

SIRCHIE®

FINGER PRINT LABORATORIES

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TECHNICAL INFORMATION

SEARCH® Portable Humidifier Kit

Catalog Nos. PUM100, PUM100220

Application	Source of humidity for developing processes that require or are enhanced by the application of humidity.		
Hazards/Safety Info	<p>Caution! Because high temperature is generated by this unit, basic safety precautions should always be followed.</p> <p>Warnings</p> <ul style="list-style-type: none"> • To avoid hazard of fire or shock, plug unit directly into appropriate AC outlet. DO NOT use an extension cord. • Do not place near heating devices or in direct sunlight. Do not store or use flammable materials (acetone, alcohol, etc.) near the unit. • Do not touch the outlet nozzle plate during operation as it can become hot to the touch. • Do not use ANY substances other than those recommended to clean the unit, as it will interfere with the proper operation of the unit (see MAINTENANCE). • Do not use sharp or metal objects to remove mineral deposits. • Do not let water enter the air inlet or any other openings when cleaning. Do not immerse the unit in any liquid. • Turn OFF before moving the unit or removing the top housing. • During extended periods of non-use, ALWAYS unplug the unit and empty the water tanks and base. 		
Specifications	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>Physical Data: Net Wt.: 8.3 lbs. (3.8kg) Dimensions: 15.5" x 10" x 15.75" (39.4cm x 25.4cm x 40cm) Water Capacity: 2 U.S. Gal. (7.6L) Power Supply: Power cord, 3-prong grounded plug</p> </td> <td style="width: 50%; border: none;"> <p>Electrical Data: Input Voltage: 120V AC/60Hz (PUM100 only); 220V AC/50Hz (PUM100220 only) Power: 265 watt Current: 2.1 Amp</p> </td> </tr> </table>	<p>Physical Data: Net Wt.: 8.3 lbs. (3.8kg) Dimensions: 15.5" x 10" x 15.75" (39.4cm x 25.4cm x 40cm) Water Capacity: 2 U.S. Gal. (7.6L) Power Supply: Power cord, 3-prong grounded plug</p>	<p>Electrical Data: Input Voltage: 120V AC/60Hz (PUM100 only); 220V AC/50Hz (PUM100220 only) Power: 265 watt Current: 2.1 Amp</p>
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Information

Humidity is often used to enhance and accelerate latent print development. The addition of humidity in the processing of Ninhydrin treated documents is common place, based on research done by Morris and Goode at the Great Britain Police Research Branch in the 1970's. Humidity is also a key component in processing for latent prints using cyanoacrylate (super-glue) fuming techniques. The PUM100 provides a controlled method of introducing moisture to both of these processes. The humidifier can be used in conjunction with cyanoacrylate fuming chambers such as the FR100, FR200, and FR600 and also

for humidifying documents processed with Ninhydrin, by using the included hose nozzle attachment or connecting to the 214CA development chamber. The PUM100 has the added advantage of containing a germicidal bulb, which prevents bacteria and other contaminants from being applied to evidence. Read all of the following instructions before attempting to operate your humidifier. A 220V AC version is available with Cat. No. PUM100220.

<p>Special Features</p>	<ul style="list-style-type: none"> • Variable humidity level settings • Automatic heater shut-off when water supply is low • Dual tank design makes for easier filling and maintenance • Convenient soft-grip dual-handle tanks for easier lifting • Nozzle attachment for direct humidity application • Refill water indicator light • UV bulb replacement indicator light • Mineral absorption pad decreases mineral buildup (included)
<p>Supplied Parts</p>	<p>Note: Upon receipt, carefully unpack the unit and check for physical damage. If any damage is noted, retain the shipping carton and contact the factory. Also, inventory these supplied components:</p> <p>1-PUM100 Portable Humidifier w/hose and dispersion head 1-PUM102 Mineral Absorption Pad 1-PUM105 Deionized Water, 500ml</p>
<p>Control Panel</p> <p>Indicator Lights GREEN: Power ON RED: Refill Water Tanks ORANGE: Replace UV Bulb</p> <p>Power Switch Push-Button ON (I), OFF (O)</p> <p>Humidity Control LOW \blacklozenge turn counter-clockwise HIGH \blacklozenge turn clockwise</p>	<p>Preparation Filling the Water Tanks</p> <ol style="list-style-type: none"> 1. Push power switch to OFF and unplug unit. 2. Remove water tanks from base, turn each tank upside down and turn tank cap counter-clockwise to remove. Fill tanks with deionized water. Replace cap, turn clockwise and tighten firmly. 3. Carefully lift tank as it is heavy when full and slippery when wet. 4. Return tanks to the base. If they're not seated properly, the unit will not work correctly. <p>Recommendation: Use only deionized water—tap water contains minerals that may contaminate evidence being processed.</p>

Operating Instructions

Use with Cyanoacrylate Fuming Tanks

1. Place the base of the unit on a firm, flat, level and water resistant surface.
2. Fill the tanks as explained above and place them on the unit's base.
3. Plug the power cord firmly and completely into the wall outlet (do not use an extension cord).
4. Connect one end of the steam hose to the humidifier.
5. Push the power switch to the ON position (lights may flicker momentarily). Turn the relative humidity knob clockwise to about 1/2 scale (12 o'clock position). Steam generation begins in approximately 6-8 minutes.
6. To verify that steam is being generated, hold the free end of the steam hose 5-6 inches from the palm of one hand. When warmth is felt, connect the hose to the fuming tank.



PUM100 IN USE WITH FR100 CYANOACRYLATE FUMING CHAMBER

7. For small fuming tanks (FR100), allow 2-3 minutes of steam to enter the tank. For larger fuming tanks (FR600), rotate the relative humidity knob to the 4 o'clock position and allow 3-4 minutes of steam injection.
8. The water heater shuts off automatically when water runs out. The fan, however, will continue to run.

Alternative Uses

Besides its value in increasing the relative humidity in closed fuming chambers, the PUM100 may be used to introduce moisture onto other objects such as Ninhydrin treated paper documents. The PUM100 includes a dispersion head that attaches to the free end of the steam hose for this application.

Troubleshooting		
Problem	Possible Causes	Solution
Unit does not mist	Unit isn't plugged in	Plug in unit
	Power failure	Check circuit breaker
	Water tanks are empty	Remove and refill
	Power switch isn't turned on	Push switch to ON
	Unit not reset after refilling tanks	Reposition water tanks
	Water tank not seated in base	Reposition water tanks
	Humidity level set is achieved	Reset level to higher setting
	Only one tank empties	Move unit to level surface; Raise end with full tank
Water leaks from unit	Tank cap or gasket is missing or improperly positioned	Tighten cap; Replace tank cap; Reposition cap gasket
Moist air output low	Mineral Buildup in hot water reservoir	Clean unit as per instructions
Refill indicator light on	Water level is below water level float	Refill water tanks and re-mount on base
	Water level float is covered with a film	Clean float per cleaning instructions
	Mineral buildup in hot water reservoir	Clean unit per cleaning instructions

Maintenance

CAUTION! Tap water contains minerals and other particles that may contaminate evidence being processed. During operation, most of these minerals remain in the water reservoir. Gradual buildup of deposits coat the hot water reservoir and reduce efficiency. Therefore, routine cleaning and care is recommended.

WARNING! Failure to perform the necessary cleaning steps will damage unit.

Cleaning Instructions

1. With controls set to OFF and unit unplugged, remove water tanks from humidifier base and drain water from tanks.
2. Wait 15 minutes for the hot water to cool after shutting unit OFF before moving the base. Remove top housing by rotating (2) lock wheels and lifting up top housing. Remove nozzle by rotating it counterclockwise and lifting up. Remove mineral absorption pad from hot water reservoir using tweezers or tongs to prevent burns from hot water. When the cleaning procedure is completed, replace mineral absorption pad. Grasp unit base with both hands and tilt to the side, draining water into the sink. **Note:** Do not let draining water fall into controls or vent openings; never place directly under running water.

3. Pour 1 cup of white vinegar into either reservoir and allow it to soak for only 20-30 minutes.
4. Hold the base of the humidifier over the sink and tilt it on its side to empty the vinegar. Fill cold and hot water reservoirs with clean, warm water to remove all traces of vinegar. Remove any buildup of mineral in the hot water reservoir using a small brush, such as a toothbrush.
5. Disinfect the water tanks using a solution of one teaspoon of household chlorine bleach to 1 gallon of water. Let the solution sit for 20 minutes, swishing every few minutes to wet all surfaces. Empty the tanks completely; rinse thoroughly until all the bleach smell is gone. Fill the tanks with deionized water and replace them onto the humidifier base.
6. Never use any metal or hard objects to clean plastic parts which may cause scratching of the plastic. The only exception to this is the metal part of the hot water reservoir. A metal scraper may be used to clean this part only. Never use gasoline, kerosene, glass cleaner, furniture polish, paint thinner or other household solvents to clean any part of the humidifier.
7. Each day the reservoirs and tanks should be drained, rinsed and refilled with deionized water.
8. To clean exterior surfaces, use a solution of water and mild detergent with a wrung-out damp cloth. Rinse and wring-out the cloth and wipe the exterior surfaces again. Finally, wipe with a dry cloth. Allow sufficient time to dry before plugging the electrical cord into the outlet.
9. If it is noticed that the accumulated residue on the float switch affects the floating action, clean carefully with a soft brush.
10. After base is totally cleaned and dried, replace mineral absorption pad. Place nozzle on base and rotate clockwise until it locks. Place top housing on main housing and rotate lock wheels until it locks in place. Then, replace tanks.

UV Bulb Replacement

1. With controls set to OFF and unit unplugged, allow it to cool and remove water tanks.
2. Remove top housing by rotating (2) lock wheels. Remove nozzle by rotating it counterclockwise and lifting up.
3. Place base of humidifier over the sink and tilt to remove any remaining water.
4. Carefully turn base of unit over and place it upside down on a flat level surface to access the UV Bulb compartment.
5. Remove the two Phillips head screws and open door by pulling forward (exposing UV Bulb) the minimum amount required to unscrew the bulb.
6. Replace with 3.5W (EUV-13B) UV bulb. Limit your contact with bulb surface by using a cloth or tissue when handling to prolong life.
7. Close the access door and secure it back with the Phillips head screws. **WARNING!** Never turn power ON while access door is open or view illuminated bulb directly as eye damage may occur.
8. Turn unit upright. Place top housing, nozzle and water tanks on top of the unit base. Plug unit in and push power switch ON. The "Replace UV Bulb" indicator light should no longer be lit.



UV BULB ACCESS DOOR

References

1. Lee, Henry C. and R.E. Glassen. Advances in Fingerprint Technology, Elsevier Publications Co., New York, 1991.
2. British Home Office, Police Scientific Development Branch. Manual of Fingerprint Development Techniques, Sandridge, UK, 1998.