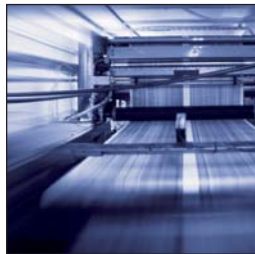




VAPRRS™ technology

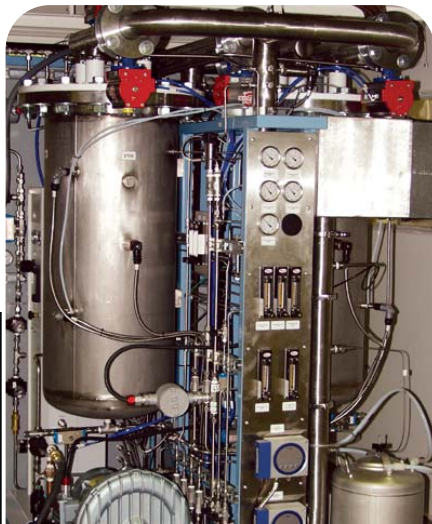
for effective air quality control



The University's Vapor Phase Removal and Recovery System (VaPRRS)™ is a patented long-lasting filter that effectively removes more than 99% of volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) from gas streams and recovers them as pure liquids. VaPRRS™ also can selectively separate multicomponent vapor from gas streams and improve indoor air quality.


Companies can **license the VaPRRS™ technology** for integration into existing manufacturing operations and air pollution control (APC) systems for a wide variety of potential applications, including:

- **Painting and surface coating:** This technology can capture and recover paint solvents such as toluene and 4-methyl-2-pentanone (MIBK) for reuse.
- **Printing:** Printers who use this technology can reuse their printing solvents, including hexane, ethylbenzene, and methyl ethyl ketone (MEK) during production.
- **Dry cleaners:** Dry cleaning solvents such as perchloroethylene can be recycled on location with this technology.
- **Chemical processing:** The technology can be used to perform selective gas separation of organic vapors.
- **Indoor air quality control systems:** This technology removes trace concentrations of vapors to improve indoor air quality.
- **Manufacturing:** This technology can be used to recover VOCs/HAPs generated during the manufacturing of various products including:
 - aircraft
 - pharmaceuticals
 - semiconductors
 - heavy equipment
 - millwork, veneer, and plywood
 - paint, ink, varnish, and lacquer



Pilot-scale Vapor Phase
Removal and Recovery System





*t*he available technology

The University of Illinois at Urbana–Champaign is offering its VaPRRS™ technology for license by qualified companies. This technology is protected by a U.S. patent, and applications have been submitted for foreign patents. The technology is co-owned by the University and the U.S. Army's Construction Engineering Research Laboratory.

VaPRRS™ is a VOC/HAP capture and recovery system that uses an activated-carbon fiber cloth and electrothermal desorption to inexpensively and selectively remove vapors from gas streams. The system rapidly adsorbs and then efficiently regenerates the sorbent and allows for condensation of the sorbate gas all within one control volume and without the need for additional chilling.

This system offers several advantages over existing APC technology:

- **Lower maintenance costs:** The adsorbent offers an extended lifetime of operation with little to no degradation in performance. Consequently, this system substantially reduces the costs of maintaining the APC system.
- **Simpler and cheaper operation:** This system has no moving parts except for the gas flow valves. VaPRRS™ also can provide a captured VOC as a liquid without the need for a steam generator, decanter, distillation tower, chiller, or other equipment.
- **Better filtration:** This system removes a wide range of VOC/HAP concentrations, including very dilute concentrations (<1,000 ppmv) of contaminants, better than existing methods.
- **Improved VOC/HAP recovery:** This system can easily recover valuable reagents that are lost or destroyed in other methods.
- **Scalability:** This technology can be scaled to process any quantity of vapor exhaust (e.g., from dry cleaning operations to paint booths for aircraft).
- **Adaptable:** The system can be customized to adsorb a wide variety of VOCs/HAPs, including ketones, aromatics, alkanes, halogens, and many others.
- **Safer:** This technology uses a microengineered sorbent that is ash free to minimize localized heating and chemical reactions with ash that are a concern with bed fires and granular activated carbon.

Experimental and numerical prototyping has successfully demonstrated the removal of MIBK, toluene, methyl propyl ketone, MEK and hexane from laboratory-generated air streams.

*l*icense this technology

More details about this technology and how to license it are available online under reference TF00018 (VaPRRS™: a VOC/HAP capture and recovery system).

<http://www.fuentek.com/technologies/VaPRRS.htm>

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Fuentek is assisting the University of Illinois at Urbana–Champaign with technology commercialization.