



Fluid Phosphate Product Sludge

Several times each year, people have asked if there is anything that can be added to the sludge at the bottom of the liquid P product storage tanks that will aid in dispersing or breaking up the sludge when cleaning the tanks. Others have asked about what to do with the sludge that is removed.

The sludge formed at the bottom of tanks will NOT go back into solution with mixing. And unfortunately, there is really nothing that can be added to aid in solubilizing this sludge. The sludge at the bottom of the tank is a result of precipitate formation (formation of less soluble products than what was originally in the tank/lines). It is at the bottom of the tank because it is relatively insoluble. Adding water to the sludge helps form a slurry that can be moved with pumps, but the sludge does not go back into solution.

Adding a compatibility agent will NOT help with sludge removal – it is not a compatibility issue. And DO NOT add ammonia to the slurry/sludge at the bottom of the tank. This will only make matters worse. Over-ammoniation of the sludge with ammonia reduces ammonium phosphate solubility and adds to sludge problems. Additionally, the heat generated and free ammonia formation in the tank will delay any cleaning activity in the tank.

While cleaning the tanks out every year, or every other year, may seem to be excessive to some, there are places/fertilization systems that require this attention to housekeeping detail is essential in order to avoid application problems. In any case, the longer the sludge remains at the bottom of the tank, the harder and more compact it becomes. While the sludge might be soft and relatively easy to pump out if housekeeping is performed in a timely/routine fashion, the sludge becomes very hard and very difficult to remove if housekeeping is put off for many years. Picks/shovels are often needed to breakup the compacted sludge in large tanks that have not been cleaned out for many years. There are only two or three things that can be added to the sludge to aid in sludge removal. Water, recirculation/agitation of resulting slurry and sweat/elbow grease.

One final comment of tank housekeeping. Remember, good housekeeping for fluid phosphate fertilizer products is important at the manufacturer level, the distributor level, the dealer level and at the farmer level. And proper housekeeping includes the tanks, pipes and lines of application equipment as well as on-farm fertilizer storage tanks.

Finally, there is the question of what to do with the sludge after cleaning. The 10-34-0 sludge samples I have submitted for laboratory analysis have come back very close to 10% N and 34% P₂O₅ – the analysis was essentially unchanged. Keep in mind that if water is used to dilute the sludge to slurry, the analysis would decline in relationship to the amount of water added. If you will be selling this sludge, however, you really should have an analysis run to verify nutrient content. From an agronomic standpoint, the sludge would be expected to continue be an excellent source of crop nutrients.

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