Re-Circulation of Liquid Deicers

It has come to my attention that there may be some misconceptions about mixing or re-circulation of deicer products. Specifically, is it necessary, how to accomplish it, and how often should it be done? I am going to attempt to address each of these points individually.

IS IT NECESSARY:

In a word, yes. The re-circulation of deicer materials is necessary almost always and it is never wrong to do even when it may not be needed if done correctly. The reason for this need generally is because of the use of additives such as corrosion inhibitors. Additives and the liquid deicer they are mixed with generally do not have the same specific gravity and therefore will stratify in time, with the lightest product floating on the surface. To re-circulate simply means to put the products back into a mixture, not unlike shaking a bottle of cough medicine before using it. When one does not re-circulate material, simply put, the material possibly is being removed from the tank in layers. Assuming pumping is being done from the bottom of the tank, the heaviest material is removed first and then the lighter material(s) are pumped in order of their specific gravity, from the heaviest to lightest as the volume in the tank reduces and the intake of the pump is pulling from the different material layers. To re-circulate or remix the material eliminates the layers, produces one solution and a quality product is delivered as intended.

HOW TO ACCOMPLISH RE-CIRCULATION:

Re-circulation simply means pulling the material from the tank through the pump and then putting it back into the tank. In the process of doing this, DO NOT SPLASH THE MATERIAL OR INTRODUCE AIR IN ANY WAY. The trick to re-circulation of material is to cause a swirling action of the material as it goes back into the tank below the material surface. Ideally there will be swirling of material in both horizontal and vertical directions. There is no wrong way to do this if you do not splash or introduce air and achieve the mixing action desired. Be creative when creating plumbing for re-circulation. PVC pipe as a material is easily worked with, easily modified and is inexpensive. Nozzles may be utilized, or simply drill holes in the pipe or pipes. I have seen about every configuration imaginable, both elaborate and simple, that work very well. On the other hand, I have seen some very expensive and elaborate systems that did not work well due to the fact the real goal of re-circulation or mixing had been forgotten and it had become a project to design for show rather than a project to design with a specific goal and results in mind. Approach this with a specific clear goal in mind and KEEP IT SIMPLE.

HOW OFTEN SHOULD IT BE DONE?

The answer to this question depends on the material itself. I generally recommend that it be done prior to the delivery of a product. When I say "delivery", I mean to a customer's storage tank, or to the tank of a deicer application truck from a storage tank. Whenever a product is delivered, one wants to be sure to deliver the mixture and not one of the layers

that may have developed. When a material placed on a truck for application is used within a few hours of loading, material mixing from truck movement will normally be adequate. However, if the truck is parked loaded or partially loaded, mixing may be necessary. For this reason, the better application vehicles are equipped with the ability to re-circulate the material either as part of the normal operations or as an individual action.

CONCLUSION:

Bear in mind that the re-circulation of stratified materials is not difficult and putting it back into solution is not a problem. Consider quality control and remember that you have nothing to lose by doing it, or even by overdoing it if done correctly. Conversely, to not re-circulate may mean inconsistency in the product delivered, inconsistency in product performance, and loss of product confidence by the user. The loss that can result from poor customer satisfaction is quite evident and is easily avoided by re-circulation of material before delivery.

Dale Keep
Ice and Snow Technologies, LLC
2151 Granite Drive
Walla Walla, WA.
Voice - (509)525-3197
Cell - (509)961-6794