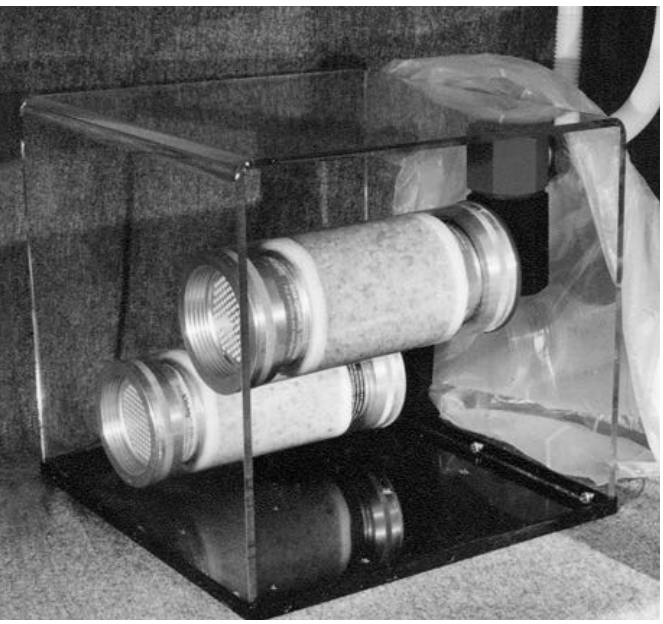
AIR-SAFE COMPLETE SYSTEM

MICRO-CLIMATE CONTROL CONTINUOUSLY CLEANS AND SETS THE RH LEVEL

CICU • AIR-SAFE PASSIVE AIR FILTRATION SYSTEM FOR CASES

MICRO-CLIMATE CONTROL SYSTEM CASE INTERNAL CIRCULATION UNIT

Sometimes science seems like magic. Take any case that you can easily seal, caulk or gasket, attach two hoses to hook up an inexpensive AIR-SAFE® System, and use physics to automatically clean the case air contuously through 16 various electrostatic, chemical and mechanical filters, while maintaining stable RH with over two pounds of silica gel buffer ***all without plumbing or electricity***.



Air flow through the system is powered by the hundreds of tiny pressure changes that occur day to day and throughout any day. Doors opening and closing, HVAC systems cycling, lights going on and off, elevators moving, fans starting, weather changes...things that just happen anyway.

National Park Service data shows that these frequent tiny pressure changes cause the average case to exchange its entire volumn with the gallery every 72 hours. With an AIR-SAFE and simple case seals, instead of exchanging air with the gallery, case air moves through the AIR-SAFE being continually filtered, chemically scrubbed and conditioned for RH.

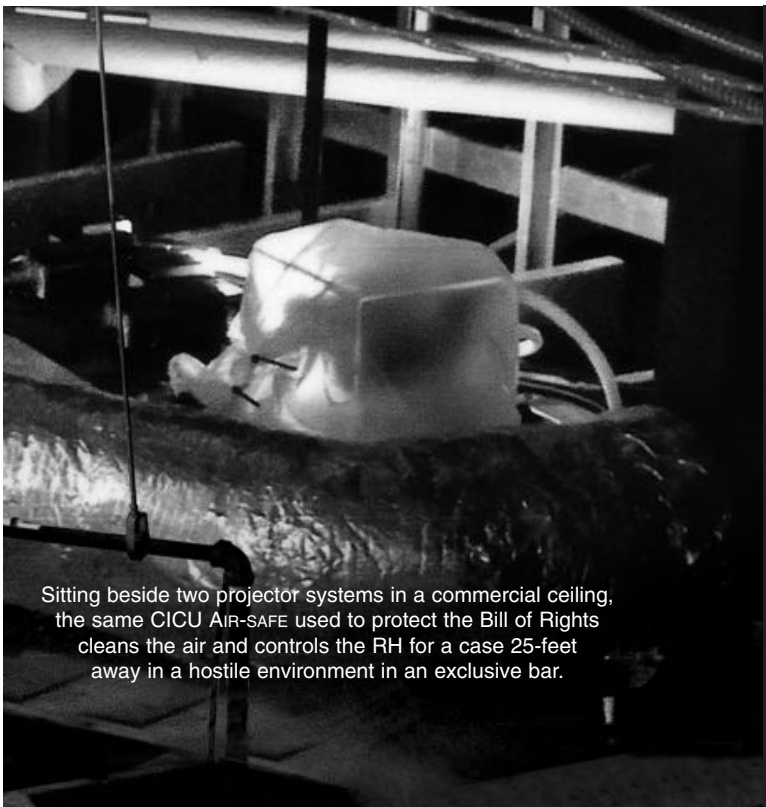
AIR-SAFE works continuously and operates on just .0002 PSI. The simpliest case seals work. A screw-down acrylic lid is perfect. Seals using silicon tubing, caulking, weather stripping, or close-cell foam work well. Cases need to be sealed against random air movement, but not pressure. AIR-SAFE eliminates pressure build-upand stops air (and pollution) exchanges with the gallery.

AIR-SAFE systems protect everything from very rare, national documents to artifacts as odd as a space capsule. AIR-SAFE systems care for rare costumes in restuarants, keep artifacts safe in a museum with open doors in the tropics, have saved artifacts in hurricanes, major floods, smoke from fires and long term losses of power (and water). AIR-SAFE systems even work the other way, protecting the public from wet medical specimens in alcohol or formaldehyde and old taxidermy specimens packed with arsenic. AIR-SAFE is an amazing piece of technology at a great value.

SPECIAL RESOURCES

SPECIFICATIONS:

- 12” x 12” x 12” high acrylic housing with pan
- Easy visual inspection with color indicator gel
- Sensitive check valves maintain positive flow
- Includes two different disposable filter cartridges for 16 total filters including:
  - four advanced micro-particulate filters
  - four chemical filters, (Acid gas/Organic vapor and Formaldehyde/Ammonia)
  - and a color change desiccant column
- Reclosable volume compensation bag
- 1/2-inch NPT male taper-pipe connectors
- Flexible, inert, polypropylene food-grade hoses
- Filter canisters may be installed without tools
- An integral 12” x 12” powder-coated steel pan allows use of additional desiccant, special preservatives or oxygen getter packs.
- Filters cases up to 50 cubic feet volume (180 cubic feet with stone-cold NoUVIR lighting)
- Extra hose allows for remote location from case (special order required for additional hose)
- Cartridge life averages 3 to 4 years in museums



Sitting beside two projector systems in a commercial ceiling, the same CICU AIR-SAFE used to protect the Bill of Rights cleans the air and controls the RH for a case 25-feet away in a hostile environment in an exclusive bar.

KITS, ACCESSORIES AND RESOURCES

Fiber Optic Lighting Kits, Parts and Research Papers

ICUA • INLET FILTER CARTRIDGE

cICU Acid gas & organic vapor filter

An acid gas and an organic vapor replacement filter cartridge form the inlet side of an AIR-SAFE System (one pair of cartridges are included with each AIR-SAFE). This heavy-duty cartridge has an acid gas filter that removes sulfur dioxide, nitrous oxide from smog, hydrogen sulfide and chlorines including chemicals outgassed by plastics. A second chemical filter removes organic vapors from a variety of sources including paints, lacquers, adhesives, plastics, flame retardants, alcohols, acetones, volatile oils like perfumes, candles, air fresheners, deodorants, digenstive enzymes and ketones. Multiple mechanical and electrostatic filters remove pollen, spores, mold, bacteria, fungi, skin cells, micro-carbon particles, micron dust, dirt and other pollution. Sandwiched between the filters is 40 cubic inches of color indicator silica gel (1.25 lbs) for RH control. (Meets NIOSH/MSHA TC-23C-977 and TC-23C-987.)

ICUF • OUTLET FILTER CARTIRDGE

cICU Formaldehyde and ammonia filter

A formaldehyde filter and an ammonia filter form the outlet side of an AIR-SAFE System (one pair of cartridges are included with each AIR-SAFE). This heavy-duty cartridge removes outgassing from wood, wood products, phenolics and many plastics including formaldehyde, ketones, chlorides and retardants; and also traps outgassed chemicals and particulates from cleaners, furniture and floor polishes, waxes, foam agents, soaps, disinfectants and degreasers including products that use chlorine, ammonia or natural cleaning agents. Multiple layers of mechanical and electorstatic filters remove pollen, spores, mold, bacteria, fungi, skin cells, micro-carbon particles, micron dust, dirt and other pollution with 40 cubic inches of color indicator silica gel (1.25 lbs) for humidity control. (Meets NIOSH/MSHA TC-23C-992 and NIOSH/MSHA TC-23C-987.)

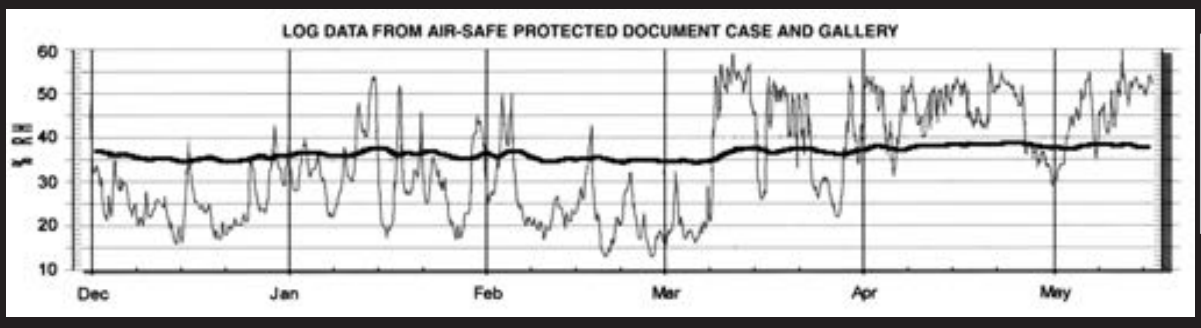
BUY BOTH & SAVE

ICUS • FILTER SET

Both ICUA and ICUF filters cartirdges PLUS two replacement pressure compensation bags.

ICUO • OXYGEN GETTER PACKS

Twenty-five packets of “Ageless” ferrous oxide to place in the pan of the AIR-SAFE System. Each packet absorbs as much as to 2 liters of O^2 to reduce oxygen. (Not intended for insect control.)



Unlike desiccant trays or chambers that are inefficient and add to case construction costs, AIR-SAFE moves air through all 80 cubic inches (2.5 lbs) of silica gel. The jagged thin line is the RH of a gallery in a historic brick building. The thick black line is the RH inside the AIR-SAFE controlled case set by the conservator for 35% to 40%. The external data log data shows gallery RH varyied by 47% over five months. In the AIR-SAFE protected enclosure RH varied by only 5%. Adjusted for temperature variation, the RH varied 35% outside the case and by only 1% inside. Trays and chambers relying on brownian motion of air above gel have a hard time handling so much movement. In an AIR-SAFE, positive, passive pressures move case air through the silica gel every 72 hours. AIR-SAFE keeps the RH level stable.

But there is more. Silica in trays not only absorbs water vapor, but absorb all of the pollutants suspended in that vapor. Silica in trays concentrate these pollutants and release them with water vapor when RH drops. This is especially dangerous in city environments where sulfur dioxide in air converts to sulfuric acid. Worse yet, many museums bake their gel and reuse it. This is exactly like putting dirty socks in the dryer and wearing them again.

The chemical and particulate filters on each side of an AIR-SAFE cartridge isolate the gel and the case from pollutants. Pollutants are filtered before air reaches the gel and filtered again as air leaves the gel. The gel works harder and stays clean. Cartirdges last an average of 3 to 4 years. They have been very successfully used in environments as ideal as climate controlled archives and as difficult and dangerous as pro-smoking casinos.