

## **Substitutes for halogenated solvents**

Why should we consider substitutes for halogenated solvents such as methylene chloride, perc (perchloroethylene), and TCE (trichloroethylene)? They clean and dry so well! Research has shown that halogenated solvents, those that contain chlorine, fluorine, or bromine, cause ozone depletion in the upper atmosphere, allowing more of the sun's harmful rays to reach the earth's surface. This results in higher rates of skin cancer and other detrimental health effects.

Another reason to switch is to avoid Part 63 Subpart T, the MACT for halogenated solvents. Even some buckets, if they contain two gallons or more of halogenated solvents, must comply with the batch cold-cleaning machine standards of this MACT. This requires a couple of things to reduce emissions, such as keeping lids on the buckets and either maintaining freeboard or adding a layer of water on top of the solvent. You are also required to keep records and submit reports.

Substitutes for halogenated solvents vary greatly, and the substitute you use will depend on the type of dirt needed to be removed and the degree of cleaning you need. Work with vendors to establish a product trial and take-back program. Most vendors today realize that businesses are facing stricter regulations and have tighter operating budgets. Therefore, they are willing to work with customers to satisfy their cleaning needs and budgets. However, if a vendor refuses to work with you, try talking to a vendor who is willing to go the extra mile to satisfy your shop's needs.

The three main classes of solvent substitutes include terpenes, water-based cleaners, and high-flash petroleum distillates. Let's discuss each of these solvents.

**Terpenes.** Terpene solvents are derived from wood or lemon and orange peel oils and are not ozone depleters.

Some terpene cleaners are mixed with petroleum solvents or water, and some may be used with chemical additives that prolong their life. Although these compounds are not ozone depleters, they are usually higher in cost. Also, some terpene solvents have flash points below 140° F, which is considered a characteristic hazardous waste due to ignitability. The high-flash-point solutions, above 140° F, may still need to be tested for heavy metals or other types of hazardous contaminants from the cleaned part, introduced during the cleaning process, before their disposal.

**Water-based cleaners.** Water-based cleaning solutions, such as detergents, glycol ethers, and alcohols, can be used in a variety of ways and in combinations with other agents to improve their cleaning ability. These cleaners are used in spray-wash cabinets, pressure washing, and soak immersion and hand-wiping operations.

Detergent cleaners can be used in conventional standup cleaning stations or in dishwasher-type enclosed washers. Both are available with heating systems and filtration units to prolong solvent life and increase cleaner effectiveness.

Some detergents have a high pH to increase cleaning performance. These solutions are considered hazardous if their pH value is greater than 12.5. However, these solutions may be discharged to the city sewer, if permission is obtained from your local wastewater treatment plant.

Glycol ethers and alcohols are normally used in mixtures of other solvents to increase their effectiveness and tend to be faster drying than other substitutes. Be sure to ask your vendor for the MSDS sheets to determine their disposal recommendations, which may vary due to different mixtures.

**High-flash petroleum distillates.** High-flash solvents are not considered hazardous due to their ignitability, but contaminants such as heavy metals, from the parts cleaning process, can make this solution hazardous. Using a solvent still to distill waste solvent allows it to be reused. Also, filtration of the solution can extend its usefulness, and heating the solution will increase its cleaning effectiveness. However, whether the spent cleaner is disposed or recycled, a hazardous waste determination will need to be made. If the solution is hazardous due to regulated metals or other contamination, it will need to be handled accordingly and counted towards monthly hazardous waste totals.

### **In this issue:**

- **Substitutes for halogenated solvents**
- **Paint shop wastes**
- **Wastewater and sludge disposal**
- **Important dates and topics**

## Paint shop wastes

Paint-related waste, such as paint-booth filters, can be hazardous because the paint contains regulated metals such as barium, chromium, lead, and cadmium metals for color pigment or durability. These metals are regulated because they are associated with “toxic” health effects on humans or the environment. A special test, called the toxicity characteristic leaching procedure (TCLP), is used to determine if paint-related wastes exceed regulatory thresholds for toxic metals. If the waste fails the TCLP test for one of these metals, it must be disposed of as hazardous waste.

A “totals” test may be used instead of a TCLP and is less expensive. For more information on the “totals” test, check out our Web site at <http://www.sbeap.org/>. Click on the “Publications” link. Then, select the “General” link under the “Industry” category. Our fact sheet, “Regulated Metals: The Rule of 20,” which clarifies regulated metal-testing options, is about two-thirds from the bottom of the list.

Some paints, especially automotive finishes, can also be hazardous because they contain high percentages of solvents that make them ignitable. These solvents are used as a liquid “carrier” to deliver the paint solids to the vehicle’s surface, where they quickly evaporate to leave a very fine lay of paint. These highly evaporative solvents are usually associated with low flash points—a characteristic that can make waste paint hazardous because of the ignitability hazard. If your paint mix, as used in the gun, has a flash point of less than 140° F, then the leftover paint is considered hazardous for ignitability (waste code D001). This means that any leftover paint would have to be stored and disposed of as a hazardous waste—it cannot be poured into an open container and left to dry.

Waste solvent stored on site for recycling must have a hazardous waste determination made on it; if found to be hazardous, it must be labeled “Hazardous Waste” and the amount of material recycled must be counted towards hazardous waste monthly totals every time it goes into the solvent distillation unit for recycle. If you use an accumula-

tion container as part of your paint-gun washing process to collect washing solvent before it is recycled, you should consider this a satellite accumulation drum. Satellite accumulation containers should be no larger than 55 gallons. As soon as this drum is filled, you must put the storage start date on the drum to track its on-site storage period, and it must be moved from the satellite area to the permanent hazardous waste storage area within three working days from the fill date marked on the drum. Businesses that generate or store less than 2200 pounds of hazardous waste on site have an unlimited amount of time to recycle this solvent. However, businesses that generate or store more than 2200 pounds of hazardous waste a month must recycle or ship the waste solvent off site within 90 days from the storage start date.

So what can you do with your “other” paint-related wastes, such as paint-filtering and screening devices, gloves, or paint-booth masking? If your paint-booth filters pass the TCLP test for regulated metals and are allowed to be disposed of as solid wastes (contain no free liquids), the test of the booth filters can be used as a representative sample of these other wastes, which also can then be disposed of as solid waste. If, however, your paint filters fail the TCLP, then the other items need to be handled as hazardous waste, unless testing is done to prove otherwise. To test these materials, your shop can collect them all, take a “representative” sample, and send it to a KDHE-certified lab. The lab would prepare the materials for testing and run the TCLP to verify that regulated constituents are below any respective regulatory limits. MSDSs and process

knowledge can also be used to determine that your paint-related wastes are nonhazardous. Be sure to keep on file all laboratory records and results of your determinations based on MSDSs and process knowledge. If your paint-related wastes are nonhazardous and disposed of in drums, the landfill may require your business to get a “special waste” authorization. Talk with your local landfill operator to see what the requirements are.



*Kansas State University*

# Wastewater and sludge disposal

## Discharge to city sewer

The best way to handle industrial wastewater from your shop or wash bay is to discharge it to your city sewer. Some industrial wastewater discharges can disrupt the public treatment plant operation, so you should contact the city to obtain a permit or written permission to discharge. Each city wastewater treatment plant has its own set of limits for contaminants it can treat without causing a failure of its system. A copy of your city's water ordinance will list its local industrial discharge limits, or the city wastewater department may be able to provide you with a copy.

## Discharge to waste disposal wells

It is now illegal to discharge industrial wastewater from your shop or wash bay to a waste disposal well, such as a septic system, drywell, cesspool, sink hole, or underground vault. Domestic wastes, of course, may still be discharged to a septic system. If possible, connect your industrial floor drains and sinks to a city sewer system. However, if a city sewer is unavailable, you may collect your industrial wastewater in underground or aboveground storage tanks and have it pumped and hauled for proper disposal off site. Other options include closed-loop recycling and discharge to surface water under a National Pollutant Discharge Elimination System (NPDES) permit from KDHE.

## Discharge to surface water

If you discharge industrial wastewater to a surface ditch or other water conveyance that discharges to surface waters of the state, you must have a National Pollutant Discharge Elimination System (NPDES) permit from KDHE. Examples of waters of the state include storm water drains, streams, rivers, lakes, ponds, marshes, waterways, wells, and springs. If your industrial wastewater drains lead to any water of the state, you must have a NPDES discharge permit for this activity. You must apply to KDHE at least 180 days before the proposed discharge commences. An NPDES permit must be obtained for every site where you intend to discharge to waters of the state. To meet the limits required by an NPDES permit, pretreatment is usually required.

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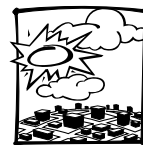
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## Oil-water separator sludge disposal

Wash bay drains or mud pits fill with solids that may contain high concentrations of petroleum products and heavy metals. Before disposing of this sludge, analytical testing should be performed to prove it is not hazardous waste. If the sludge is nonhazardous, it may be disposed in a permitted municipal solid waste landfill (MSWLF) under the following conditions:

- The waste is dry enough to pass a paint-filter test.
- A disposal authorization is issued by KDHE. Contact Richard Bronaugh at 785-296-1120 for authorization.

If, however, your sludge is a hazardous waste, KDHE will issue a "one-time exclusion" from Kansas generator or EPA generator requirements for small quantity generators (SQGs) who remove large quantities of hazardous sludge once every few years. However, if you have to remove large quantities of hazardous sludge every year, KDHE will require you to get the appropriate generator registration, i.e., Kansas generator or EPA generator. Total weight of the sludge must be counted in the month it is removed from the pit and not averaged over the time it accumulated in the pit.



## Small Business Environmental Assistance Program

Kansas Small Business Environmental Assistance Program's (SBEAP) mission is to help Kansas small businesses comply with environmental regulations and identify pollution prevention opportunities. SBEAP is funded through a contract with the Kansas Department of Health and Environment. SBEAP services are free and confidential. For more information, call 800-578-8898, send an e-mail to [SBEAP@ksu.edu](mailto:SBEAP@ksu.edu), or visit our Web site at [www.sbeap.org](http://www.sbeap.org).



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## Important dates and topics

Air quality working group meetings are being held every two weeks to address the eight-hour ozone nonattainment issue in Kansas City. Because solvents contribute to the ozone problem, restrictions on solvent use may be required unless voluntary measures are adopted. You are welcome to attend and provide your input. Contact James Joerke, Mid-America Regional Council (MARC), at 816-474-4240, for meeting dates and places. Or, go to the MARC Web site at <http://www.marc.org/airquality/forum.htm>.

Facilitated environmental management systems (EMS) for business seminars will be offered in four sessions beginning on June 15, 2004. Learn how to reduce your environmental liability by preparing an EMS for your facility. All sessions will be held at the Discovery Center, 4750 Troost Avenue, Kansas City, Mo. For more information, contact Daniela Heppard, MDNR, at 573-526-6627.

## What is SBEAP?

The Small Business Environmental Assistance Program, SBEAP, helps small businesses comply with environmental regulations by providing technical assistance, introducing businesses to pollution prevention practices, and offering compliance assistance to help with permitting and reporting requirements. All SBEAP services are completely confidential, nonregulatory, and free. For assistance or to request an on-site assessment, call 800-578-8898. SBEAP also operates a Web page at [www.sbeap.org](http://www.sbeap.org). It contains all our publications, including *Kansas AIRlines*. It also has industry-specific information and a calendar of events.

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