



REV SCI
REVOLUTIONARY SCIENCE

Instruction Manual
SANICLAVE TOP-LOADER SERIES



Instruction Manual for the Revolutionary Science
SANICLAVE MODEL RS-SC-102 AND RS-SC-50

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NOTE: Read this manual before use! This manual contains important information, safeguards and operating instructions for the operation of the REVOLUTIONARY REVOLUTIONARY SCIENCE model Saniclave by Alternative Pioneering Research & Development, Inc. (APR&D, Inc.)

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INTRODUCTION

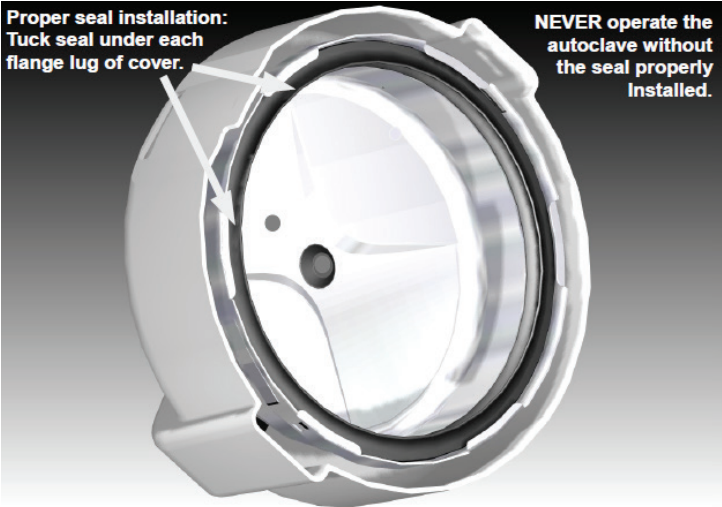
Dear Valued Customer,

Thank you for purchasing the Revolutionary Science Saniclave. We are confident that the Saniclave will provide years of reliable service. The high quality of construction and durable parts deliver a performance equivalent to much costlier equipment.

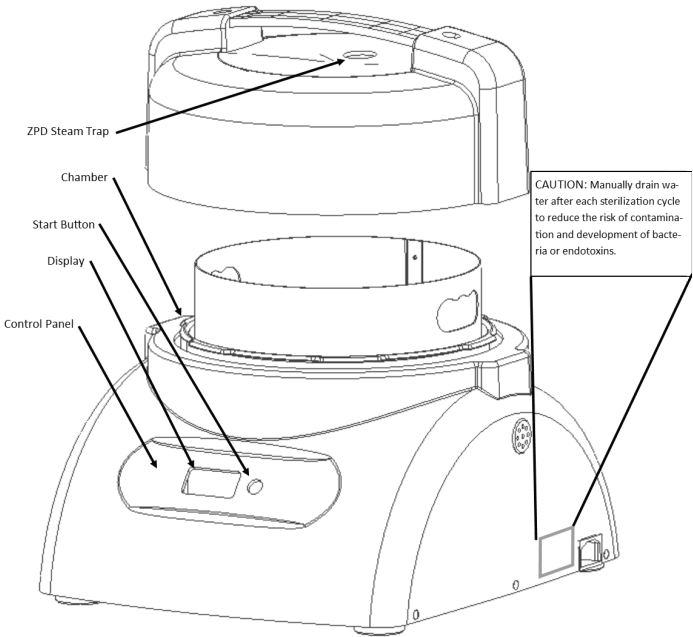
You are invited to visit our web site at www.revsci.com. Please know that we welcome any feedback that might help us enhance and improve future RevSci products.

Sincerely yours,

REVOLUTIONARY SCIENCE



Display, Symbols, Control and Parts



INSTALLATION INSTRUCTIONS

Remove the Saniclave from packaging and place it on a dry level surface. Plug it into an accessible 120 VAC outlet. The Saniclave is now ready for use. See operating instructions on page 7.

Upon receiving the Saniclave, it is important that you follow these simple steps:

1. Examine package and contents for possible damage to the product caused during shipping. If damage is present contact carrier at once. Failure to do so immediately may release the carrier from any liability of damage.
2. Fill out the checklist (page 12). If the shipment is incomplete, please contact us at support@revsci.com or 651-257-0633.
3. Carefully read this instruction manual before operating the Saniclave.
4. Scan the product registration QR code on pg. 10 and complete the registration online.

INTENDED USE

Saniclave 102

The Revolutionary Science Saniclave is designed to be used in medical and dental clinics, hospitals, and other facilities where reusable sterile equipment is used. It is intended to sterilize unwrapped heat and moisture stable solid instruments, mated surfaces, knurled and hinged devices (excluding lumened devices and dental hand pieces) that are compatible with saturated steam sterilization at 121 °C for 30 minutes. Unwrapped instruments should be used immediately after sterilization is completed. The chamber must be manually drained and wiped dry after each cycle.

Outside dimensions: 14.5" (L) x 13.5" (W) x 12.5" (H)

Internal chamber dimensions (including door): 9" diameter x 8.25" deep

Chamber volume: 8 liters

	Recommended Use	Maximum Load	Sterilization Temperature	Sterilization Time	Dry Time
Unwrapped	Instruments intended to be used immediately upon sterilization	4.5 lb	121°C	30	0

Saniclave 50:

The Saniclave 50 is intended for laboratory and veterinary purposes. It is not FDA listed and not designed to be used in the following human use applications: dental, body art, surgical and nail/salon. The Saniclave 102 is suited for human use applications.

SAFEGUARDS & CAUTIONS

WARNING! Do not use this autoclave in an explosive or oxygen rich atmosphere. Failure to do so may result in serious injury or death.

CAUTION: Chamber contains hot water and steam during and after operation. Hot water may drip from cover during removal and can cause scalding.

Limitations of Use:

Revolutionary Science is not responsible for misuse of the Saniclave.

1. The load should be considered non-sterile unless the display reads 'CC' after the cycle.
2. NEVER attempt to dismantle or modify the Saniclave.
3. NEVER leave an operating Saniclave unattended.
4. NEVER block the steam trap (ZPD) valve (located in the top of the chamber, near the back).
5. NEVER operate the Saniclave with a damaged cord or plug or after the appliance malfunctions or has been damaged in any manner.
6. NEVER use accessory attachments not recommended by Revolutionary Science. Their use may cause fire, electrical shock, or injury.
7. NEVER use the Saniclave or any purpose other than the intended use.
8. ALWAYS close the door properly before operating.
9. NEVER attempt to force the door open or release pressure while sterilizer is in operation.
10. ALWAYS turn off the unit by unplugging the Saniclave from the power outlet.
11. ALWAYS use distilled water. The sensor detects ion content in the water. If distilled water is too pure, the autoclave may not detect its presence. Salt may be added to the water to increase detection. Class III distilled water is recommended.
12. NEVER reuse water left in the chamber. Manually drain water after each sterilization cycle to reduce the risk of contamination and development of bacteria or endotoxins. Fresh water should be used at every sterilization cycle.
13. NEVER attempt to modify the plug to fit an outlet other than the required 3-slot, grounded outlet. The enclosed 3 prong plug is equipped with a grounded type 3 conductor wire to further ensure the safe operation of the Saniclave.
14. NEVER immerse the autoclave, cord, or plug in water or operate on wet surfaces.
15. ALWAYS load the Saniclave with instruments compatible with unwrapped steam sterilization at 121 °C at 30 minutes. Always contact the instrument's manufacturer if you are unsure that this sterilization technique is suitable for instruments being sterilized.
16. ALWAYS inspect the seal before each use for dirt, grime, or cracks.
17. NEVER clean the Saniclave with harsh solvents as it may damage surfaces.
18. ALWAYS test regularly with *Geobacillus stearothermophilus*. See page 14 for sterilization monitoring and control for more information.

19. This sterilizer has not been validated for textiles, liquid loads, wrapped, lumened devices, and dental hand pieces.
20. The temperature and pressure are monitored and the temperature is visible on the digital display for one sterilization cycle only and a printout option is not available. See page 8 for pressure extrapolation.
21. A printer option is not available for the Saniclave top-loader sterilizer. The user should manually maintain the sterilization cycle records and specifications separately in a log book. See page 14 for more information.
22. The user is responsible for ensuring there is no moisture present after each sterilization cycle.

OPERATING THE SANICLAVE

Preparation for Sterilization (Default mode)

1. Preclean and lubricate instruments according to their manufacturer's recommendations.

WARNING! Failure to properly clean instruments before autoclaving, may result in unsterile equipment. Using unsterile equipment may result in serious injury or death.

2. It is recommended that all instruments be dismantled, if possible.
CAUTION! Stacking instruments improperly may result in unsterile equipment.
3. Use a sterilization indicator strip with each set of instruments being sterilized.
4. The recommended load is 4.5 lb (not including the basket). Never exceed the maximum load. Exceeding maximum load may result in unsterile equipment.
5. Run a biological indicator spore test (*Geobacillus stearothermophilus*) at least weekly to confirm proper sterilization. For additional information on purchasing biological indicators, see page 12.

The load should be considered non-sterile unless the display reads 'CC' after the cycle.

OPERATING INSTRUCTIONS

1. Place Saniclave on a dry, level surface.
 2. Remove chamber door by rotating door counter clockwise.
 3. Fill chamber with approximately 1 liter of distilled water, until the metal portion of the probe is in contact with the water. ALWAYS use distilled water. The sensor detects ion content in the water. If distilled water is too pure, the autoclave may not detect its presence. Salt may be added to the water to increase detection. Class III distilled water is recommended.
 4. Place the basket in the bottom of the chamber and place instruments to be sterilized (unwrapped) on top of basket.
 5. Inspect the door to assure that the seal is clean and not damaged. Be sure that the inner portion of the door is also clean and clear, ensuring a secure fit.
 6. If the seal has been removed, re-install seal in the door by evenly tucking seal under all lugs. The seal may be cleaned with warm, soapy water. Replace the seal when it becomes noticeably cracked or worn.
 7. Place the door on the chamber, ensuring that the arrow on the door is aligned with the "open" arrow on the Saniclave (page 8).
 8. Press the door in snugly and gently turn the door handle clockwise until it can no longer turn. The door arrow should be aligned with the "close" arrow on the autoclave.
 9. Insert the plug of the cord into the wall outlet. NEVER modify the plug to make it fit, as the plug will only fit in one way. The autoclave must be grounded when in use.
 10. The 3-digit LED indicator will turn on and show "-00."
 11. Press 'START' to begin sterilization.

Note: To abort at any time, unplug the power cord. The display will then go blank and the chamber will begin to slowly depressurize. Allow a few minutes for the chamber to fully depressurize before restarting the autoclave.
 12. The first phase is preheat mode and the display will display 'Ph' until the Saniclave reaches the sterilization temperature of 121 °C. Press the 'START' button again to see the current temperature during preheat mode.

Note: Observe the display. If an error warning is displayed, the cycle will be aborted (see troubleshooting section on page 8).
 13. After preheat mode, the display will automatically begin to count down during the 30-minute sterilization cycle. For your convenience, the display will show the temperature in Celsius. To view the cycle time left, press 'START'.
 14. After sterilization the LED indicator will display '-CC' if the cycle was successful.
- Caution: The chamber and contents may be hot to the touch.

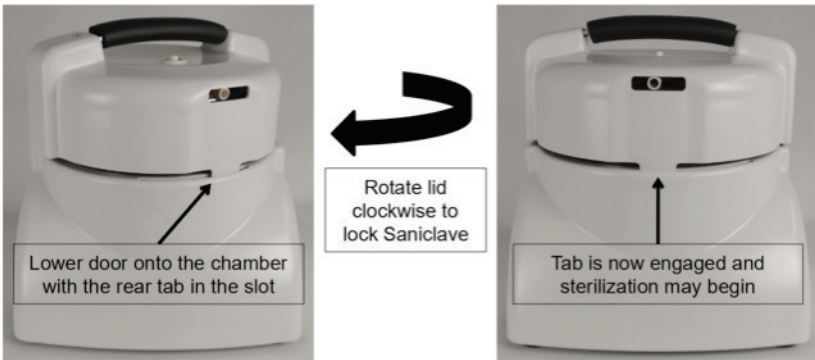
RECOMMENDED LOAD CONFIGURATION

Load must not exceed 4.5 lbs.

SETTING YOUR SANICLAVE

The sterilization cycle parameters are as follows: 30 minutes, 121 °C. These parameters cannot be adjusted. The cycle is initiated by pressing the START button.

PROPER CLOSURE OF THE SANICLAVE COVER (DOOR)



TEMPERATURE AND PRESSURE READINGS

This model of the Saniclave only displays temperature readings in Celsius. It does not display pressure readings. Pressure readings in PSI may be extrapolated by viewing the temperature reading on the display and referring to the chart below.

Gauge pressure (in. Hg Vac)	Absolute pressure (psia)	Temperature (oC)
15	29.7	121
16	30.7	122.06
17	31.7	123.11
18	32.7	124.11

WARRANTY REGISTRATION

Please scan the QR code to register your Revolutionary Science Saniclave



<https://www.revsci.com/pages/product-registration-and-feedback>

WARRANTY

Your REVOLUTIONARY SCIENCE SaniClave is warranted to be free from defects of material or workmanship under normal use for a period of one year from date of purchase. If your SaniClave proves to be defective within this warranty period, Revolutionary Science will repair or replace your unit at our option. This warranty will be void if malfunction is caused by accident, misuse, or negligence, including tampering, abuse, or damage in transit. This warranty excludes any relief for incidental or consequential damages. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, you may also have other rights, which may vary from state to state. Your SaniClave comes with several built-in safety features. Any attempt to interfere with the operation of these features makes this warranty null and void. To validate this warranty, be sure to complete the product registration by visiting the Website.

LIMITATION OF LIABILITY

IN NO EVENT WILL SELLER BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, EXEMPLARY, SPECIAL, OR INCIDENTAL DAMAGES, INCLUDING ANY LOST PROFITS, ARISING FROM OR RELATING TO THE SERVICES EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SELLER'S TOTAL CUMULATIVE LIABILITY IN CONNECTION WITH THE SERVICES, WHETHER IN CONTRACT OR TORT OR OTHERWISE, WILL NOT EXCEED THE FEES PAID FOR THE SERVICES. ONE OR MORE CLAIMS WILL NOT ENLARGE THIS LIMIT.

SPECIFICATIONS

Power requirements:	120 VAC, 1250 watts, grounded outlet
Net weight:	15 lb.
Dimensions:	14.5 in. length x13.5 in. width x 12.5 in. Height
Internal chamber dimensions:	9 in. diameter x 8.25 in. tall
Pressure:	15-18 psi
Normal operating temperature:	121-124°C
Temperature lower tolerance:	121°C
Temperature upper tolerance:	124°C
Preheat time:	Automatic
Sterilization time:	30 minutes
Capacity:	8 Liters

PRODUCT SAFETY AND COMPLIANCE STANDARDS:

FDA Listing: RS-SC-102 is a 510k cleared product for medical use. K122978

FDA Registered: Revolutionary Science is an FDA Registered Company CE/IEC Safety: RS-SC-102 tested to and found to be compliant with IEC 61010A and associated safety standards.

ISO 9001: Revolutionary Science is an ISO Registered Company

CONTACT INFORMATION

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Shafer, Minnesota 55074, USA
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Fax: (775) 218-7015
Web site: www.revsci.com E-mail: support@revsci.com



CHECKLIST

(See page 3 for visual identification of checklist parts)

Part: Model number:

- __ Autoclave
- __ Door seal 200-A00003
- __ Basket 101-A00009
- __ Power cord 400-P00004

Notes & Service Record

For your own future reference and to expedite answers to your questions, please complete the following information:

Date Purchased: _____

Serial Number: _____

Model Number: _____

Purchased From: _____

Your Notes:

Revolutionary Science recommends the weekly use of G. Bacillus Stearothermophilus biological indicator ampules. Place indicator in center of full load and test weekly.

The use of FDA cleared class 5 integrators should be used with each load. Follow the manufacturer’s recommendations for class 5 integrator use.

CARE, STORAGE AND MAINTENANCE INSTRUCTIONS

Daily	<p>Inspect and clean door seal with mild soap or detergent. Rinse with distilled water, wipe with damp lint-free cloth. Inspect for cracks. Reinstall in door.</p> <p>Clean Chamber with mild soap or detergent. Inspect chamber for calcium or other deposits. Wipe with damp, lint-free cloth. If needed, repeat cleaning procedure. Do not use harsh chemicals in autoclave.</p>
Weekly	<p>Clean basket with warm water and a mild soap or detergent. Inspect basket for residues or deposits. Repeat cleaning if necessary. Rinse in warm, distilled water and wipe with a clean, lint-free cloth.</p>
As Needed	<p>Replace door seal if torn or cracked.</p>

For regular Sterilizer Monitoring Guidelines, see page 15

When storing the Saniclave:

1. Unplug the Saniclave.
2. Drain all water from the chamber.

Caution: Water from the chamber may be warm or hot!

3. When your Saniclave is cool, wipe both the exterior and the interior of the autoclave with a clean, dry paper towel or terry cloth. If needed, clean plastic parts with warm water or isopropyl alcohol. To remove calcium buildup, pour a small amount of CLR® or Alfa Clean® into chamber and clean thoroughly with a dry terry cloth.

All repairs must be performed by a trained professional. Contact Revolutionary Science for more information. (See the contact section on page 11)

SANICLAVE CYCLE DOCUMENTATION TABLE

Serial #	Time cycle started	Date	Set cycle parameters (default): 121C for 30 minutes	Results according to class 5 Integrator	Cycle #	Display reading at cycle end	Signature
102281A	10:45:00 AM		121C for 30 minutes	Parameters were met	1	CC	
			121C for 30 minutes				
			121C for 30 minutes				
			121C for 30 minutes				
			121C for 30 minutes				
			121C for 30 minutes				
			121C for 30 minutes				

It is recommended to keep records of each sterilization cycle. This table may be copied.

STERILIZATION MONITORING GUIDELINES

Note Revolutionary Science provides the following information only for reference. The user must contact state and local government for proper regulations regarding sterilizer use and sterilization monitoring. In addition, the Centers for Disease Control and Prevention (CDC), American Dental Association (ADA) and the Organization for Safety and Asepsis Procedures (OSAP) may be contacted for further information regarding infection control.

PHYSICAL MONITORS

Sterilizer malfunctions may be detected by pressure and temperature measurement devices. The sterilizer's programming aborts the cycle and displays a message on the display screen if physical conditions exceed the proper limits.

Note Only FDA cleared chemical indicators and biological indicators designed for steam sterilization are to be used. Additionally, such indicators must be compatible with the cycle parameters of the Saniclave. When monitoring the cycle with such indicators, load the chamber according to your facility's standard operating procedures.

CHEMICAL INDICATORS

The purpose of chemical indicators (CI) is to determine whether the sterilization cycle parameters are sufficient to accomplish an effective sterilization. CI's are not intended to be used to validate the sterility of the load. However, if the CI shows failure, the load must be considered non-sterile and the load configuration and sterilizer shall be investigated, due to the fact that proper cycle parameters may have not been correctly achieved. Note: Wrapping, packing and loading improperly may result in failures. In addition, the failure may be a result of sterilizer malfunction. Check load configuration and verify that it is in accordance with the manufacturer's instructions. Also, check the CI's instructions for proper use, storage and disposal. Only CI's that are cleared by the FDA and labeled for use with the same cycle parameters (of exposure time and temperature) of the Saniclave shall be used to monitor sterility conditions of loads processed in Saniclave.

Occasionally parts should be replaced with heavy usage: The door seal, Control panel decal and ZPD. These easily replaceable parts are available through Revolutionary Science. No tools are required.

BIOLOGICAL INDICATORS

Microbial devices such as biological indicators (BI) are designed to accompany a load to be sterilized. When a BI shows failure, the load must not be considered sterile. Note: Wrapping (do not wrap, pouch or bag instruments in this Saniclave), packing and loading improperly may result in failures. In addition, the failure may be a result of sterilizer malfunction. Check load configuration and verify that it is in accordance with the manufacturer's instructions. Also, check the BI's instructions for proper use, storage and disposal. Only BI's that are cleared by the FDA and labeled for use with the same physical parameters (of exposure time and temperature) of the Saniclave shall be used to monitor sterility of loads processed in Saniclave.

CLASS 5 INTEGRATORS

A Class 5 integrator are a type of chemical indicator. It does not contain microbial organisms. A Class 5 Integrator monitors the time, temperature and pressure. These single use devices are calibrated to confirm that parameters have been met. Only use FDA cleared integrators that are validated for 121C for 30 minutes. Follow manufacturer's recommendations."

Use an FDA approved biological indicator (BI) weekly to confirm sterility and STEAMPlus Class 5 integrators with each load. Follow the BI manufacturer's instructions. Revolutionary Science recommends the use of biological indicators and class 5 integrators (not supplied by Revolutionary Science).

WARNING: Loads should not be considered sterile unless the indicators (whether biological or chemical) show evidence of sterility and the Saniclave completes a cycle and displays 'CC.'

TROUBLESHOOTING

Please visit the Revolutionary Science troubleshooting webpage by scanning the QR code or entering it in manually to view instructional videos covering potential Saniclave issues and their solutions.

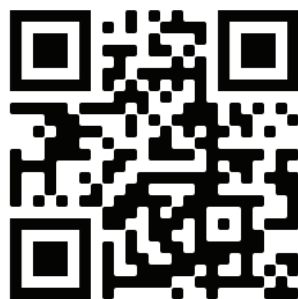


<https://www.revsci.com/pages/troubleshooting>

TROUBLESHOOTING CONTINUED

Note: If an error occurs a warning will show on the display and alarm will sound. The load must be considered non-sterile. The sterilizer and load should then be investigated. Contact Revolutionary Science if problem persists.

Symptom	Root Cause and Solution
Display does not turn on.	<p>If the power cord is unplugged, display will go blank to signal a power disruption or an aborted cycle. User may abort the cycle anytime during preheat or sterilization by unplugging the power cord. If the power cord is plugged back in, the display will read '-00' for 'standby mode.' The contents of the load shall be considered non-sterile.</p> <p>If the power cord is plugged in and the display is blank, the cover may not be properly closed and the tab may not be engaging the safety switch in the back of the autoclave. Close the cover again with the tab properly inserted into the slot in the back. See page 8.</p>
Error: Preheat too long (Leaky seal): Display reads "Lo"	<p>If the chamber gets warm and the door seal is in need of replacement, the display will read 'Lo.' Press 'START' to acknowledge the error. Take off the door. Remove door seal. Inspect the door seal for cracks. Replace with a new seal if necessary. Reinstall seal into door. Properly close door by lining up arrows on door and on body and twisting the door closed. Restart the cycle.</p>
Error: Preheat too long (Leaky ZPD): Display reads "Lo"	<p>The ZPD valve is one of the most important parts of the Saniclave. When the steam builds, the ZPD rises and seals so the chamber can build pressure for sterilization. If the chamber gets warm and the ZPD valve (small, blue and aluminum valve inside the chamber cover) is damaged or not fully engaging, steam will continue to leak out the vent tube in the back during sterilization or the cycle will abort and the display will read 'Lo.' Press 'START' to acknowledge the error. Take off the cover. Inspect the ZPD grommet (small blue grommet in the center of the cover) for cracks. Replace with a new ZPD if necessary. If installed correctly, the ZPD should hang and move up when pushed up and drop down loosely under its own weight. Inspect the white rubber steam vent directly above the ZPD to confirm that it is not interfering with the ZPD rising. The two screw handles can be removed for further inspection of the ZPD and steam vent.</p>
Error: Over Temperature Alarm: Display reads "Oht"	<p>If temperature exceeds the maximum of 124°C the display will read 'Oht.' Press 'START' to acknowledge the error. Open door when chamber has cooled. Remove load from chamber. Refill reservoir. Reinsert load. Close the door. Restart cycle. If an over-temperature condition occurs again, contact Revolutionary Science to investigate the problem further. Discontinue use until problem is resolved.</p>
Error: Low Water: Display reads "Lo"	<p>The door must close properly or there will be no power. Verify the door tab is engaged with the corresponding slot in the back of the unit. This will activate safety switch. The tab on the door, must be inside that slot to actuate the safety switch.</p>
Power Outage. Display reads "-00" partway during cycle initiated.	<p>If a power outage occurs the display will revert to standby mode and read '-00.' It will not display "CC" until the Saniclave is restarted and a successful cycle is passed. This would happen even if the outage took place after a successful completion of a cycle and the unit was left unattended. If this occurs refill with water and restart sterilization cycle.</p>



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