Attachment 10

SPECIFICATIONS

Snow & Ice Control Agents (Statewide)

IFB# 23451 (Revised 7/23/2026)

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SECTION 1: GENERAL SPECIFICATIONS

General Specifications **1.1 – 1.3** apply to products offered that do not have a Beneficial Use Determination (BUD) from New York State Department of Environmental Conservation except that all products must contain 250 ppm or less Phosphorus, calculated on an undiluted basis, with or without a Beneficial Use Determination.

1.1 Description

It is the intent of this specification to describe products that are required by New York State for use as snow and ice control agents on New York State roads and highways by the Department of Transportation, other State Agencies and Political Subdivisions.

1.2 Accordance with Established Limits

Bids may not be accepted on any product that contains constituents in excess of the following established total concentration limits as tested in accordance with generally accepted industry standard analytical procedures as appropriate. Results are stated as Parts Per Million (ppm). If the product exceeds any of the following constituents, then the bidder shall identify the exception(s) and explain any mitigating circumstances. The State reserves the right to evaluate these exceptions and make a determination of product eligibility based on the best interests of the State.

Arsenic	5.00 ppm
Barium	75.00 ppm
Cadmium	0.20 ppm
Chromium	0.50 ppm
Copper (Lots 1 – 6)	4.00 ppm
Cyanide	0.20 ppm

Lead	1.00 ppm
Mercury	0.05 ppm
Phosphorus	250.00 ppm
Selenium	5.00 ppm
Zinc	10.00 ppm

1.3 pH

The pH of submitted liquid chemical products shall be within the specified limits as designated in the appropriate Lots. The pH limit of liquid chemical products may be waived by the State for each of the liquid categories that require adherence to a specified pH range. The right to waive the pH limit will be at the discretion of the State. The State's decision to waive the pH requirement shall be in the best interest of the State and shall be final.

1.4 Bidder Certified Product Data Sheet

As stipulated previously, bidder must complete and submit with bid the appropriate Bidder Certified Product Data Sheet for EACH PRODUCT BID FOR EACH LOT (Attachment 10 - *Bidder Certified Product Data Sheets*). A separate sheet shall be submitted for each Lot for which a bid is submitted. Note that for Lot 4 a separate Bidder Certified Product Data Sheet is required for each component described in the Lot. Separate or additional flyers, product literature, etc. will not be accepted in lieu of a completed Bidder Certified Product Data Sheet.

1.5 Dye/Color

Product may be dyed a characteristic color that will allow ready visual identification of the product or any material treated with the product. Any dye used shall remain in solution without precipitation during all normal use and storage conditions. Dye utilized shall be non-toxic, non-staining, environmentally benign and any color, excluding red.

For Lots 1 - 4, upon request from Authorized User, contractors will advise of the color the final product will be when applied to end user's salt.

SECTION 2: SPECIFIC SPECIFICATIONS

2.1 Lot 1 - Liquid Calcium Chloride - Corrosion Inhibited

In addition to the General Specifications, the following requirements also apply to Liquid Calcium Chloride - Corrosion Inhibited.

- **a.** Product must contain 30% by weight as CaCl2 ; Tolerance: +3% ,- 1%.
- **b.** Weight per gallon will be established according to the specific gravity and percentage of Calcium Chloride contained in the product bid as indicated by the bidder.
- **c.** The pH shall be 6.0 - 10.0.
- **d.** Sampling shall be done in accordance with ASTM D345. Product shall be tested using generally accepted industry standard analytical procedures as appropriate.
- **e.** A 3% solution of the corrosion inhibited chemical product shall have a corrosion value of at least 70% less than that of a 3% solution of Sodium Chloride to be acceptable. [Determined by NACE (National Association of Corrosion Engineers) - Standard TM-01-69 as modified by Clear Roads Qualified Product List (QPL) https://clearroads.org/qualified-product-list/].
- **f.** This chemical product shall not contain greater than 1.0% (V/V) Total Settleable Solids and shall have ninety-nine percent (99.0%) of the Solids Passing through a Number 10 sieve after being stored at -29oC +/- 1oC (-20oF +/- 2oF) for 168 hours.
- **g.** An independent certified analysis conducted within the last 3 years showing compliance with all the above requirements must be submitted with the bid along with an intended use statement for the product. Exceptions to the requirements must be stated and the State reserves the right to reject the product. (Only needed if Bidder does not currently hold a Contract for the same product on Award 23357.)

2.2 Lot 2 – Liquid Calcium Chloride with Organic Based Performance Enhancer (OBPE)

Product offered shall be a blend of Liquid Calcium Chloride and an Organic Based Performance Enhancer (OBPE). The OBPE may be derived or prepared from a variety of sources including, but not limited to, agricultural processing residues, partially or wholly engineered synthetic materials or combinations of the two. The addition of OBPE to the Liquid Calcium Chloride is intended to provide desirable enhancements to the performance of the finished product by providing increased corrosion inhibition, lowered eutectic point and increased viscosity.

In addition to meeting the requirements listed in the General Specifications, the following requirements also apply:

- **a.** Product must contain 13.0% - 24% CaCl2 by weight.
- **b.** Product shall contain a minimum of 12% of an organic based performance enhancer (OBPE).
- **c.** Product shall have a eutectic (freezing) point of -20° F or lower.
- **d.** Product by analysis shall have a total solids content of 35% minimum (w/w) when evaporated at 105°C for 1 hour.
- **e.** A table showing Freezing Point-Specific Gravity for various percentage dilutions of product in water shall be provided. Table shall include data starting from at least 5% product in water and continue to include the percentage product in water to produce the eutectic (lowest freezing point) composition. See example on page 22 of this specification.
- **f.** The pH shall be 3.2 – 8.0
- **g.** A 3% solution of the corrosion inhibited chemical product shall have a corrosion value of at least 70% less than that of a 3% solution of Sodium Chloride to be acceptable. [Determined by NACE (National Association of Corrosion Engineers) – Standard TM-01-69 as modified by Clear Roads Qualified Product List (QPL) https://clearroads.org/qualified-product-list/].
- **h.** This chemical product shall not contain greater than 4.0% (V/V) Total Settleable Solids and shall have ninety nine percent (99.0%) of the Solids Passing through a Number 10 sieve after being stored at -17.8°C +/- 1°C (0°F +/- 2°F) for 168 hours.

(continued on next page)

i. An independent certified analysis conducted within the last 3 years showing compliance with all the above requirements must be submitted with the bid along with an intended use statement for the product. Exceptions to the requirements must be stated and the State reserves the right to reject the product. (Only needed if Bidder does not currently hold a Contract for the same product on Award 23357.)

Sampling shall be done in accordance with ASTM D345. Product shall be tested using generally accepted industry standard analytical procedures as appropriate.

Example CaCl CHART

FREEZING POINT OF CALCIUM CHLORIDE BRINE

EXAMPLE OF A 25% PRODUCT SUBMITTED

% By Weight	Specific Gravity	Freezing Point (Celsius)	Freezing Point (Fahrenheit)
5	1.013	-2.11	26.4
6	1.051	-3.09	25.0
7	1.060	-4.72	23.5
8	1.069	-5.67	21.8
9	1.070	-6.67	20.0
10	1.086	-7.83	17.9
11	1.096	-9.05	15.7
12	1.105	-10.5	13.1
13	1.114	-12.1	10.3
14	1.123	-13.7	7.3
15	1.132	-15.9	4.0
16	1.142	-17.6	0.4
17	1.151	-19.7	-3.5
18	1.161	-22.1	-7.7
19	1.170	-25.6	-12.2
20	1.180	-27.4	-17.2
21	1.190	-30.5	-23.0
22	1.200	-32.8	-27.0
23	1.210	-28.9	-20.0
24	1.220	-25.6	-14.0
**25	**1.230	**-23.3	**-10.0
26	1.241	-21.1	-6.0
27	1.251	-19.4	-3.0
28	1.262	-18.3	-1.0
29	1.273	-17.2	1.0
30	1.283	-16.7	3.0

25% EXAMPLE. YOUR INFORMATION MUST MATCH YOUR PRODUCT

2.3 Lot 3 - Liquid Magnesium/Calcium Chloride - Corrosion Inhibited

Material offered shall be a blend of Liquid Magnesium/Calcium Chloride and a component selected and added to provide enhanced corrosion inhibition in the final product.

In addition to the General Specifications, the following requirements also apply to Liquid Magnesium/Calcium Chloride - corrosion inhibited.

a. Product must contain no less than 25% Divalent Chloride Concentration (MgCl2+CaCl2) (w/v).

b. Product must contain no less than 19% Magnesium Chloride Concentration (w/v).

c. Weight per gallon will be established according to the specific gravity and percentage of Magnesium Chloride contained in the product bid as indicated by the bidder.

d. The pH shall be 6.0 - 9.0.

e. Sampling shall be done in accordance with ASTM D345. Product shall be tested using generally accepted industry standard analytical procedures as appropriate.

f. A 3% solution of the corrosion inhibited chemical product shall have a corrosion value of at least 70% less than that of a 3% solution of Sodium Chloride to be acceptable. [Determined by NACE (National Association of Corrosion Engineers) - Standard TM-01-69 as modified by Clear Roads Qualified Product List (QPL) https://clearroads.org/qualified-product-list/].

g. This chemical product shall not contain greater than 1.0% (V/V) Total Settleable Solids and shall have ninety nine percent (99.0%) of the Solids Passing through a Number 10 sieve after being stored at -17.8oC +/- 1oC (0oF +/- 2oF) for 168 hours.

h. An independent certified analysis conducted within the last 3 years showing compliance with all the above requirements must be submitted with the bid along with an intended use statement for the product. Exceptions to the requirements must be stated and the State reserves the right to reject the product. (Only needed if Bidder does not currently hold a Contract for the same product on Award 23357.)

2.4 Lot 4 - Liquid Magnesium/Calcium Chloride with Organic Based Enhancer (OBPE)

Product offered shall be a blend of Liquid Magnesium/Calcium Chloride and an Organic Based Performance Enhancer (OBPE). The OBPE may be derived or prepared from a variety of sources including, but not limited to, agricultural processing residues, partially or wholly engineered synthetic materials or combinations of the two. The addition of OBPE to the Liquid Magnesium/Calcium Chloride is intended to provide desirable enhancements to the performance of the finished product by providing increased corrosion inhibition, lowered eutectic point and increased viscosity.

In addition to meeting the requirements listed in the General Specifications, the following requirements also apply:

a. Product must contain 13.0% - 24% MgCl2 by weight.

b. Product shall contain a minimum of 12% of an organic based performance enhancer (OBPE).

c. Product shall have a eutectic (freezing) point of -20° F or lower.

d. Product by analysis shall have a total solids content of 35% minimum (w/w) when evaporated at 105°C for 1 hour.

e. A table showing Freezing Point-Specific Gravity for various percentage dilutions of product in water shall be provided. Table shall include data starting from at least 5% product in water and continue to include the percentage product in water to produce the eutectic (lowest freezing point) composition. See example on page 30 of this IFB.

f. The pH shall be 3.2 - 7.5.

g. A 3% solution of the corrosion inhibited chemical product shall have a corrosion value of at least 70% less than that of a 3% solution of Sodium Chloride to be acceptable. [Determined by NACE (National Association of Corrosion Engineers) - Standard TM-01-69 as modified by Clear Roads Qualified Product List (QPL) https://clearroads.org/qualified-product-list/].

h. This chemical product shall not contain greater than 4.0% (V/V) Total Settleable Solids and shall have ninety nine percent (99.0%) of the Solids Passing through a Number 10 sieve after being stored at -17.8°C +/- 1°C (0°F +/- 2°F) for 168 hours.

i. An independent certified analysis conducted within the last 3 years showing compliance with all the above requirements must be submitted with the bid along with an intended use statement for the product. Exceptions to the requirements must be stated and the State reserves the right to reject the product**.** (Only needed if Bidder does not currently hold a Contract for the same product on Award 23357.)

Sampling shall be done in accordance with ASTM D345. Product shall be tested using generally accepted industry standard analytical procedures as appropriate.

Example MgCl CHART

FREEZING POINT OF MAGNESIUM CHLORIDE BRINE

EXAMPLE OF A 25% PRODUCT SUBMITTED

% By Weight	Specific Gravity	Freezing Point (Celsius)	Freezing Point (Fahrenheit)
5	1.013	-2.11	26.4
6	1.051	-3.09	25.0
7	1.060	-4.72	23.5
8	1.069	-5.67	21.8
9	1.070	-6.67	20.0
10	1.086	-7.83	17.9
11	1.096	-9.05	15.7
12	1.105	-10.5	13.1
13	1.114	-12.1	10.3
14	1.123	-13.7	7.3
15	1.132	-15.9	4.0
16	1.142	-17.6	0.4
17	1.151	-19.7	-3.5
18	1.161	-22.1	-7.7
19	1.170	-25.6	-12.2
20	1.180	-27.4	-17.2
21	1.190	-30.5	-23.0
22	1.200	-32.8	-27.0
23	1.210	-28.9	-20.0
24	1.220	-25.6	-14.0
**25	**1.230	**-23.3	**-10.0
26	1.241	-21.1	-6.0
27	1.251	-19.4	-3.0
28	1.262	-18.3	-1.0
29	1.273	-17.2	1.0
30	1.283	-16.7	3.0

25% EXAMPLE. YOUR INFORMATION MUST MATCH YOUR PRODUCT

2.5 Lots 5 & 6 – Treated Salt – Granular Sodium Chloride Treated with Corrosion Inhibited Liquid Magnesium/Calcium Chloride

It is the intent of this specification to describe a mixture of Sodium Chloride Type "A" crushed rock salt treated with corrosion inhibited Liquid Magnesium/Calcium Chloride product. The treatment is intended to enhance the performance of the product over untreated salt by reducing corrosiveness, improving low temperature performance, reducing bounce and scatter, preventing clumping, salt pile freezing and enhancing flowability. The treated salt is intended to be used to facilitate snow and ice prevention and removal on New York State roads and bridges. The end product treated salt will be categorized as either Type I or Type II treated salt depending on the specific type of corrosion inhibited magnesium chloride product used to treat the salt. The defining characteristics of Type I and Type II treatment can be found summarized in the table found on page 36.

The finished product shall be composed of two primary constituents:

a. Crushed rock salt as described and specified in Section A below.

b. A corrosion inhibited Liquid Magnesium/Calcium Chloride product described and specified in Section B below.

The two components shall be mixed to produce a finished product as described in Section C. The final product shall meet all the requirements described in Section D, also below.

NOTE: A separate Bidder Certified Product Data Sheet MUST be submitted for each of the two components being utilized by the vendor to construct the final product.

2.5.1 SECTION A: Sodium Chloride Type "A" Crushed Rock Salt Specifications:

The crushed rock salt used in the preparation of the final product shall meet the following requirements.

- **CONTAMINATION**

  Upon inspection, the material shall be uniform in appearance, free flowing and free from visual evidence of foreign matter including but not limited to dirt, stone, chips, trash or any other material that could reasonably be expected to interfere with the use, handling or storage of the salt.

- **CHEMICAL COMPOSITION**

  Shall be not less than 95% Sodium Chloride. Percent of Sodium Chloride shall be determined in accordance with current ASTM D632.

- **SIZE GRADING**

  The salt, when tested using sieves as described in ASTM D632 (*) shall conform to the following requirements for particle size distribution:

Sieve Size	Percent Passing (**)
1/2" - (12.5 MM)	100
3/8" - (9.5 MM)	95 - 100
No. 4 - (4.75 MM)	20 - 90
No. 8 - (2.36 MM)	10 - 60
No. 30 - (600 Microns)	0 - 15

* -A drying temperature of 110°C ± 5°C should be used.

**-Tolerance of 5 percentage points on the maximum value of the range for each sieve except 1/2" (12.5 mm) and 3/8" (9.5 mm) sizes, on which no tolerance will be allowed.

- **MOISTURE CONTENT**

  Moisture content upon delivery **shall not exceed 1.5% (*)** when determined as follows:

  $$\% \text{ Moisture} = \frac{(W_1 - W_2)}{(W_1)} \times 100$$

  W_1 = initial weight of sample

  W_2 = weight of sample after drying to a constant weight at 110°±5°C.

  * Procedure shall be in accordance with ANSI/AWWA B200-03, Moisture Determination or the latest revision thereof. A tolerance of 0.5% will be allowed before a deduction is assessed.

- **SAMPLING**

  Sampling shall be done in accordance with current ASTM D632 (or most recent version thereof). The Office of General Services, or any of its authorized representatives, reserves the right to take samples from the contractor's stockpile or transfer point or from shipments at the point of destination.

  The right is also reserved to consider truckloads of treated salt delivered by the contractor to any one agency on a single day to be a single delivery. Price deductions imposed because of deviation from specifications may be imposed on the total day's delivery.

- **ACCEPTANCE**

  The salt may be rejected if it fails to conform to any of the requirements of this specification.

- **NON-COMPLYING PRODUCT - PRICE DEDUCTIONS**
  - Non-Complying Product - Price Deduction - Moisture

    If the moisture content of the salt is found to be above 2.0 %, a deduction for moisture content will be made from the delivered bid price based on the following formula:

    Reduced Price/Ton = Delivered Contract Price/Ton x (1.02 - 2X)

    where:X = Moisture content of the sample (expressed as the decimal equivalent of the percentage of the original sample weight to the nearest 1%)
  - Non-Complying Product - Price Deduction - Gradation (Particle Size Distribution)

    If, after delivery, the gradation of the salt is found to be out of tolerance, a deduction from the price shall be made based on the following formula:

    Reduced Price/Ton = Delivered Contract Price x (1.00 - Y)

    where: Y = the decimal equivalent of the total % out of gradation. The % out of tolerance for each sieve shall be to the nearest 1%. The total of the individual sieve tolerance deviations shall be used as Y.
  - General

    A non-complying product - price deduction is not to be assessed unless the proper analysis and test procedures are followed. If the contractor consistently delivers salt found to be above 2% moisture content or consistently not conforming to the gradation requirements, the contract shall be subject to cancellation either in whole or in parts.

- **CALCULATIONS**

  Calculations performed relative to this specification shall be made using the rounding off method of "ASTM Recommended Practice E-29 for Designating Significant Places in Specified Limiting Values".

2.5.2 SECTION B: Corrosion Inhibited Liquid Magnesium/Calcium Chloride Product

Material used for this component of the finished product shall be a blend of Liquid Magnesium/Calcium Chloride and an Organic Based Performance Enhancer (OBPE) component intended, among other things, to inhibit the corrosiveness of the product. The offered product shall meet all of the requirements for EITHER Type I or Type II listed on **page 39**. Bidder shall identify on the Vendor Supplied Data Sheet which type product he is offering. Product of either type must comply with the General Chemical Requirements section also shown below.

GENERAL CHEMICAL REQUIREMENTS:

Note Well: This section applies only to products offered that **do not** have a Beneficial Use Determination (BUD) from New York State Department of Environmental Conservation.

HOWEVER, ALL PRODUCTS OFFERED MUST CONTAIN 250 PPM OR LESS PHOSPHORUS, CALCULATED ON AN UNDILUTED BASIS, WITH OR WITHOUT BENEFICIAL USE DETERMINATION.

Bids may not be accepted on any product that contains constituents in excess of the following established total concentration limits. Results are stated as Parts Per Million (ppm). If product exceeds any of the following constituents then the bidder shall identify the exception(s) and explain any mitigating circumstances. The State reserves the right to evaluate these exceptions and make a determination of product eligibility based on the best interests of the State.

Arsenic	5.00 ppm
Barium	75.00 ppm
Cadmium	0.20 ppm
Chromium	0.50 ppm
Copper (Lot 5 & 6)	4.00 ppm

Cyanide	0.20 ppm
Lead	1.00 ppm
Mercury	0.05 ppm
Phosphorus	250.00 ppm
Selenium	5.00 ppm
Zinc	10.00 ppm

(continued on next page)

OTHER REQUIREMENTS:

PARAMETER	REQUIREMENT	
	TREATED SALT - TYPE 1	**TREATED SALT - TYPE 2**
Divalent Chloride Concentration (MgCl2+CaCl2) (w/v)	25% Min.	22% Min.
Magnesium Chloride Concentration (w/v)	19% Min.	13 < 25%
pH	6.0 - 9.0	3.2 - 7.5
Eutectic (Freezing) Point	-20 Deg. F or Lower	-20 Deg. F or Lower
Total Solids (w/w After 1 Hr. @ 105^{0}C)	No Requirement	35% Min.
Organic Based Performance Enhancer (OBPE)	No Requirement	8% Min
Corrosivity	A 3% solution of the product shall have a corrosion value at least 70% less than that of a 3% solution of Sodium Chloride when tested by NACE Standard TM-01-69 as modified by the Clear Roads Qualified Products List: https://clearroads.org/qualified-product-list/.	
Settleable Solids	Shall contain not greater than 1.0% (v/v) total settleable solids after being stored at 0 deg. F for 168 hours. If any solids are observed, 99% of those solids must pass through a #10 sieve.	Shall contain not greater than 4.0% (v/v) total settleable solids after being stored at 0 deg. F for 168 hours. If any solids are observed, 99% of those solids must pass through a #10 sieve.
Freezing Point Table	Contractor shall supply a table showing the Freezing Point vs Specific Gravity for varying dilutions of product in water, starting at 5% and continuing up to and including the percentage needed to reach the eutectic (freezing) point.	
Chemical Analysis	Contractor shall supply a certified analysis conducted within the last year from an independent laboratory* showing compliance with all the above listed requirements **INCLUDING** those listed in the GENERAL CHEMICAL REQUIREMENT section above. Exceptions to the requirements must be stated and the State reserves the right to reject the product.	
BOD5 (Biological Oxygen Demand)	No Requirement	Contractor shall provide BOD5 expressed in mg/l

Sampling to be done in accordance with ASTM D345 (or the latest revision thereof). Product shall be tested using generally accepted industry standard analytical procedures as appropriate.

2.5.3 SECTION C: Mixing the Sodium Chloride and Corrosion Inhibited Liquid Magnesium/Calcium Chloride

The materials described in Section A and Section B above shall be mixed as described in this section to produce the finished product. Mixing procedures shall comply with all requirements described in this section.

- The Office of General Services, or any of its authorized representatives, reserves the right to take samples from the contractor's stockpile or transfer point before the salt is mixed with the Corrosion Inhibited Liquid Magnesium/Calcium Chloride. Both salt and liquid samples may be taken.
- The contractor will thoroughly mix a minimum of 8 gallons of Corrosion Inhibited Liquid Magnesium/Calcium Chloride per ton of salt.
- The contractor will ensure a consistent thorough mix (e.g. spray system, pugmill, conveyor) so that there is maximum coverage of the liquid on the salt crystals (loader mixing and stockpile injection methods are not acceptable) and will specify the mix method in the bid.
- Trucks must be weighed on certified scale with printout after loading the final product (salt and liquid mixture) and prior to delivery destination. The weight ticket shall include the net weight of the final product and the stockpile source. The certification must bear the weighmaster's signature. Handwritten weights are not acceptable.
- All shipments of finished product shall be accompanied by a ticket indicating the amount of Corrosion Inhibited Liquid Magnesium/Calcium Chloride mixed in the finished product. This amount will be indicated on the ticket by Gallons. The amount of gallons shall be recorded by a printing device or handwritten.
- The finished product shall be shipped via bulk delivery. Trucks delivering the mixture shall have the entire cargo area completely covered by a waterproof tarpaulin or similar sheeting material. Torn or ripped covers may be cause for rejection of the shipment.
- The State reserves the right to, at any time inspect the operation to take salt and liquid samples, to ensure that the proper amount of liquid is being applied and that the mix method is appropriate.

2.5.4 SECTION D: Rock Salt treated with Corrosion Inhibited Liquid Magnesium/Calcium Chloride

The Treated Salt shall meet the following requirements:

- **CONTAMINATION**

  Upon inspection of delivered salt, the material shall be uniform in appearance, free flowing and free from visual evidence of foreign matter including but not limited to dirt, stone, chips, trash or any other material that could reasonably be expected to interfere with the use, handling or storage of the salt.

- **FLOWABILITY**

  Properly stored product (covered or inside storage) shall be uniform and free flowing in a manner consistent with its intended use and shall show no objectionable clumping or caking.

- **LEACHING**

  Properly stored product (covered or inside storage) shall show no indication of objectionable leaching or separation of components to the extent that such condition produces adverse effects in the handling or usage of the product or routine maintenance of the storage facility.

- **CHEMICAL COMPOSITION**

  Shall be not less than 91.2% Sodium Chloride. Percent of Sodium Chloride shall be determined as follows: Apparent total % Sodium Chloride content shall be determined in accordance with current ASTM-D-632. Magnesium and Calcium content shall be determined in accordance with ASTM E-534 and computed as % Magnesium Chloride and % Calcium Chloride respectively. The % Sodium Chloride shall then be computed as follows:

  % Sodium Chloride = % Apparent Sodium Chloride - (% Magnesium Chloride + % Calcium Chloride)

- **SIZE GRADING**

  The salt, when tested using sieves as described in ASTM-C-136 (*), shall conform to the following requirements for particle size distribution:

Sieve Size	Percent Passing (**)
1/2" - (12.5 MM)	100
3/8" - (9.5 MM)	95 - 100
No. 4 - (4.75 MM)	20 - 90
No. 8 - (2.36 MM)	10 - 60
No. 30 - (600 Microns)	0 - 15

  * -A drying temperature of 110ºC ± 5ºC should be used.
  **-Tolerance of 5 percentage points on the maximum value of the range for each sieve except 1/2" (12.5 mm) and 3/8" (9.5 mm) sizes, on which no tolerance will be allowed.

- **MOISTURE CONTENT**

  Moisture content upon delivery **shall not exceed 4.8% (*)** when determined as follows:

  $$\% \text{ Moisture} = \frac{(W_1 - W_2)}{(W_1)} \times 100$$

  W_1 = initial weight of sample

  W_2 = weight of sample after drying to a constant weight at 110°±5°C.

  * Procedure shall be in accordance with ANSI/AWWA B200-03, Moisture Determination, or the latest revision thereof. A tolerance of 0.5% will be allowed before a deduction is assessed.

- **SAMPLING**

  Sampling shall be done in accordance with current ASTM-D632 (or most recent version thereof). The Office of General Services, or any of its authorized representatives, reserves the right to take samples from the contractor's stockpile or transfer point or from shipments at the point of destination.

  The right is also reserved to consider truckloads of treated salt delivered by the contractor to any one agency on a single day to be a single delivery. Price deductions imposed because of deviation from specifications may be imposed on the total day's delivery.

- **ACCEPTANCE**

  The treated salt may be rejected if it fails to conform to any of the requirements of this specification.

- **NON-COMPLYING PRODUCT - PRICE DEDUCTIONS**
  - Non-Complying Product - Price Deduction - Moisture

    If the moisture content of the treated salt is found to be above 5.3%, a deduction for moisture content will be made from the delivered bid price based on the following formula:

    Reduced Price/Ton = (Delivered Contract Price)/(Tons) x (1.053 – 2X)

    where: X = Moisture content of the sample (expressed as the decimal equivalent of the percentage of the original sample weight to the nearest 1%)

  - Non-Complying Product - Price Deduction - Gradation (Particle Size Distribution)

    If, after delivery, the gradation of the treated salt is found to be out of tolerance, a deduction from the price shall be made based on the following formula:

    Reduced Price/Ton = Delivered Contract Price x (1.00 - Y)

    where: Y = the decimal equivalent of the total % out of gradation. The % out of tolerance for each sieve shall be to the nearest 1%. The total of the individual sieve tolerance deviations shall be used as Y.

- Non-Complying Product - Price Deduction - Contamination:

  If the end user accepts contaminated salt as defined in Section D.1 for operational reasons, a 10% non-complying price deduction may be placed on the contractor by the end user after consultation with the contractor and OGS.

- Non-Complying Product - Price Deduction - Delivery:

  If delivery is not in the timeframe specified in the Delivery Section, a deduction from the price shall be made based on the actual costs incurred as a result of the late/non-delivery. Costs incurred include, but are not limited to the following:

  * Increased personnel costs due to demurrage
  * Increased costs incurred for treatment of salt on- hand to extend usage
  * Costs for cleanup after required application of a "treated" salt product (i.e. salt mixed with sand)

  Authorized user will submit to OGS supporting documentation for non-complying product delivery price deduction.

  OGS PROCUREMENT SERVICES WILL REVIEW AND WILL HAVE FINAL APPROVAL AS TO PRICE DEDUCTION APPLIED.

- General

  A non-complying product - price deduction is not to be assessed unless the proper analysis and test procedures are followed. If the contractor consistently delivers treated salt found to be above 5.3% moisture content or consistently not conforming to the gradation requirements, the contract shall be subject to cancellation either in whole or in parts.

- **CALCULATIONS**

  Calculations performed relative to this specification shall be made using the rounding off method of "ASTM Recommended Practice E-29 for Designating Significant Places in Specified Limiting Values".

2.6 Lots 7 & 8 - Calcium Chloride Flake & Pellet

2.6.1 Packaging and Palletization of All Products in Lots 7 & 8.

- The calcium chloride shall be delivered in moisture proof bags containing 50 lbs. (22.679 kg) each.
- Each bag shall bear a label with the following information thereon:

  Name and Address of the Manufacturer
  Trade Mark or Trade Name
  Contents and Net Weight of Same
  Percentage of Calcium Chloride (CaCl2)

- Contractor shall furnish commodity palletized, maximum weight 2000 lbs. (40 bags).
- Pallets of equal value will be exchanged at time of delivery, or as arranged between the contractor and the respective agency.

2.6.2 Lot 7 Calcium Chloride Flake

The calcium chloride offered in flake form shall conform to the requirements of ASTM Specification D 98-05 (or latest revision) and as listed in Table 1 and 2 below. (Proof of compliance from manufacturer to be included with bid.)

2.6.3 Lot 8 Calcium Chloride Pellet

The calcium chloride offered in pellet form shall conform to the requirements of ASTM Specification D 98-05 (or latest revision) and as listed in Table 1 and 2 below. (Proof of compliance from manufacturer to be included with bid.)

TABLE 1: CHEMICAL REQUIREMENTS

Requirement	**Lot 7 Flake ASTM Type S Class A**	**Lot 8 Pellet ASTM Type S Grade 2 - Class B**
CaCl2 (Min. % by weight)	83 Minimum	90.0
Total Alkali Chlorides as NaCl (Max. % by weight, anhydrous basis)	8.0	8.0
Total Magnesium as MgCl2 (Max. % by weight, anhydrous basis)	0.5	0.5
Other impurities, not including water, (Max. % by weight, anhydrous basis)	1.0	1.0

TABLE 2: SIEVE ANALYSIS REQUIREMENTS

	Mass % Passing	
Sieve Size	**Lot 7 Flake**	**Lot 8 Pellet**
3/8" (9.5mm)	100	100
No. 4 (4.75mm)	80-100	80-100
No. 20 (850 microns)	No Req.	0-10
No. 30 (600 microns)	0-5	0-5

2.7 Lots 9 & 10 – Solar Salt for Brine Making

- **CONTAMINATION**

  Shall be not less than 95% sodium chloride. Percent of sodium chloride shall be determined in accordance with ASTM D632 or the latest revision thereof.

- **SIZE GRADING**

  The Solar Salt, when tested in accordance with ASTM D632 (*) or the latest revision thereof shall conform to the following size for particle size distribution:

Sieve Size	Percent Passing (**)
3/4" - (19.05 MM)	100
1/2" - (12.5 MM)	99 - 100
3/8” - (9.5 MM)	95 - 100
1/4" - (6.35 MM)	65 - 90
No. 4 - (4.75 MM)	20 - 80
No. 8 - (2.36 MM)	10 - 30
No. 30 - (600 MICRONS)	0 - 15

  * -A drying temperature of 110°C $\pm$ 5°C may be used.

  **-Tolerance of 5 percentage points on the maximum value of the range for each sieve except 1/2" (12.5 mm) and 3/8" (9.5 mm) sizes, on which no tolerance will be allowed.

- **MOISTURE CONTENT**

  Moisture content upon delivery **shall not exceed 2.5% (*)** when determined as follows:

  $$\% \text{ Moisture} = \frac{(W_1 - W_2)}{(W_1)} \times 100$$

  W_1 = initial weight of sample

  W_2 = weight of sample after drying to a constant weight at 110°$\pm$5°C.

* Procedure shall be in accordance with ANSI/AWWA B200-03, Moisture Determination or the latest revision thereof. A tolerance of 0.5% will be allowed before a deduction is assessed.

- **INHIBITOR TREATMENT**

  Salt shall be treated with an anticaking conditioner. The quantity of inhibitor used shall be in the range of 0.1 to 0.2lbs/ton. **Upon request, Bidders shall supply a description of the inhibitor treatment used, quantity of inhibitor used per ton of salt, method of determining the presence of the treatment and information relative to the solubility and photodecomposition of the treating agent.** Potential harm to the ecology caused by inhibitor treatment may be cause for rejection of a bid.

  Salt delivered in a lumpy condition which requires reprocessing in order to make it usable shall be cause for rejection of the entire delivery, with a replacement delivery to be made at no additional charge to the agency or political subdivision.

  If, because of emergency conditions, it is necessary to accept and reprocess the Salt for use, all costs will be charged to the contractor.

- **NON-COMPLYING PRODUCT - PRICE DEDUCTIONS**

  No price deduction is to be assessed unless the proper analysis and test procedures are followed. For sampling results (moisture/gradation) for salt delivered in bulk or by totes, any price deductions will be applied to the entire day's delivery on the same PO.

  If the contractor consistently delivers salt found to be above 2% moisture content for Rock Salt or 2.5% moisture content for Solar Salt or consistently not conforming to the gradation requirements, the contract shall be subject to cancellation.

  - Non-Complying Product - Price Deduction - Moisture (Solar Salt)

    If, after delivery the moisture content is found to be above 2.5%, a price deduction for moisture content will be made from the delivered bid price base based on the following formula:

    Reduced price per ton = delivered contract price per ton x (1.03 - 2X)

    where X = moisture content of the sample (expressed as the decimal equivalent of the percentage of the original sample weight to the nearest 1%).

    Solar Salt with a moisture content higher than 3% may be rejected.

  - Non-Complying Product - Price Deduction - Gradation (Particle Size Distribution)

    If, after delivery, the gradation of the Salt is found to be out of tolerance a deduction from the price shall be made based on the following formula:

    Reduced price per ton = delivered contract price x (1.00 - X)

    where X = the decimal equivalent of the total % out of gradation less the tolerance. The % out of tolerance for each sieve shall be to the nearest 1%. The total of the individual sieve tolerance deviations shall be used as X.

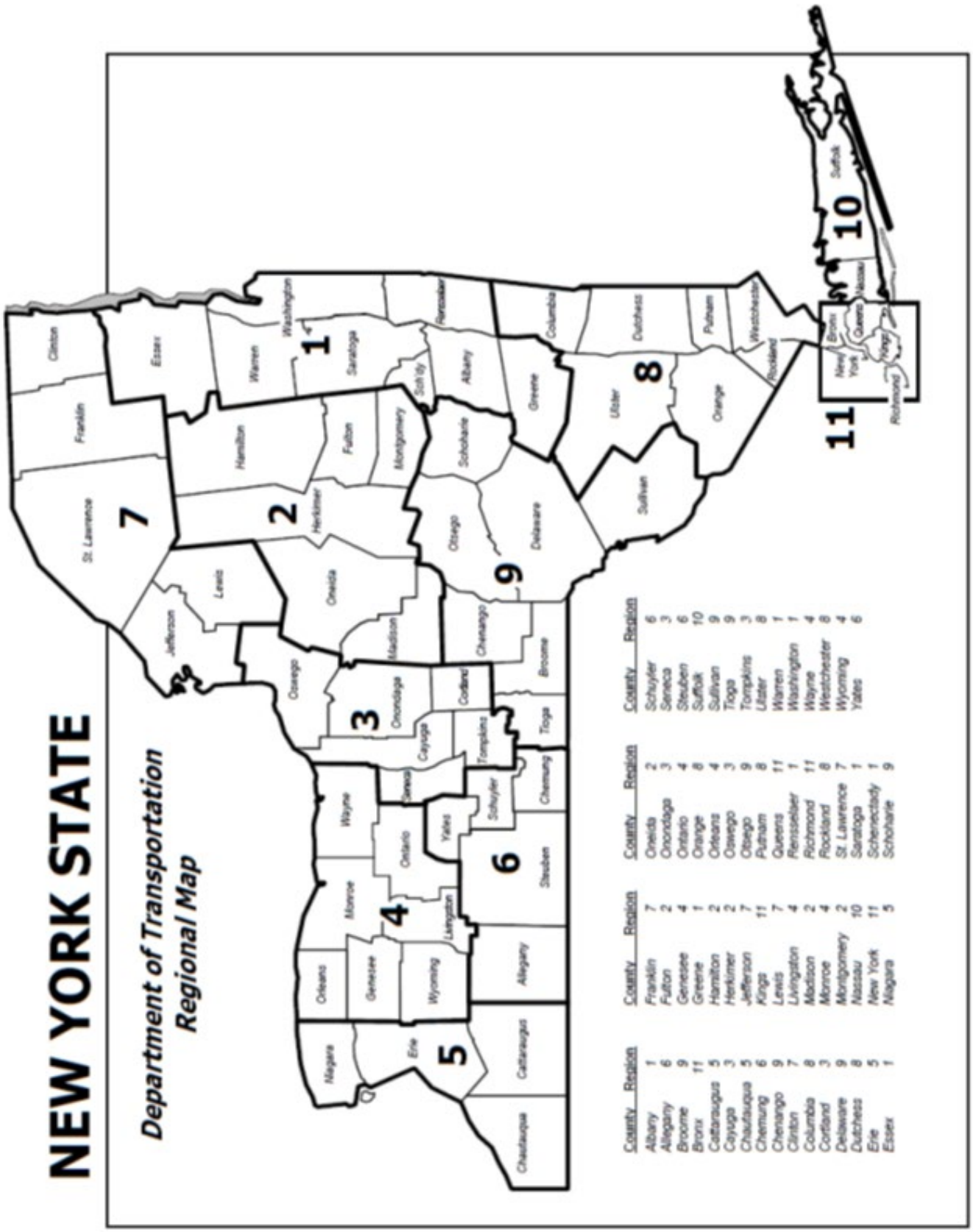
  - Non-Complying Product - Price Deduction - Contamination

    If the end user accepts contaminated salt as defined in this Section – *Inhibitor Treatment* for operational reasons, a 10% price deduction may be placed on the contractor by the end user after consultation with the contractor and OGS Procurement Services.

  AGENCIES WILL SUBMIT TO OGS SUPPORTING DOCUMENTATION FOR PRICE DEDUCTION.

  OGS PROCUREMENT SERVICES WILL REVIEW AND WILL HAVE FINAL APPROVAL AS TO PRICE DEDUCTION APPLIED.

SECTION 3: REGIONS FOR LOTS 1 – 4, 7, 8, AND 10



3.1 Region Chart

Regions for Lots 1-4, 7, 8, and 10 are grouped by Counties as indicated below:

1	2	3	4	5	6
Albany Essex Greene Rensselaer Saratoga Schenectady Warren Washington	Fulton Hamilton Herkimer Madison Montgomery Oneida	Cayuga Cortland Onondaga Oswego Seneca Tompkins	Genesee Livingston Monroe Ontario Orleans Wayne Wyoming	Cattaraugus Chautauqua Erie Niagara	Allegany Chemung Schuyler Steuben Yates

7	8	9	10	11
Clinton Franklin Jefferson Lewis St. Lawrence	Columbia Dutchess Orange Putnam Rockland Ulster Westchester	Broome Chenango Delaware Otsego Schoharie Sullivan Tioga	Nassau Suffolk	Bronx Kings Queens New York Richmond