



# Case Study # 108

## Central Air Abatement System (CAAS) Scrubbing in Semiconductor Manufacturing

A number of sources in the semiconductor manufacturing process produce diluted levels of acid gases, silanes, ammonia and some organics. The most common gases are hydrochloric acid (HCl), hydrofluoric acid (HF), hydrobromic acid (HBr), phosphoric acid (H<sub>3</sub>PO<sub>4</sub>), nitric acid (HNO<sub>3</sub>) and ammonia (NH<sub>3</sub>).

A major supplier of flash memory chips chose Verantis to supply 24 systems to treat approximately 600,000 CFM from the central air abatement system. The acid and ammonia exhaust sources were segregated and treated in our SPT Series Countercurrent scrubbers containing high efficiency Type 3-K Tellerette® packing. Included with each individual scrubber was a Verantis model CLUB-4450 FRP fan. The CLUB series fan is ideal for semiconductor processes where low vibration operation is critical. With a direct drive motor arrangement the CLUB series offers the lowest vibration levels available at 0.025in/sec.

Product Literature: (click on links to take you to the literature)

[Countercurrent Packed Scrubbers \(SPT\) Bulletin 12-2](#)

[3-K Tellerette® Curve 12-10.14](#)

[CLUB Fan Bulletin 11-4](#)



<b>Application</b>	CAAS Exhaust
<b>Exhaust Volume</b>	25,000 CFM per tower (24 Systems provided)
<b>Exhaust Temperature</b>	80° F
<b>Exhaust Pressure</b>	2.6" W.C. per tower
<b>Contaminant</b>	HCl, HF, HBr, HNO <sub>3</sub> , H <sub>3</sub> PO <sub>4</sub> , NH <sub>3</sub>
<b>Removal Efficiency</b>	99% per tower
<b>Scrubbing Solution</b>	Dilute NaOH or H <sub>2</sub> SO <sub>4</sub>
<b>Materials of Construction</b>	FRP