

## **"RV sewage-it's more than just the smell"**

*By Phred Tinseth #394, Escapee's Magazine, July/August 2000*

Are you "Tidy Tilly" who's an obsessive cleaner-upper? Do you commonly use extremely caustic cleaners in toilet and sinks? Dump nasty stuff like paint thinner in there? Use formaldehyde toilet chemicals or other perfuming stuff? In short, do you treat your RV tanks like you did your house on a municipal system where any possible thing was just flushed down the drain? Well, you can't do that in an RV.

RV waste systems depend on bacteria to decompose waste, including toilet paper and anything else that's biodegradable. But there's good bacteria-and there's bad bacteria. Aerobic bacteria need oxygen to live. These good bacteria decompose waste efficiently. Ideally, a tank with waste, water and simple biodegradables will decompose into a thin slurry and will not smell. Ample air enters each time the toilet is used. If the vent pipe is properly placed through the top of the tank and isn't submerged so far that it's blocked most of the time, and if the pipe isn't blocked elsewhere or at the roof, the system should work fine.

Anaerobic bacteria live without oxygen. They will also decompose waste, but in doing so produce various gases. Those gases also produce stink. Obviously, the two types of bacteria can't coexist. One will always displace the other. Proper venting helps keep the aerobic bacteria active, but there's more to it. Putting the wrong additives or chemicals in a tank may result in killing both types of bacteria; then you really have problems.

Your mission, Mr. RVer, should you choose to accept it, is to encourage aerobic bacteria and discourage anaerobic bacteria without turning the tank into a receptacle for destructive chemicals. There are generally three ways to treat waste tanks; chemicals, enzymes and bacteria.

### **Chemicals**

Chemicals are absolutely the worst way to do it: yet that's what most RVers use. Store shelves are jammed with chemical treatments. The first thing they do is kill bacteria, which is exactly what you don't want to do. Then they use a chemical to unnecessarily breakup up the solids into progressively smaller pieces that accumulate on the bottom of the tank in big pile instead of decomposing. The tank will stink, so then they have chemicals that overpower the natural bad odor with yet another odor.

There's not enough room here for the entire list of typically used chemicals, but here's a sampling: Formaldehyde (aka Formalin) is a preservative. I see no reason to preserve poop for posterity. As people have become aware of the dangers of formaldehyde (also a carcinogen), you now see many chemicals boldly labeled "Formaldehyde Free". That's good, except some treatments now use glutaraldehyde instead, which is used in embalming fluid. Enough said?

Some other things you definitely don't want to put in your tank individually or a part of chemical treatments: bleach, methanol or alcohol, nitrites or nitrates, phosphorous or phosphates, bronopol (a pesticide), any petroleum-based product, acid or cleaning fluid.

More no-nos listed separately because so many RVers use them in homemade concoctions; pine oil (which deteriorates gaskets), automatic dishwasher detergent (extremely caustic), mineral, coconut, or cooking oils (which really won't lubricate valves and seals, but will just float on the surface and keep air from getting to the good bacteria), yeast (which will promote bacteria, but you will have to use so much that you'll have a tank full of goo).

### **Enzymes and bacteria**

Enzymes won't do any harm, but won't do all that needs to be done either. They will do pretty well with an odor, but just for a short time. Enzymes can help sometimes.

Active bacteria will do the job. A properly set up and maintained system won't need much either. As opposed to chemicals (where more and more must be used with less and less effect), when adding bacteria, less is better. It's important that you follow the instructions. You must start with a clean tank, or residual chemicals will defeat the action. You need to start the tank with a few gallons of water. You shouldn't add the bacteria until there's a deposit of human waste in there. If you do it right, it will take

about three, in normal use, dumps before you have a good, renewable system. You can then keep it going with only small additions of bacteria every other dump or even fewer.

I lived on a boat once. Prominently displayed over the john was a poster saying, "Don't put it in here if it ain't been et yet." Well, it's not that critical, but a good colony of bacteria will eat lots of stuff and not smell bad if you don't kill the bacteria.

### **Which bacterial agents are best?**

There are several good products. Homeowner septic tank chemicals work. They're readily available in most supermarkets and are inexpensive. They are not fast working, which is why RVers are sometimes dissatisfied with them, but they are designed for thousands of gallons and a lot of time, not the short time demanded by the 40-100 gallons in most RVs. Rid-X is the best of these.

Roebic and K.O. (boat stores) are excellent holding tank bacteria. I'm also impressed by Mean Green.

The best holding tank product I've ever found is Eco-Save from JWH Distributors (sic), PO Box 195, Santa Rosa, CA 95402. 800-950-9666 or 707-579-0643. By the time you read this, their web site should be up at [www.eco-save.com](http://www.eco-save.com).

Detailed instructions are provided with all these. Follow them! All of these products are totally safe, with no carcinogens or toxic poisons. Any sewage plant would welcome them.

Be leery of recipes from RVers for homemade concoctions. The ingredients will kill bacteria. The pine oil (Pine Sol or Equal) usually used will also deteriorate valve seals, and you will create your own leaks.

Almost everything is, eventually, biodegradable. Unfortunately, you and your grandchildren may not be able to wait up to a 100 years for the toxic crap (pun intended) that you threw in the tank to go away.

Finally, the inclinations of most RVers is to use toxic chemicals and not worry about it. The attitude is, "The dump station or RV park will handle it" Not so. The EPA is becoming strict. At present, their rules state that if a system causes contamination, the park or station may be forced to close. I'm reliably informed that the new EPA rules will state that if contamination is detected, they will be forced to close. Think about it.

Purging a sewage system of contaminants is complicated and expensive. That cost is going to be passed on to the RVer. It's a necessity and it doesn't mean the RV park operator is greedy. Operators of courtesy-type dump station at rest areas and similar places have solved the problem the easy way-they're closing many of them.

Most of the problems RVers face can be blamed on the manufacturers. This one can't. The enemy is us.