THE WALL STREET

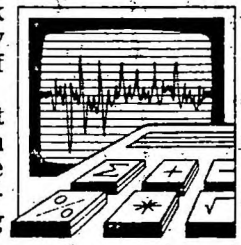
TECHNOLOGY

More Companies Treat Wastes Chemically to Remove Poisons

By WILLIAM M. BULKELEY
Staff Reporter of THE WALL STREET JOURNAL

WHEN IT COMES TO DISPOSING of hazardous chemical wastes, it sometimes seems as if the 19th Century notion that matter can't be destroyed is true. Thus the nation is plagued by festering illegal dumps, guarded landfills and warehouses full of useless, but often poisonous, chemicals.

Increasingly, however, companies worried about legal liabilities from leaking chemical drums, or from landfills like Love Canal near Niagara Falls, N.Y., are trying to detoxify the wastes by chemically converting poisonous compounds back into harmless components. They're being joined by environmentalists concerned about contamination of ground water.



"If you have to store toxic wastes, you're just postponing a solution. If you develop a detoxification scheme, then you have a system that is an effective solution," says George Pierce, a researcher for Battelle Laboratories in Columbus, Ohio, who is working to develop detoxification methods.

"Detoxification clearly will become more and more important," says Stephen Lingle, chief of the technology branch in the Environmental Protection Agency's hazardous waste section. It will also be more attractive as the costs of chemical landfills go up, says Joan Berkowitz, a chemist at Arthur D. Little Inc., a Cambridge, Mass., research and consulting firm. Those costs are soaring, partly because the trucking of chemicals to special waste dumps is increasingly expensive.

SOME CHEMICAL WASTES CAN'T BE HANDLED except by detoxification. Polychlorinated biphenyls, for example, are suspected cancer-causing chemicals once used widely in electric transformers and heat-transfer fluids. But several years ago, environmentalists became concerned that the PCBs, as they're known, don't break down in the environment. Instead, they collect in tissues of fish, later to be eaten by humans.

PCBs were banned by the government and aren't made anymore. But thousands of pounds of the chemicals remain in hundreds of industrial products that are still being junked. EPA requires that they be stored in drums or burned in approved incinerators capable of destroying the ordinarily fire-resistant chemicals, but the agency has yet to approve any incinerator for PCBs.

Last month, Goodyear Tire & Rubber Co. said it has developed a detoxification system that can remove low concentrations of PCB contaminants from oil-based heat-transfer fluids used in its industrial processes. Dane K. Parker, a research scientist who developed the system, says Goodyear "wanted to remove the trace amounts of PCBs and reuse the oil," which costs more than $10 a gallon. Essentially, a sodium compound is mixed with the contaminated oil; chlorine is stripped from the carbon chain and then is bonded to the sodium to form sodium chloride—common table salt.

THE EPA HASN'T APPROVED the process yet, but an agency scientist says it has the advantage of using "known chemistry." The process is only economical with the very valuable heat-transfer fluids and works only with low concentrations of PCBs. But scientists say similar processes could work for other toxic, long-lasting chemicals, such as polybrominated biphenyls, or PBBs, the fire retardants that poisoned thousands of cattle and chickens in Michigan when they were mixed with animal feed, and even DDT that remains in the environment a decade after its use was banned.

SCA Services Inc., a Boston waste disposal company that operates two hazardous-waste landfills, has decided to emphasize detoxification. "Almost total reliance has been placed on landfills. But burial is just long-term storage," says Steven Feinstein, vice president of SCA Services.

The company bought an old chemical plant in Newark, N.J., two years ago and has converted it to process waste chemicals. Richard Moon, a chemist who heads the operation, says his goal is to recover anything of commercial value from the wastes. Where there's nothing worthwhile, SCA Services tries to detoxify them. Maine, for example, sent the company 100 barrels of a highly flammable tear gas called chloroacetone that had been dumped in the woods. SCA chemically converted the gas into hydroxyacetone, which is odorless, nontoxic and completely bio-degradable.

WHEN A RAIL CAR full of sodium trichloride was pierced in Somerville, Mass., last April, it released clouds of poisonous gas. The Boston & Maine Railroad hired SCA Services to treat contaminated liquid that leaked from the car. Using an expensive process developed at its Buffalo, N.Y., research laboratories, SCA was able to transform the liquid into a neutral brine solution less salty than the ocean.

Some wastes can't be detoxified completely. When SCA Services got a contract to handle 600,000 gallons of water contaminated with arsenic, it devised a process for precipitating out the poisonous chemical element, cleaning the water. But the resulting arsenic-laden sludge had to go to a company landfill.

The hazardous nature of such wastes also can be limited. "There are half a dozen companies in the U.S. that offer solidification," says Jesse R. Conner, president of Solidtek Inc., of Morrow, Ga., which is one of the companies. Using combinations of silicates, such as cement, Solidtek can create a clay-like material that will hold wastes so they can't be leached out by rainwater, Mr. Conner says. "For most industrial wastes, we can come up with a product that will be suitable for putting into a regular landfill."

PCB-ARCH-EXT0378503