ABSA
Anaheim, California

54th Annual Biological Safety Conference
Session XIV: Roundtable-Animal Biosafety

Prep for Animal Handling, Biocontainment Systems, & Decontamination Options

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Michael G. Sidelsky, Sr., RLATG

Rodent Facility & Housing Specialist

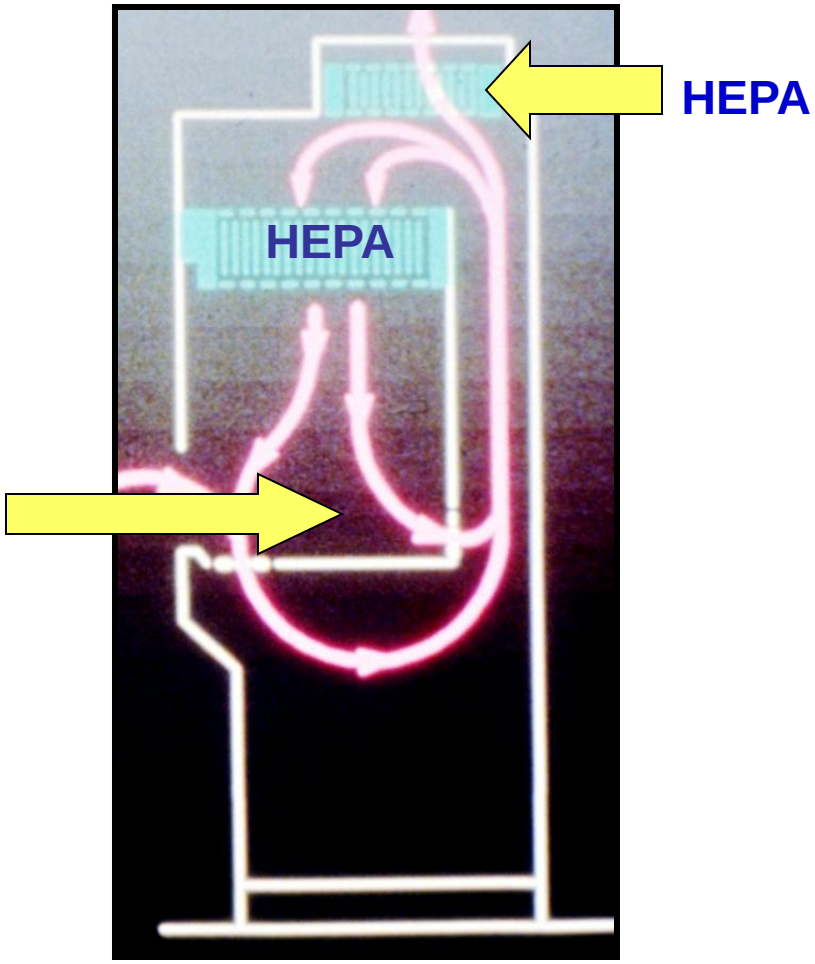
Allentown, Inc.

Allentown, New Jersey

msidelskysr@allentowninc.com

Class II Biosafety Cabinet (BSC)

Personnel, Environment and Product protection provided by HEPA filtration which bathes work area in sterile air



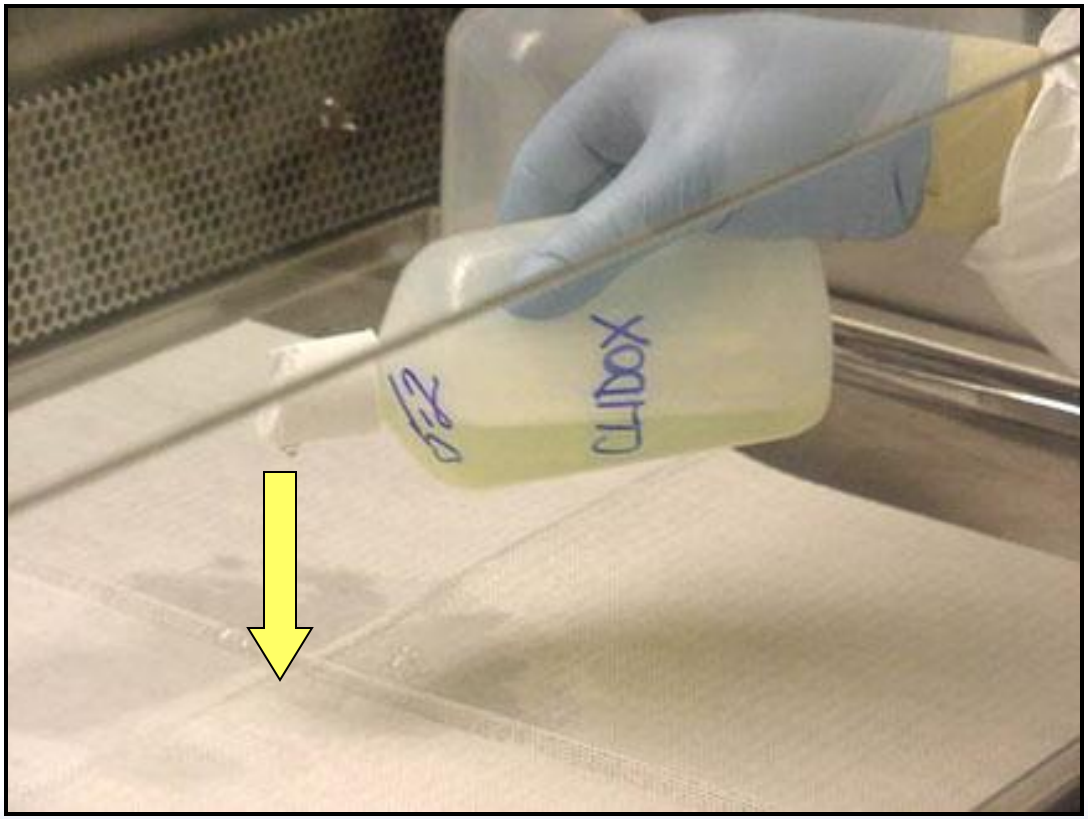
Vertical Flow Biosafety Cabinet

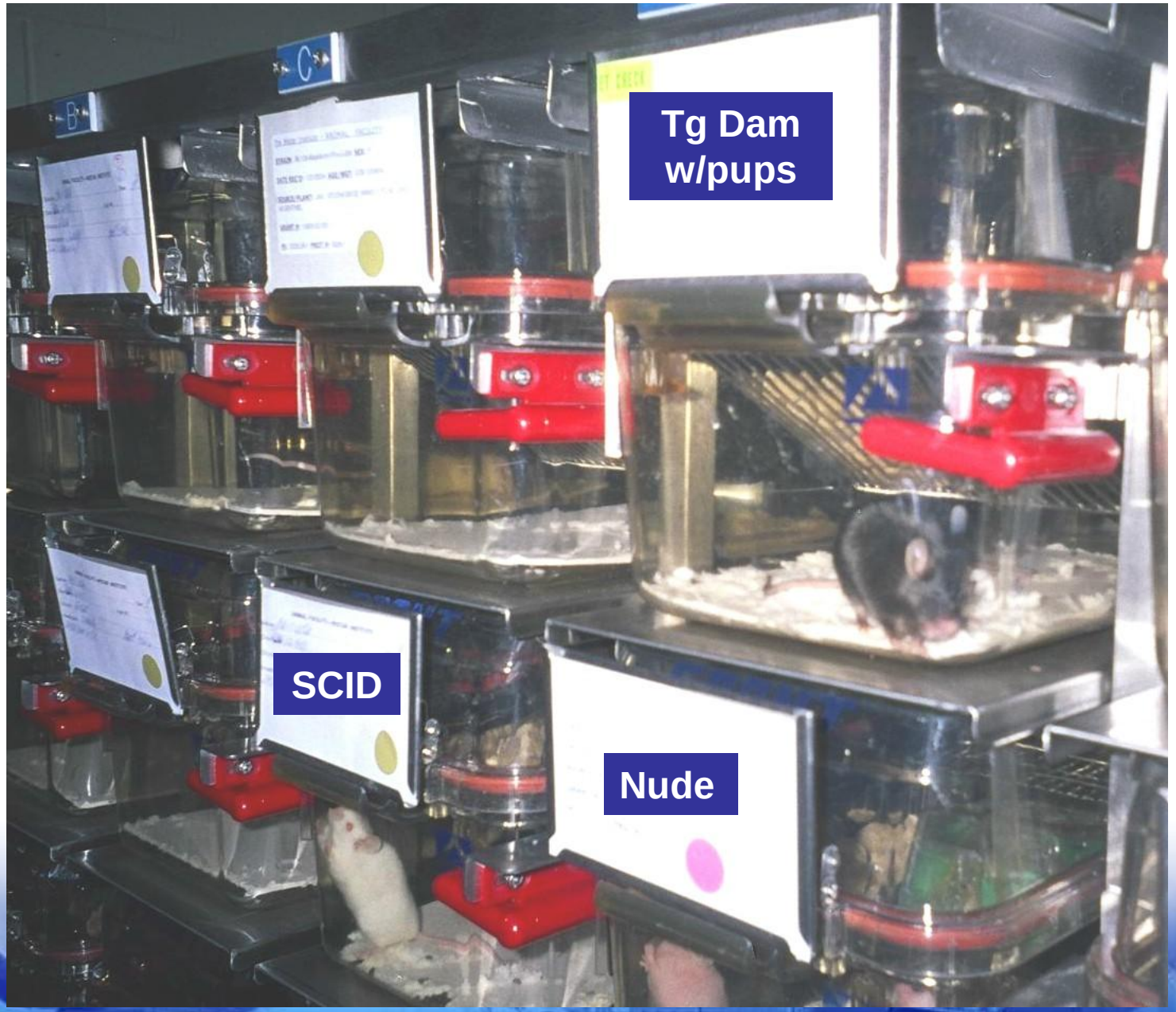
Materials and Methods

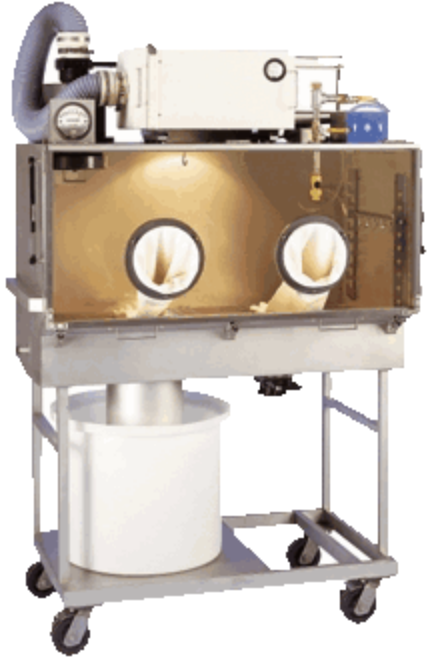
- Sterile or Irradiated cages, water, water bottles, sipper tube/stoppers, micro-isolation tops, wire bar lids, feed, and bedding
- Aseptic technique using Chlorine Dioxide solution, fiber cloth towels, Class II Biosafety Cabinet
- ONE cage at a time for changing or mouse manipulation

First & Second Fiber Towels onto BSC Work Surface

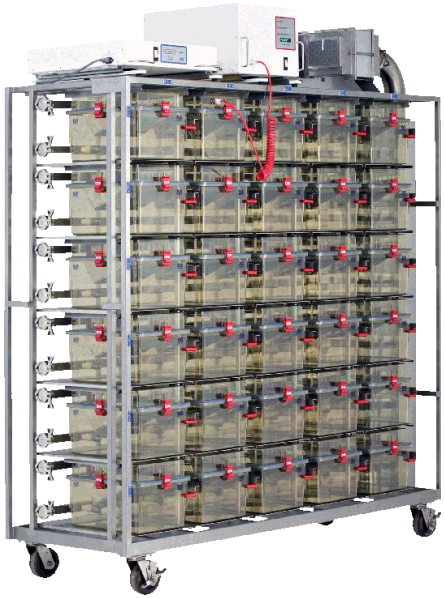
- Preparation of an aseptic field
- Application of Chlorine Dioxide to sport towel
- Use a fresh solution daily




Tg Dam
w/pups
SCID
Nude



Biocontainment Systems



Biocontainment Animal Transfer Unit

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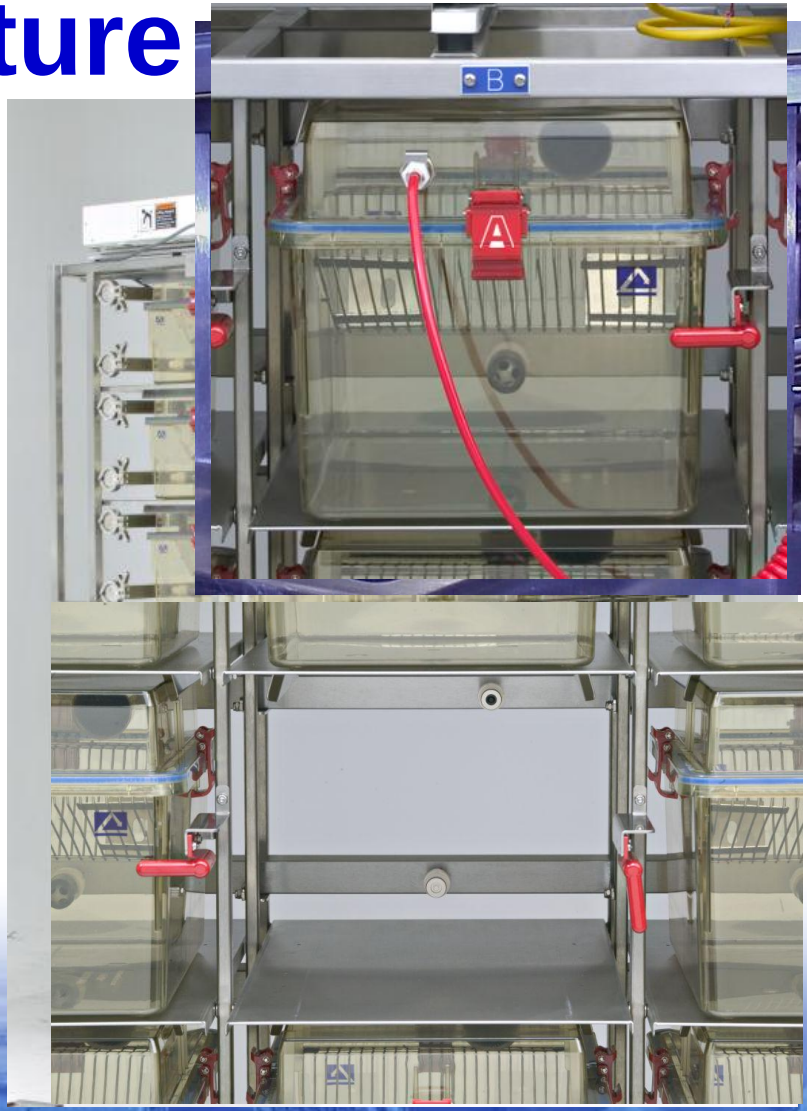
Biocontainment Systems Should Feature

- Containment or Quarantine Use
- Rack or wall mounted HEPA assembly must have hard connections
- Single-pass negative only airflow
- Pressurized seals on all manifold connections
- Auto-sealing ports on supply & exhaust
- Cage level lock system
- In–room decontamination and HEPA challenge capability



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Sealed Cage Should Feature

- Auto sealing supply & exhaust ports
- Secure locking mechanisms
- Air tight silicone seal
- Debris Filter
- Autoclavable
- Tunnel washer friendly
- 7-10 day change out
- Bag watering option

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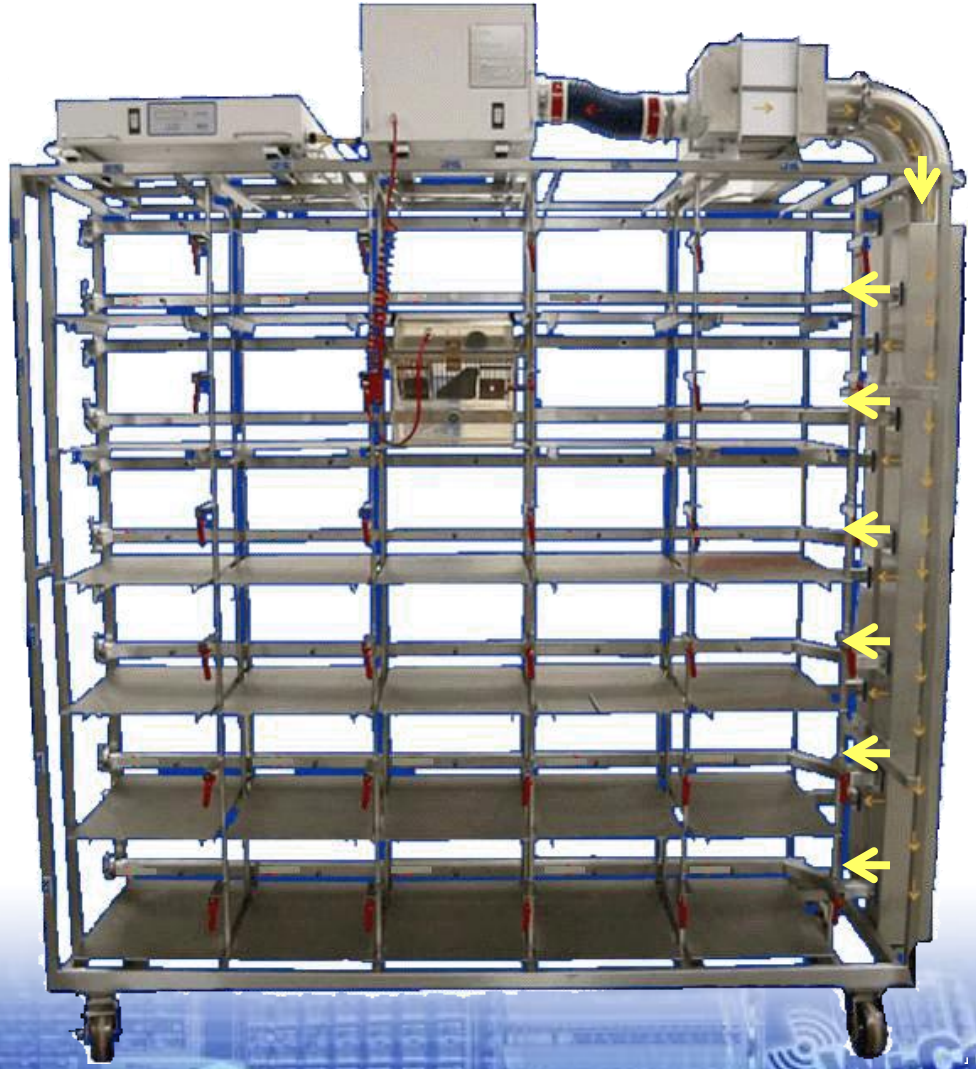
Supply Airflow Path



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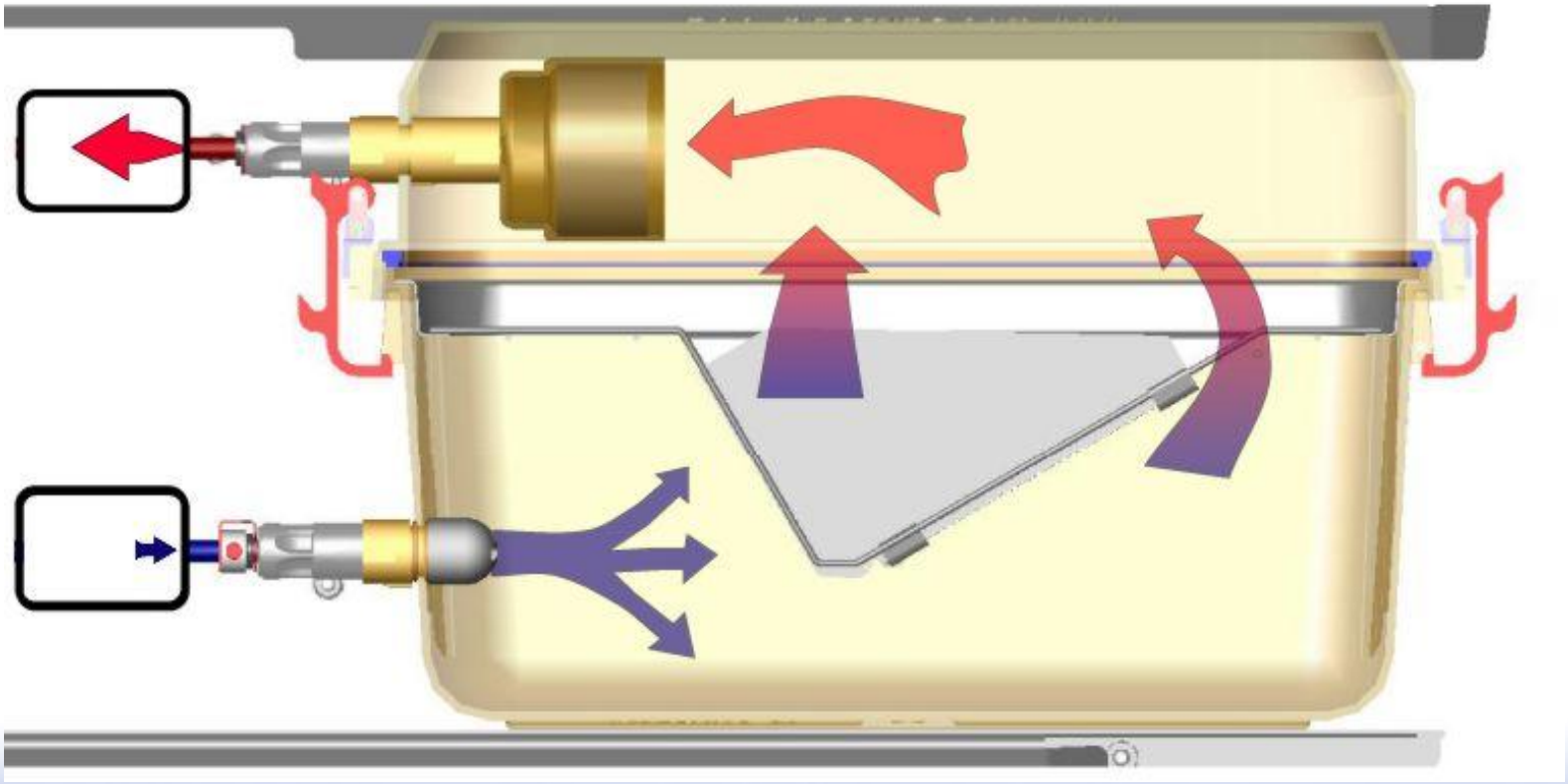
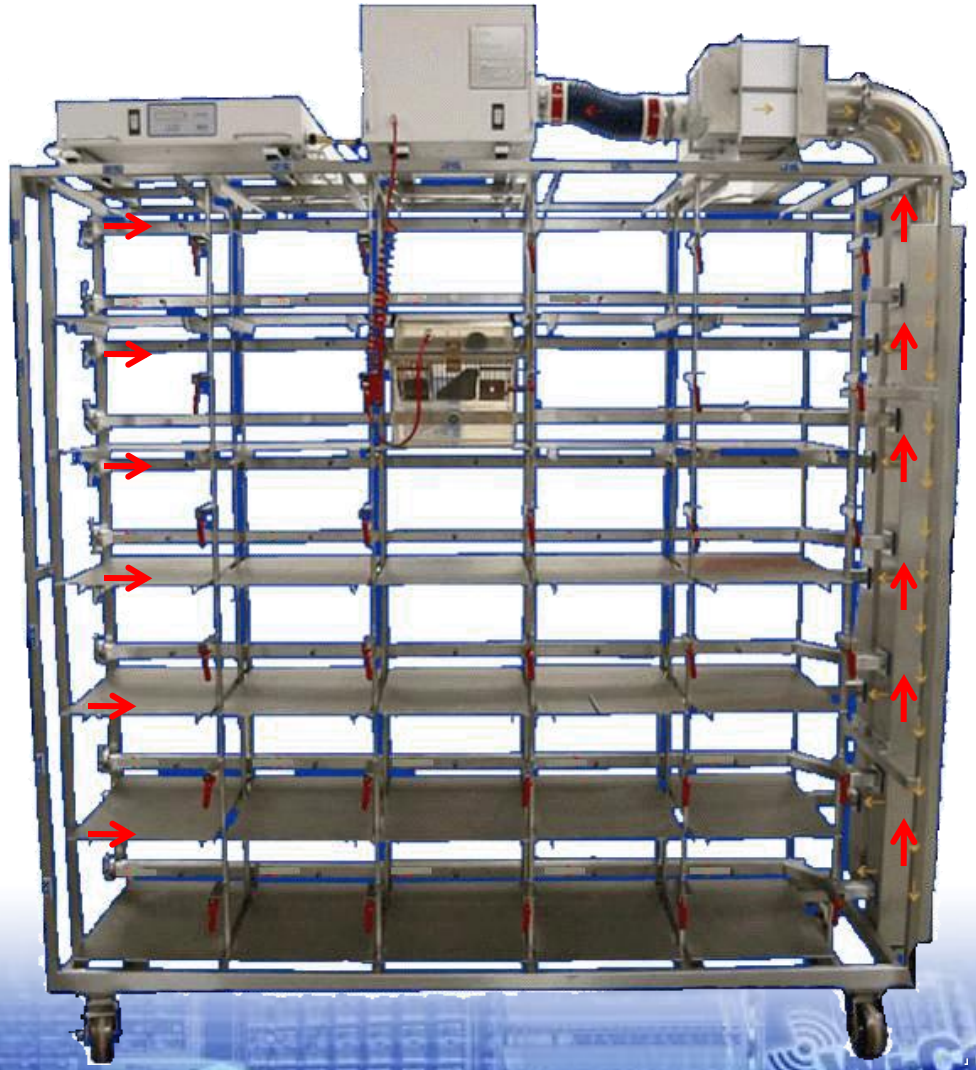
Airflow Design Path



Exhaust Airflow Path



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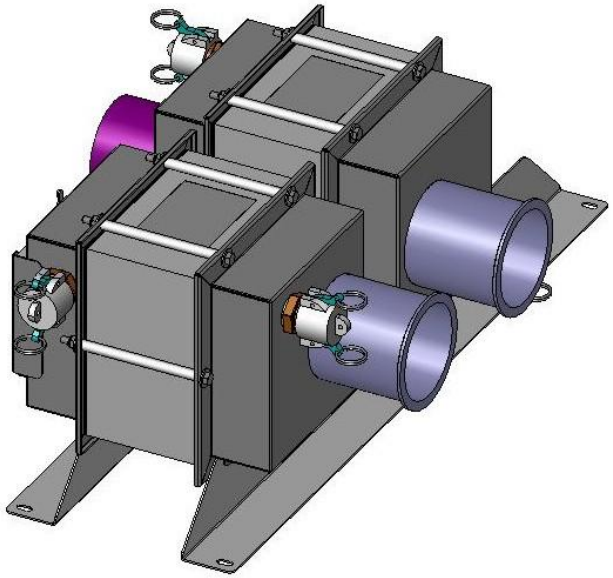
Decontamination Methods

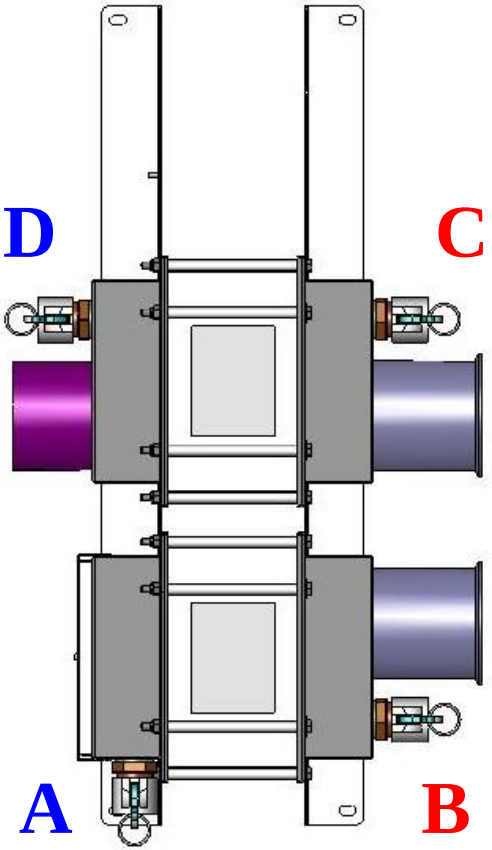
- Vaporized Hydrogen Peroxide *
- Chlorine Dioxide Gas*
- Steam Sterilization *
- Dry Heat Sterilization

* Method demonstrated for following slides

Decontamination & Challenge Ports



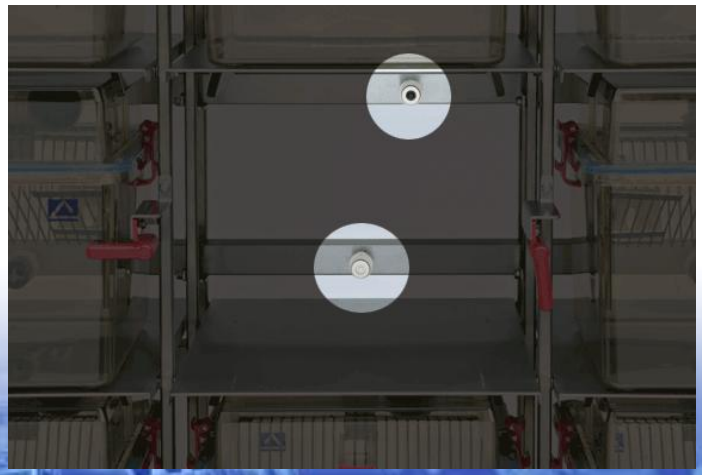
	In	Out
Supply Challenge	Port A	Port B
Exhaust Challenge	Port C	Port D
Decontamination	Port A/B	Port D



IVC Biocontainment cage/rack

- Cage level
  - Supply
  - Exhaust
- Rack level
  - Supply
  - Exhaust

VHP or ClO2 must flow through cage and rack apertures



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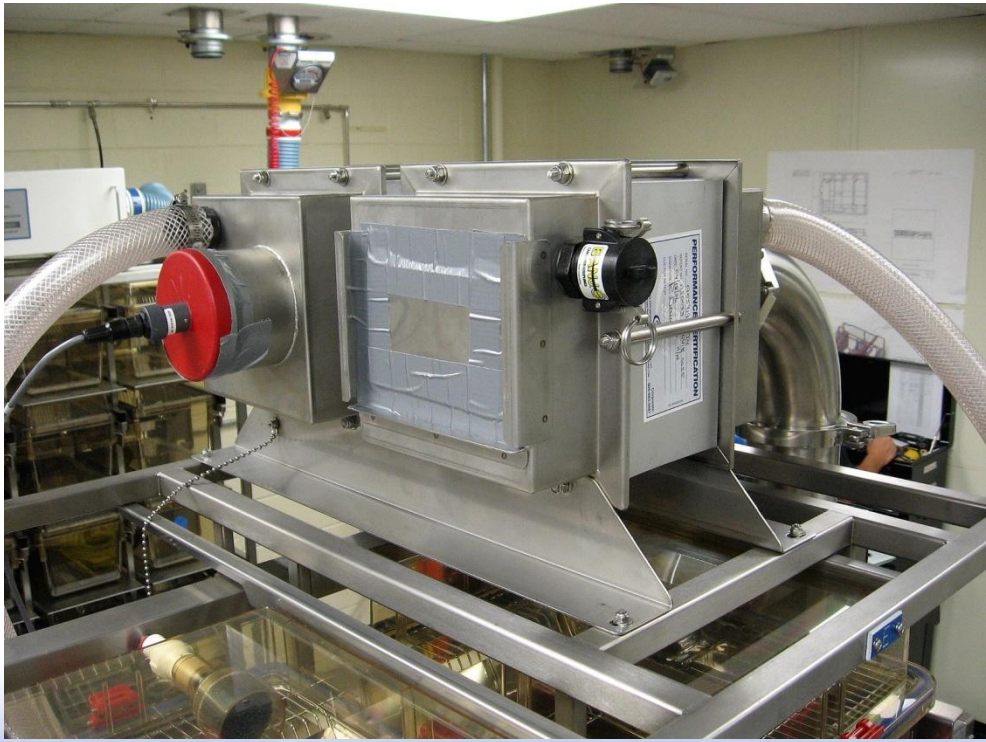
HEPA Contamination/Decon

- HEPA banjo decon ports
- Decontamination through decon ports and through rack

VHP Decontamination



VHP – Validation

- Biological indicators (BIs) located at strategic positions and the use of controls (Geobacillus Stearothermophilus HMV-091) must be incorporated for validation
- After a 7-day incubation, all cultured BIs must be negative except for control (positive for turbidity and precipitate)

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Second Type Of VHP Method For Rack/Cage Level Decontamination

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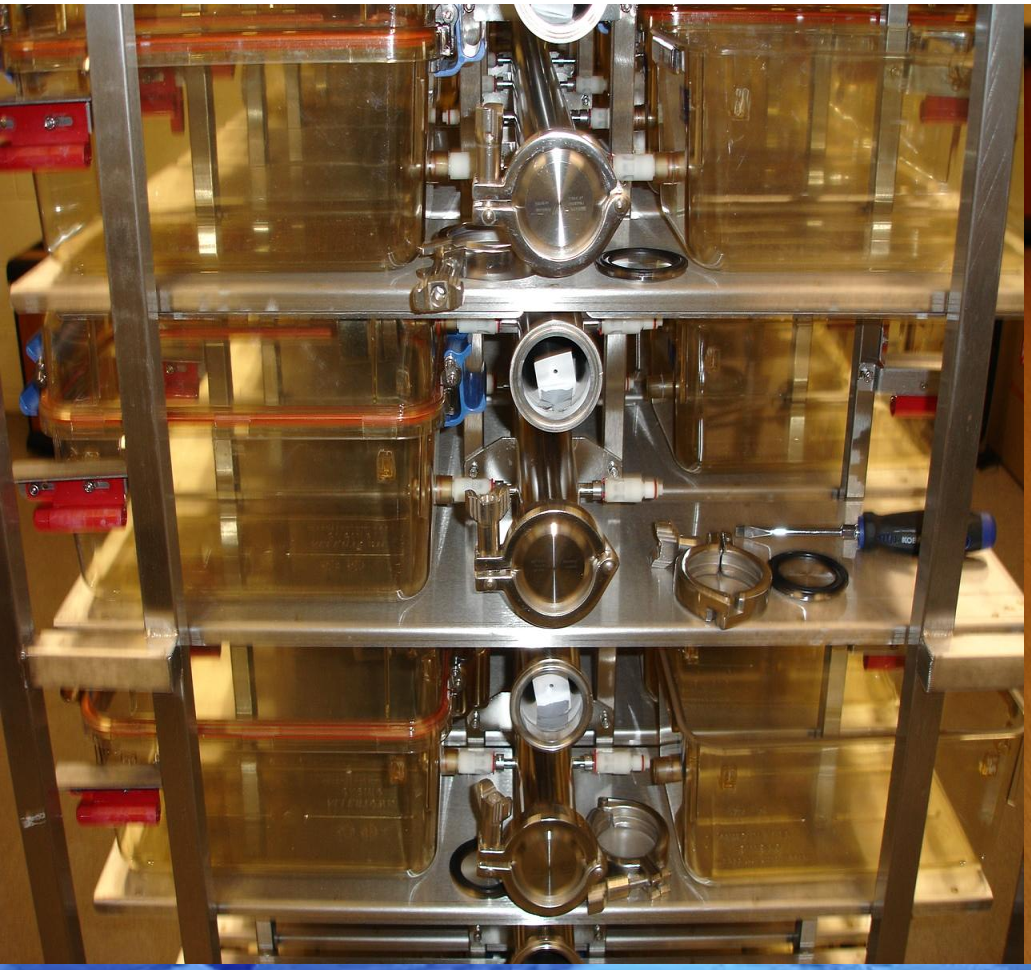
Biological Indicator Placement

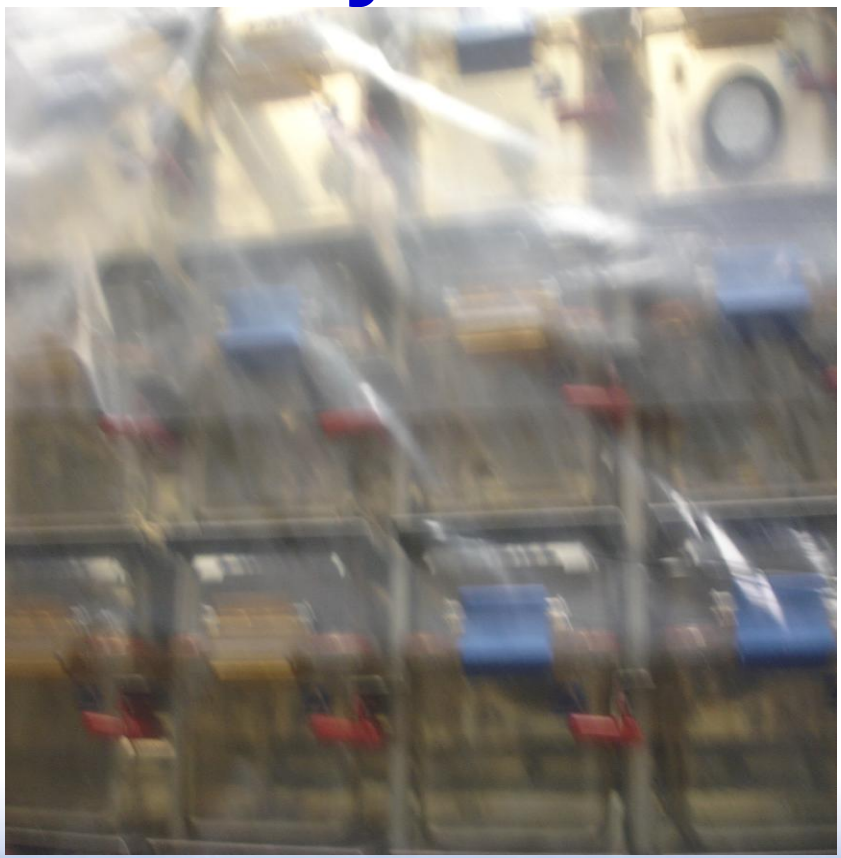
BIs Placed in X Pattern

Plenum BI Preparation



Drape & Tape Preparation

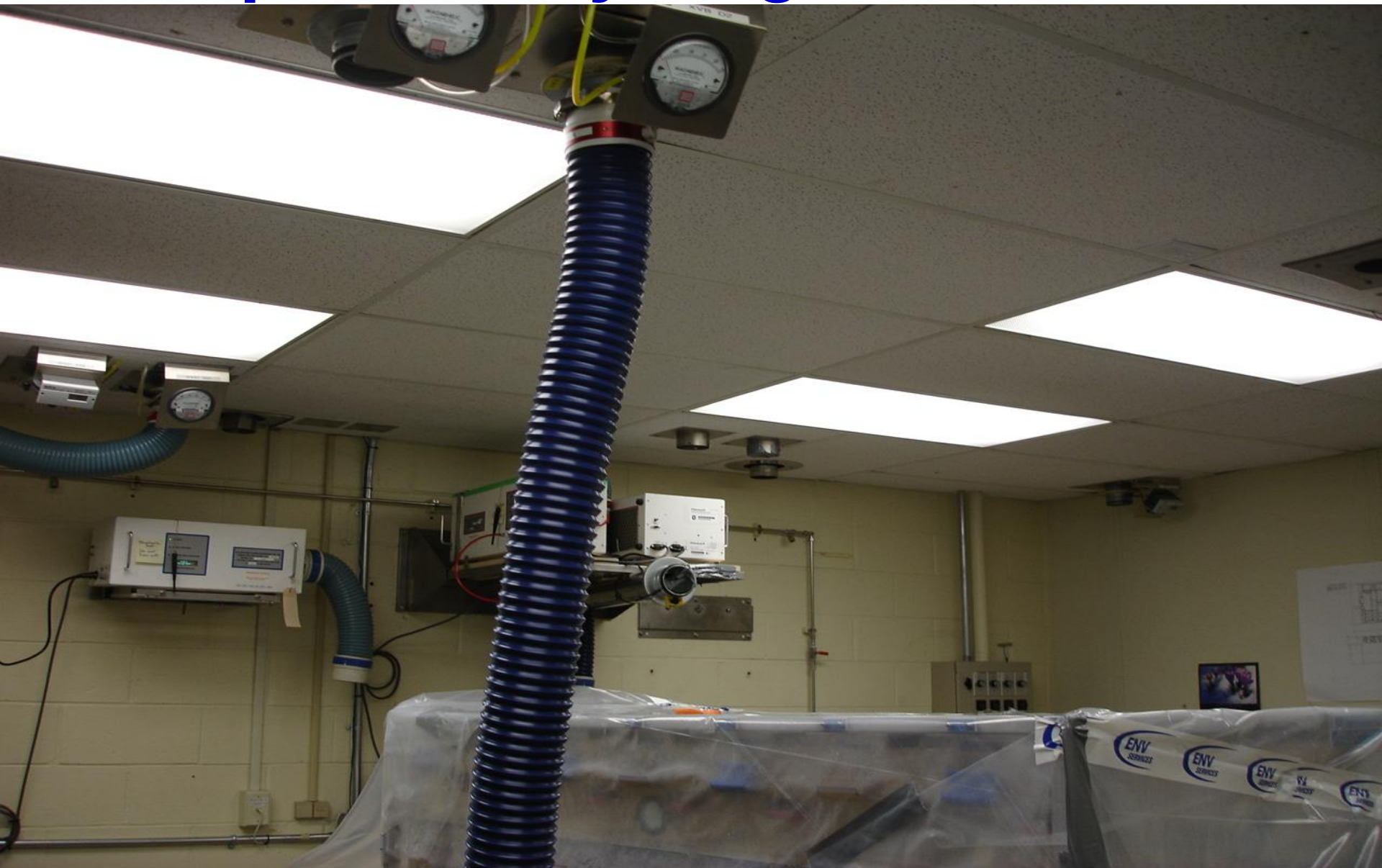
Taping & Draping of Entire IVC/Biocontainment System



Monitoring Device for VHP

VHP Delivery & Monitoring System

Flex Hose Assembly for Exhausting Vaporized Hydrogen Peroxide



Room Air Monitoring During and After VHP Application

20 Biological Indicators placed in TSB plus one(1) control for incubation

After seven(7)days no growth in all 20 TSB vials that had BIs from VHP treated cages, rack, and blower. Only control was POSITIVE for growth.

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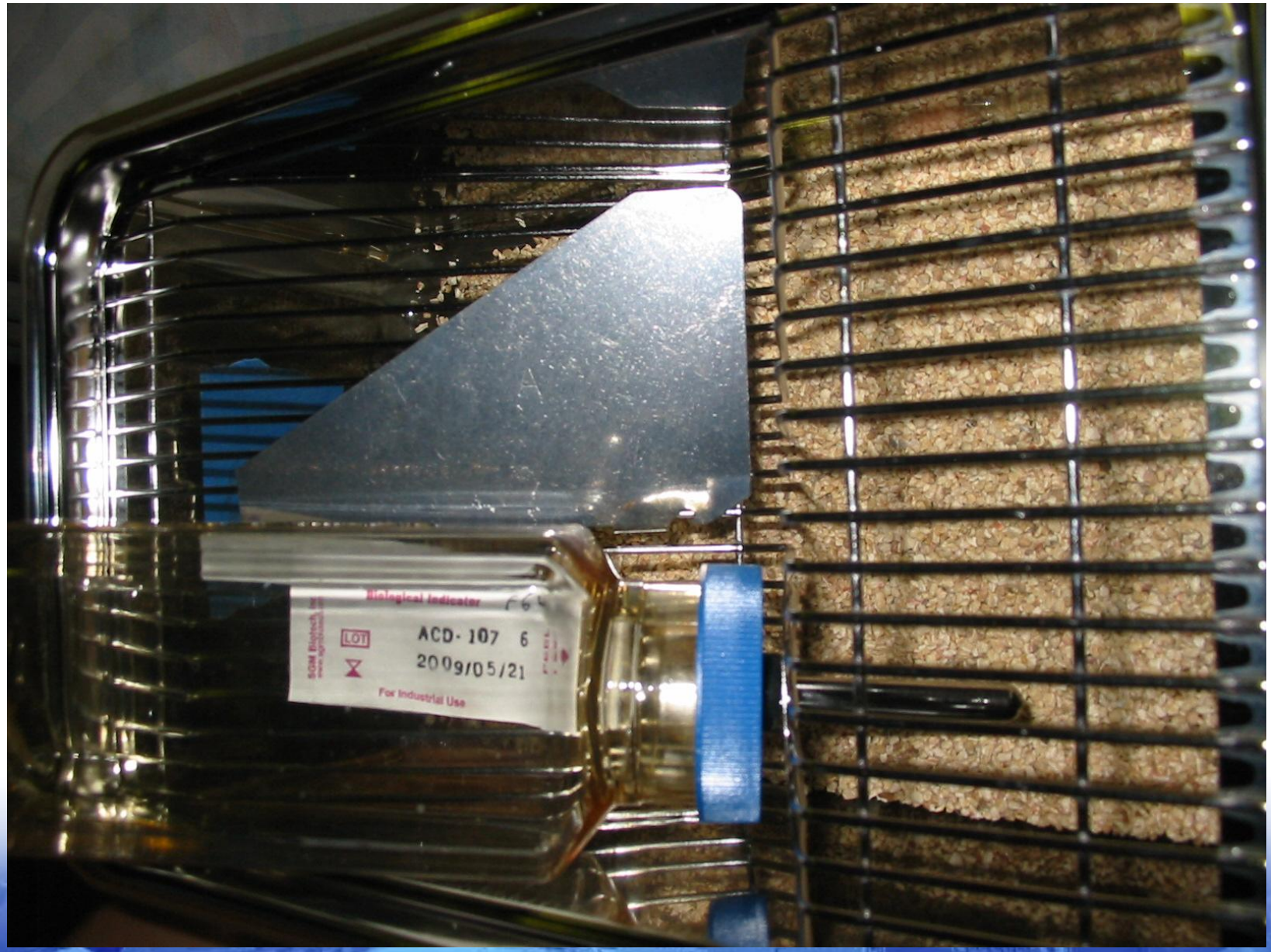
TSB vial on left with NO signs of growth or spore kill.

Vial of TSB on right with control BI shows growth or spores not killed.

Chlorine Dioxide Gas Decon

- Preliminary testing showed no growth of Bacillus Atrophaeus biological indicators (BIs) in TSB after 7 days
- Over one hundred (100) B. Atrophaeus BIs were placed in both the sealed 42 cages and biocontainment system itself, including under the bedding material of each cage, in water bottles, and in horizontal and vertical supply and exhaust plenums


Biological Indicator
LOT
ACD-107 6
2009/05/21
For Industrial Use

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Bacillus Atrophaeus Biological Indicator being placed under bedding material

B.Atrophaeus BI buried under bedding

SEALED ROOM LEVEL CLO2 GAS APPLICATION REMOTE ACTIVATION

Biological indicator placed inside both the battery box and blower box

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BIs Inside Bottles & Under Bedding

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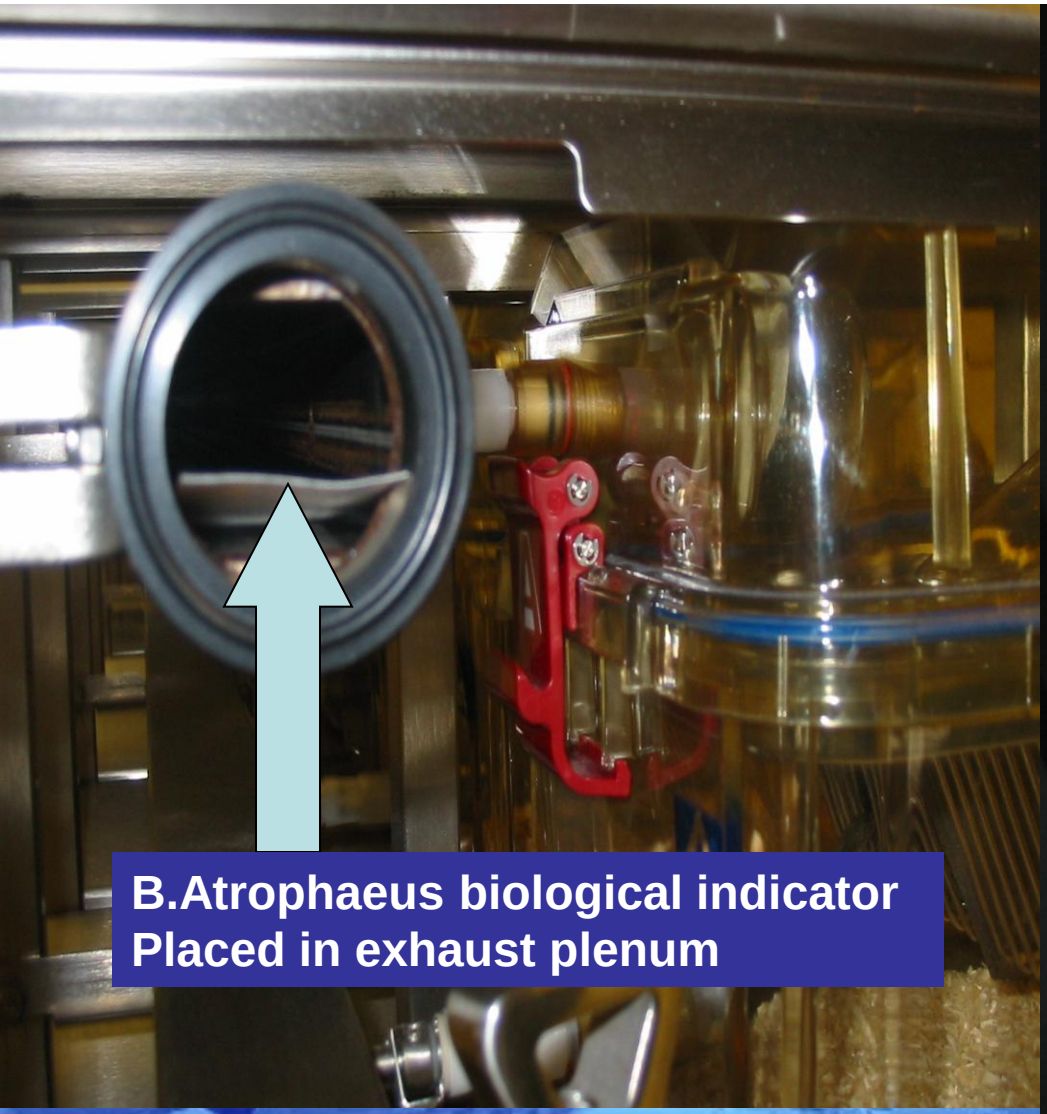
BIs Placed inside IVC Supply & Exhaust Plenums



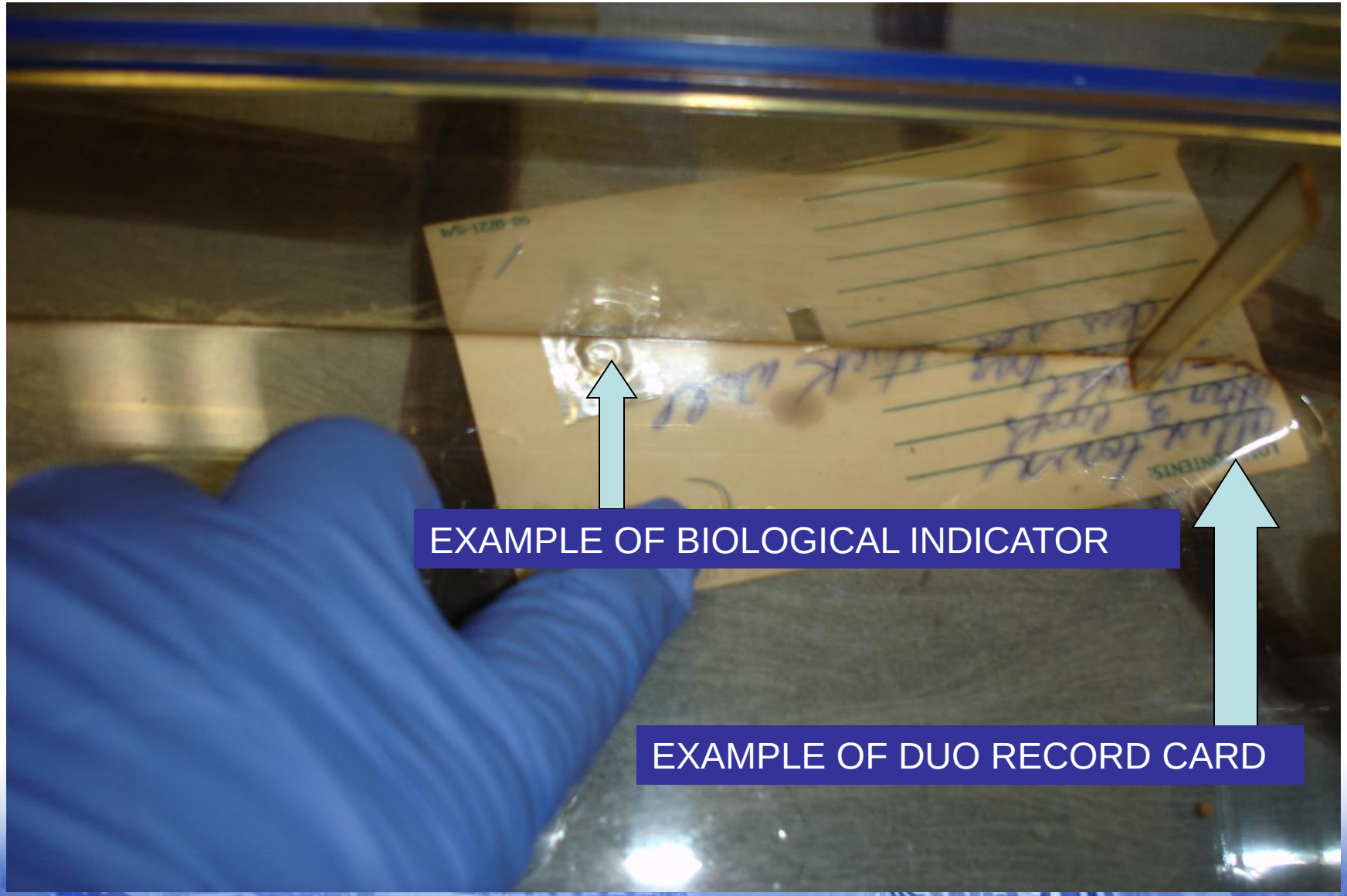
ClO2 Gas Potential

- Cages, water bottles and rack, as well as the room could be decontamination/sterilized in place via remote activation (plug cord into power source from external area) or provide a quick disconnect for attaching gas dispensing machine
- Sensitive equipment such as computers and other electronic equipment could also be decontaminated in the same room. However, be certain to check with the manufacturer and/or applicator for the correct suggested time, temperature , and humidity settings.

Monitoring Supplies For Steam Autoclaving Validation

- Biological indicator- GeoBacillus Stearothermopilus
- Autoclave tape
- Duo Record Card- color change shows steam penetration
- Hard copy of cycles from Autoclave printer

  Documents Pre-Vac (removes air from chamber) sterilization temperature (250 F or 121 C), PSI, exhaust (slow or fast), cool down/dry time, total run time


EXAMPLE OF BIOLOGICAL INDICATOR
EXAMPLE OF DUO RECORD CARD

PACKAGING

- Examples of autoclave packaging

  Opaque or Clear Autoclave bag*

  Fabric cover

  Polyspun cover

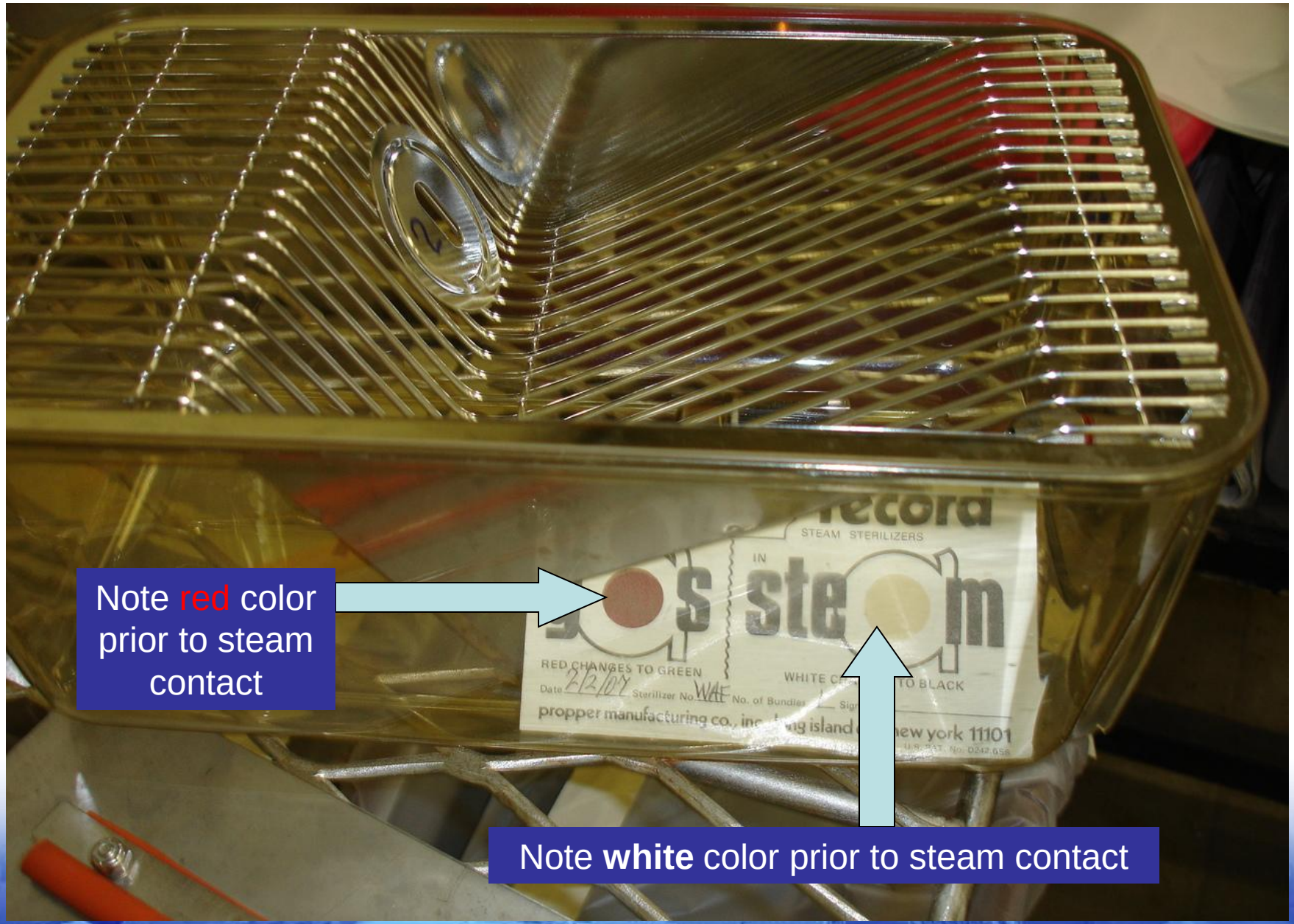
  Tyvek (use caution due to possible shrinkage)

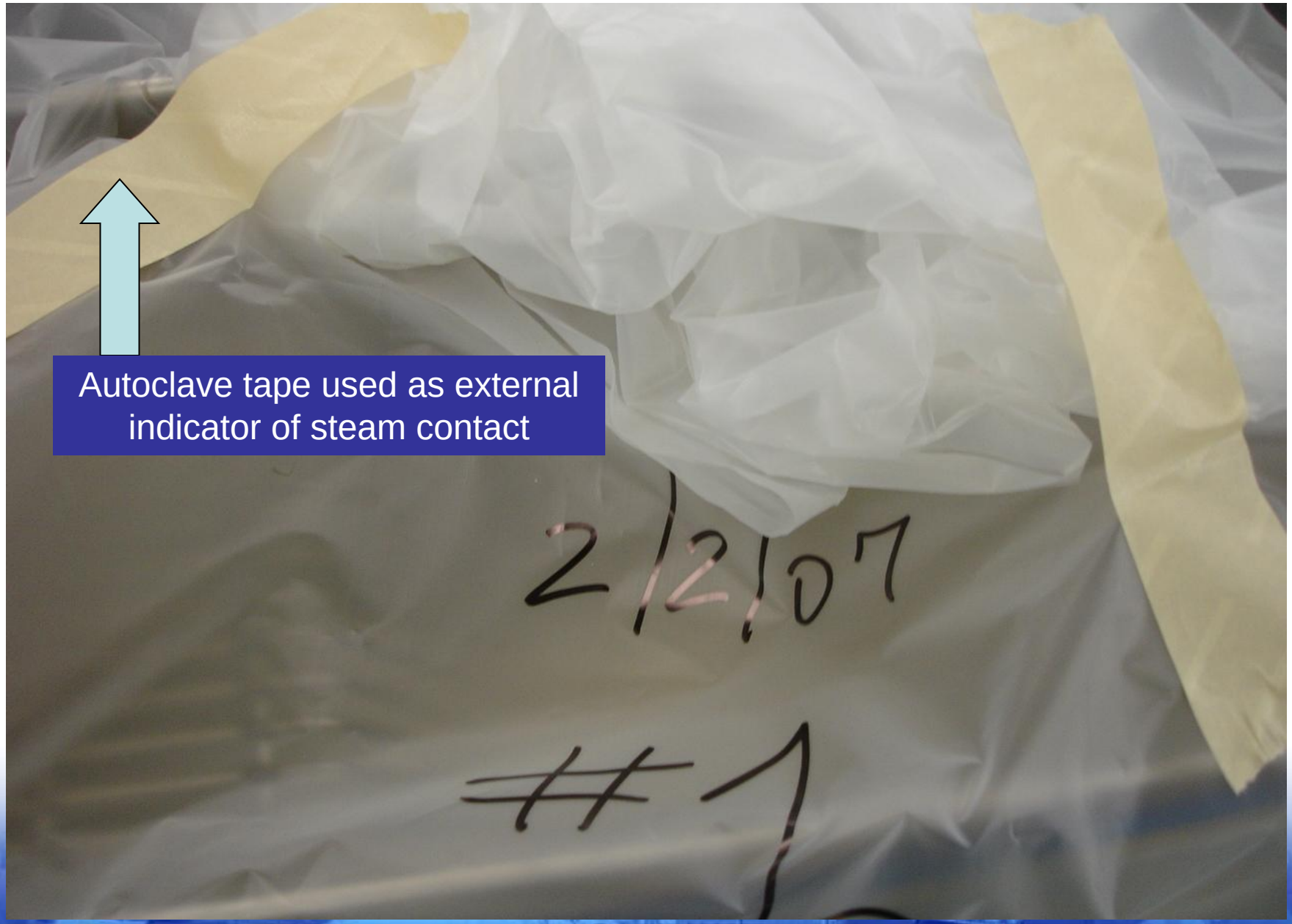
* BE SURE TO KNOW THE HIGHEST POSSIBLE TEMPERATURE TOLERANCE FOR THE BAG YOU SELECT


OPAQUE STEAM AUTOCLAVE BAG

PREPARATION OF ITEMS TO BE AUTOCLAVED

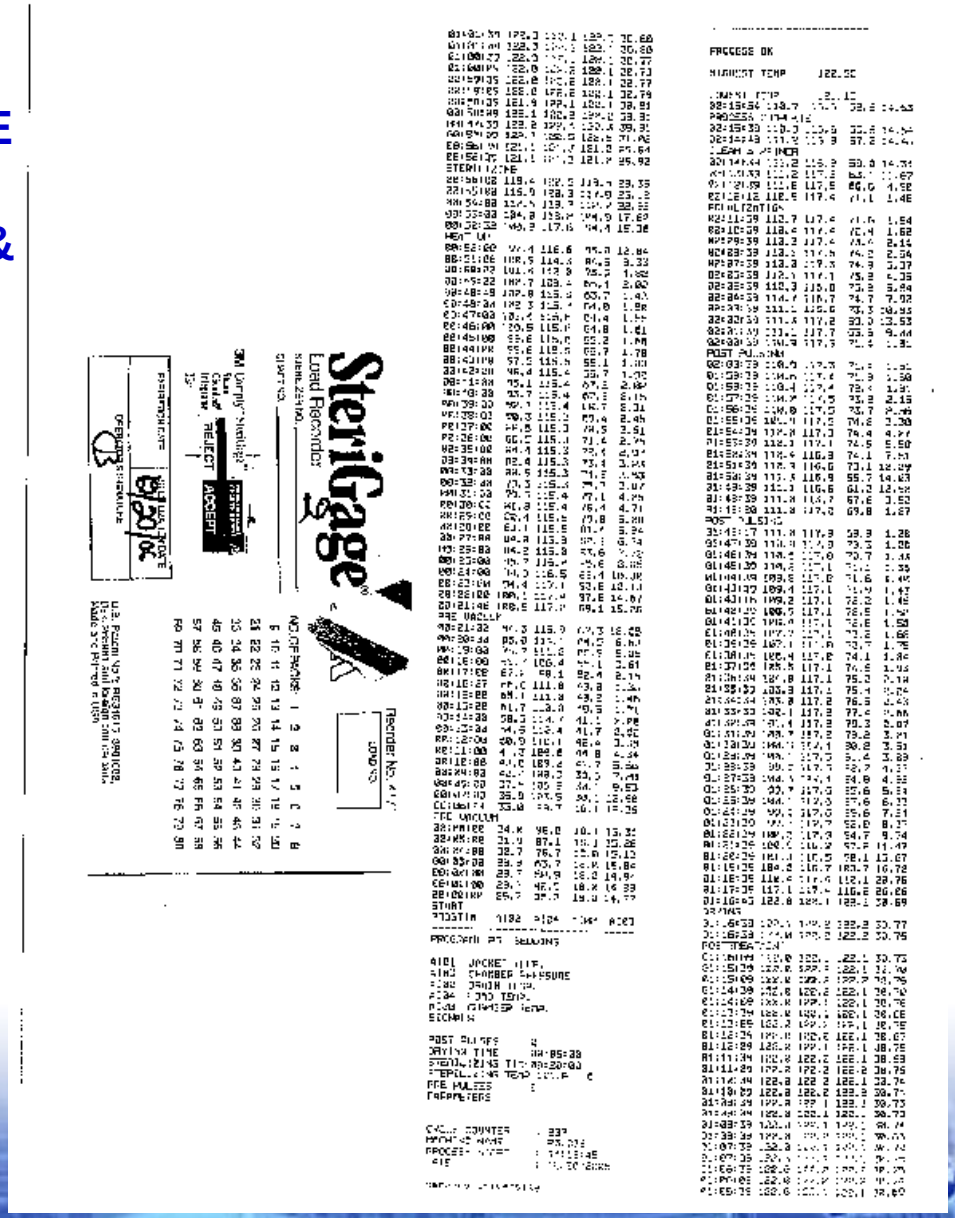
- Bagged items with duo card
- Opaque autoclave bag marked w/sharpie
- Autoclave tape use as indicator & closure

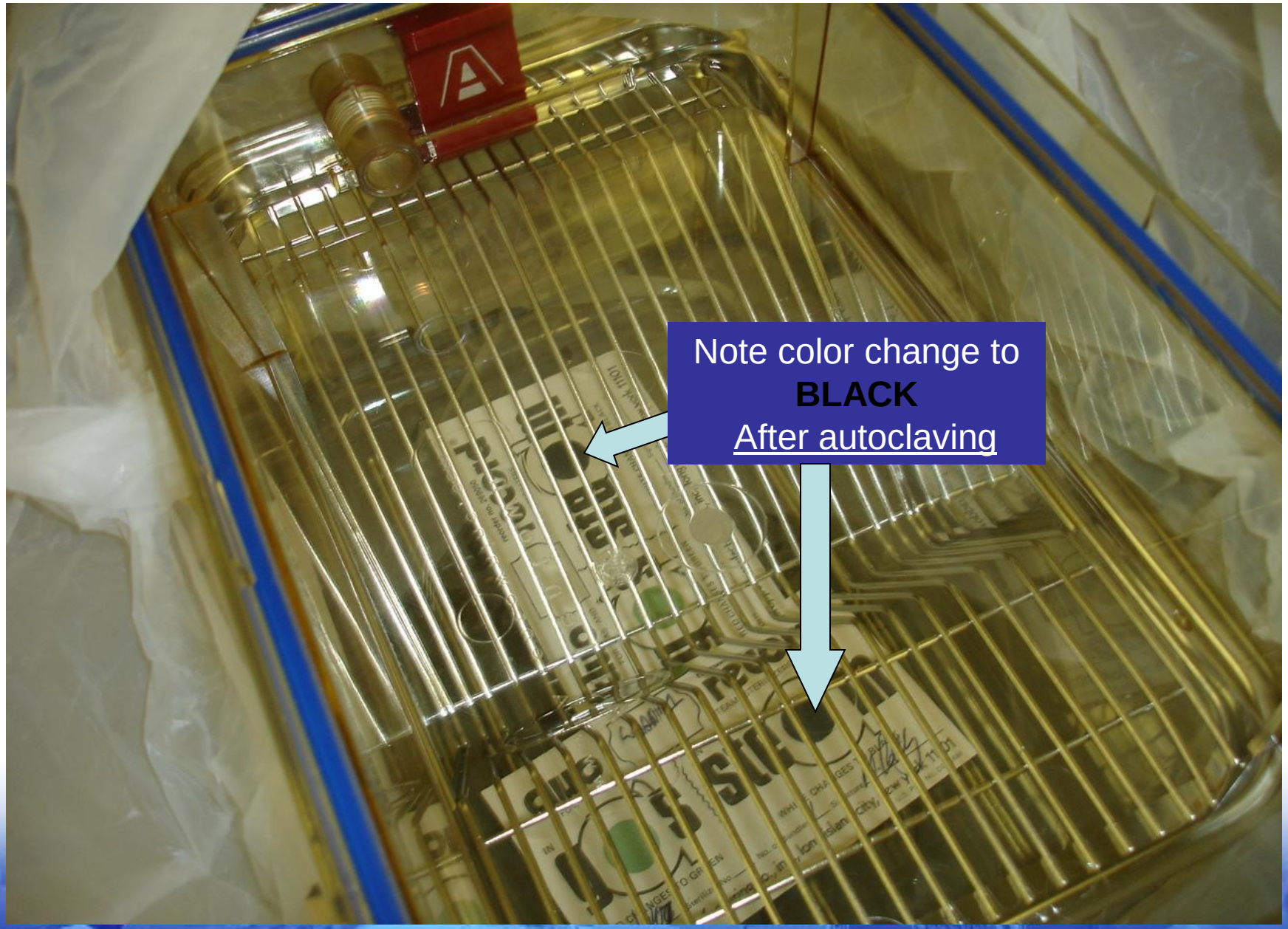

Note red color prior to steam contact
Note white color prior to steam contact
STEAM STERILIZERS
RED CHANGES TO GREEN
TO BLACK
propper manufacturing co., inc.
new york 11101


Autoclave tape used as external indicator of steam contact
2/2/07
#1


Five items post autoclaving all with
external steam contact tape indicators
Changed from clear to **BLACK**

CHECK AUTOCLAVE PRINT OUT TAPE BEFORE,DURING, & AFTER EACH RUN





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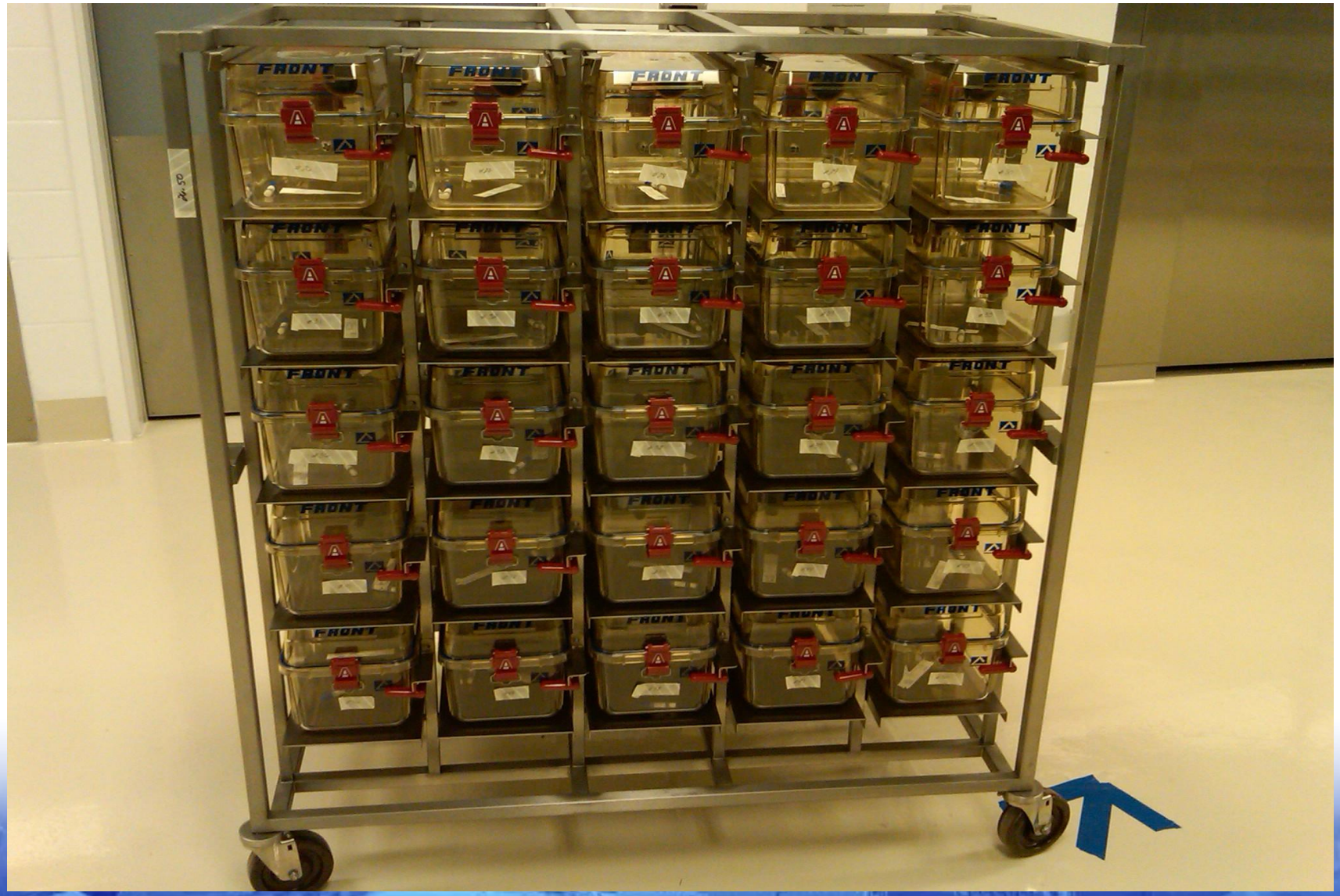
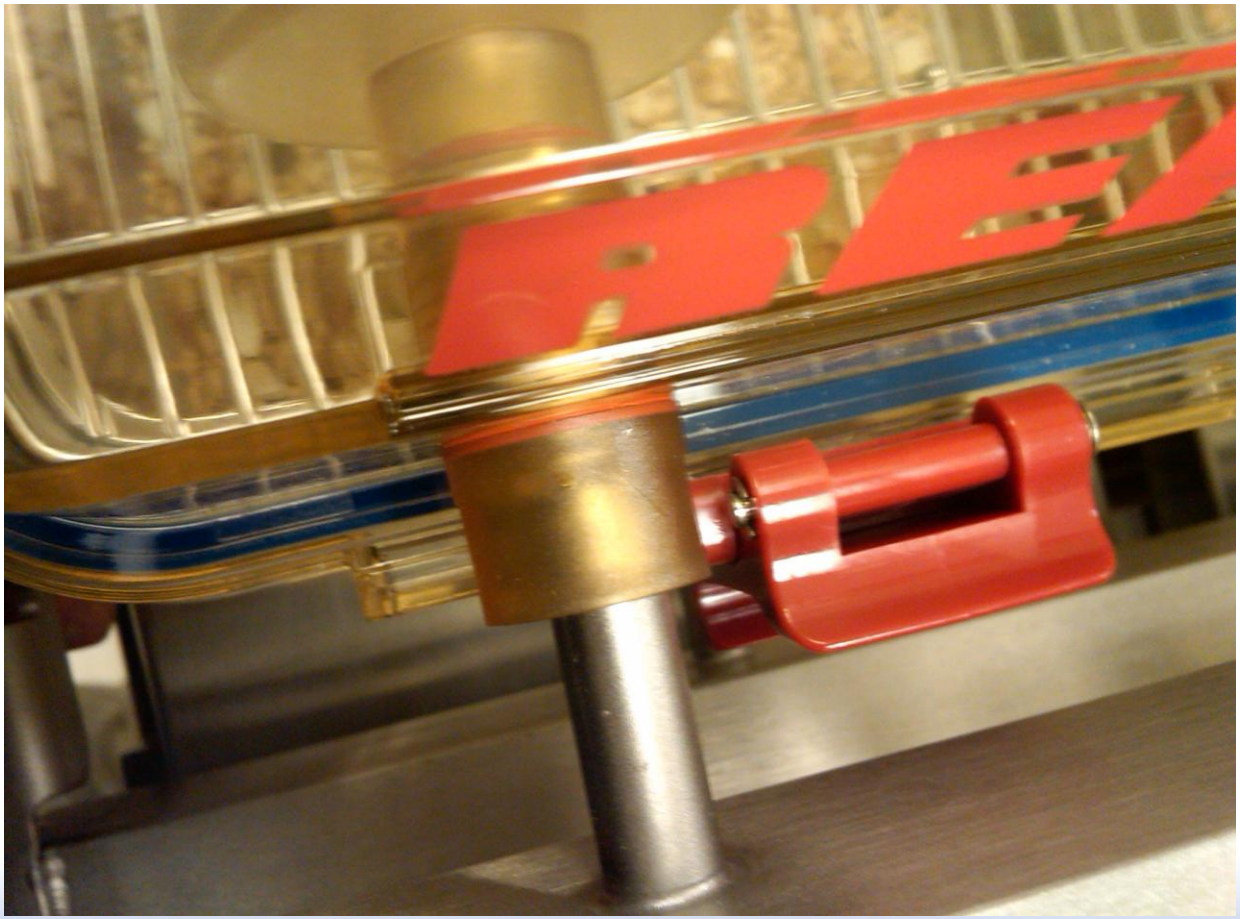
PREPARATION OF IVC COMPONENTS TO BE AUTOCLAVE

RACK OF COMPLETE IVC UNITS TO BE AUTOCLAVED



CONNECT RACK TO IVC UNITS BY SOLID TUBE TO ALLOW AIR TO BE REMOVED AND STEAM IN



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COMPLETION OF GRAVITY FLOW AUTOCALVE CYCLE OF IVC UNITS @ 131C

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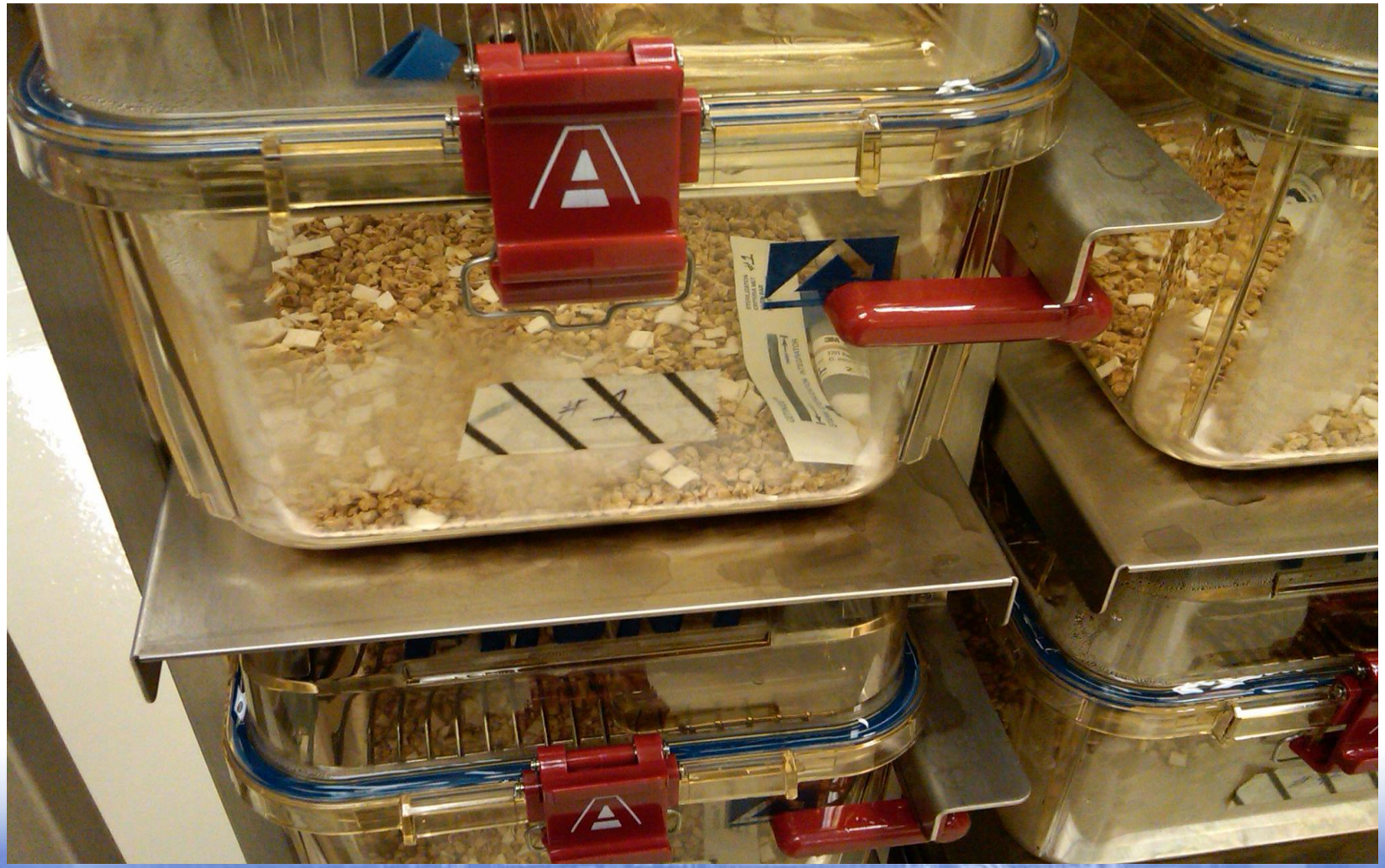
COMPLETION OF GRAVITY FLOW AUTOCALVE CYCLE OF IVC UNITS @ 131C



PREP FOR PRE-VAC AUTOCALVE CYCLE OF IVC UNITS @ 121 C

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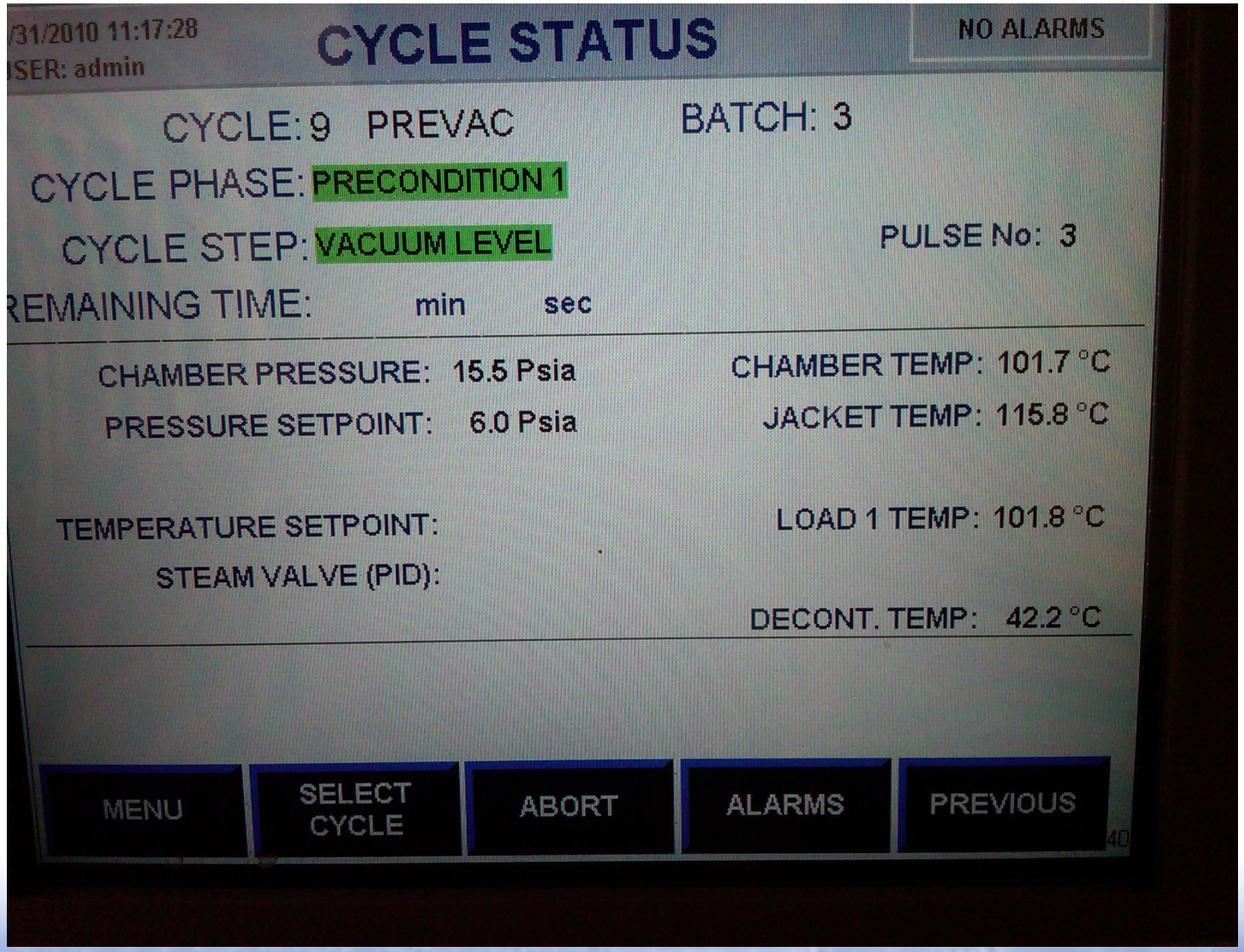

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COMPLETION OF PRE-VAC AUTOCLAVE CYCLE OF IVC UNITS @ 121 C

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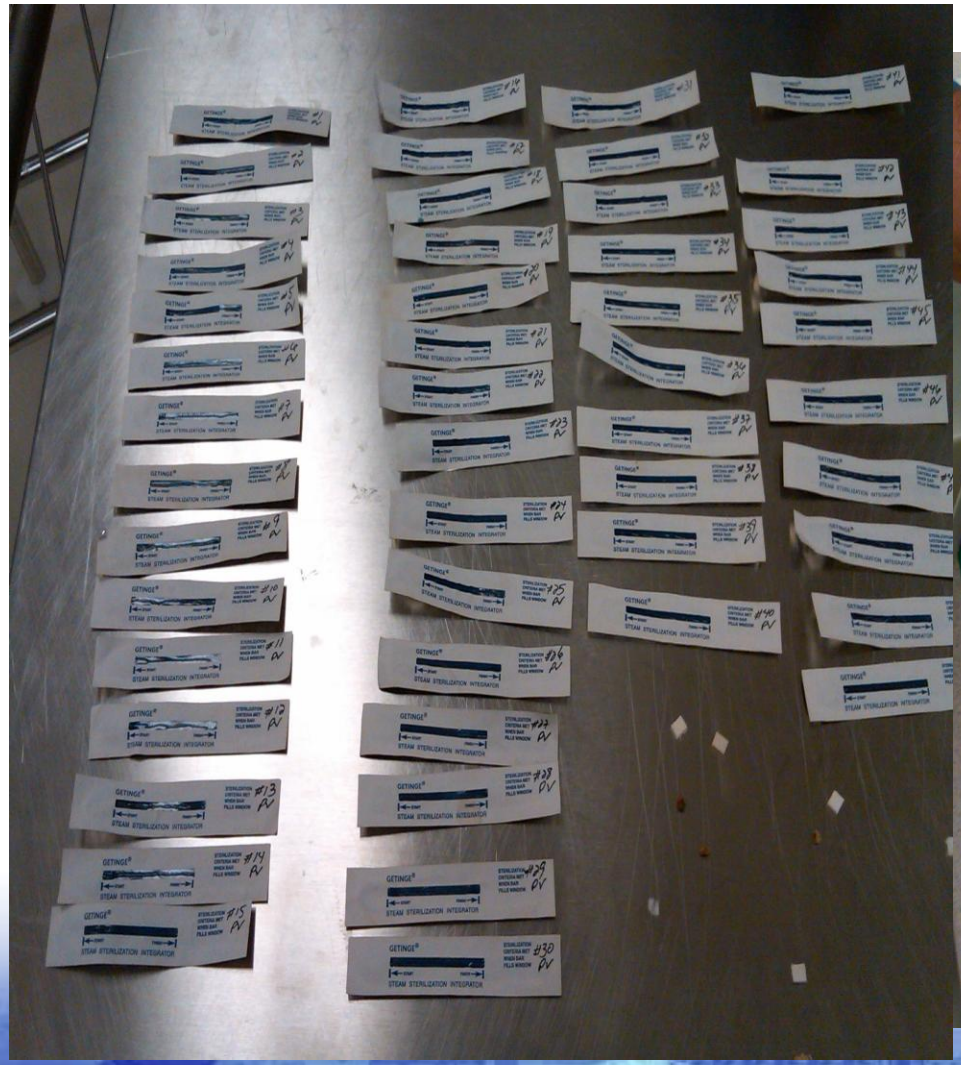
GETINGE
STEAM STERILIZATION INTEGRATOR


CAUTION HOT SURFACE
ATTENTION SURFACE CHAUDE

THANK YOU

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