

52.8 SUPPLY OF SODIUM CHLORIDE (SALT)

52.8.1 GENERAL

The Work consists of supplying sodium chloride (salt) to the Contractor's storage facilities for the use in winter maintenance activities.

52.8.2 MATERIALS

52.8.2.1 General

The Contractor shall be considered the owner of the salt until such time as the salt is placed on the roadway for use in winter maintenance activities.

The Contractor shall supply salt which is dry and free flowing, and the moisture content shall not exceed 1%.

The material shall be compatible with and easily dispensed by the Contractor's maintenance equipment.

The salt shall be supplied according to the following classifications.

TYPE I	- Fine
TYPE II	- Medium
TYPE III	- Coarse

The salt shall be free from dirt, sand or any other foreign matter.

52.8.2.2 Gradation of Salt

Salt shall conform to the following applicable gradation requirements for the type of salt supplied.

Metric Sieve Size (µm)	Fine (Type I) Percent Passing	Medium (Type II) Percent Passing	Coarse (Type III) Percent Passing
10 000		* 100	* 100
5 000	* 100	* 67-100	* 55-90
2 500	* 98-100	40-85	5-60
1 250	85-100	25-67	0-25
630	35-100	15-45	* 0-8
315	0-50	* 0-17	-
160	* 0-8	-	-
89	* 0-3	* 0-3	* 0-3

Note: The corresponding sieve sizes for the gradation limits marked with an asterisk will be considered gradation price adjustment sieves.

52.8.2.3 Chemical Composition

The salt shall conform to the following chemical composition.

! Sodium Chloride (NaCl) - Minimum 95.0%

! Soluble Chloride - Minimum 98.0%

Soluble Chlorides include sodium, calcium, potassium and magnesium chloride.

52.8.3 SALT STORAGE SITES

The Contractor shall supply all required salt storage sites. The minimum salt storage capacity for each Contract Maintenance Area will be specified in the Special Provisions. The actual location of the salt storage site(s) within each CMA shall be determined by the Contractor with the exception that the Department may identify critical areas which must contain a specified number of sites and/or capacity for material. Any critical areas and the associated requirements for storage sites will be identified in the Special Provisions.

The actual amounts of salt to be delivered to each storage location will be determined jointly by the Contractor and the Engineer.

The Contractor shall ensure that the salt is protected from the weather at all times and not damaged in any way, including fracturing, compacting, segregating, et cetera.

All salt shall be contained in structures constructed on an impermeable floor of asphalt, concrete or other suitable material that is graded away from the centre of the structure for drainage purposes. The pad shall extend around the exterior of the structure and be graded away from the building such that runoff is prevented from entering the structure. The roof and exterior of the structure shall be constructed of waterproof material such that precipitation and moisture are prevented from entering the structure.

Loading of salt into the storage structure shall be performed using a conveyor or blowpipe system. The structure design shall be such that use of a blowpipe system does not result in salt drifting. The use of front-end loaders and push type vehicles to move the salt into the shed is not permitted.

52.8.4 SAMPLING AND TESTING

52.8.4.1 General

The Contractor shall be responsible for confirming that the materials received are the same as the materials on the bill of lading and shall reject materials obviously not in conformance with the requirements. Any contamination from hauling vehicles shall be reported to the Engineer immediately so that additional sampling and testing can be performed.

Upon request, the Contractor shall provide the Engineer with the following information for each load of salt delivered:

- ! Name of supplier
- ! Bill of lading number
- ! Batch number
- ! Origin of product
- ! Final destination of product
- ! Quantity in shipment
- ! Date and time of loading
- ! Date and time of delivery

52.8.4.2 Quality Assurance Testing

The Department may conduct random testing for gradation quality and chemical analysis on any or all shipments.

In addition to any random job site testing, the Department will conduct a quality assurance program consisting of one random sample per 500 tonnes of material shipped from any one source. The sample (taken at the manufacturer) will be split into three representative smaller samples, one for the Department, one for the Contractor and one appeal sample. The Department will have the first sample tested and supply the results to the Contractor. If the Contractor does not agree with the Department's test results, he may appeal and request that the appeal sample be tested. The Department will have the appeal sample tested by an independent laboratory and the results will be binding on both the Contractor and the

Department. If the results of the appeal sample tests indicate that the material is still subject to penalty, the Contractor shall bear the cost of additional testing. If the results of the appeal sample tests indicate that the material is not subject to penalties, the Department will bear the cost of the additional testing.

In cases where no appeal is made, any payment adjustments for quality will be based on the Department's single test result. In cases where an appeal is made, any payment adjustments will be based on the results of the appeal test only.

52.8.5 PAYMENT ADJUSTMENTS

52.8.5.1 Chemical Composition and Gradation

The following payment adjustments for non-conformance to the chemical composition and gradation requirements will be applied based on the results of the quality assurance testing. In all cases, shipments of salt found to be outside the gradation specifications or the chemical composition specifications or any other part of the specifications, will be subject to rejection at the discretion of the Engineer.

52.8.5.1.1 Chemical Composition

Sodium Chloride

<u>Percent Chemical Composition</u>	<u>Penalty (% Reduction of Unit Price Bid)</u>
100 - 95	NIL
94.99 - 94.00	3
93.99 - 93.50	6
93.49 - 93.00	9
less than 93.00	12

Soluble Chlorides

<u>Percent Chemical Composition</u>	<u>Penalty (% Reduction of Unit Price Bid)</u>
100 - 98.0	NIL
less than 98.00	12

52.8.5.1.2 Gradation

When the results are outside the limits of the "Gradation Price Adjustment Sieves" shown in Section 52.8.2.2, a price reduction of 5% (for each price adjustment sieve in non-compliance) will be applied to the applicable unit price bid for "Sodium Chloride (Salt) - Supply."

52.8.5.2 Salt Usage

Salt usage will be subject to payment adjustments based on a comparison of the total quantity of salt used on the road during each Department fiscal year and the "Combined Salt Usage Footprint" for the Contract. The "Combined Salt Usage Footprint" is a range of the total tonnes of salt estimated to be used within the Contract area boundaries each fiscal year. The "Combined Salt Usage Footprint" is determined as follows:

- (i) the Special Provisions will indicate a Provisional Quantity for salt for each CMA
- (ii) the Provisional Quantities for each CMA in the Contract will be totalled to provide the Total Provisional Quantity
- (iii) the "Combined Salt Usage Footprint" will be the Total Provisional Quantity +/- 10%

Calculations to determine any salt usage payment adjustments will be performed once per year based on quantities used up to March 31 each year. Details of the calculations and payment adjustments are included in Section 52.8.7.2, Salt Usage

Payment Adjustments.

52.8.6 TIME TO COMPLETE

The Contractor shall ensure storage facilities contain salt at all times during the winter months.

52.8.7 MEASUREMENT AND PAYMENT

52.8.7.1 Supply of Salt

Measurement will be made in tonnes of salt placed in each storage facility, based on invoice and bill of lading quantities from the Contractor's suppliers invoice. Only quantities of salt intended for use in the Work will be measured for payment.

Payment will be made at the applicable unit price bid per tonne for "Sodium Chloride (Salt) - Supply", subject to any unit price adjustments applied for non-compliance with gradation and/or chemical composition requirements. These payments will be full compensation for supplying salt to the applicable storage facilities and all labour, materials, tools and incidentals necessary to complete the work.

Any payment adjustments for salt usage will be applied on a lump sum basis at the end of each Department fiscal year.

Payment for the supply of salt will not be considered to constitute ownership of the material by the Department. The Contractor is considered the owner of the material until such time as the material is placed on the road.

The cost of providing salt storage sites will be considered included in the unit price bid for "Indirect Operating Costs."

52.8.7.2 Salt Usage Payment Adjustments

52.8.7.2.1 Total Quantity Used During the Fiscal Year

The quantity used during the fiscal year will be determined by the Engineer and will be based on the quantity delivered plus the quantity of salt existing in stockpile(s) at the beginning of the winter season, less the quantity remaining in stockpile(s) on March 31 and the quantity of any salt supplied to others. The quantity of salt supplied to others will be determined and recorded by the Contractor and provided to the Engineer upon request.

The quantity remaining in stockpile on March 31 each year will be determined by cross-sectioning the stockpiles. This quantity will be converted to tonnes using the conversion factor specified in the Special Provisions.

52.8.7.2.2 Total Yearly Quantity Used Falls Within the "Combined Salt Usage Footprint"

If the total quantity of salt used within the Contract area boundaries during the Department fiscal year falls within the "Combined Salt Usage Footprint", no Salt Usage payment adjustments will be applied.

52.8.7.2.3 Total Yearly Quantity Used Exceeds the "Combined Salt Usage Footprint"

If the total quantity of salt used within the contract boundaries during the Department fiscal year exceeds the "Combined Salt Usage Footprint", the net amount in excess of the upper limit of the "Combined Salt Usage Footprint" will be paid for at the weighted average of the Contractor's actual cost (with no markup) to supply salt for the Contract.

The remaining quantity of salt used (ie: the upper limit of the "Combined Salt Usage Footprint") will be paid for at the applicable unit price bid per tonne for "Sodium Chloride (Salt) - Supply."

52.8.7.2.4 Total Yearly Quantity Used is Less than the "Combined Salt Usage Footprint"

If the total quantity of salt used within the contract boundaries during the Department fiscal year is less than the "Combined Salt Usage Footprint", the Contractor will receive a supplementary lump sum payment calculated as follows:

Quantity is paid at unit prices bid plus supplementary salt usage adjustment:

Supplementary Salt Usage Adjustment = $[0.05 \times \text{"Total Provisional Value of Salt Payment"}] \times [1 - \{\text{Actual Quantity Used} \div (0.9 \times \text{Total Provisional Quantity})\}]$

"Total Provisional Value of Salt Payment" = Total bid value of annual salt provisional quantities

52.8.7.3 Quality Payment Adjustments

Quality payment adjustments will be applied for sodium chloride content, soluble chlorides content and gradation requirements. These adjustments are cumulative, and the total penalty to be applied will include the total penalties assessed to the three properties listed above, to a maximum payment adjustment of 30%.

Payment adjustments for quality will apply to 500 tonnes, or the amount shipped if less than 500 tonnes, and will be deducted as a negative amount on the next monthly estimate.

52.8.8 WARRANTY

There is no warranty period for this Work.