



## EQUIPMENT



# Equipment Calibration

**Equipment calibration** is one of the single most important methods that an agency can use to ensure it is not over-applying material. Equipment calibration is defined as determining the amount of material being dispensed in pounds per minute from any given unit. This value is then turned into a setting which is used by an operator to determine how many pounds per lane mile or grams per square meter are actually being applied at any given spreader setting.

The actual calibration of the equipment can be done by an operator or by the fleet facilities department in an agency. It is always desirable to have both parties present so the operator is aware what is being dispensed at each setting and also so any adjustments can be made by the fleet department to ensure the settings are correct.

Calibration can be done on both Manual systems and on automated ground speed systems. The process of calibrating equipment is fairly easy but is also time consuming.

The Salt Institute has a step by step guide for calibrating equipment with manual systems installed in them (available on the Resources page of our web site). There are also several videos available that walk through this same process.

Automatic systems generally have a test mode and a simple procedure to do the calibration. It is very important with automatic systems to ensure after calibration is completed that the ground speed controller matches the speedometer speed of the vehicle.

Calibration of all agency equipment should be done prior to the beginning of the winter season. It should also be considered throughout the winter season especially if there is a change in the type of material that the unit was first calibrated with. This could be a change in material from a vendor or a change based on the type of winter conditions that the agency is faced with. One example of this may be going from regular salt to a treated salt as pavement temperatures become extremely low. These two products will differ in the way they flow out of the vehicle and therefore units should be re-calibrated when switching from one to another.

While calibration is often thought of in terms of the application of solid materials, liquid dispensing systems should also be calibrated. The basic procedure is the same as for calibration with solid materials, but as noted above, different materials may be used under different winter conditions and so a liquid dispensing system should be calibrated for whatever liquids are being used by an agency.

If spreaders and liquid dispensing systems are not regularly calibrated, then agencies do not know how much material they are applying – they are only guessing. Guessing is not good enough...

The following two videos may be useful for agencies to use when training for calibration. There is also a detailed guide produced by MinnDOT that will be helpful

<https://www.youtube.com/watch?v=ilsHluJW-9M>

<https://www.youtube.com/watch?v=kzTIOG3MxNw>

<http://www.dot.state.mn.us/maintenance/pdf/research/SaltSanderCalibrationGuide.pdf>

**The numbers:** Anecdotal evidence suggests that poorly or improperly calibrated (or in some cases, totally uncalibrated) dispensing systems may actually be applying twice as much material as intended. So, by implementing a regular and thorough calibration process, an agency can save as much as 50% of their total material applications.

**The Alternatives:** There really are not any alternatives to calibrating your material dispensing systems. The process is tedious, but a number of different guides are available and these typically include all the charts and forms needed as well as a step by step description of the process. The Minnesota DOT guide is one such example. Your material dispensing system manufacturer should also be able to provide detailed instructions on calibrations.

**The needs:** The basic equipment needs for a calibration process (aside from the truck and spreader unit being calibrated) are a system to catch the material being dispensed and a system to measure the weight (or with liquids, the volume) of the dispensed material.

