

## Foreign Odor in a Perc System

Since perchloroethylene will not support bacteria, the rancid odors often encountered in petroleum solvent systems due to bacterial decomposition are not the problem they once were. Odor problems do occur from time to time, however, and usually fall into the following categories:

1) Localized Organic Odors — These are the result of failure to remove odorous stains that were on the garment prior to drycleaning. Proper classification, detergent injection, running time, solvent level and solvent temperature all are necessary to remove these water soluble stains. In extreme cases, spotting with Spot Buster or Proteen and steam is required.

2) Oily, Burned Odor Similar To Still Residue — This and all remaining categories concern odors that have been imparted to the solvent. In this case, the odor is most often associated with distillation. A boil-over, improper azeotropic distillation or steam sweeping are the most common causes. The problem must be corrected, separators drained, cleaned, and refilled with solvent and water, and all the contaminated solvent redistilled. Solvent produced from the azeotropic process (water added) must be collected separately and redistilled under normal conditions. Steam sweeps must be run at low pressures for no longer than 10 min. Boil-overs must be controlled by using proper levels and steam pressures.

3) Rancid “old tennis shoe” odors are normally the result of dirty separators. All separators should be drained and distilled, or at least have the water changed once a week. Once cleaned, the separator must be filled with clean solvent to overflow and then with water to overflow before putting it back into service.

4) A fishy odor in solvent is due to dissolved organic amines from the breakdown of permanent press finishes primarily on work or industrial garments. Solvent distillation alone will not remove the odor. Changing the separator water on a daily basis and adding a small amount of acetic acid (1-2 ounces) to the still will help remove and neutralize the amine. Add the acetic acid to the still each time you remove the residue until the odor is gone. Sometimes the problem can be avoided by washing new work garments before they are drycleaned for the first time.

5) Rotten Egg Odor — This odor may be quite strong and annoying in the plant area but usually is not imparted to the solvent or the garments. The reason is that the culprit is hydrogen sulfide, which is a gas. The odor may occur for a few days following a cartridge change and then go away. If a batch of carbon is used in the cartridge cores that has a trace residual of sulfur, this will be flushed to the still by the solvent. In the presence of heat and moisture, the hydrogen sulfide gas is formed and vents into the plant. The phenomenon presents no real problems other than the unpleasant annoying odor in the plant.

Of course, there are many other possible causes of odor in perchloroethylene systems that may be encountered, but such incidents are rare. New solvent can be odorous, from improper recycling or contamination in the tank truck. Garments from fire damage may impart a temporary odor to solvent. Certain spotters may not flush out in cleaning, leaving a residual odor. High nonvolatile residue from lack of distillation can cause odor.

A simple test for foreign solvent odor can be performed in the plant. Buy some new 100% cotton terry cloth and cut into 6 to 8 inch squares. Wash to remove sizing and treatments, but do not use any perfumed detergent or drying towels. Then dryclean the swatch, or dip one in working solvent and one in distilled solvent. Air or machine dry. Lay swatch on a press and give it some bottom steam. While material is damp and warm, smell to detect odor. By determining which tank is odorous, you may pinpoint the problem.

As usual, prudent and proper drycleaning practices will prevent foreign odors in the product you sell to your customers, and keep them coming back to you time after time.