Technology Transfer

Success Story

NETL Sorbents Licensed To Help Lower Power Draw of HVAC

NETL has licensed one of its patented CO_2- removal sorbents to Boston-based technology company enVerid Systems. enVerid has adopted the sorbent for use in their proprietary Heat Load Reduction (HLR) module, a retrofit air-recirculation system it designed to increase the energy efficiency of commercial HVAC (heating, ventilation, and air conditioning) systems.

HVAC is one of the largest draws of electric power in the United States. In many cities, it consumes more than half of the load on the electric grid. When HVAC systems operate in commercial and public buildings, exhaled CO_2 quickly builds up, as do organic vapors from cooking, cleaning, and other activities. Typical air-handling systems remove contaminants by replenishing indoor air with outdoor air. Bringing fresh air to temperature, however, contributes significantly to the energy demands of HVAC; efficiently maintaining air quality at low cost is one of the industry's primary goals.

In response, enVerid developed the HLR solution to clean and recirculate indoor air, allowing the building to maintain superior indoor air quality without the need for constant inflow of large amounts of outside air. The system draws recirculating air in, cycles it through a series of purification processes, and returns it to the building at its original temperature.

Though NETL's CO_2-removal sorbents are primarily developed to control CO_2 emissions from power plants, enVerid sees promise in using them to perform CO_2-removal as part of the HLR's overall function. The selected sorbents can be regenerated at low temperatures, saving energy and costs in comparison to currently available, high temperature products. Importantly, they are also unaffected by the moisture inherent in HVAC systems, a limitation of many commercial sorbents.

Under the patent license agreement, NETL will receive royalties as enVerid begins commercial sale of its HLR technology.

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