

A DISCUSSION ON ADSORBERS AS RELATED TO THE CONAGT EFFORT

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A brief explanation of the history of the code writing effort will precede the discussion.

The first writing effort was the standards written by committees of the American Association for Contamination Control (AACC). Their work, circa 1970-85, included standards for HEPA filters used in clean rooms.

The nuclear industry needed standards that would enable it to purchase HEPA filters and adsorbers with some degree of QA certainty. The AEC, in the 70's, was the force behind this need. Mr. Gilbert, Mr. Burchsted, Mr. Anderson, and others were the fount of knowledge. A younger generation was included in the writing, including Dr. Bellamy, Mr. Porco, and Mr. Edwards.

The result for the adsorbers was CS-8. It standardized the design of the Type 1, 2 and 3 adsorbers.

Type I was a convoluted bed housed in a 24" x 24" x 16" housing. Barnebey-Cheney and MSA manufactured this type of adsorber, which, at that time, had minimum usage requirements. It was rated at 1000 cfm.

The Type II adsorber was the one adopted by the nuclear A&E's. The Type 2 consisted of two parallel beds with an air slot in front. The Type 2 was a nominal 24" wide, 6" high and 30" long (deep) module rated at 333 cfm. Three of these would occupy the same footprint as a single 1000 cfm HEPA.

The Type III was a built-in adsorber with remote carbon removal and filling capabilities.

When CONAGT was formed, one of the first tasks was to write a code for adsorbers. This was done.

But, as we all know, nuclear power came under an ill-advised (in the writer's opinion) attack, and all nuclear projects were cancelled. The TMI incident sort of put the nail in the commercial nuclear power coffin.

In 1988, many projects were being delivered to DOD, DOE, as well as private uses, including radio-pharmaceuticals, and private labs doing secret research work. Almost all of these projects were the Bag-In/Bag-Out type of filter housing, with its nominal 24x24 HEPA, and they required a similar sized adsorber. But specifying an adsorber of this type by reference was not possible. The reference did not exist.

In 1988, at a regular CONAGT meeting, the hallowed ground of CONAGT was questioned. The question was asked "Why are we continuing writing for nuclear uses, when there are very few of these CONAGT components being purchased?". The DOD and the DOE had a great need for these components, but not for nuclear use in particular. The DOD was de-militarizing old war gas canisters. The DOE was de-militarizing bomb production plants, and they wanted to use the CONAGT code AG-1, but the AG-1 code was not written for them, and could not easily be adapted to their needs.

And, besides, CONAGT had a charter approved by ASME that restricted its application to nuclear use. With cooperation between ASME, CONAGT, and the affected subcommittees, a way was found to have special committees write a code for a nuclear adsorber which would also meet the needs of DOD and DOE.

The Air Filtration Subcommittee had the responsibility of that code writing effort, with Edwards as chairman. The Subgroup's scope statement for Type IV adsorber was approved, and work began. The Type IV adsorber is a nominal 24" x 24" x 16" component which is convenient to use in a B-I/B-O housing with a HEPA filter. It may be made with conventional shop equipment. That is, the beds are "V" or "U" shaped, and the component does not have convolutes which require expensive dies.

The SG did a great deal of work to get the first draft to the MC for ballot. The ballot failed with many comments and negative votes related to the need for such a document to begin with. Subsequent drafts also failed. The last draft of a Type IV filter may have a chance to pass, but at this writing it is not certain.