

**Environmental C&C, Inc.**

## **Fluid Bed Concentrator Systems**



**The economical solution for control of airborne VOCs,  
fugitive emissions, and odors,  
with minimal or no impact on carbon footprint.**

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# Fluid Bed Concentrator (FBC) Systems

## How the technology works

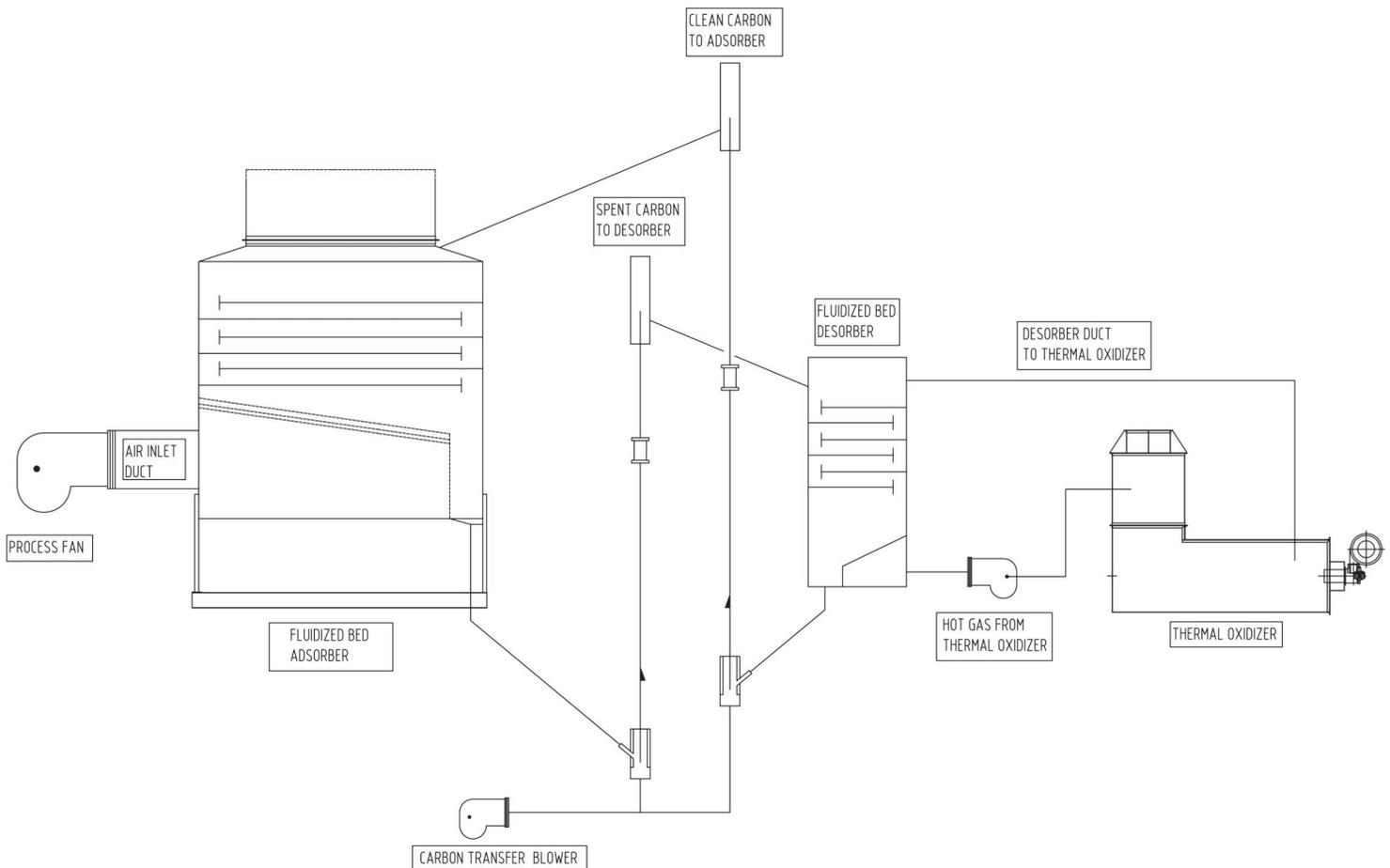
Process air, or odor sources, are directed to the fluidized bed Adsorber. The air passes upward through the Adsorber sieve trays, fluidizing beaded activated carbon (BAC) adsorbent distributed on the trays. The thorough mixing of beads with the contaminated air provides excellent transfer of VOCs and odors to the adsorbent pores. The orientation of the multiple sieve trays provides counter-current VOC removal, thus optimizing efficiency. Clean air exits the Adsorber top, while “spent” BAC collects in the bottom hopper.

The spent BAC is pneumatically transferred to the top of the Desorber. In the Desorber, the BAC moves downward as either a packed or fluidized bed. Heat is applied by one of several options, to vaporize the VOCs from the adsorbent. As the VOCs are released in

highly concentrated form, a low flow of carrier gas conveys the concentrate out to a final treatment device. The counter-current flow of adsorbent and carrier gas optimizes the recovered capacity of the BAC for VOCs. The concentration ratio is a function of the volume of the original process gas compared with the volume of the Desorber carrier purge gas.

Cleaned BAC adsorbent moves to the bottom of the Desorber. It is then transferred to the top of the Adsorber for re-use.

The FBC system has only one moving part. This mechanical simplicity results in very low maintenance.



## Features and Benefits:

- Low Adsorber pressure drop results in low fan power requirement
- High concentration ratios result in low energy use for final treatment step
- Mechanical simplicity minimizes purchase price, operating cost, and maintenance cost
- Engineered BAC adsorbent provides high capacity for most VOCs, based on micro, meso, and macro pore distribution
- Small footprint and weight allows flexibility for installation, including roof mounting
- Discrete adsorption and desorption sections eliminate thermal cycling and eliminate energy waste



- Extensive use of stainless steel in fabrication provides long service life
- The concentrator can be coupled with existing VOC systems to expand capacity.

◀ 30,000 CFM Paint Finishing - California

▼ 15,000 CFM Multiple Source Cosmetic Products Manufacturing - New Jersey



## Technology and Comparison:

- Highest concentration ratio of any standard VOC control technology
- Lowest equipment price of available technologies on an installed cost per cfm basis
- Lowest operating cost of available technologies
- Smaller footprint than RTO units
- Lower overall weight than RTO's and fixed bed adsorbent systems
- Open Adsorber design, and fluidized media, minimizes effect of dry particulates, reducing or eliminating prefiltration requirements and cost.

# FBC Technology

## The Next Generation of VOC and Odor Control Systems

Fluidized Bed Concentrator systems:

- provide the best overall VOC control technology
- offer a competitive purchase price and low operating cost
- meet increasingly stringent air quality requirements
- energy recovery from Desorber stream offers opportunity for reducing carbon footprint.

There are several options available for the desorption and final treatment:

- recover thermal energy
- make electricity
- recover reusable solvents.

Let us evaluate your process or odor issue and recommend the best overall approach for your needs.



160,000 CFM Concentrator System with Oxidizer and Heat Recovery for Multi-Source Process Air Streams.—Michigan

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