

Instrument Solutions

Technology for Your Success!

What is the use of a watch glass?

1. By adding a watch glass, the sample temperature will increase by about 5°C.
2. The purpose of a watch glass is to promote refluxing as shown below.

Why do we cap DigiTUBEs during sample digestions?

1. The use of DigiTUBEs with caps in place during digestions is to increase the temperature and retain volatiles.
2. Typically, samples are left uncapped to de-gas at room temperature for 15 minutes prior to capping and being placed on the block. Typical acids used are HNO₃ and HCl.

What is the relationship between block temperature and sample temperature?

1. When the block is set at 105°C the sample temperature will be approximately 90-95°C. If the block is set to 95°C the sample temperature will be approximately 85°C. Ambient conditions will affect the relationship.
2. Use of a DigiPROBE guarantees that the set temperature and the sample temperature are the same and no calibration between the block and sample temperature is required.

When centrifuging using DigiTUBEs, what are some of the cautions to be aware of?

1. The bottom of the tube must be supported.
2. The longer the tube is used at a high temperature to digest samples, the more brittle it becomes with the resulting danger to breaking during centrifugation.
3. DigiTUBEs may be centrifuged at 2000rpm if completely supported. Not recommended if used at temperatures above 105°C.

What are the typical uses and samples with the Keypad controller?

1. The Keypad controller is typically used in a one point (setpoint) temperature control.
2. Soil sample digestions with low organic content (<5%)
3. Evaporation type digestions which are best with 100ml vessels due to larger evaporative surface areas.



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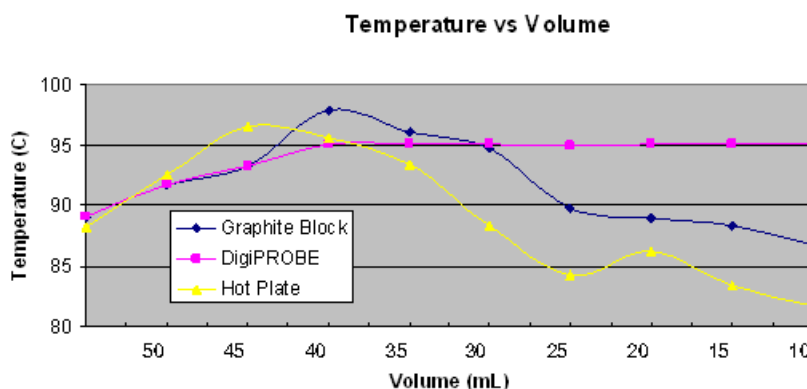
DigiTUBEs and temperature (DigiTUBEs are made from Polypropylene and caps are made from Polyethylene)

1. Tubes work well at 95°C
2. Tubes may be used at 105°C for a shorter period of time.
3. Tubes become brittle after long, high temperature (>110°C) use.
4. Tubes melt at 160°C.
5. Tubes may delaminate if run at temperatures above 110°C with conc. HNO₃.
6. Tubes may be capped at 95°C for digestions.



Loss of temperature when volume decreases - evaporation

Unless the controller is receiving temperature feedback from the sample and making the necessary temperature adjustments, e.g. with DigiPROBE, the sample temperature will decrease as the volume decreases through evaporation.



What are the typical uses and samples in using the Touch Screen controller?

1. The Touch Screen controller typically holds multiple temperature ramp and hold programmable steps. (Time to Temperature, Time at Temperature)
2. Samples with high organic content (>5%)
3. Very reactive samples at 60 to 80°C.
4. Digestions that require water to be driven off prior to increasing the temperature, e.g. TKN analysis.

What is the DigiSET used for? What is the COM2 port used for?

1. DigiSET is an accessory used to stop the heating program of a DigiPREP digestion system when a sample reaches a preset volume, e.g. during an evaporation step.
2. DigiSET uses a dual graphite (one electrode inside of the other) conductivity probe.
3. COM2 is located on the back of all controllers and is the location for the connection to the DigiSET accessory.
4. Unless DigiSET is connected and in use, the dongle must be in place to have the block heat.