Chemical Product Category 4

Corrosion Inhibited
Solid Sodium Chloride Specifications

CATEGORIES 4A, 4B, AND 4C

The Categories shall be defined as follows:

1. Category 4A — Corrosion Percent Effectiveness of 30% or less
   Gradation – ASTM D 632 Type I, Grade 2
2. Category 4B — Corrosion Percent Effectiveness of 31% to 85%
   Gradation ASTM D 632 Type I, Grade – Modified
3. Category 4C — Corrosion Percent Effectiveness of 31% to 85%
   Gradation ASTM D 632 Type I, Grade 2

In addition to the General Specifications the following requirements shall also apply:

1. Gradation - Test Method: Number 13

CATEGORY 4A & 4C		CATEGORY 4B	
Sieve Size	Wt. % Passing	Sieve Size	Wt. % Passing
3/4"	100	3/4"	100
#4	20 - 100	1/4”	75 - 85
#8	10 - 60	#8	50 - 70
#30	0 - 15	#30	10 - 20

2. Anti-Caking agent will be included to insure that the material remains free from hard caking and suitable for its intended purpose.

   Test Method: Number 14

   NOTE: Salt for highway use is usually treated with either Ferric Ferrocyanide, also known as Prussian Blue, or Sodium Ferrocyanide, also known as Yellow Prussiate of Soda (YPS), to prevent the salt from caking. The amount of Prussian Blue added is 70 to 165 parts per million (ppm), equivalent to 0.33 to 1.14 pounds per ton of salt. YPS is added in the amount of 50 to 250 ppm, equivalent to 0.1 to 0.5 pounds per ton of salt. YPS is also used as an anti-caking agent in table salt, and has approval of the U.S. Food and Drug Administration. Based on exhaustive testing no evidence of toxicity was demonstrated. If used, the presence of these products will not be assessed towards the total cyanide concentration when testing this product. However, the total cyanide concentration of the original material must meet specifications. Information may be obtained from the Salt Institutes Highway Digest Publication.

Chemical Product Category 4---Continued

Bidder may bid this product with or without the anti-caking agent. Bidders must note on the Sample Checklist if the sample does contain anti-caking agent or not. If the Bidder chooses not to add the anti-caking agent it does not prevent the bidder from assuring that the delivered product is in a free-flowing state.

3. Material must be clean and free from extraneous matter. The material must be homogenous or manufactured in such a manner to assure that the corrosion inhibitor, anti-caking agent and the chemical product does not segregate.

Test Method: Number 14

4. Moisture Content

Category 4A
The salt shall be dried to a maximum moisture content of 0.5 % (percent by weight). Water in excess of 0.5% of dry salt weight will not be paid for. The amount of salt to be paid for, when moisture exceeds 0.5% shall be computed as follows:

Pay Weight = (100.5 x Wet Wt. of Salt) divided by (100 + Percent of Moisture)

NOTE: The moisture content is judged as available free water. Organic Bases Corrosion Inhibitors that are used in the processes of making this product that impart a loss in weight (Organic Matter Weight Loss) when ran according to the prescribe test method but do not reflect the loss of available free water shall be limited to a maximum of 3% by weight. Products that exceed the 3% by weight limit shall be subject to the same equation as above with the limit being adjusted to 3%. Additionally, the use of said inhibitors may be used provided that the material remain free flowing, will not clump, cause hard caking and remains suitable for use. The use of these types of inhibitors may require additional testing to be provided by the bidder at the request of the PNS before approval to the qualified products list is granted. The amount of available water in the inhibitor and the base salt will be required along with a mass balance analysis of the two products to show the theoretical amount of free water that is available in the finished product.

Test Method: Number 12

Category 4B and 4C
The finish salt product shall not exceed a maximum moisture content of 5.0 % (percent by weight). Moisture in excess of 5.0% of dry salt weight will not be paid for. The amount of salt to be paid for, when moisture exceeds 5.0% shall be computed as follows:

Pay Weight = (105.0 x Wet Wt. of Salt) divided by (100 + Percent of Moisture)

Chemical Product Category 4---Continued

5. Insoluble Residue

Category 4B

The salt shall have a maximum insoluble residue of 10.0 % (percent by dry weight). Insoluble residue in excess of 10.0% of dry salt weight will not be paid for. The amount of salt to be paid for, when the insoluble residue exceeds 10.0% shall be computed as follows:

Pay Weight = (110.0 x Dry Wt. of Salt) divided by (100 + Percent Insoluble Residue)

Category 4C

The salt shall have a maximum insoluble residue of 5.0 % (percent by dry weight). Insoluble residue in excess of 5.0% of dry salt weight will not be paid for. The amount of salt to be paid for, when the insoluble residue exceeds 5.0% shall be computed as follows:

Pay Weight = (105.0 x Dry Wt. of Salt) divided by (100 + Percent Insoluble Residue)

6. Corrosion Control Inhibitor and Concentration

Test Method: Number 3