

## Important information about the Tommee Tippee Perfect Prep Machine, from First Steps Nutrition

The machine uses a two-step process to prepare the feed. In the first step the machine dispenses a "hot shot" of water directly into the bottle. The user then has two minutes to add the infant milk powder, place the holding cap on the bottle, shake to mix and return the bottle to the machine. In step 2, cold water is added by the machine to make up the selected feed volume to a comfortable temperature to feed immediately. Whilst research into the safety and efficacy of the Perfect Prep™ Machine has been carried out by the manufacturer, this is not currently in the public domain and the manufacturer has declined to release it for business competition reasons.

Unpublished university based research which investigated the efficacy and temperature profile of the Tommee Tippee Perfect Prep™ Machine using powder inoculated with known amounts of *Cronobacter sakazakii* has suggested that whilst the machine hot shot of water onto a small volume of powder was able to eradicate more than 95% of the bacteria, it failed to reduce their numbers to an undetectable level.

Whilst the machine produced water for the "hot shot" at a temperature higher than the 70°C stipulated in current guidelines, the temperature fell to around 60°C after 2 minutes. Furthermore, when PIF was added at 30, 60 and 90 seconds after the "hot shot" - the temperatures in the bottle were only maintained for around five seconds before they fell again to between 52.5 and 55.5°C.

This research showed that dependent on when the PIF is added, the water temperature may be too low to effectively eradicate all bacteria present.

The volume of the initial hot shot of water used for a four ounce feed is about one fluid ounce, and it is questionable as to whether this small volume of water can adequately make contact at the right temperature with the amount of PIF added. The research suggests that this volume of water is insufficient to maintain a temperature of greater than 70°C for the duration of the two minute window recommended for the addition of the powder.

Department of Health guidance on formula feeding does not cover the use of formula making machines, however in some areas, for example Cambridgeshire Community NHS Trust and Lanarkshire NHS staff have been advised that these machines should not be recommended or promoted by staff since there is insufficient data available about their safety. Cambridgeshire Community NHS Trust state that: "Due to the inability to have confidence in all of these machines to correctly prepare a bottle safely, staff must not recommend these and discuss with parents their danger." (Cambridge Community Services NHS Trust, 2014)

The convenience of this type of formula preparation machine is questionable as users are still required to sterilise all feeding equipment and wash surfaces and hands before preparation and accurately measure and add the powder to the feeds.

There are also maintenance issues to address such as changing filters and running de-scaling cycles - which cost both time and money. The only benefit to parents appears to be the time saving associated with not having to wait for water boiled in a kettle to cool before the milk powder can be added.

First Steps Nutrition Trust therefore believes that there remains insufficient evidence that these machines are safe in the preparation of powdered infant formula, and recommend that families and carers use water at >70°C to make up powdered infant formula as currently recommended by the Department of Health.