

**INSTITUTE OF
ENVIRONMENTAL
SCIENCES AND
TECHNOLOGY**

**Contamination Control Division
Recommended Practice 008.2**

IEST-RP-CC008.2

**High-efficiency Gas-phase
Adsorber Cells**

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1 SCOPE AND LIMITATIONS

This Recommended Practice (RP) covers the design and testing of modular gas-phase adsorber cells in single pass or recirculating air-cleaning systems where the need for high-efficiency removal of gaseous contaminants is a requirement. Three types of modular cells are discussed in detail.

1.1 Classification

Adsorber cells described in this RP have been classified into four types, namely:

- a) Type I (serpentine-bed) cell (application specific)
- b) Type II (flat-bed or tray-type) cell
- c) Type III (not discussed in detail)
- d) Type IV (vee-bed) cell

The four types of adsorber cells, though differing in their respective configurations, have common features and components.

1.2 Adsorbent specifications

Test requirements of this RP cover the cell as filled with granular activated carbon. Typically, the carbon used in adsorber cells manufactured in accordance with this RP is sized to 8×16 US mesh. Performance of the cell for a specific contaminant is a function of the adsorbent used and the operating conditions. These conditions should be specified in addition to the requirements outlined in this RP.

1.3 Limitations

This RP is limited to gas-phase adsorbers used for nuclear, military, and heavy industrial applications. These adsorber cells require prior qualification of the cell design and carbon filling method. The manufac-

turer should perform production airflow resistance and leak testing.

NOTE: Products and procedures discussed in this RP may involve hazardous materials, operations, and equipment. This RP does not purport to address all of the safety problems associated with the use of the RP. It is the sole responsibility of the user to consult and establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use of this RP.

2 REFERENCES

The following documents are incorporated into this RP to the extent specified herein. Users should apply the most recent editions of the references.

2.1 American National Standards Institute (ANSI)

ANSI A208.1 (1999): Particle Board, Mat-Formed Wood

2.2 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)

ASHRAE Standard 34-2004: Designation and Safety Classification of Refrigerants (ANSI Approved)

2.3 American Society of Mechanical Engineers (ASME)

ASME/ANSI B1.1-2003: Unified Inch Screw Threads (UN & UNR Thread Form)

ASME BPVC SEC IX-2004 Boilers and Pressure Vessels: Section IX, Welding and Brazing Qualification