



FR200DT Dual Temperature Laboratory Cyanoacrylate Fuming Chamber

User's Manual

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FR200DT



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MEANING OF SYMBOLS








	<p>When this symbol appears on the equipment, the User Manual must be consulted in order to determine the nature of any potential HAZARDS and actions that must be taken to avoid them.</p> <p>WARNING! Signifies there is the risk of serious injury or death if the equipment is handled or operated contrary to instructions.</p> <p>CAUTION! Indicates there is the risk of personal injury or damage if the equipment is handled or operated contrary to instructions.</p>
	<p>This symbol indicates WARNING, due to possibility of electric shock. HAZARDOUS LIVE VOLTAGES exist within the chamber when it is plugged into the electrical outlet, even while the chamber is powered off.</p>
	<p>This symbol indicates CAUTION, due to hot surfaces. Heater plate surfaces in the chamber can achieve temperatures in excess of 450°F (232°C) [HI-TEMP setting] or 250°F (121°C) [STANDARD setting] during normal operation.</p>
	<p>This symbol indicates CAUTION due to a substance being an irritant to skin, eyes and mucous membranes. It signifies that the user should wear appropriate personal protective equipment (PPE) while handling such substances.</p>
	<p>This symbol indicates CAUTION due to the possibility personal injury or equipment damage from the chamber tipping over if improperly loaded or overloaded.</p>
	<p>Disconnect the AC power plug; either from the wall outlet or from the chamber. HAZARDOUS LIVE VOLTAGES exist within the chamber when it is plugged into the electrical outlet, even while the chamber is powered off.</p>
	<p>Do not disassemble, remove covers or attempt to repair or modify the chamber. HAZARDOUS LIVE VOLTAGES exist within the chamber when it is plugged into the electrical outlet, even while the chamber is powered off.</p>
<p><i>Reference: International Standard document IEC 61010-1, Edition 3.0, 2010-06, "Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use", Part 1: General Requirements, Table 1- Symbols</i></p>	

Table 1 : Symbols

OTHER OPERATING AND USAGE CONSIDERATIONS

<p>Do not use voltages other than the AC voltage specified on the rating plate as this may cause fire or electric shock.</p> <p>If the chamber shares a circuit with other electrical appliances which consume large amounts of power, the voltage will fluctuate during appliance operation. This may cause the machine(s) to malfunction. Be sure to provide an exclusive outlet which is rated for the chamber's power consumption.</p>	<p>Do not plug in or unplug the power cord with wet hands as this may cause electric shock. Do not place objects, liquid-filled containers or combustible materials on top of or underneath the chamber.</p> <p>Never use an AC power cord that has a lesser rating than the cord that was provided with the chamber. This may produce a risk of fire or electrical shock.</p> <p>Do not scratch, damage or modify the AC power cord. Do not place heavy object on, pull on or excessively bend the AC power cord as this may produce a risk of fire or electrical shock.</p>
<p>If the chamber is tipped over or damaged, turn off the front panel power switches and disconnect the AC power cord from the outlet. Contact your SIRCHIE representative for assistance.</p>	<p>Continued use of a chamber in an abnormal condition may cause fire or electric shock. In this case, immediately turn off the front panel power switches and disconnect the AC power cord from the outlet. Contact your SIRCHIE representative for assistance.</p>
<p>When unplugging the AC power cord, be sure to hold and pull on the over-molded plug portion. Do not pull on the cord itself as it may cut, tear or expose the internal wires and could cause fire or electric shock.</p>	<p>Do not remove covers, attempt to repair or modify the chamber. HAZARDOUS LIVE VOLTAGES exist within the chamber when it is plugged into the electrical outlet, even while the chamber is powered off.</p>

Table 2 : Safety Prohibitions



INGRESS PROTECTION

This equipment is designed with an **IP40** rating. The cabinet is protected from ingress of solid foreign objects of 1.0 mm diameter and greater. It is not protected against ingress of moisture and must not be operated in an environment where moisture content is excessive. Refer to the SPECIFICATIONS section in this document.

IP Rating Code Explanation

1st digit: **4**: Protected against solid foreign objects of 1.0 mm diameter and greater.

2nd digit: **0**: Not protected against ingress of moisture into the component.



CAUTION: This equipment was designed for indoor use only. It is not to be used in an environment where moisture or humidity in the form of fog, liquid droplets or spray contacts it. Do not use the chamber, connect it to AC mains voltage or power up this equipment in such an environment due to the risk of **personal injury** from electric shock or **damage** to the equipment. Refer to the SPECIFICATIONS section in this document.

APPLICABILITY

This User's Manual applies to the SIRCHIE **FR200DT** (110v) & **FR200220DT** (220v) Dual Temperature Laboratory Cyanoacrylate Fuming Chambers. It describes the installation, operation and care of the chamber and details warnings and cautions the user must be aware of and comply with while operating it.

PRECAUTIONS

This User's Manual is intended for technicians who are familiar with forensics methods and are accustomed to handling chemicals commonly used in forensic science; notably, cyanoacrylate liquid and cyanoacrylate powder. The user should always exercise caution and wear appropriate personal protective equipment (PPE) while using cyanoacrylate chemicals. The FR200DT chambers are designed and purposed for **Indoor Use Only** and must be operated accordingly.

SAFETY SUMMARY

Personal safety in handling and using this equipment and the chemicals used for processing evidence is extremely important. Warnings and Cautions necessary for safe handling are included in this manual. All warnings and cautions contained herein should be read and understood prior to handling, using or maintaining this equipment. Refer to table "Meaning of Symbols" above.

SAFETY PRECAUTIONS

Electrical



WARNING: ELECTRIC SHOCK HAZARD! Electric shock from energized equipment can cause injury or death. Hazardous voltages exist inside the equipment during normal operation. Never disassemble the equipment or attempt to defeat safety interlocks (if so equipped). There are no user-serviceable parts in the chamber. Prior to changing the fuse, be sure to switch power off and disconnect the power cord from the equipment. Always replace the fuse with a model whose current and voltage rating matches that specified by markings on the equipment and/or in the User's Manual. Refer to SPECIFICATIONS section.

Never replace the power cord with a cord having lesser amperage rating than specified by markings on the equipment and/or in the User's Manual. Never operate the equipment outdoors or in a high moisture environment. It is designed for indoor use only. Do not operate the equipment near water or flammable substances. Do not operate the equipment in excessive humidity (more than 80% RH, non-condensing). Do not



operate the equipment if there are liquid spills on the floor or surface on which the chamber rests, due to the risk of **electrical shock**.

Chemical



CAUTION: EYE AND SKIN IRRITANT! Cyanoacrylate fumes are an irritant to skin, eyes and mucous membranes. Do not inhale the fumes. After processing evidence and before opening the door to retrieve evidence from within the chamber, be certain to properly evacuate fumes through an approved filtration system. SIRCHIE's FR300N (110v) or FR300N220 (220v) series DeFumigator™ Cyanoacrylate Fume Extractor with HEPA and carbon-activated filters was designed for precisely this purpose. Always ensure that a Material Safety Data Sheet (MSDS) for cyanoacrylate is readily accessible in case of emergency. The MSDS sheets for the CN103, CYP15 and CYP30 Cyanoacrylate products are included in this document.

Goggles should be worn while working with cyanoacrylates in order to avoid eye contact. In case the adhesive comes in contact with the eye, the eye should be continuously washed with water for at least 15 minutes and the person should be provided medical aid immediately. If eye lids are bonded closed, no one should attempt to separate them except a qualified physician. In case of bonding corneal surface, forced separation is not recommended at all. Leave the eye to remain closed and allow the bond to separate naturally, which usually occurs within a few days.

Cyanoacrylate liquid is relatively non-toxic, but forms a virtually immediate, strong bond to adjacent skin surfaces (e.g. fingers). If fingers become bonded, the bonded parts should be soaked in warm and soapy water for sufficient time and then the bond should be gently peeled off. Solvents like acetone or nail polish remover can also be used to dissolve the bond, but only with appropriate caution. Never bring acetone or nail polish remover in contact with the eyes.

In case the adhesive is spread over a large area of skin, flush that part of the skin with large amounts of water. To wipe off excess adhesive, a soaking wet cloth can be used. If the adhesive has soaked through clothing, use copious amounts of water to flush the involved area. If the cloth has bonded to the skin, the skin can be damaged if the bonded clothing is attempted to be removed without these precautions. The adhesive will automatically flake off from the skin within a day or so.

Though cyanoacrylates adhesives are relatively non-toxic, rapid polymerization (hardening) of the adhesive will take place if they come in contact with the surfaces of the mouth. If this happens the mouth should be continuously flushed with water and medical aid should be provided immediately. In case lips are bonded, warm water or solvent like acetone or nail polish remover can be used to gently peel apart the adhesives. Seek immediate medical attention if any solvent is possibly ingested and refer to the appropriate MSDS for such chemicals.

Cyanoacrylate powder is relatively non-toxic and will not produce fumes (sublimate) until heated to a minimum temperature of 425°F (218°C), but personal protective equipment including a respirator/filter, goggles and gloves should be worn while handling it. After adequate heating has occurred the powder will begin to sublimate and produce fumes, and all precautions stated above should be followed. Powder spills should be contained and cleaned using appropriate personal protection and disposed of following MSDS instructions.

If it is necessary to open the chamber during the fuming process, be certain to wear appropriate personal protective equipment (PPE) such as a respirator, skin covering, heat-resistant gloves and eye protection. Exercise caution as heater plate surfaces achieve temperatures in excess of 250°F (121°C) [STANDARD] or 450°F (232°C) [HI TEMP], depending on the heater switch setting.



Thermal



CAUTION: HOT SURFACES - BURN HAZARD! Powered heater plates produce surface temperatures in excess of 250°F (121°C) [STANDARD temp] or 450°F (232°C) [HIGH temp]— depending on heater switch settings. These temperatures are necessary to cause the cyanoacrylate substance to produce fumes. Never contact bare skin to a hot heater plate due to the risk of **personal injury**. If it becomes necessary to reach into the chamber during normal fuming operation, be certain to wear appropriate personal protective equipment (PPE) such as skin covering, heat-resistant gloves, vapor respirator and eye protection.

Amber lamps on the front of the equipment, adjacent to the heater plate power switches, illuminate when power is applied to the plates. Before retrieving evidence samples from the chamber, make sure to shut off all heater plate switches and properly evacuate fumes through an approved filtration system. SIRCHIE's FR300N (110v) or FR300N220 (220v) series DeFumigator™ Cyanoacrylate Fume Extractor with HEPA and carbon-activated filters was designed for precisely this purpose.

After powering off the heater plates, make certain to allow adequate time (recommended 30 minutes) for them to cool to a safe temperature before retrieving evidence from the chamber. After use, unplug the equipment if you must handle materials inside the chamber.

Shrouds surround the individual heater plates, preventing the user from inadvertently contacting terminals which are conducting live hazardous AC mains voltage when the heater(s) are powered.

INTRODUCTION

The FR200DT series Dual Temperature Laboratory Cyanoacrylate Fuming Chambers are indoor use only laboratory table-top units designed for developing latent fingerprints on evidence samples via cyanoacrylate fuming. The chamber provides a generous enclosed volume to contain evidence and employs independent 300-watt heater plates to elevate the temperature of small volumes of liquid cyanoacrylate to at least 250°F (121°C) or cyanoacrylate powder to at least 425°F (218°C) in order to produce fumes. The fumes interact with the amino acids of fingerprint sweat and oils and via a process known as polymerization, forming a rigid structure that enhances the visibility of the ridges. Heating the cyanoacrylate liquid or cyanoacrylate powder drives fumes into the chamber's contained air volume, significantly accelerating the development time of the evidence.

Evidence development can be closely monitored through the transparent polycarbonate observation door. The door contains a sealing gasket to prevent fumes from inadvertently escaping the chamber during evidence processing. The door seal is secured via tool-less spring loaded rotating quick fasteners.

The chamber also provides two tool-free inlet/outlet ports (one on either side of the enclosure) to accommodate other SIRCHIE accessories such as the CYANOWAND™, the PUM100A Portable Humidifier or the FR300N DeFumigator™ filter system. Plastic slip-on caps are provided to seal the port tubes when accessories are not connected to the chamber.

Cyanoacrylate fumes attach to any surface which they contact. To prevent a buildup on the clear polycarbonate door, use the supplied CYANO-BLOC™ Treatment Pads before initially using the chamber. Use CYANO-BLOC™ treatment periodically thereafter.

Support rods and clips are provided with the chamber to allow a variety of small evidence samples to be processed simultaneously. A pack of fuming control pads is included to help the user gauge the correct amount of time to process the evidence.



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Normal use of the chamber involves opening the door and hanging evidence to be processed on the support rods, pouring a small volume of CNA103 liquid cyanoacrylate into the CNA106 Fuming Tray(s) [small, shallow cup-like tins] and placing the tray(s) on the heater plate(s). Alternately, a CYP15 CyanoPowder™ packet may be opened and the contents placed into a CNA106 Fuming Tray. Only one CYP15 packet is needed per fuming session, regardless of the evidence items loaded in the chamber. If desired, fuming control card(s) can also be included in the chamber. Then the door is closed and sealed. If an accessory is being used (such as the SIRCHIE PUM100A Portable Humidifier), it is connected to the auxiliary input/output port(s) at this time. If not, plastic caps are placed on the ports to seal the chamber. Then the heater(s) are powered via the front panel switch(es) to the HI-TEMP or STANDARD position appropriate for the cyanoacrylate substance being fumed and the chamber allowed to run until enough time has passed to process the evidence.

Afterward the heaters are powered off and allowed to cool. Before opening the door, a filtration system (such as the SIRCHIE FR300N DeFumigator™) may be connected to one of the ports to evacuate residual fumes. Then the door may be opened and the developed evidence retrieved from the chamber. It is always important to wear appropriate personal protective equipment (PPE) when working with elevated temperatures and cyanoacrylate chemicals. PPE may include, but is not limited to gloves, smocks, hearing protection, aprons, hair nets, goggles, masks, respirators, filters and/or other appropriate protective apparel and equipment that may be applicable to the environmental and conditions expected during use of the chamber and attendant chemicals and substances.

SPECIFICATIONS

Weight (unloaded)	22.5 lbs (10.2 Kg),	(max load) 18.0 lbs (8.2 Kg)
(w/max load)	40.5 lbs (18.4 Kg)	
Dimensions	SAE: 30.5-in.L x 12.0-in.W x 22.0-in.H	
	SI: 77.5 cm L x 30.5 cm W x 55.9 cm H	
AC Power (nominal)	FR200DT (110-120 VAC ±10%), 5.8A, 50-60 Hz, 670 watts	
	FR200220DT (220-240 VAC ±10%), 3.0A, 50-60 Hz, 670 watts	
Voltage Fluctuation	Tolerance of up to ±10% of specified nominal operating voltage	
Transient Overvoltage	Tolerance of up to "Overvoltage Category II"	
	FR200DT: 110/120v mains	1500v
	FR200220DT: 220/240v mains	2500v
Power cord, 120V	13A/125V, 5-15P Plug/IEC320-C13 Receptacle, 16AWG, 6'-7" (2M)	
Power cord, 220V	10A/250V, CEE7/7(M) Plug/IEC320-C13 Receptacle, 14AWG, 8' (2.4M)	
AC Receptacle	IEC320 15A, 250V receptacle w integrated fuse holder (tool required for fuse access)	
Fusing	FR200DT 6.3A, 250V Slo-Blo, 5mmX20mm cartridge	
	FR200220DT 4.0A, 250V Slo-Blo, 5mmX20mm cartridge	
Heaters	Two 300 watt (nominal) disc heaters, with independent HI-TEMP or STANDARD heater operation via front panel power switches	
Control	Two thermostat switches located on bottom of each heater disc. Active when front panel power switches are ON (HI-TEMP or STANDARD position) STANDARD thermostat supplies power to heater at temps below ~257°F (118°C) at heater surface and removes power at temps above that threshold. HI-TEMP thermostat supplies power to heater at temps ~450°F (232°C) at heater surface and removes power at temps above that threshold.	
Indicators	Amber lamps on front panel illuminate when each heater is switched ON (HI-TEMP or STANDARD setting). Lamps are not illuminated when the switch is OFF.	
Equipment Volume	4.0 ft ³ (0.113 m ³)	
Construction	Vinyl clad aluminum alloy with steel screw fasteners	
Ports	Two 1-in.(2.54 cm) dia. input/exhaust ports with plastic sealing caps	



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Supplies included	1 - CNA103 OMEGA-PRINT™ Fingerprint Developer, 16 Oz (0.473 Liter) 1 - CNA106 OMEGA-PRINT™ Disposable Fuming Trays, 25 1 - CNA104 OMEGA-PRINT™ Dispersal Pads, 100 5 - CYP15 CyanoPowder™ 1.5 gram Packets 1 - CNA110 CYANO-BLOC™ Pre-treatment and Post-treatment Pads, 5 1 - FR201 Fuming Control Cards, Pad of 50 4 - Evidence Support Rods , 16 - FR1006 Evidence Clips 1 - Spare fuse (unit-specific; see “Fusing”, above)
Environmental	Indoor use only Operating temperature range: 41°F (5°C) – 104°F (40°C) Operating relative humidity range: 20% - 80%, non-condensing Altitude range: “Sea level”: 0 ft (0 M) to 6,562 ft (2,000 M) Pollution Degree 2: only non-conductive pollution occurs except that occasionally a temporary conductivity caused by condensation is expected

Accessories

Ancillary equipment is available from SIRCHIE. All accessories are sold separately.

SCW100 CYANOWAND™

Can be used to introduce cyanoacrylate fumes directly into chamber via the side port(s) via a hand-held heater wand and disposable cyanoacrylate cartridges.

PUM100A Portable Humidifier

Can be used to increase humidity within the chamber to speed evidence development time. May be useful when environmental relative humidity drops below 40% RH.

FR300N DeFumigator™

Can be used to evacuate cyanoacrylate vapors from the chamber after processing. Vapors are trapped in a 2-stage filter (HEPA & carbon-activated) before the air is exhausted back into the environment.

For a complete list of supplies and accessories compatible with this equipment, please visit the SIRCHIE website at www.sirchie.com or examine the SIRCHIE printed catalog, “Latent Print Development, Fuming Chambers” section.

UNPACKING, LIFTING and CARRYING

The FR200DT chamber (110v or 220v version) weighs 22.5 lbs (10.2 Kg) unloaded. Due to the weight and dimensions of the cabinet it is always recommended that two people unbox, lift, carry or re-box the chamber.



Unpacking

USE A TWO-PERSON LIFT TEAM. Place the shipping carton on the floor. To unpack the chamber, open the top flaps of the shipping carton. Remove any top / corner foam from the box. Position one person along each short dimension of the box. Reach down into the container and grasp the chamber near the bottom of the cabinet.

Carefully lift the unit from its carton using the power of your legs, not your back. Place the chamber on a nearby stable flat surface. Remove the plastic cover and any other packing materials from the chamber.

Other included accessories in the shipping carton require only one person to lift or carry.



Manual Carrying

USE A TWO-PERSON LIFT TEAM. First, ensure that the door latches are secured closed to prevent the door from inadvertently opening during movement. To manually carry the chamber, grasp the unit near the bottom of the cabinet, putting the palms of your hands under the nearest corners on the short dimension of the cabinet.

Carefully lift the unit, lifting using the power of your legs, not your back. Coordinate motion with the other lift team person. Slowly walk to the equipment's destination, keeping aware of the other lift team person's progress. Always remain aware of your pathway, progress and surroundings. Do not allow yourself or the equipment to bump into furniture, fixtures, or any other object as **personal injury** or **equipment damage** could occur.

Make certain that the surface at the destination is capable of supporting the chamber's weight – 22.5 lbs (10.2 Kg) unloaded. See SPECIFICATIONS section in this document for maximum loaded weights. Upon arrival at the destination, carefully lower the chamber onto the surface.

Manual Transport on Wheeled Cart

USE A TWO-PERSON LIFT TEAM. First, ensure that the door latches are secured closed to prevent the door from inadvertently opening during movement. To manually transport the chamber on a wheeled cart, first make certain to select a cart with a carrying capacity sufficient to safely handle the weight of the chamber – 22.5 lbs (10.2 Kg) unloaded, and any other items you wish to transport with the chamber. Before loading the chamber onto the cart, immobilize the cart (e.g. lock the wheels). Grasp the chamber near the bottom of the cabinet, putting the palms of your hands under the nearest corners on the short dimension of the cabinet.

Carefully lift the unit, lifting using the power of your legs, not your back. Place the unit onto the wheeled cart. It is always best to secure the load to the cart by mechanical means (e.g. straps) before moving it. Maintaining physical contact with the chamber, slowly push the cart to the equipment's destination. Always remain aware of your pathway, progress and surroundings. Go slowly. Do not allow yourself or the equipment to bump into furniture, fixtures, or any other object as **personal injury** or **equipment damage** could occur.

Make certain that the surface at the destination is capable of supporting the chamber's weight – 22.5 lbs (10.2 Kg) unloaded. See SPECIFICATIONS section in this document for maximum loaded weights. Upon arrival at the destination, unfasten the mechanical restraint (e.g. straps) from the cart and chamber then carefully lift the chamber from the cart onto the surface.

Shipment

USE A TWO-PERSON LIFT TEAM. To ship the chamber to an off-site destination, re-pack it in the original shipping carton. First, ensure that the door latches are secured closed to prevent the door from inadvertently opening during movement. Grasp the cabinet near the bottom of the cabinet, putting the palms of your hands under the nearest corners on the short dimension of the cabinet. Carefully lift the unit, lifting using your legs, not your back.

Lower the chamber into its shipping carton, ensuring it seats completely into the support foam on the bottom of the box. Slip the plastic bag down over the unit to protect the finish. Insert the four foam corner blocks onto the top corners of the chamber. Close the box flaps and seal them with shipping tape or other appropriate means.

ASSEMBLY

The chamber comes assembled from the SIRCHIE factory. It needs only to be unpacked from its shipping carton and placed upon a suitable stable surface capable of sustaining its weight (e.g. bench top or work surface). Accessory Evidence Support Rods may be inserted, as needed, into side rail pockets located on either side of the inside of the chamber. The AC power cord plugs into the back of the chamber.



CONNECTION TO AC MAINS SUPPLY

The power cord of this appliance is equipped with a 3-prong (grounding) plug which mates with a standard 3-prong (grounding) wall outlet to minimize the possibility of electric shock hazard. Have the AC mains outlet and circuit checked by a qualified electrician to make sure the outlet is properly grounded. The chamber should always be plugged into its own individual electrical outlet which has a voltage and current rating that matches the equipment's rating plate.

The chamber's AC Inlet is located at the rear of the chamber, at the bottom. Set all heater power switches OFF. Ensure the correct fuse is installed in the AC Inlet (see Specifications). To connect the chamber to the AC mains supply, first plug the appropriate AC power cord into the chamber's AC inlet (see Specifications). Then plug the other end of the power cord into the AC mains wall outlet. Never use an AC cord that is insufficiently rated, frayed or damaged! Never use an extension cord with this product. Never remove or disable the Grounding connector from the AC cord.

DISCONNECTION FROM AC MAINS SUPPLY

To disconnect the chamber from AC mains power, set all heater power switches OFF. Unplug the AC power cord from the wall outlet. Unplug the AC power cord from the chamber's AC inlet. Always pull on the over-molded part of the cord. Never pull the cord from the middle to extract it from the wall or cabinet.

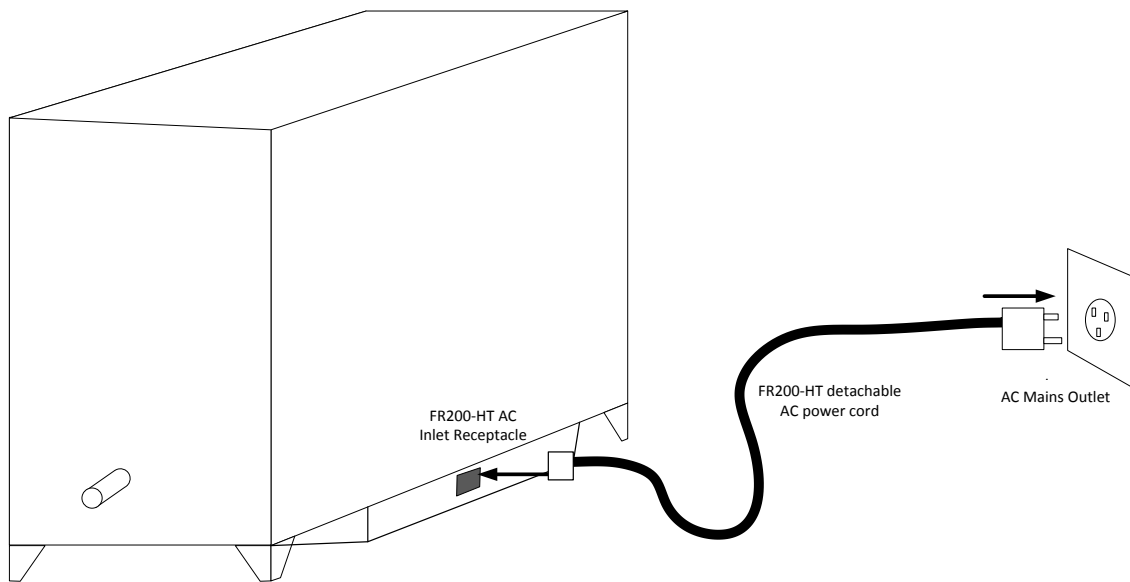


Figure 1 : FR200DT - Connecting/Disconnecting AC Power Cord



Controls and Features

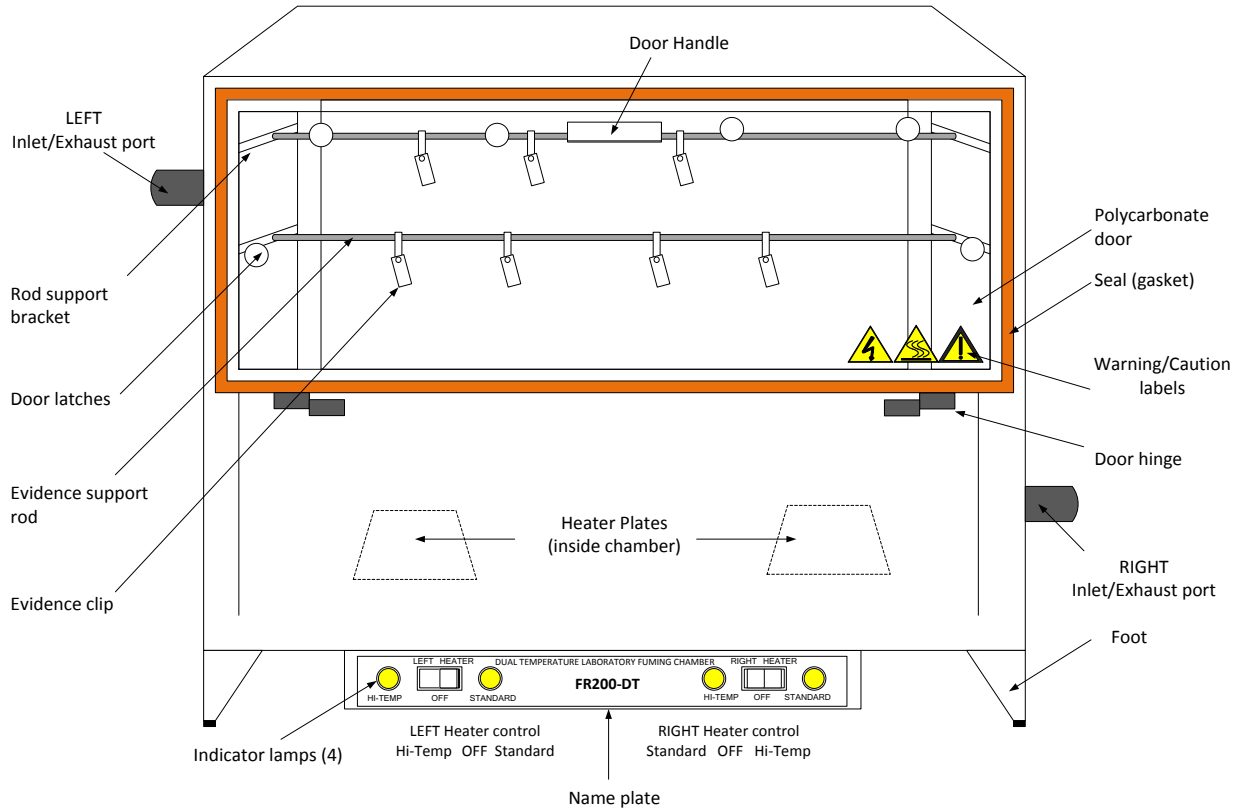


Figure 2 : FR200DT - Front of chamber

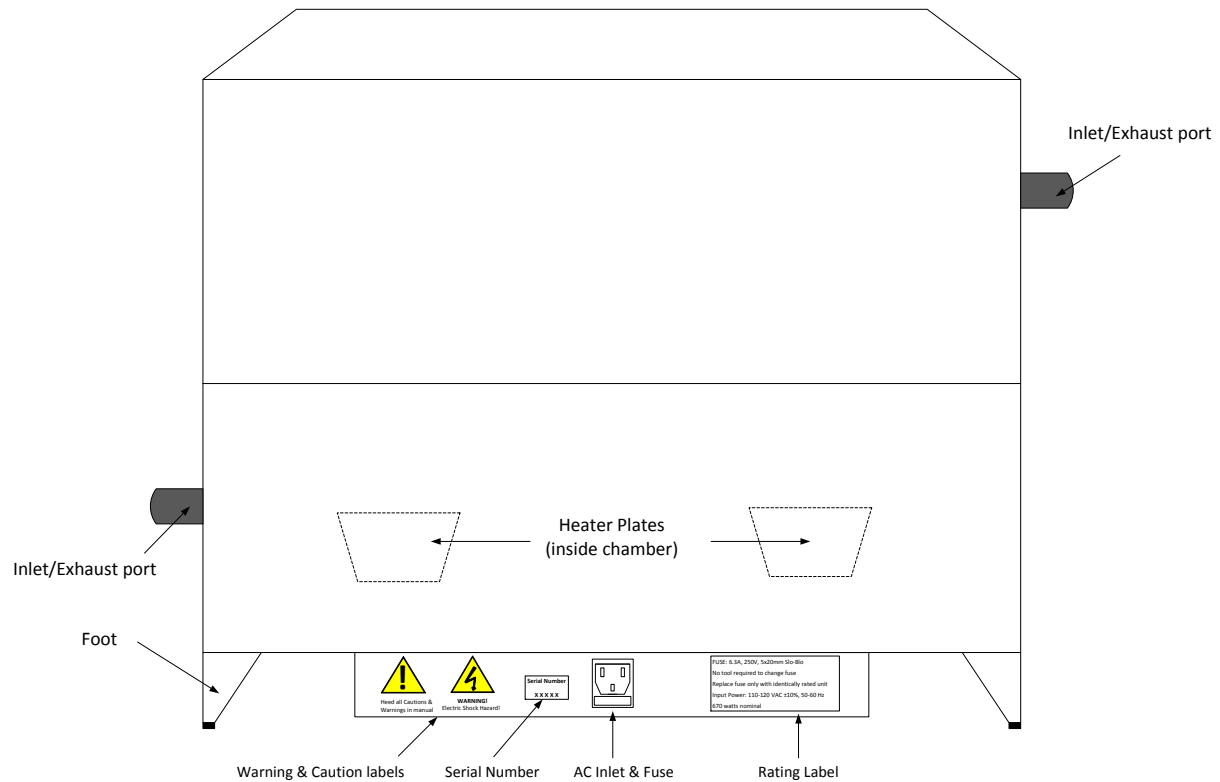


Figure 3 : FR200DT - Back of chamber



Detailed Feature Listing

FEATURE	LOCATION	USE / EFFECTS
LEFT Heater Power Switch	Front panel LEFT side	HI-TEMP position[outboard]: for CyanoPowder™ CENTER position: turns heater OFF STANDARD position [inboard]: for cyanoacrylate liquid
LEFT Indicator Lamps		Amber. Illuminated for HI-TEMP or STANDARD temp, depending on switch position. Unlit: Heater power OFF.
RIGHT Heater Power Switch	Front panel RIGHT side	HI-TEMP position[outboard]: for CyanoPowder™ CENTER position: turns heater OFF STANDARD position [inboard]: for cyanoacrylate liquid
RIGHT Indicator Lamps		Amber. Illuminated for HI-TEMP or STANDARD temp, depending on switch position. Unlit: Heater power OFF.
LEFT Inlet/Exhaust port	Side, LEFT near top	LEFT Input/Exhaust for ancillary equipment. Install plastic cap when port is not in use.
RIGHT Inlet/Exhaust port	Side, RIGHT near bottom	RIGHT Input/Exhaust for ancillary equipment. Install plastic cap when port is not in use.
Polycarbonate door	Front	Allows insertion, extraction of evidence and observation of cyanoacrylate fuming process. Contains the fumes within the chamber.
Door seal (gasket)	Around door periphery, inside	Seals door interior to chamber exterior to contain fumes within the chamber.
Door handle	Front, Top Center	Grip for opening / closing door.
Door latches	Front, door periphery	Spring-loaded rotating handles to close & seal or open the door. No tool required to operate latches. Push the latch disc inward and rotate left or right to engage/disengage the latching pawl.
Door hinges	Front, door edges	Allows door to pivot open/closed. Hinges are on Bottom Door Edge: door pivots up/down
Warning & Caution Labels, Front	Front, near door's bottom RIGHT corner	Alerts users to possible operational hazards associated with the equipment. Read and understand the User's Manual prior to operating the chamber. Comply with all safety and usage instructions.
Evidence support rods	Inside chamber, Removable, Inserts into brackets	Suspends evidence items inside the chamber for optimal fuming performance. Rods are removable. Maximum suspended weight per rod is 4.5 lbs (2.0 Kg)
Evidence clips	Inside chamber, Removable	Used to temporarily attach evidence to the support rods. Clips are removable from rods.
Support rod brackets	Inside chamber LEFT & RIGHT interior walls	Fixing points for ends of evidence support rods. Multiple locations along bracket allow positioning of support rods in optimal locations for holding evidence during the fuming operation. Brackets are non-removable.
Heater plates	Inside chamber, on floor	Two individually controlled 300 watt heaters, provides heat for accelerating the cyanoacrylate fuming process.
Heater shrouds	Inside chamber, surrounding heaters	Protects heater power terminals from external ingress of foreign material and accidental contact by operator.
Name Plate	Front, bottom center	Identifies the product and manufacturer.
Feet / Rubber Bumpers	Bottom of chamber	Supports & elevates chamber floor off surface. Rubber construction provides thermal isolation from surface.
Manufacturer Label	Rear, bottom left	Provides model ID and manufacturer contact info.
Serial Number Label	Rear, bottom	Manufacturer's serial number.
Warning & Caution labels, Back	Rear, bottom	Indicates Cautions & Warnings. Informs user to consult the User's Manual to understand potential risks associated with equipment & its use.
AC Inlet and Integrated Fuse Holder	Rear, bottom	AC receptacle & integrated fuse holder which bring AC Mains power into the chamber. Tool required to access fuse holder.
Rating Plate	Rear, bottom right	Indicates fuse ratings, AC input voltage range, frequency range, and power consumption.

Table 3 : Features



INSTALLATION

The FR200DT is a bench top/table top cabinet and does not require permanent mounting to a surface. The surface on which the cabinet is placed must be able to sustain the weight of the chamber itself, any items that have been placed inside it and any ancillary equipment that may be used with it. See SPECIFICATIONS section in this document for maximum loaded weights. Refer to the User's Manual(s) for the ancillary equipment to determine power, weight and support requirements.



CAUTION! To avoid a tipping the chamber, it must never be loaded beyond its maximum load rating: 18.0 lbs (8.2 Kg). Personal injury or equipment damage could occur if the chamber tips over. Always load the heavier items as low as possible and distribute them across the rod span. Load lighter items higher up in the chamber. This will help prevent tip-over.

Space must be provided in front of the chamber to open the door: 12-in.minimum (31 cm) for inserting or removing evidence samples. Space must be provided on either side of the chamber to accommodate the Inlet/Exhaust ports, 2-in. minimum (5 cm) on either side. More space will be required if ancillary equipment is used with the chamber (e.g. PUM100A Portable Humidifier or FR300N DeFumigator™). Refer to the User's Manual(s) for the ancillary equipment to determine space requirements. Refer to the equipment FOOTPRINT diagram, below.

Regarding radiated thermal emissions, the FR200DT chamber has sheet metal feet at each corner to provide approximately 1.5-in. (3.8 cm) air space clearance from the surface on which it is placed. The heater elements are elevated an additional 2.5-in.(5.3 cm) from the floor of the chamber. This combination of clearances should be sufficient to ensure the surface does not experience excessive heat radiated from the chamber. Surface temperatures directly under the chamber during normal chamber operation typically do not exceed 122°F (50°C)

If the chamber must be situated on a thermally sensitive surface (not recommended), the equipment footprint area should be covered with an appropriate insulating material (not included) to maintain the surface temperature at the desired value.

It is recommended that a minimum 12-in.(31 cm) of clearance be provided in all directions around the open-door footprint of the chamber. Dimensions of the recommended clearance area are:

SAE	57-in.wide	48-in.deep	34-in.tall
SI	145 cm wide	122 cm deep	94 cm tall

Refer to the EQUIPMENT FOOTPRINT and RECOMMENDED CLEARANCES diagrams, below.



EQUIPMENT FOOTPRINT

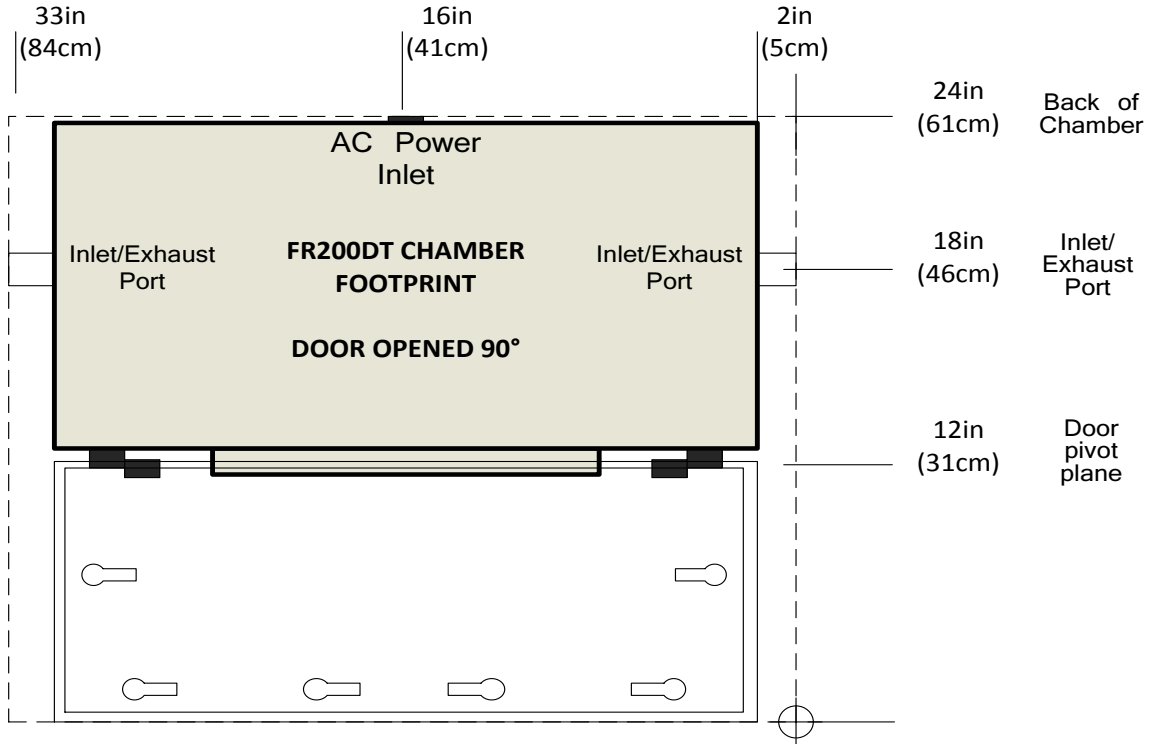


Figure 4 : FR200DT Footprint Top View

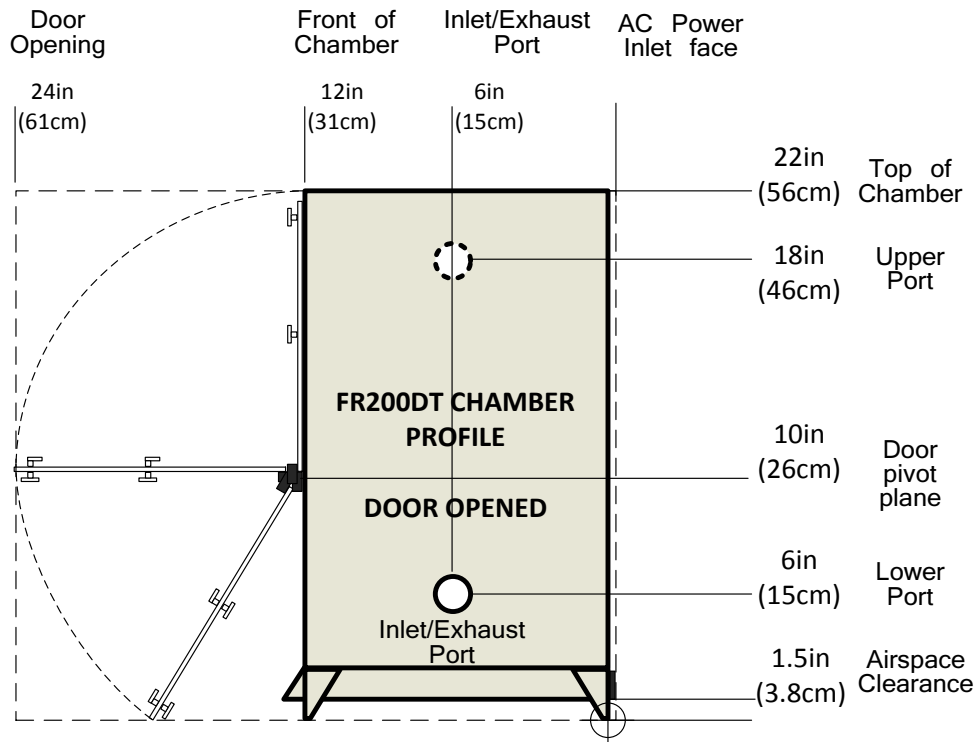


Figure 5 : FR200DT Footprint Profile View



RECOMMENDED CLEARANCES

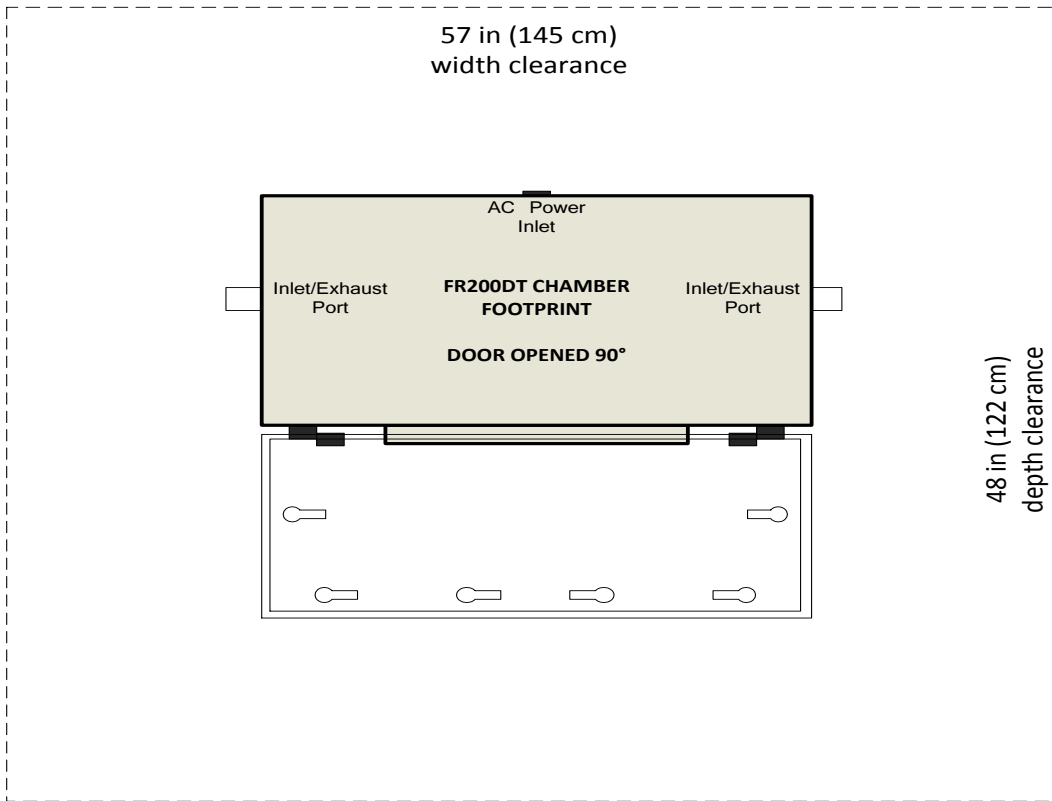


Figure 6 : FR200DT Clearances Top View

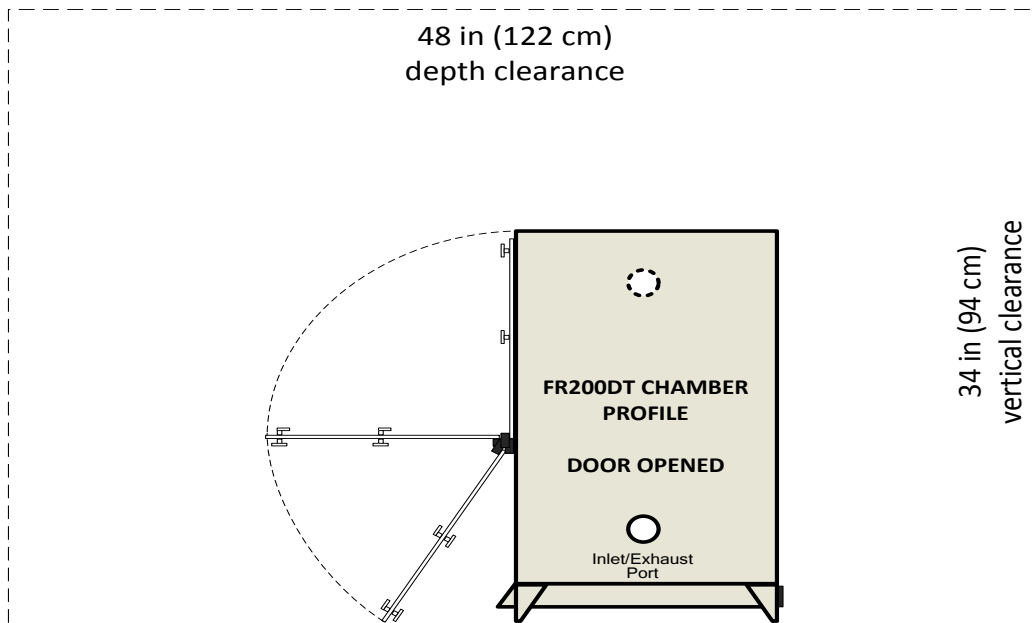


Figure 7 : FR200DT Clearances Profile View



OPERATION

When operating the chamber, make certain to always follow these steps. Make personal safety a habit.

Pre-Use Checks

- Check the chamber for any obvious defects or damage.



- **CAUTION!** Do not operate the chamber if damage is discovered or if it is known to be defective. Personal injury could result.
- Check that an appropriately rated fuse is installed in the equipment. Refer to the SPECIFICATIONS section for details.



- **WARNING!** Do not operate the chamber if a wrong fuse has been installed.
- Check the AC power cord for any obvious defects or damage and proper rating.



- **WARNING!** Do not operate the chamber if the AC power cord is damaged, defective or an insufficiently-rated AC power cord is attached. Always use a correctly rated AC power cord.



- **CAUTION!** Before beginning the fuming operations, ensure that the front panel switches are in the OFF position and the heater power indicator lamps are extinguished. Verify that the heater plate surfaces are at or near the ambient room temperature.
- If ancillary equipment is required (such as the PUM100A Portable Humidifier), connect it to the chamber at this time. Observe all warnings, cautions and operating procedures detailed in the ancillary equipment manual(s).
- If no ancillary equipment is being used, install plastic plugs on both port tubes. This will help contain the cyanoacrylate fumes within the chamber.

Personal Safety

- Wear appropriate personal protective equipment (PPE). At a minimum, this should include eye protection (goggles), skin protection (nitrile or polyethylene gloves and aprons - no cotton), and a vapor respirator. Other PPE may be required, depending upon your operating environment or specific departmental procedures. If in doubt about PPE, check with a responsible authority.
- It is always a good idea to keep a fire extinguisher accessible. A carbon dioxide, foam or dry chemical extinguisher should be suitable (**Class ABC**).

Chamber Prep

- Open the clear polycarbonate door and prep the inside surface with a CNA110 CYANO-BLOC™ Pre-treatment pad (if needed). This should be performed periodically, but may not be required each time the chamber is used. When white deposits become visible, the inner surface of the door should be cleaned.
- Install evidence support rod(s) and clip(s). Your evidence load will determine how many rods and clips you need to use.



- **CAUTION!** NEVER overload the evidence support rods. Each rod will support a maximum weight of 4.5 lbs (2.0 Kg). The general rule is that if an evidence rod exhibits a visible bow that is 0.5-in.(1.3 cm) beyond horizontal, it is overloaded. Correct this condition before continuing. Perform multiple fuming operations rather than overloading the chamber.

Loading Evidence

- Hang evidence samples onto the support rod(s) using the clips. Position the evidence to provide clearance all around in order to provide the most effective fuming process. Always load the heavier items as low as possible and distribute the loading across the span of the rod. Load lighter items higher up in the chamber. This will help prevent a tip-over hazard.

- Verify that none of the evidence comes directly in contact with the heater plates.



- **CAUTION!** NEVER load the chamber beyond its maximum weight rating.
- Maximum internal load: 18.0 lbs (8.2 Kg).
- Personal injury or equipment damage could occur if the chamber tips over.
- **Use the HI HEAT setting for cyanoacrylate powder ONLY. Use the STANDARD HEAT setting for liquid cyanoacrylate ONLY.**
- LIQUID CYANOCRYLATE: Pour the required amount of CNA103 OMEGA-PRINT™ Fingerprint Developer into the CNA106 OMEGA-PRINT™ Disposable Fuming Tray(s). *The amount of CNA103 required will depend on the number of samples you are processing and the processing time desired.* Ordinarily, more CNA103 is required for a larger number of samples and/or longer processing times. Turn on the heater plate(s) using the STANDARD HEAT switch position (toward the center of the cabinet).
- CYANOCRYLATE POWDER: Empty the entire contents of one CYP15 CyanoPowder™ Fingerprint Developer into the CNA106 OMEGA-PRINT™ Disposable Fuming Tray(s). The amount of CYP15 powder in the packet is normally sufficient for any number of evidence items that will fit in the chamber for a single fuming session. Turn on the heater plate(s) using the HIGH HEAT switch position (toward the outside of the cabinet).
- Close the door and rotate the latches to ensure it seals to the chamber.
- If your process requires ancillary equipment to be operating, turn it on at this time.
- The heater plates will achieve their nominal operating temperature in approximately 10-15 minutes. At the HI HEAT setting the heater will reach in excess of 425°F (218°C). At the STANDARD setting the heater plates will reach in excess of 230°F (110°C). The heater plates normally cycle ON and OFF over several minutes, and you may hear an audible “clicks” when the system applies or removes power from the heater(s). This is normal and expected.
- After several minutes you may see vapors rising from the surface of the CNA103 liquid cyanoacrylate or the CYP15 CyanoPowder™ will begin to sublime and produce fumes. This is normal and is the desired effect.
- Leave the heater(s) ON until the desired processing time has elapsed.
- After processing is done, turn the heater(s) off using the switch(es) on the front panel. Set the switch(es) to the middle (OFF) position. Power Off is indicated by “no lamps illuminated”.



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- If you are using the ancillary PUM100A Portable Humidifier, turn it off at this time and disconnect it from the chamber.
- If you are using the ancillary FR300N DeFumigator™, connect it to one of the chamber's ports and turn it on at this time in order to evacuate the fumes from the chamber's interior. The amount of time required to run the DeFumigator™ will depend on your process. Consult the equipment's manual(s) if in doubt regarding how long to run the DeFumigator™.
- Allow the heaters to cool to ambient room temperature (recommended 30 minutes).
- Wear appropriate personal protective equipment (PPE), if you have removed it after starting up the chamber. At a minimum, this should include eye protection (goggles), skin protection (nitrile or polyethylene gloves and aprons - *no cotton*), and a vapor respirator. Other PPE may be required, depending upon your operating environment. If in doubt about PPE, check with a responsible authority.

Post-Processing

- Unseal the door, open it and remove the processed evidence. Contain the evidence per your department's procedures and methods.
- Clean the door's inner surface with a CNA110 CYANO-BLOC™ Pre-treatment pad. This should be performed periodically, but may not be required each time the chamber is used. When white deposits become visible, the inner surface of the door should be cleaned. You may remove, clean and store the evidence support rods if so desired.
- Close and latch the door. Install the plastic caps on the chamber's Inlet/Exhaust ports. Unplug the AC power cord and store it.

This concludes the instructions for one cycle of normal chamber operation.

MAINTENANCE

- SIRCHIE has designed the FR200DT Fuming Chamber to be very low maintenance. However, due to the nature of the cyanoacrylate fuming process, a small amount of periodic maintenance is necessary.
- After each use, wipe down the exterior and interior with a mild soap and water solution. Do not use commercial cleaning solvents on the polycarbonate door, as this tends to permanently craze the door and render it opaque. Periodic post-treatment of the inside of the polycarbonate door with CYANO-BLOC™ is recommended to prevent cyanoacrylate build-up.



TROUBLESHOOTING

Symptom	Possible Causes	Solution
Indicator lamp for heating element does not illuminate; heater does not heat.	Unit not plugged in.	Check both ends of power cable, plug in unit.
	AC cord defective.	Replace with identically-rated cord. (see SPECIFICATIONS)
	Power failure.	Check AC mains circuit breaker.
	Heater power switch not ON.	Move switch to STANDARD or HI HEAT position.
	Blown fuse.	Check fuse (inside AC receptacle, rear of cabinet). Tool required for fuse removal. Unplug cord, replace with fuse rated for the cabinet. (see SPECIFICATIONS)
Indicator lamp illuminates but heater does not heat.	Heater defective.	Contact SIRCHIE to arrange repairs.
Heater heats but indicator lamp does not illuminate.	Lamp defective.	
Fumes leak out through door when it is closed.	Door Gasket defective.	
	Door Latch(es) defective.	
Support rod does not remain in place.	Rod defective or hardware missing.	
Fumes leak out through port(s) on sides of cabinet.	Port Cap missing.	Install cap on port(s).
	Port cap defective.	Contact SIRCHIE to obtain replacement cap.
	Ancillary equipment not connected or is connected incorrectly; defective hose.	Connect ancillary equipment to port(s). Check ancillary equipment hoses for size compatibility with Inlet/Exhaust ports. Replace defective hose(s). (see SPECIFICATIONS and ancillary equipment User Manuals)
Cabinet tends to tip over when evidence is loaded into it.	Maximum load rating exceeded.	Reduce load (see SPECIFICATIONS). Always distribute load across the span of the rod(s).
	Heavy items too high in cabinet.	Rearrange items. Heaviest items should be lowest in the cabinet.
	Cabinet feet broken or defective.	Contact SIRCHIE to arrange repairs.
	Support surface not level.	Place cabinet only on level surface.
SPECIAL NOTE	<i>No field repairs are recommended for this unit. If the troubleshooting solutions above do not rectify the issues with your unit, please contact SIRCHIE Customer Service at 800-356-7311 or 919-554-2244.</i>	

Table 4 : Troubleshooting



WARRANTY

LIMITED WARRANTY

on

SIRCHIE® CRIME SCENE INVESTIGATIVE PRODUCTS

Sirchie® warrants to the original purchaser that this Product shall be free from all defects, both in materials or workmanship, for a period of twelve (12) months from the date of shipment to the purchaser. At its option, Sirchie® will repair or replace any Product or part(s) that proves to be defective, free of charge including shipping cost to purchaser during the stated warranty periods.

This limited warranty shall not apply if the Product and/or any part has been damaged or caused to be defective by unreasonable use, accident, negligence, service or modification by anyone other than Sirchie® or a Sirchie® authorized agent, or by any causes unrelated to defective materials or workmanship. Additionally, this warranty does not apply to batteries or damage caused by their failure.

To receive in-warranty service, a defective Product and/or any part must be received at Sirchie® no later than one (1) week after the end of the warranty period and must be accompanied with proof of date of purchase satisfactory to Sirchie®. A RMA (Return Merchandise Authorization) number issued by Sirchie® must accompany all returned items. To obtain a RMA number and information for return shipment contact Sirchie® Customer Service, 100 Hunter Place, Youngsville, NC 27596, (919) 554-2244. All items returned must be properly packaged and insured prior to shipment. Sirchie® assumes no liability for loss or damage incurred during shipment to Sirchie®.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state (or jurisdiction to jurisdiction). All expressed and implied warranties for the Product, including, but not limited to, any implied warranties and conditions of merchantability and fitness for a particular purpose, are limited in time to the term of the limited warranty period.

Sirchie®'s warranty obligations and purchaser's remedies hereunder are solely and exclusively as stated herein. In no case will Sirchie® be liable for consequential damages or any loss incurred because of interruption of service.

999-042-12m (7/11)