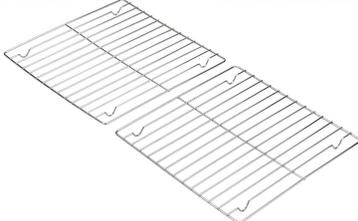


DIY – Colostrum Warmer/Pasteurizer

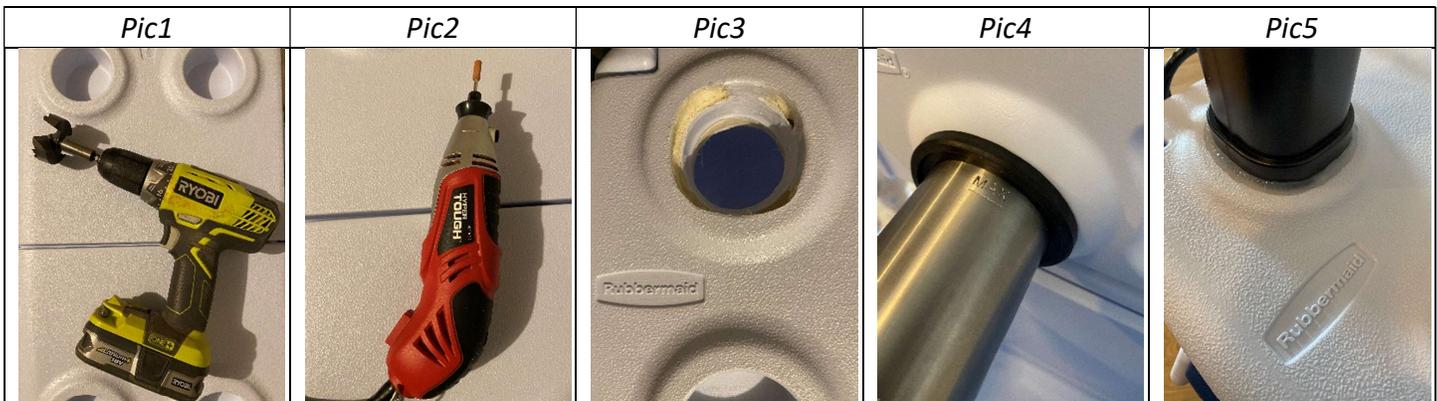
Background: Feeding clean, high-quality colostrum, in a timely manner is the foundation to a successful calf program. A progressive dairy has a plan in place for when they harvest poor-quality colostrum or the fresh cow underproduces. In these instances, a farm might feed a colostrum replacer or warm and feed previously stored colostrum. When it comes to warming colostrum, we need to be mindful of temperature. Too cold (**Temps < 100°F**), and the calf will have to expend energy to warm up the colostrum, slowing digestion and absorption of antibodies. Too hot (**Temps > 140°F**), and we risk denaturing the antibodies (immunoglobulins) that are needed to transfer mom’s immunity onto her calf. The ideal feeding temperature for colostrum is **105°F**. Below is a list of equipment and steps to DIY your own colostrum warming bath.

Equipment and Tools: **Total Cost = \$155** **Time = +/- 1 Hour**

<p>Rubbermaid, 60qt, dual-lid cooler, or similar make. <i>-Internal DIMs = 22.5”L x 9.5”W x 15”D</i> <i>-Dual-lid so cooker is not disturbed when adding colostrum</i> <i>-Drain plug for easy cleaning</i></p>		<p>\$89 (AMAZON)</p> 
<p>VPCOK Sous Vide (Model: 805A) – Immersion Cooker</p>		<p>\$48 (AMAZON)</p>
<p>10” x 10” Good Cook Cooling Racks</p>		<p>\$7 (Hardware Hank)</p>
<p>Silicon caulk or sealant</p>		<p>\$7/tube (Hardware Hank)</p>
<p>Toilet Tank - Rubber Gasket</p>		<p>\$4 (Hardware Hank)</p>

Fabrication Steps:

- 1) Cut hole in bottom of the cup-holder on cooler's lid. Hole should be placed in the left lid (when looking at cooler) so the other lid can open and close without disturbing the immersion cooker. Use drill with 2-1/8" Forstner bit. A small Dremel can be used to widen the hole and seat the upper portion of the cooker (*Pic1, 2, & 3*).
- 2) Use toilet gasket on underside of the lid to seal the heating portion of the cooker to lid (*Pic4*). Use silicon caulk to seal/anchor upper side of cooker to lid (*Pic5*). Be cautious not to cover vents on back of cooker.
- 3) Place kitchen cooling racks in bottom of cooler to allow water to circulate completely around colostrum container. Be cautious colostrum container does not contact heating portion of cooker.



To Use:

- 1) Fill cooler with water. Make sure water level falls between the MIN and MAX line on the immersion cooker. Be conscientious that the water level will rise as colostrum is added into the cooler.
- 2) Plug in the immersion cooker. Press the power button to turn on. The indicator light should glow **red**. Press and hold thermometer for 5 seconds to switch temp from Celsius to Fahrenheit. Press the thermometer to set water bath temp/cooking temp (recommend 120° for thawing and warming colostrum). When cooler is full of water, temperature will increase 10 degrees every 20 minutes. Press the clock to set how long you would like the bath to maintain that temp (Max = 99 hours and 59 mins or 4 days). The cooker will now warm the water up to your pre-set temp. Once water reaches that temp, the indicator light turns **green**, and the time begins counting down. The indicator light will turn **blue** when the timer clock has reached 0 mins and the cooker turns off. This is a good time to change the water and clean the cooler before starting the cycle over again.
- 3) Once the bath is at temp, it will take approximately 30 minutes to thaw a bag of frozen colostrum and heat it to feeding temperature. Approximately 15 minutes to warm refrigerated colostrum. Colostrum containers with larger surface area (colostrum bags) will heat more quickly than bottles or gallon jugs. Ideal colostrum feeding temperature is 105°F. Once you know how long it takes to warm a bag or bottle of colostrum to feeding temp, set a timer-alarm on your phone.
- 4) Colostrum could be pasteurized in this unit by bringing bag/bottle temperature up to 140°F for 60 minutes. Small batches (1-2 bags/bottles) and attention to temperature and time are critical for success.

To Clean:

- 1) Colostrum residue + heat from the water bath = perfect environment to create a bacterial soup inside the cooler. Recommend changing the water in the cooler every 4 – 7 days.
- 2) Add two cups of household – distilled white vinegar into the water bath. This will slow bacterial growth in the water and help keep the immersion cooker clean.