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(Fungicide Resistance cont'd.)

tunately, some of the systemic fungicides we use are single-site inhibitors, i.e. there is only one very specific site of action that confers toxicity to fungi. Therefore, only a single gene (point) mutation could alter the sensitivity to a single-site fungicide and allow a fungal population to develop resistance.

Repeated, exclusive use of a single-site fungicide places a large selection pressure on fungal populations for development of resistant or tolerant mutants. To avoid high selection pressure, the best practice (in my opinion) would be to alternate single-site fungicides with unrelated multi-site fungicides. Also, I would not use the single-site product more than once or twice per year. Examples of single-site fungicides are Subdue and the benzimidazoles (Tersan 1991, Fungo 50, Cleary 3336). Tolerance of fungi to ergosterol inhibitors, Dyrene, and Chipco 26019 has been reported for turf or other crops; these products may also be single-site inhibitors. Please note that not all systemic fungicides are single-site inhibitors, and not all contact fungicides are multi-site inhibitors.

Avoiding resistance is an often complex and controversial topic, and would probably be better addressed in more detail in another article.

Underground Storage Tank Regulations

by Steve Berning

Underground storage tanks (USTs) are regulated under subtitle C of the Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA) of 1984. The act imposes standards on all owners and operators of new and existing USTs containing petroleum and other regulated substances. The standards address tank design, construction, upgrading of existing tanks, operation and maintenance, spill and leak cleanup and closure.

What You Have to Do

It is not difficult to comply with the UST regulations. USTs of unknown age and those installed in 1979 and older, must be tested by December, 1992. The 1988 and prior USTs must be tested by December, 1993. These USTs must be tested **annually** thereafter to assure that they are not leaking. This is all you have to do with an outside contractor.

Tank levels should be measured with a stick and reconciled every month against usage records for each tank; look for discrepancies which may indicate a leak. In addition, you should supervise fuel delivery so as to assure that the quantity will fit in the UST space available.

What Kind of Contractor Do You Look For

As with any vendor, you should consider such things as experience, promptness, professionalism, and reputation. Don't hesitate to ask for and call references. You may also want to ask potential contractors about their operating philosophy and determine whether they support your industry association.

With regard specifically to USTs, contractors are required to register with the state, use certified equipment for tank testing,

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(UST Regulations cont'd.)

have certificates of training with current updates, and have in writing EPA approved testing procedures. Do they remove and test USTs? If so, is there a potential for conflict of interest?

What You Don't Have to Do

You do not have to remove your UST if it is in use. In fact, you never have to remove your UST, even if it is an antique. You do not have to put the whistles and bells (upgrades) on the UST until December, 1998. You do not have to do soil boring samples. Currently, you do not need the regulatory insurance, as once thought.

What You Shouldn't Do

Do not remove your UST just for the sake of going above ground. The above ground rules are coming out in 1992 or 1993. There are many good reasons to keep your tank underground e.g., UST removal expense, space consideration, size limits, pumping rate, safety, insurance, evaporation loss, and visual appearance/aesthetics.

What Makes Sense

Once your UST is tested and it is found tight, consider retrofitting the UST with corrosion or "cathodic" protection. Cathodic protection can be installed on existing steel USTs and their lines to preserve the steel from corrosion. Any other upgrade done at this time may be counterproductive and/or premature. "Wait and see" is appropriate at this juncture, especially when economics are a real consideration.

Do Tanks Leak?

From our UST testing experience, over 95% of USTs do **not** leak. When they do leak, it is generally due to their lines, which can corrode easily at the threads where the galvanizing is removed during the threading process. Lines are subject to movement due to their location and natural freezing and thawing that occurs at that level. In addition, loose unions, joints, elbows and cross threads can be sources of leaks. Generally, the only time the vent pipe and the fill pipe truly leak is during test time. Normally, they do not leak during regular use, and therefore are not a big contamination problem. However, some state fire marshals want them to be tight just in case of a full tank delivery.

A "suction" line (where the pump is located at the dispenser and pulls the fuel from the tank) is the safer of the two types of fuel delivery systems. If a "pressure" delivery line leaks, it may go unnoticed, as there is no way to be sure a leak in the line exists until it is tested. In a suction delivery line, an operator would notice a delay (loss of prime) in the fuel delivery, or water and/or dirt in the fuel.

Who Can Repair a Leaking Tank?

Owners and operators can repair their own leaking underground storage tanks (LUSTS). Of course, common sense, safety and industry recommended practices prevail here. Lines can be replaced or repaired and steel or fiberglass tanks can be patched. A permanent record must be maintained in your file. Once repaired, the UST or line should be tested per EPA regulations.

In summary, it is not difficult to comply with the UST regulations. Know the rules. Keep up with any regulatory changes and proceed cautiously.

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