

VOC recovery process yields patents

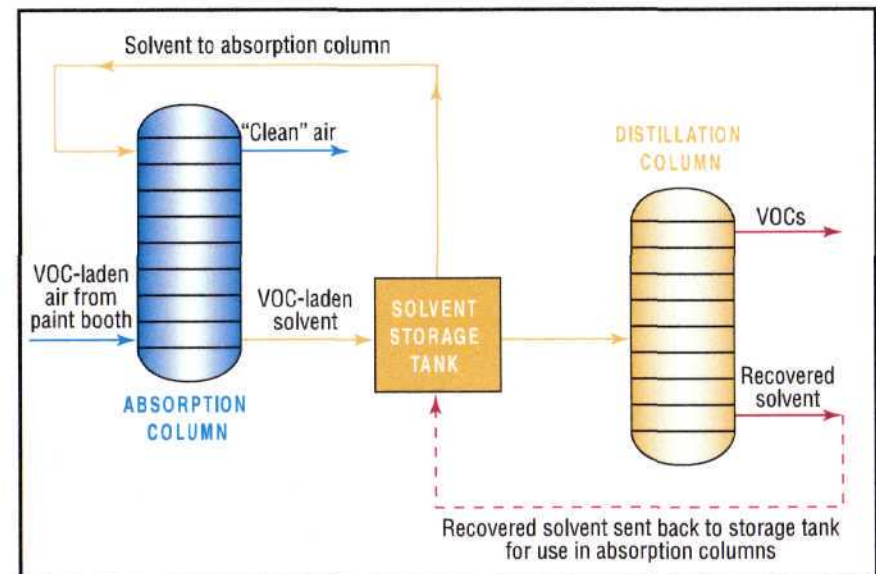
Hill Air Force base in northern Utah wanted to increase its production workload, but needed to clean air emissions to do so. So they asked CH2M HILL to perform a pollution prevention study.

Aircraft painting operations generate large quantities of volatile organic compounds (VOCs). Mitch Lindsay in Salt Lake City had already been thinking of ways to reduce air emissions for this project. "If we could capture VOCs from paint booths and reuse those emissions, it would improve process efficiencies, as well as reduce VOCs."

Lindsay put his head together with Jim Mavis from the Seattle office, and suggested a centralized distillation system connected to absorbers at each paint booth. Non-volatile liquid would then act as both a carrier and a scrubbing solvent. The two later applied for and received a patent on this approach.

Moha Shah in the Salt Lake City office was enlisted to perform chemical process modeling to verify the system would work as envisioned. Efficiencies, he found, could exceed 90 percent. The base asked CH2M HILL to conduct a pilot scale test, which was recently completed and verified

the system's performance. Lindsay and Shah realized that the clean air could be recirculated thereby further reducing costs. They applied for a patent on that aspect of the system and expect it to be granted in about a year.



Volatile organic compounds (VOCs) are compounds and solvents such as toluene, benzene and ketones. In a process envisioned by Mitch Lindsay and Moha Shah, VOC-laden air from a paint booth passes through an absorption column, and recovered solvent is sent back to the storage tank for use in the absorption column while the cleaned air is re-circulated through the booth.