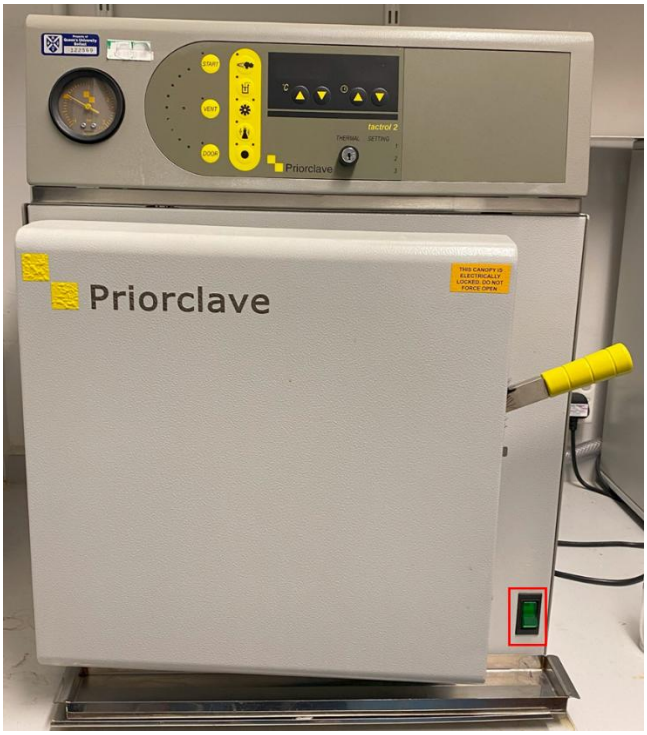
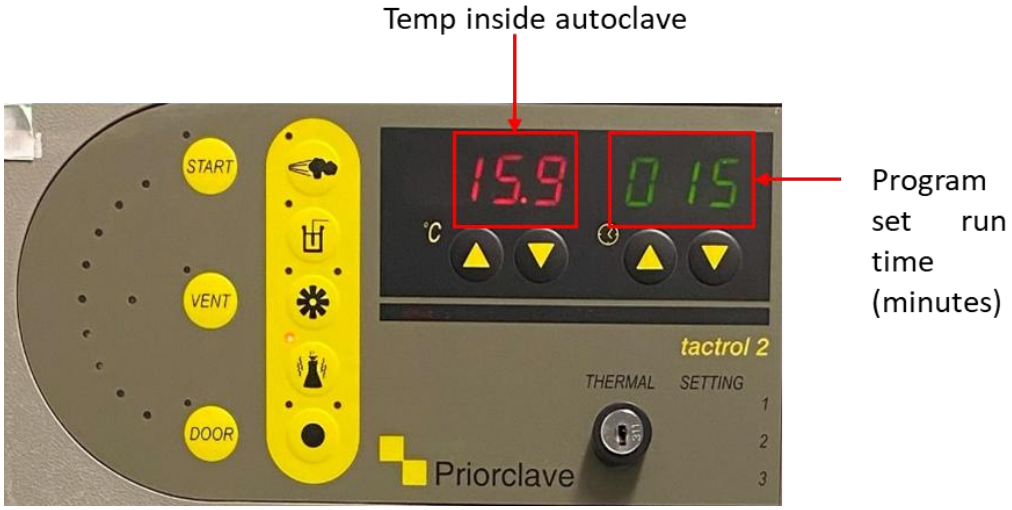
Sterilizing biohazardous waste using the autoclave

NOTE: Before reading this you MUST read the 'SOP - Energy and environmental impacts under normal, abnormal and emergency conditions' which is Mills group web site, https://www.profandrewmills.com/leaf-documents/. This addresses general energy and environmental impacts under normal, abnormal and emergency conditions considerations which you NEED to be cognisant of before conducting any experiment. If you identify anything in an SOP which can be improved, please contact the LO and PI to discuss the proposed change(s) before putting them into effect.

Below is the bench-top autoclave used to sterilize biohazard waste (model: Priorclave Compact 40L - 60L Autoclave – Benchtop). It is switched on via the green switch in the lower right hand corner.



When the machine is on, the temperature inside the autoclave appears on the small black screen in red, and the time the sterilisation program is set to run for is displayed in green.

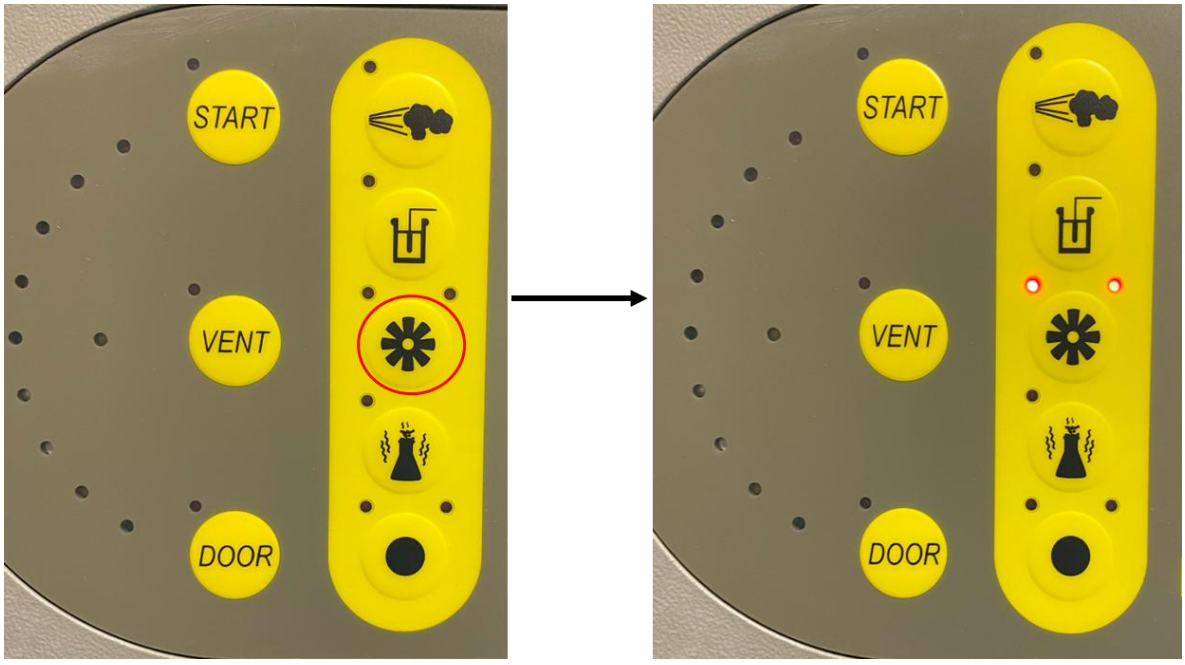


Biohazardous waste (for example, contaminated sample tubes, plastic pipettes, agar plates) is triple-bagged in autoclavable plastic bags, to ensure there is no leakage from the waste inside the autoclave.

A strip of autoclave tape is applied to the outermost plastic bag. This is an adhesive tape which changes its colour from green to black stripes in the sterilization process, to signify that a temperature of 121°C in the autoclave has been reached successfully (note: this is the sterilisation temperature typically used in steam autoclaves such as this one).

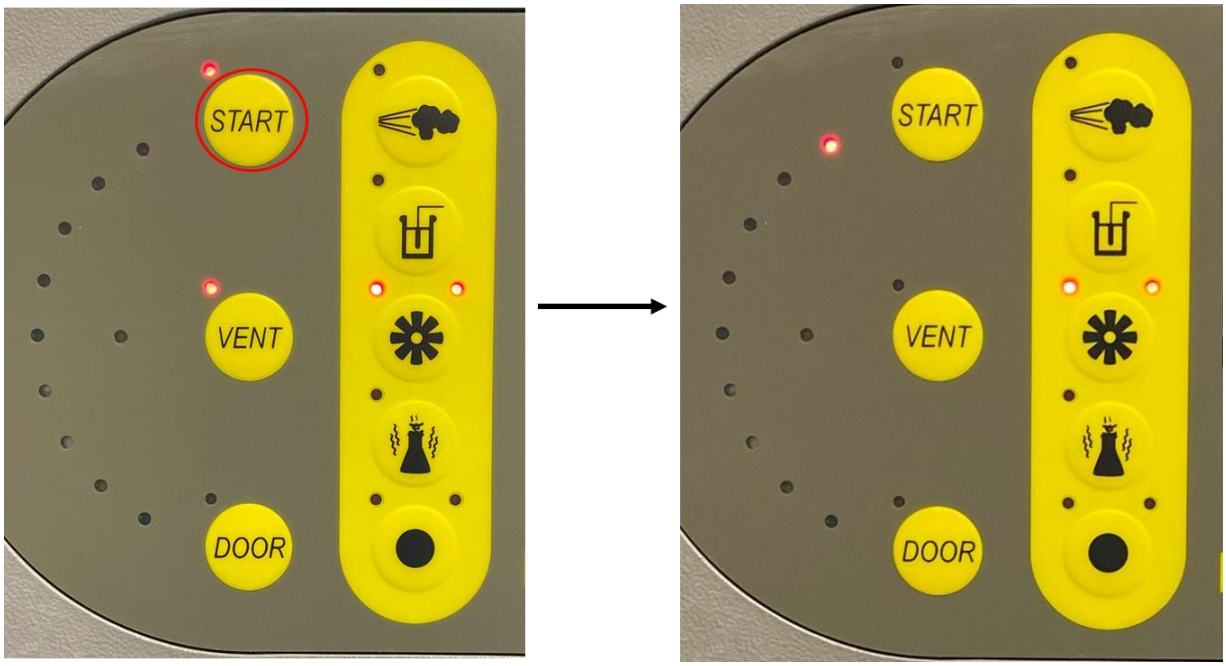
After checking the water level in the bottom of the autoclave, the waste is inserted into the autoclave, and the door is closed.

To set the correct program on the autoclave, navigate to the yellow panel at the top of the autoclave and press the fan icon twice so that two red lights appear, as shown below. In this particular program, the waste is heated to 121 °C for 15 minutes.

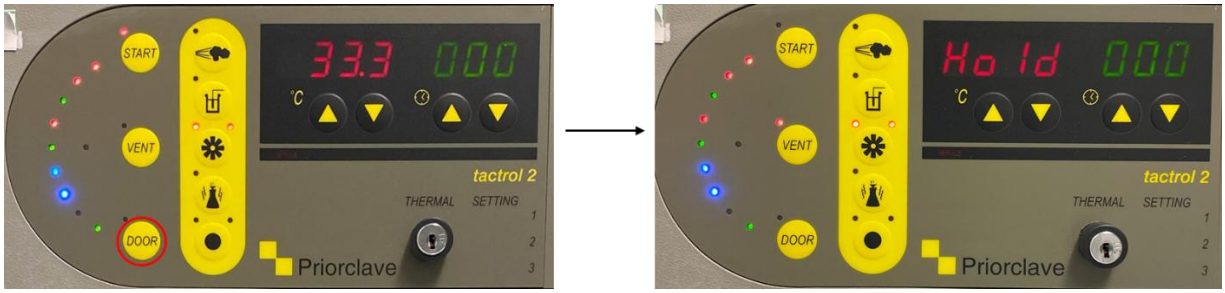


The yellow ‘Door’ button is pressed, after which the handle for the door may be pushed down to its bottom position.

A red light beside the yellow ‘Start’ button signifies the autoclave it ready to run. Press ‘Start’ once- when the red light moves position as shown below, the machine is running.



Below is what the autoclave looks like when the cycle has finished running. Press ‘Door’ and a message to ‘Hold’ appears on the control panel. Once this disappears, the door handle can be moved up into its original position to release the door.



This is a photograph of the sterilized waste after autoclaving (note the colour change of the tape to signify the correct temperature was reached inside the machine thereby killing the bacteria posing a biohazard). The sterilized waste is then disposed of with the general waste in the industrial bins in the school’s yard. The autoclave is switched off using the green switch in the right hand corner.