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PASTEUR**



**TRUSTI[®]
TUBER**



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***Efficient
colostrum
management***



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COLOSTRUM BAG**



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Welcome to your Trusti Pasteur

The Trusti Pasteur heats water to a precise and controlled temperature, enabling effective and safe pasteurisation and thawing of high-quality colostrum within Trusti Colostrum bags.

Pasteurisation

The principle of pasteurising first colostrum is to minimise the bacteria load while maintaining a high antibody level.

Bacterial kill is achieved by heating the colostrum above where the bacteria will survive, however if the colostrum is heated too high or for too long this will result in antibody damage.

Hence the requirement for a lower temperature and longer time pasteurisation method relative to pasteurising other liquids.

The recommended temperature is 60°C for 60 minutes.

If the temperature is below 59°C, there is less effective bacterial kill.

At temperature over 61°C, there is significant antibody damage.

How to Pasteurise:

Simply place the colostrum filled bags (up to 2 x 4 litre capacity) into the water within the Trusti Pasteur, set the temperature to 60°C and set the time for 60 minutes. When the water reaches 60°C, the timer will count down.

Colostrum must be pasteurised within the Trusti Colostrum bags, never place colostrum directly into the Trusti Pasteur. Use the separator rack to ensure there is even flow of water all around the bags.

When pasteurisation is complete, chill the colostrum quickly to prevent replication of any remaining bacteria.

Steps:

1. Attach the circulator to a short end of the Trusti Tub
2. Fill the tub so water reaches the minimum level on the circulator for two bags, or halfway between MIN and MAX lines for one bag.
3. Turn on the circulator by pressing and holding the On/Off button for 2 seconds. The appliance display will illuminate, meaning the circulator is ready for use. If the circulator has not been used before, and the appliance is started at this point, then the default temperature of 60°C will be displayed, and the default time of 2 hours will be set. If the appliance has been used before it will display the last used settings.
4. Set the temperature by pressing the TEMP button. Pressing and holding for 2 seconds will switch the temperature between Celsius and Fahrenheit. Pressing and holding the + or - button will increase or decrease the temperature by 1.0°C. Pressing and releasing the + or - buttons will increase or decrease the temperature by 0.1°C.
5. Set the time by pressing the TIME button. Set the desired length of time you wish the circulator to operate for. Pressing the time button will flip between hours and minutes.
6. Start/stop the circulator by pressing the Start/Stop button. The circulator will begin circulating and heating the water. The time will count down from when it reaches the desired temperature.
7. Place one or two Trusti bags into the rack. The bag should float so the colostrum level is the same as the water level.
8. Place the lid to enable the most consistent water temperature.

9. When pasteurisation is complete, quickly cool the colostrum by either refrigerating or running cold water through the Trusti Pasteur. If to be used within four days the colostrum can be stored in the refrigerator, otherwise store in the freezer for up to one year. If feeding immediately, cool to maximum 42 degrees prior to feeding.

Thawing

The sooner the calf is fed after birth, the more antibodies it will absorb into the bloodstream. By using the Trusti Pasteur to quickly thaw and warm the colostrum you can ensure your calf receives maximum benefit from your carefully handled colostrum.

The optimum feeding temperature of colostrum is body temperature (39°C), so the calf does not expend energy to warm the colostrum.

The maximum feeding temperature is 42°C as to avoid damaging the calf's oesophagus and stomachs.

How to Thaw:

• Option One – Easy:

Set the temperature to 42°C and place the bag(s) into the Trusti Pasteur racks. The thaw time is 35 minutes for bags containing 4 litres or 20 minutes for bags containing 2 litres of colostrum.

• Option Two – Fastest:

Set the temperature to 60°C. Thaw time will be only 20 minutes for bags containing 4 litres or 15 minutes for 2 litres. The bags MUST be removed at this point of time before the colostrum is too hot to be fed. If not removed at this point you must check the feeding temperature is less than 42°C prior to feeding.

Why Pasteurise Colostrum?

Two reasons:

1. To improve the absorption of crucial antibodies in the colostrum.
2. To minimise disease transfer.

Bacterial contamination of colostrum negatively affects the ability for the calf to absorb antibodies into the blood stream. Due to the calf's immature immune system it is also more susceptible to disease when exposed to pathogens.

It is well proven that maximising the absorption of antibodies in the first few hours of a calf's life will result in a healthier and more productive animal for life.

Some herds engage in eradication or control programmes for diseases such as Johnes (Mycobacterium avium subspecies paratuberculosis) and Mycoplasma, in which case heat treatment of both colostrum and milk or the use of powdered milk plays an important role in minimising spread of disease.

Studies have shown that 60°C is a recommended temperature to pasteurise colostrum. Over 61°C there is significant damage to antibodies as well as increased viscosity of the colostrum, whereas at 60°C or below there is marginal reduction in antibody level.

The time of pasteurisation should be a minimum of 30 minutes. 30 minutes at 60°C achieves the vast amount of bacterial kill and for many bacterial subgroups e.g. E. coli, there is no significant difference achieved by extending from 30 minutes to 60 minutes. However, for eradication programmes it is recommended to treat for the full 60 minutes. While research has shown 60 minutes to kill all Mycoplasma and Johnes (MAP) there is no guarantee of 100% elimination in the field.

Keys to Success with Pasteurisation

Test colostrum with a brix refractometer so you know you are using high quality colostrum. > 22 indicates high quality and equivalent to 50g/l immunoglobulins/antibodies.

The sooner the cow is milked after calving the greater the antibody level. After calving the antibodies are resorbed from the colostrum resulting in 35% less antibodies after 12 hours.

Harvest cleanly, while pasteurisation achieves approximately 98% reduction in bacterial count it is always better to begin with cleaner product and create good harvesting habits.

Allocate colostrum to the Trusti Colostrum bags, record the cow, volume, and date with a permanent marker and pasteurise within a couple of hours of harvesting. If unable to pasteurise this soon then refrigerate the colostrum and pasteurise within a few days. Be sure to record on the bag that pasteurisation is complete.

It is important to cool the pasteurised colostrum quickly. Colostrum can be stored in the refrigerator for up to four days. If not going to be used within four days then store in a deep freeze with reliable temperature for up to one year.

The sooner the calf is fed after birth the better the absorption of antibodies (within the first hour is best), after 12 hours the absorption rate has fallen by two thirds.

Equipment used to feed the calf should be thoroughly cleaned. After making the effort to optimise the colostrum you do not want to then introduce contamination with unhygienic equipment.

Cleaning and Maintenance

Over time small particles may collect in the appliance. General cleaning and maintenance from time to time will keep your appliance in perfect working order. Keep the machine dry if not in use.

General Cleaning

For general cleaning to remove any dirt from the impeller and heating coil, simply fill your chosen container with warm water and a weak mixture of dishwashing detergent. Set your appliance at 70°C and run the appliance for around 60 minutes.

Remember to rinse the circulator afterwards to remove any remaining detergent prior to use. Always use clean water and do not use any acid or alkali products to wash it.

In the unfortunate event that a lot of debris becomes trapped or sucked into the rear of the appliance, then you may need to remove the rear cover of the appliance and rinse the heating coil and impeller. The circulator has a back cover that detaches for cleaning. It should only be detached when the circulator is off and unplugged; it should never be detached during use. The removal of the rear plate for cleaning of the coil and impeller should not be necessary for general day use.

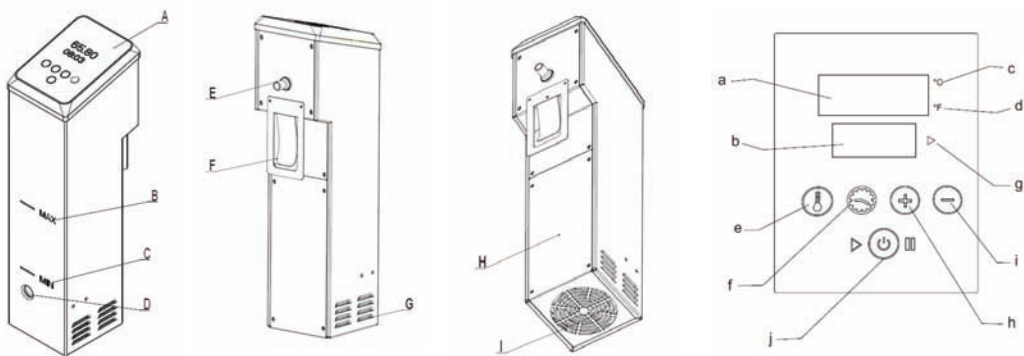
To open the rear plate for cleaning:

- Using a screwdriver, carefully remove the four screws and washers from the rear of the appliance.
- Remove the two screws holding the plastic housing that protects the impeller.
- Rinse the appliance under a running tap to clean any debris from the heating coil and impeller.
- Re-install the impeller housing and back plate.

Decalcification

After some time, the water you use will deposit calcium onto the coils, much in the same way as the element in your kettle. When the coils become covered by calcium deposits, they need to be cleaned to keep them efficient. To do this, you can either use 25% vinegar solution in water, or add a dedicated decalcifying agent, such as CLR (Calcium, Lime, Rust remover) to your water bath, following the dilution instructions provided by the manufacturer.

Set the temperature of your Trusti Pasteur to 25°C / 77°F and allow the appliance to run for around 30 minutes.



Circulator Parts

- A. Display screen
- B. MAX water level
- C. MIN water level
- D. Water outlet
- E. Power connection

- F. Fixing clip
- G. Side water inlet vents
- H. Removable cover
- I. Bottom water inlet vents

- a. Temperature display
- b. Time display
- c. Symbol for centigrade (if selected)
- d. Symbol for Fahrenheit (if selected)
- e. Temperature setting button

- f. Time setting button
- g. In use symbol
- h. Increase time or temperature button
- i. Decrease time or temperature button
- j. On/Off/Start/Stop button

Important Safeguards

Functions at ambient temperature between 5°C and 40°C

It is recommended to have your Trusti Pasteur temperature calibrated annually.

To protect against electrical shock, do not immerse power cord or plug in liquid.

Unplug the appliance from any electrical outlet when not in use and before cleaning.

Allow the appliance to cool before putting in or taking out any cleanable parts.

Do not use any attachment or accessories not recommended by the supplier.

Do not use this appliance for any purpose other than its intended use.

Do not use this appliance if it has been dropped or appears to be damaged or has a damaged cord or plug.

Do not attempt to operate the appliance with a water level below the MIN (minimum) line.

Take care not to overfill the water bath above the MAX (maximum) water line; allow sufficient room to accommodate the volume of Trusti Bags when added to water bath. If water level rises above the MAX water line the PCB may be damaged.

Take care when removing the appliance when it is hot, as hot water will collect on the inside of the appliance while working.

To disconnect, touch the Start/Stop button to turn off the appliance, then remove the plug from the wall outlet.

Ensure the water in the Trusti Tub is at a suitable temperature before emptying. Temperatures above 50°C can scald. To empty simply unscrew the plug on one end of the tub.

Please be careful when removing Trusti Colostrum bags from the water as they can be hot to the touch.

Connect to properly ground (earthed) electrical outlets only and correct stable voltage.

Only use the heating unit in water, no other liquids. Always use clean water to operate with no particles or residues.

Choose a secure location to operate your Trusti Pasteur.

Do not use outdoors.

Do not use near a hot gas or electric burner.

Do not let cord touch hot surfaces.

When the Trusti Pasteur is not in use we recommend to remove the heating unit from the water and allow to dry for storing.

When in use around children and pets, close supervision by an adult is necessary and the appliance should be kept out of their reach.

Error Codes:

These are the possible error codes and their meaning.

- 1) **E04:** Water in the tub/container below the minimum water level of machine, E04 will show on the displayer. top up water above minimum water level, E04 will all-clear
- 2) **E08:** NTC (temperature sensor) loosening or damage will cause PCB short circuit, this can be caused by water level too high or excessively fluctuating voltage.
- 3) **E09:** Hardware failures, seldom occur. This can be caused by water level too high or excessively fluctuating voltage.

Warranty:

In the event that the guidelines are not followed the warranty will be void.

Disclaimer: Antahi Innovations will not be liable for any loss or harm caused to any animal, any indirect, special or consequential loss or damage (whether for loss of profit or otherwise), costs, expenses or other claims arising out of or in connection with the use of this product.