoxicity: data not available.

Environmental Fate: data not available.

Environmental Degradation: data not available.

Soil Absorption/Mobility: data not available.

### Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Disposal Regulatory Requirements:

### Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101): Not Regulated

Shipping Name:

Shipping Symbols:

Hazard Class:

ID No.:

Packing Group:

Label:

Special Provisions (172.102):

### Section 15 - Regulatory Information

#### U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):  
Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):  
Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):

ACUTE: No

CHRONIC: No

FIRE: No

REACTIVE: No

SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.

#### STATE REGULATIONS:

California Proposition 65: Not regulated.

#### CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: D2B. Material causing toxic effects (TOXIC): No products were found.

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

### Section 16 - Other Information

Disclaimer: All information, recommendations and suggestions appearing herein are based upon sources believed to be reliable. However, it is the user's responsibility to determine the safety, toxicity and suitability for its own use of this product. WEGO CHEMICAL & MINERAL CORP. DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE USE BY OTHERS OF THIS PRODUCT.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON D.C., 20460

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

January 22, 2008

David H. Wood  
President  
Sears Ecological Applications Company  
1914 Black River Blvd  
Rome, NY 13440

Dear Mr. Wood:

The U.S. Environmental Protection Agency applauds Sears Ecological Applications Company ("SEACO") for your leadership in developing an environmentally oriented set of deicers. EPA's Design for the Environment ("DfE") program seeks to promote the use of products with improved environmental and human health characteristics. The products in our partnership – Ice B' Gone (Magic-0), Ice B' Gone II, and Ice B' Gone II HF fully achieve that objective in the roadway deicing sector.

The key purpose of the DfE-SEACO partnership is to recognize and encourage the environmentally preferable chemistry of the partnership products. DfE is very enthusiastic about your successful formulation of these products and about our partnership. By eliminating corrosive salts and other harmful ingredients, you have demonstrated active environmental stewardship and dedication to continuous improvement.

Consumers who use your recognized products will be participants in this important national effort to protect the environment and safeguard human health. I commend SEACO for your commitment to improving the environmental profile and performance of your products—and for leading change in the deicing industry. DfE looks forward to building this partnership and wishes you much success with the partnership products.



Sincerely,

A handwritten signature in cursive script, appearing to read "Clive Davies".

Clive Davies, Chief  
Design for the Environment