

Safe develop™

Fingerprint Development Chamber

"Fingerprint Development Chamber for Processing Documents."

34



— SD-34S

Detect Quality Latent Prints on
Porous Surfaces with Reproducible Results

Meets or Exceeds OSHA, ANSI and
other International Standards



GSA Schedule
Contract GS-07F9832P

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Options and
Accessories (p.6)**APPLICATIONS**

- State and Federal Crime Laboratories
- Crime Scene Investigation
- Law Enforcement Agencies
- Medical Examiners' Programs
- Criminal Justice Education

**INTRODUCTION**

Safedvelop™ Fingerprint Development Chambers are designed to accelerate the processing of latent fingerprints on porous surfaces using DFO, Ninhydrin, and other development chemicals within a controlled environment for optimum effectiveness where moisture, temperature, and time are critical factors.

The Safedvelop Fingerprint Development Chamber controls all functions from start-to-finish, permitting the investigator to initiate an unattended cycle, establish the proper development intensity and duration, and to return upon completion to collect results. The resulting prints will fluoresce with the use of various lasers and light sources.

Safedvelop

Fingerprint Development Chamber

- Designed for developing fingerprints on documents using Ninhydrin, DFO, Nickel Nitrate, 5-MTN, 1,2-Indanedione and Zinc Chloride.
- Effectively controls temperature, relative humidity, and development time.
- Fingerprints are detected at a faster rate, and with better clarity, by precisely controlling conditions of high temperature and high relative humidity.

Safedvelop SD-34S

**SAFEDEVELOP TECHNOLOGY**

DFO and Ninhydrin fuming are the most effective techniques for detecting latent prints on paper and similar porous surfaces. Safedvelop performs well with DFO and Ninhydrin, however is not limited in scope and can also utilize other chemical developers, allowing illumination with various lasers and light sources to make the resulting prints fluoresce.

Product Features

- Clear LED display provides quick visualization of temperature and humidity information.
- The chamber interior is coated with high quality, corrosion-resistant epoxy paint.
- The gentle, forced, crossflow provides uniform environmental conditions, eliminates condensation, and keeps evidence moisture free.
- Air circulates at a low velocity to prevent small paper samples from blowing around the chamber.
- The temperature and humidity sensors are accurate and high quality.
- The multi-pane, heated glass door with dual vertical LED lights, minimizes condensation.
- The Air Science steam generator adds heat while humidifying, providing for quick ramp-up and rapid condition recovery after door openings.
- Advanced humidity sensors with built-in temperature compensation provides accurate readings at all temperatures.
- Preset development profiles are saved onto the controller to comply with lab safety protocols and best practices in evidence management.

Made in
the U.S.A.

This Product Exceeds OSHA, ANSI and Other International Standards.



PRODUCT FEATURES:

- A. Door Key:** Chamber access keys prevent unauthorized removal of evidence or accidental operator exposure to chemical fumes or high heat.
- B. Control Panel:** Front-mounted control panel with electronic On/Off switch, lights, temperature and humidity controller, cycle complete lamp and low water alarm lamp.
- C. Glass Door:** Multi-pane, heated glass door minimizes condensation and activates automatically whenever humidity is used.
- D. Low Water Light:** Low water level warning light notifies the operator when to add water.
- E. Push-Pull™ Shelving:** perforated Push-Pull™ shelves that can slide in or out with one hand.
- F. Lighting:** Dual LED light strips on the door provide a large illumination area to watch fingerprints being developed.
- G. Hanging Rods:** Removable stainless steel hanging rods with clips.
- H. Water Carboy:** Side mounted, 1 gallon (4 liter). Easy to visualize water levels and quick release coupling for simple removal and filling.
- I. Chamber:** Corrosion-resistant insulated internal chamber.
- J. Leveling:** Adjustable leveling feet.
- K. Stand:** Optional mobile cart with locking casters.
- L. Modular Filtration:** Optional Vent-Box filtration unit available with Multiplex filtration technology, a unique configuration that includes a pre-filter and main carbon filter. HEPA/UPLPA filtration is also available.

OTHER FEATURES:

Quality Door Construction: The large viewing area offers easy observation of critical samples along with dual vertical LED lights. The multi-pane, heated glass door minimizes condensation.

Steam Generator: The Air Science steam generator adds heat while humidifying, providing for quick ramp-up and rapid condition recovery after door openings. Advanced humidity sensors with built-in temperature compensation provides accurate readings at all temperatures.

Preset Profiles: Preset development profiles are saved onto the controller to comply with lab safety protocols and best practices in evidence management.

SD-34S, shown with optional filtration unit and optional mobile cart. (above)

Control panel with On/Off switch for unit, lights, temperature and humidity controller, cycle complete lamp, and low water alarm lamp. Also incorporates profile select and emergency stop switches to ensure complete unit control. (right)



DEVELOPMENT CHAMBER KEY BENEFITS

• Controls.

The professionally designed automatic development chamber eliminates reliance on do-it-yourself systems that lack user-safety allowances and controls needed for repeatable results.

• Profile Settings.

To change between profiles requires only the press of a few buttons on an easy to use LED display.

• Profile Recovery.

The chamber features rapid condition recovery following a door opening.

• Fast Processing.

The wide temperature and humidity range allows fingerprints to be processed in a matter of minutes - not days like some conventional methods.

• Steam Generation Technology.

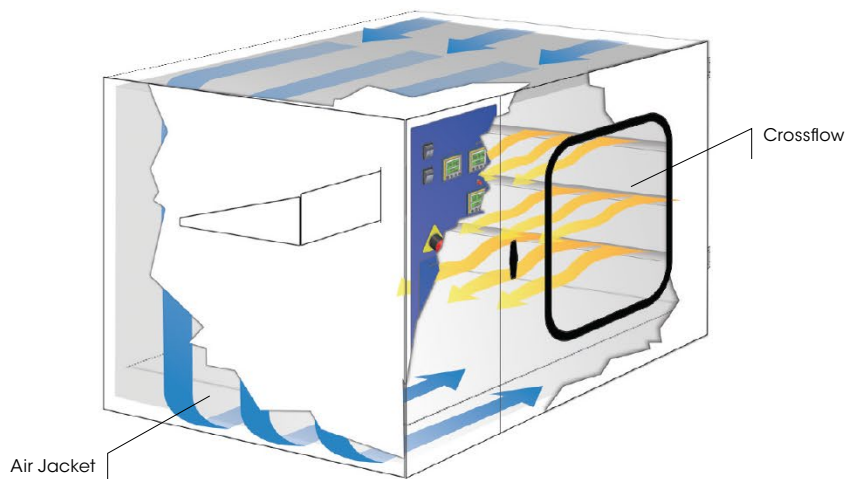
The steam generator produces humidity by a sealed, automatic, steam injection system, ensuring only vaporized water enters the sample chamber to eliminate possibility of contaminating samples with water droplets.

• Flexible Configuration.

The chamber's generous working area and flexible shelving and rod system enable large batches of operational material to be processed quickly and easily.



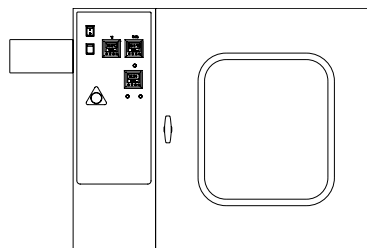
DEVELOPMENT CHAMBER AIRFLOW PATTERN



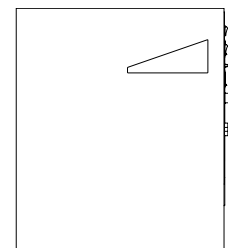
Development Chamber Process Table

The following profiles should be used as a guideline ONLY. Follow departmental procedures as required. In some cases, repeat the entire process if prints are faint.

| Process Type | Profile Set up Characteristic | | | | | | |
|---|--|---------|------|------------|--|--|--------------|
| | Evidence Preparation | Temp C° | RH % | Time (min) | Print Results | Photography | Unit Profile |
| Ninhydrin (2,2-Dihydroxyindane-1,3-dione) | Follow proper safety precautions. Using a fume hood, apply chemical to specimen (spray, dip, brush). Completely dry before processing in chamber. | 80 | 65 | 3 | Purple. Repeat process as needed. | 530-555 nm light source with no filter | Ninhydrin |
| DFO (1,8-Diazafuoren-9-one) | Follow proper safety precautions. Using a fume hood, apply chemical to specimen (spray, dip) for 5 seconds. Completely dry before processing in chamber. | 100 | - | 20 | Yellow | 495-550 nm light source with orange filter | DFO |
| Nickel Nitrate | Apply only after processing specimen with Ninhydrin. Follow proper safety precautions. Using a fume hood, apply chemical to specimen (spray). Completely dry before processing in chamber. | 80 | 65 | 20 | Ridge detail enhancement | Green filter or 530 nm light source with no filter | Ninhydrin |
| 5-MTN (5-Methylthioninhydrin) | Follow proper safety precautions. Using a fume hood, apply chemical to specimen (spray, dip) for 5 seconds. Completely dry before processing in chamber. | 80 | 65 | 3 | Strong purple, repeat if needed or try with Nickel Nitrate. Repeat process as needed. | Green filter | Ninhydrin |
| 1,2-Indanedione | Follow proper safety precautions. Using a fume hood, apply chemical to specimen (spray, dip, wash). Completely dry before processing in chamber. | 100 | - | 10 | Pale pink. Repeat process as needed. | 515 nm light source with orange filter | DFO |
| Zinc Chloride | Apply only after using Ninhydrin or 5-MTN to enhance prints. Follow proper safety precautions. Using a fume hood, apply chemical to specimen. Completely dry before processing in chamber. | 80 | 65 | 20-40 | Orange if prints previously treated with Ninhydrin. Red if prints previously treated with 5-MTN. Repeat process as needed. | Orange filter | Ninhydrin |



Safedvelop™ SD-34S



Side View

| MODEL | DIMENSIONS | | | WEIGHT (lbs/Kg) | |
|------------------------------------|--|--|--|-----------------|-----------|
| | Work Space | External (W x D x H) | Shipping (W x D x H) | Net | Ship |
| Safedvelop | | | | | |
| SD-34S | 18.25" x 20.5" x 19.5" 464 x 521 x 495 mm | 36.25" x 25.5" x 29.25" 921 x 648 x 743 mm | 40" x 48" x 45" 1016 x 1219 x 1143 mm | 200 / 91 | 245 / 111 |
| SD-34S (with optional Vent-Box) | 18.25" x 20.5" x 19.5" 464 x 521 x 495 mm | 36.25" x 25.5" x 42.25" 921 x 648 x 1073 mm | 40" x 48" x 63" 1016 x 1219 x 1600 mm | 232 / 105 | 279 / 127 |

PRODUCT SPECIFICATIONS

| Safedvelop Model | SD-34S |
|---------------------------|---|
| Temperature Range | Up to 100°C (depends on profile) |
| Relative Humidity | Up to 65% RH (depends on profile) |
| Electrical | 120V 60Hz 20A, 208V 60Hz 12A or 230V 50Hz 12A. Specify when ordering. |
| Controls | Programmable Heat and Humidity Controllers, Lights On/Off |
| Shelves | 2 Push-Pull™, perforated on sliding rails |
| Hanging Rods | 4 stainless steel rods with 8 clips |
| Lighting | 2 vertical mount high intensity LED |
| Alarms (Audio and visual) | Timer Cycle Complete, Low Water Level |
| Water Bottle | Carboy, water fill bottle with cap, 1 gallon (4 liters). Universal side mount holder mounts on side or top of unit. Includes all tubes and quick release fittings. |
| Construction | Crossflow |

*Specifications are subject to change without notice.

OPTIONS & ACCESSORIES

| Safedvelop Model | SD-34S |
|---------------------------|---|
| Heavy Duty Base Stand | Provides a lower storage half shelf; accommodates wheelchair access. Locking casters. P10-CART |
| Water Re-Circulator | Condensation re-circulating system for use where a floor drain or in-house supply of deionized or distilled water is unavailable. WRC-1 |
| Stainless Steel Wire Rack | External stainless steel hanging rack with clips that can be loaded and inserted into the chamber. SSWR |
| Vent-Box Filtration | Ductless, modular ductless filtration system. Utilizes the Multiplex carbon filtration system, with a pre-filter and main filter. HEPA/ULPA filters are also available. VBF |

STANDARDS & COMPLIANCE

| | |
|----------------------------|----------------------------------|
| Quality Management Systems | ISO 9001 |
| Electrical Safety | ROHS Exempt under EEE Category 9 |
| Environment | ISO 14001 |



SafeDevelop SD-34S shown with optional Vent-Box filtration unit installed. The Vent-Box utilizes the Multiplex carbon filtration system which offers a variety of filter options (see Filter Summary chart).

FILTER SUMMARY (OPTIONAL VENT-BOX FILTRATION UNIT ONLY)

| Formula | Description |
|-----------|--|
| GP Plus! | The most widely used filter in the range, primarily for solvent, organic, and alcohol removal. |
| ACI Plus! | Designed to neutralize volatile inorganic acid vapors |
| ACR | Iodine and methyl iodide vapors. It is frequently used for iodination reactions with lower level radioactive iodine. |
| ACM | Mercury vapor |
| AMM | Removes vapors from dilute ammonia solutions and to remove low molecular weight amines. |
| SUL | Designed to remove hydrogen sulfide and low molecular weight mercaptans. |
| CYN | Removal of hydrogen cyanide. Many cyanide compounds will evolve HCN gas which acidifies, so this filter is normally specified if working with any cyanide compound. |
| FOR | Designed to oxidize formaldehyde and glutaraldehyde fumes. It is widely used in hospital pathology laboratories. |
| ETH | Diethyl ether is adsorbed on activated carbon, but because of its low boiling point, the local head adsorption can reduce the capacity of the filter. Special impregnation allows a chemical reaction which increases the filter capacity. |
| EDU | Designed to handle chemicals normally used in a university level chemistry curriculum. |
| MIL | As the name implies, this filter is designed for military applications involving war gasses. |
| HEPA/UPLA | Powders and particulates |

multiple

AIR SCIENCE MULTIPLEX FILTRATION TECHNOLOGY SYSTEM

The Vent-Box utilizes the exclusive Air Science Multiplex filtration system, a unique configuration that includes a pre-filter and main filter to create a chemical, physical or combination architecture to adsorb,

neutralize or trap the target chemicals or particulate. Fumes are pulled via a flexible hose connected to the cabinet and clean, filtered air is returned to the laboratory, eliminating the need for external ducting and minimizing loss of treated, conditioned air from the facility.

MULTIPLEX SYSTEM FILTERS

- **Pre-Filter.** The electrostatic pre-filter protects the main filters from aerosols, dust and particulates with filtration efficiency superior to 95.5% down to 0.5 microns.
- **Main Filter.** Activated Carbon FILTCO™ sourced. A single

carbon filter containing chemically-formulated activated carbon granules is selected when ordering to accommodate a specific vapor or family of vapors.

- **HEPA Filter.** A self-contained Camfil-Farr HEPA filter is designed to physically capture particles larger than 0.3 microns.



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