



Note: The MUNI implemented in November 2017 replaces OPSS 506 COMMON, November 2013 with no technical content changes.

CONSTRUCTION SPECIFICATION FOR DUST SUPPRESSANTS

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506.01 SCOPE

This specification covers the requirements for dust suppressants and their application.

506.01.01 Specification Significance and Use

This specification is written as a municipal-oriented specification. Municipal-oriented specifications are developed to reflect the administration, testing, and payment policies, procedures, and practices of many municipalities in Ontario.

Use of this specification or any other specification shall be according to the Contract Documents.

506.01.02 Appendices Significance and Use

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner's use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

506.02 REFERENCES

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be considered to be the OPSS listed, unless use of a provincial-oriented specification is specified in the Contract Documents.

This specification refers to the following standards, specifications, or publications:

Ontario Provincial Standard Specifications, Material

OPSS 2501 Calcium Chloride
OPSS 2503 Magnesium Chloride Solid and Magnesium Chloride Solution

Others

Environmental Protection Act, Ontario Regulation 347, General - Waste Management - R.R.O. 1990

Ministry of the Environment and Climate Change (MOECC) - Certificate or Provisional Certificate of Approval for a Dust Suppression Waste Management System

506.04 DESIGN AND SUBMISSION REQUIREMENTS

506.04.01 Submission Requirements

Dust suppressants other than water, calcium chloride solid, calcium chloride solution, magnesium chloride solid, magnesium chloride solution, and calcium-magnesium chloride blend, or as specified in the Contract Documents shall be approved by the Contract Administrator. The following shall be submitted with a request to approve the dust suppressant within one week of execution of the Contract:

- a) The name of the material.
- b) The name of the manufacturer or supplier.

- c) The manufacturer's guidelines and recommendations for application rates that meet or exceed the performance of calcium chloride or magnesium chloride.

Dust suppressants containing waste material shall be as approved by the Contract Administrator. A copy of a Certificate or Provisional Certificate of Approval for a Dust Suppression Waste Management System shall also be included with the request to approve the dust suppressant. The certificate shall be valid for:

- a) The entire period of the Contract.
- b) The entire area within the limits of the Contract and the entire haul route.
- c) The equipment to be utilized.
- d) The point of supply.
- e) The relevant Ministry of Environment waste classification.
- f) Mixtures with any other material, with the exception of water, if mixtures are to be applied.

Prior to the application of dust suppressants containing waste material, the Contract Administrator shall be provided with a completed blue coloured copy (#5) of the Ontario Regulation 347, General - Waste Management manifest for each shipment of waste.

506.05 MATERIALS

506.05.01 Water

Water shall be free of contaminants that could adversely affect fill material or the environment.

Water shall be free of foreign material that would alter the dust suppressant solution or cause blockage in the spray equipment.

506.05.02 Calcium Chloride Solid, Calcium Chloride Solution, and Calcium-Magnesium Chloride Blend

Calcium chloride solid, calcium chloride solution, and calcium-magnesium chloride blend shall be according to OPSS 2501.

Calcium chloride solution may be substituted for calcium chloride solid.

506.05.03 Magnesium Chloride Solid and Magnesium Chloride Solution

Magnesium chloride solid and magnesium chloride solution shall be according to OPSS 2503.

Magnesium chloride solution may be substituted for magnesium chloride solid.

506.06 EQUIPMENT

506.06.01 General

Application equipment shall be capable of distributing the dust suppressant in a uniform manner at an application rate specified in the Contract Documents.

506.06.02**Pressure Distributors**

Pressure distributors shall be propelled by a power unit capable of accurately maintaining any speed required for spraying and shall be provided with the following minimum equipment:

- a) A pump capable of developing in the spray manifold a constant uniform pressure to sustain the required application.
- b) A pressure gauge indicating the pressure within the spray bar graduated in increments of 15 kPa or less and visible to the operator.
- c) A rear mounted spray bar having a cab-activated positive and instant shut off that can be set at variable heights parallel to the surface and to any spraying width from 1 to 3 m to spray any portion of the roadway surface, including the shoulders. The spray bar nozzles shall be:
 - i. All of the same manufacture and size.
 - ii. Clean and in good working condition.
 - iii. Designed and set to ensure uniform fan shaped spray without atomization.

Nozzles shall be set in the spray bar at an angle permitting each spray fan to overlap adjacent spray fans in such a manner that complete coverage of the spray area is maintained should there be a malfunction of one nozzle.

- d) A strainer installed in the feed system to prevent clogging of the spray bar nozzles.
- e) A device or method that allows the operator to determine the volume remaining in the tank to an accuracy of 200 litres.
- f) Splash guards or other approved devices for shoulder spraying that shall permit spraying immediately adjacent to the pavement without over-spraying the pavement surface.
- g) A system (e.g., meter, GPS device, ground speed sensors, or calibration charts) that allows the operator to determine the rate of application with accuracy while spreading the dust suppressant.

506.07**CONSTRUCTION****506.07.01****General**

Dust suppressants shall be applied according to the obligations imposed by any Certificate or Provisional Certificate of Approval for a Dust Suppression Waste Management System.

Water shall be the only dust suppressant applied within two weeks before the placement of any asphaltic concrete materials or the application of surface treatments.

Approved dust suppressants other than water, calcium chloride solid, calcium chloride solution, magnesium chloride solid, magnesium chloride solution, and calcium-magnesium chloride blend shall be applied according to the manufacturer's guidelines and application rates.

Steps shall be taken as necessary to control dust resulting from operations or by public traffic such that it does not:

- a) affect traffic,
- b) enter surface waters, or

c) escape beyond the right-of-way to cause a nuisance to residents, businesses, or utilities.

Dust suppressants shall be applied in a manner that avoids ponding, runoff, drifting, and tracking of the material beyond the area of application.

Dust suppressant application shall not proceed during periods of rain when the surface is in a saturated condition or on areas of ponded water.

Dust suppressants other than water shall not be applied when weather forecasts indicate a high probability of rainfall in order to minimize loss of the material from the intended area of application. Areas receiving rainfall within 6 hours after application may require reapplication of the material.

Dust suppressants containing waste material shall not be stored on the Owner's property.

506.07.02 Dust Suppressant Solution

Dust suppressant solutions shall be applied by a pressure distributor. The application rate per kilometre shall be confirmed by running 250 m test sections in the presence of the Contract Administrator. Solution application rates shall be measured in t/km or in L/m².

For the maintenance of existing roadways, dust suppressant solutions shall be applied to a prepared surface. Work shall commence within 3 Working Days of receiving notice from the Contract Administrator and shall proceed continuously until completed.

506.07.03 Management of Excess Material

Management of excess material shall be according to the Contract Documents.

506.09 MEASUREMENT FOR PAYMENT

506.09.01 Water for Dust Suppression

Measurement of water for dust suppression shall be by volume in cubic metres by one of the following methods for the quantity used in the work:

- a) The mass of the water shall be determined by weighing according to the Contract Documents and shall be the difference between the mass of the empty water tank and carrying vehicle and the mass of the full tank and carrying vehicle. The mass of the water shall be converted to cubic metres using a factor of 1,000 kg to 1 m³.
- b) The water tank shall be measured and its volume computed in cubic metres.
- c) The water shall be measured through a water meter acceptable to the Contract Administrator.

506.09.02 Calcium Chloride Solid and Magnesium Chloride Solid

Measurement for calcium chloride solid and magnesium chloride solid shall be by mass in kilograms.

506.09.03 Calcium Chloride Solution

Measurement of calcium chloride solution shall be by mass in tonnes of solution, by volume in litres of solution, or by mass of equivalent solid as specified in the Contract Documents. The mass and volumetric measurement of calcium chloride solution shall be according to OPSS 2501.

506.09.04 Magnesium Chloride Solution

Measurement of magnesium chloride solution shall be by mass in tonnes of solution, by volume in litres of solution, or by mass of equivalent solid as specified in the Contract Documents. The mass and volumetric measurement of magnesium chloride solution shall be according to OPSS 2503.

506.09.05 Calcium-Magnesium Chloride Blend

Measurement of calcium-magnesium chloride blend shall be by mass in tonnes of solution or by volume in litres of solution as specified in the Contract Documents. The mass and volumetric measurement of calcium-magnesium chloride blend shall be according to OPSS 2501.

506.10 BASIS OF PAYMENT

- 506.10.01 Water for Dust Suppression - Item**
- Calcium Chloride Solid - Item**
- Calcium Chloride Solution - Item**
- Magnesium Chloride Solid - Item**
- Magnesium Chloride Solution - Item**
- Calcium-Magnesium Chloride Blend - Item**

Payment at the Contract price for the above tender items shall be full compensation for all labour, Equipment, and Material to do the work.

When the Contract does not contain a separate tender item for any of the above items, the Contract price for the applicable tender item for which dust suppression is required shall be full compensation for all labour, Equipment, and Material to do the work.

**Appendix 506-A, November 2017
FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS**

Note: This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner's design decisions and methodology.

Designer Action/Considerations

The designer should determine if the following is required and, if so, specify it in the Contract Documents:

- The dust suppressant material by type. (506.04.01)
- Method of measurement for dust suppressant solution. (506.09.03, 506.09.04, 506.09.05)
- A tender item for payment of a dust suppressant. (506.10.01)

When a dust suppressant other than water, calcium chloride solid, calcium chloride solution, magnesium chloride solid, magnesium chloride solution, or calcium-magnesium chloride blend is to be applied, the concentration and the volumetric conversion should be identified.

The proper use and application of all dust suppressants is the responsibility of the applicator and is subject to applicable Ministry of Environment requirements under legislation such as the *Environmental Protection Act* (EPA) and the *Ontario Water Resources Act*.

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

Related Ontario Provincial Standard Drawings

No information provided here.