
TECHNICAL INFORMATION

SEARCH Cyanowand™

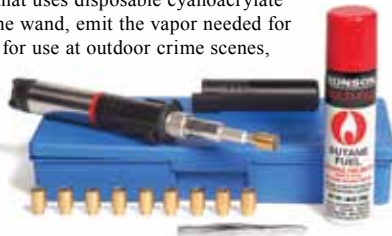
Catalog Nos. SCW100, SCW102, SCW200, SCW300, SCW400

INTRODUCTION

The Cyanowand™ is a self-igniting, butane-powered heat tool. It is nonelectric and is used as a flameless heat tool with variable temperature control.

It is an easy-to-use, portable, hand-held heat generator that uses disposable cyanoacrylate cartridges, which, when exposed to heat generated by the wand, emit the vapor needed for developing latent prints. The Cyanowand™ is designed for use at outdoor crime scenes, processing vehicles, in well-ventilated indoor areas and with fuming chambers.

Cyanoacrylate (ethyl or methyl) vapor polymerizes on most latent prints found on nonporous surfaces. This chemical reaction produces a visible, white deposit. It is an effective means of latent print development on a variety of surfaces such as plastics,



No. SCW100 Kit and Components

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metals (finished and unfinished), glass, enamel or varnished wood surfaces, cellophane, metal foils and plastic-coated papers. Note: Not suitable on most porous surfaces or older latent fingerprints.

Developed prints usually require enhancement before they can be successfully photographed and/or lifted. Enhancement can be accomplished by dusting with regular, magnetic or fluorescent powders for subsequent lifting with tape or hinge lifters, or fluorescent photography. Developed prints may also be stained with fluorescing dyes such as Ardrex, Basic Yellow and Rhodamine 6G. Developed latents enhanced with dye are viewed and photographed using fluorescence techniques.

Another effective means of latent print recovery is No. KSS60 *KRIMESITE™ IMAGER*. This device uses reflective ultraviolet light to view and photograph cyanoacrylate prints without using any form of enhancement.

CAUTIONS

- Before using this kit, consult the appropriate Material Safety Data Sheets (MSDS) found on our website at www.sirchie.com and click on MSDS. Serious injury can result from improper use or modification of this instrument.
- Do not wear contact lenses when fuming with cyanoacrylate.
- When fuming indoors, use an exhaust fan, fuming hood and/or respiratory protection. Wear eye protection (goggles) at all times.
- Avoid dropping or causing a hard blow to this instrument as damage to the ceramic burner or gas inspection window may result.
- Do not refill with gas or store instrument near open flame, furnaces, heaters or combustible materials.
- Do not store in direct sunlight, on dashboard, in vehicle trunk or where the temperature will exceed 120°F (49°C).
- When not in use, ensure that the gas ON/OFF Switch is in the OFF position.

- In cold weather, warm instrument gas chamber with heat from your hands before attempting ignition. NEVER attempt to warm the instrument in heated water or with an open flame.
- Use only butane fuel. Never use alcohol, propane or other fuels.
- Do not use alcohol or alcohol-based cleaners on the gas window.
- This instrument is capable of reaching temperatures in excess of 900°F (482°C) during operation. Avoids tip contacting flammable or combustible materials. Let instrument cool for up to 20 minutes before handling cartridges or tip after use. Do not immersion in water to cool.

PROCEDURE

Fueling the Cyanowand™

WARNING: Butane gas is highly flammable. Do not perform fueling operations near an open flame, pilot lights, electric motors or other devices that may cause sparking. Extinguish all smoking materials. Some fuel leakage is to be expected during refueling.

1. Ensure that the Cyanowand™ gas ON/OFF Switch is in the OFF position.
2. Ensure the instrument is cool to the touch.
3. Hold the instrument bottom-side-up. Press the nozzle of the butane fuel cylinder downward onto the refill nozzle and apply firm pressure. When the instrument is full, fuel will vent (overflow) through the refill valve. To ensure complete filling, do not hold the gas cylinder or the instrument at an angle.
4. Examine the fuel level through the gas level window. Clear liquid should be visible. Tilting the instrument to observe the presence of air bubbles may offer the best indication of the fuel level.



TI02-66ENG-REV5



Cartridge Selection and Installation

The Cyanowand™ Kit is supplied with No. SCW200 Standard Cartridges (10 ea.) designed for efficient sublimation (conversion of a solid to gas) and ease-of-use.

The precision-filled, disposable chemical cartridge emits a controlled cyanoacrylate vapor for approximately 2 minutes. No. SCW300 Mega-Cartridge has a vapor time of about 4 minutes and No. SCW400 Hulk Cartridge delivers vapor for more than 1 hour or for ten 5-minute “burn” cycles. Actual fuming times may vary due to environmental factors.

WARNING: Cartridges become extremely hot in use and cool very slowly. Severe burns can result when touched. Cartridges should not be refilled. Refilling the cartridges or the use of any other sources of heat may result in the creation of hazardous substances.



To install a cyanoacrylate cartridge, grasp the cartridge at the wide end and press the narrow end onto the tip of the Cyanowand™ (this is a friction fit). To remove a spent cartridge after it's cooled, apply a twisting-pulling motion to the cartridge using the cartridge extraction tool.

Igniting the Cyanowand™

1. While holding the instrument horizontally, with the tip facing away from your body, set the temperature regulator button to maximum (fully counterclockwise).
2. Slide the gas ON/OFF switch to its ON position (fully forward). The sound of escaping gas may be audible.
3. Slowly press back and hold the ignition button for 3 seconds. Then, slowly release the button, allowing the gas interrupt function to extinguish the flame. This enables the catalytic burner to take over combustion control. Extend the instrument to arms-length and look into the tip. An orange/red glow should be visible. If the instrument hasn't ignited, repeat the steps above.

OPERATION

The Cyanowand™ offers both controlled open-air development and superb closed chamber fuming in a fraction of the time required by conventional methods. The device is simple to use, but requires experience for best results. Operators should gain experience with the instrument in a variety of circumstances before using it in the gathering of evidence.

Fume Hoods and Open-Air Development

The temperature of the instrument, and the subsequent rate of fume generation are controlled by adjusting the gas flow with the temperature regulator button. Experience will dictate the best setting for each fuming assignment.

At the normal (maximum) setting, a dense stream of cyanoacrylate fumes will begin to emerge from the tip within 1 minute. Hold the instrument 6-9" (15.2cm-22.9cm) from the target area and slowly sweep the fuming stream over the surface. Watch the state of any latent print development closely.

Note: It is better to under-develop than over-develop prints.

Over-development (the filling of the valleys between ridges of the latent print) and the subsequent

loss of the print is likely if development is carried on too long or if the instrument is held too close to the surface bearing the latent prints. Under-development will occur when the target surface is too far away from the instrument or fuming time is cut short. Uneven development, which may be due to the vagaries of latent prints themselves, can be caused by a failure to maintain an even flow of fumes across the area of the prints.

On windy days, form a makeshift chamber with a cardboard box or similar contrivance. Check development progress as before. If over-development does occur, the print may be cleaned up using a bristle-type development brush such as the No. 118L Regular Powder Brush.



Fuming Chambers

Because cyanoacrylate fumes are unpleasant to breathe, and in order to control latent print development, fuming chambers are often used with cyanoacrylate development. Fuming chambers such as the No. FA100 Disposable Fuming Chamber (shown left) can be transported disassembled and snapped together on-site for use.

Development times will vary depending upon factors such as the physical properties of the target surface, age of latent prints, and environmental conditions. Development is also a factor of item placement within the chamber. Use one or more exemplars of known prints on a dark background to monitor development within the chamber.

It is a good practice to place a small container of warm water inside the fuming chamber. This will serve to reconstitute moisture that may have evaporated from latent prints.

1. Remove the red plug that seals the chamber. Install a fresh cyanoacrylate cartridge onto the Cyanowand™. Ignite the catalytic burner and insert the tip into the fuming port. To limit over development, the instrument should be positioned so that the target materials are not directly in front of it.
2. A dense fog of cyanoacrylate fumes will begin to appear within a minute. Keep the instrument in the chamber port until the cartridge has been expended. Remove the wand, turn off the gas supply, and allow the wand to cool. Replace the red plug to seal in the fumes
3. Carefully observe the development of target materials over time. Over-development is likely if development is permitted to continue too long. Include an exemplar on a dark background inside the chamber to better judge development progress. Remove items when development is discernible on the exemplar.
4. Stop development by first exhausting the cyanoacrylate fumes to a safe area (an exhaust fan or carrying the chamber outdoors) and then removing evidential materials from the chamber. Do not vent the chamber into an occupied room. Do not vent into an area where print development is not desired.
5. Developed prints may be improved with the application of powders and dyes to enhance detail and visibility. Prints that have been over-developed invariably lose detail by filling-in of the spaces between the ridges. When this occurs, dye enhancement techniques such as Basic Yellow prove useless, because the entire print area fluoresces as an undifferentiated blob.

Fuming Large Areas

The Cyanowand™ may be used to develop latent prints in large areas such as an automobile interior. In such cases, it will be necessary to use several of the small cartridges or one or two of the larger-sized cartridges. **WARNING:** *It may be impossible to remove cyanoacrylate residues from automobile interiors. The fumes may also penetrate electronic equipment such as tape and CD players, radios and amplifiers.*

To fume the entire interior of a vehicle, lower a window enough to allow the instrument tip with car-

tridge installed to be introduced (see right inset). Place exemplars, as described above, in various locations throughout the vehicle. Be certain the exemplars are visible from the outside. Ignite the burner and insert the tip into the window opening. Use extreme caution not to allow the tip to come into contact with combustible materials. When the cartridge is exhausted, remove the instrument and install an unused cartridge. Repeat this procedure until you believe that adequate fumes are present. Allow the fumes to remain in the vehicle for at least 15 minutes or until exemplars demonstrate sufficient development. Open the vehicle doors to evacuate all fumes before entering the vehicle.



Lifting Developed Latent Fingerprints

Do not attempt to lift the white latent prints developed by cyanoacrylate fuming using lifting tapes or Hinge Lifters because the acrylic solvents used in lifting materials will dissolve the polymerized prints. Use only SIRCHIE's Rubber Lifters or GELifters™. Apply latent print powder to the polymerized prints, and then use normal lifting materials and procedures.

PROBLEM	PROBABLE CAUSE	CORRECTION
Does not light.	Empty gas reservoir.	Refill with butane gas.
	Gas pressure low.	Move temperature button to lower or higher setting.
	Ignition Button released too fast.	
Does not flame-off.	Blue flame seen in tip instead of orange/red.	Turn OFF the unit and relight following ignition procedure.
Tip doesn't heat-up.	Insufficient gas pressure.	Refill with butane gas.

Liability Limits

SIRCHIE shall not be liable under any circumstances for any incidental, specific, or consequential damages or economic loss based on breach of warranty, breach of contract, negligence, strict liability in tort or any other legal theory, even if SIRCHIE has been advised of the possibility of such damages, including but not limited to loss of profits, revenue, equipment use, data or information of any kind. The liability of SIRCHIE shall not under any circumstances, except as expressly provided herein, exceed the price of the SIRCHIE Cyanowand™. These limitations do not apply to damages caused by breach of the implied warranties of titles against infringement, nor any claims for personal injury. Some states have laws that require liability rights different from those stated above. In such states, the minimum required liability terms shall apply.