

Disinfection of bottles, teats, dummies, breast milk containers and Lactasets.

Disinfection describes a process which eliminates many or all pathogenic micro organisms with exception of bacterial spores from a surface. In RPA Newborn Care this is achieved using the following methods. Baby feeding utensils are considered *non critical items* and are disinfected using the following methods

1. Cold water disinfectant - Milton® (1% sodium hypochlorite solution).

Breast milk containers – These containers are used to store expressed breast milk (EBM) and infant dummies. The containers are received clean but not sterile. The containers cannot be subjected to heat and are therefore disinfected using Milton® before use. The containers are *single use items* and are discarded after use.

Milton® solution is used to store excess dummies, teats and shoulders following thermal disinfection. This is done as an additional hygiene measure for those items not used immediately as feeding utensils are still wet following their removal from the dishwasher.

Milton® tubs may also be used to store specialised feeding utensils for an individual infant or mother eg cleft palate teats and bottles, spoons, dummies or nipple shields.

Milton® cannot be used to disinfect items intended for communal use. All circulating items such as bottles, teats and shoulders must go through thermal disinfection after use.

****The registered nurse in charge of shift is to ensure any relieving ward assistant has been educated in the proper use of Milton®****

2. Thermal disinfectant (moist or dry heat) using an industrial dishwasher (Miele G 7835).

All items including bottles, teats, dummies, shoulders are disinfected using the dishwasher.

3. AVENT Steam Steriliser (Philips)



This device may be used by mothers (after instruction) to sterilise individual lactasets.

*** Lactasets intended for use by another mother must be cleaned and sent to CSD for autoclaving before use. If necessary disposable single use circuits should be used. Do not use the AVENT to sterilise lactasets between mothers**.

4. Autoclave CSD All lactasets for *between mother use* are sent to CSD for autoclaving.

1. Cold water disinfectant - Milton® (1% sodium hypochlorite solution).

- Milton® has been used to sterilise babies feeding utensils for over 50 years and is clinically proven to protect against most bacteria, fungi and viruses which can harm the newborn.
- Babies are at their most vulnerable to infection when premature or sick and separated from their mother in an intensive care or special care environment.
- Milton® is a 1% aqueous solution of sodium hypochlorite, containing 16.5% sodium chloride (**or common salt**). It has been principally used for the disinfection of bottles, teats and breast expression equipment since the establishment of the *Milton® Method* in 1947.
- Milton® destroys the protective cell membrane of micro-organisms and disrupts the functioning of enzymes required for cell metabolism. It is not possible for any micro-organisms to become resistant to Milton due to its proteolytic (protein dissolving) action.
- The tiny amount of residual chlorine remaining after soaking is rapidly destroyed and converted to sodium chloride (salt) by the protein in milk and baby's saliva, resulting in a totally harmless solution.

Milton® has been clinically and scientifically proven to kill a wide range of germs. The list below provides some tested examples:-

Bacteria

• Aerobacter aerogenes • Corynebacterium diphtheriae • Diphtheroid bacilli • Escherichia coli • Gonococci	• klebsiella pneumoniae • Meningococci • Methicillin resistant staphylococcus aureus • Mycobacterium tuberculosis • Pseudomonas aeruginosa • Salmonella typhi	• Staphylococcus aureus • Staphylococcus pyogenes • Streptococcus beta hemolytic • Streptococcus faecalis • Streptococcus pneumoniae
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Viruses

• Adenovirus • Coxsackie A&B • E.C.H.O. virus	• Encephalomyelitis • Foot & Mouth disease virus • Human immunodeficiency virus (HIV)	• Hepatitis B • Herpes simplex • Rota virus
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Fungi including thrush

• Candida albicans		
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Procedure

RISK – undiluted Milton® solution is classified as a hazardous chemical. It is not combustible but does give off irritating or toxic fumes (chlorine) in a fire. *Please refer to safety data sheet before use.* Store undiluted *Milton® bottles* in a cool dark environment. In RPA newborn Care these containers are stored in the *Milk Preparation Room*.

Observe all standards appropriate to procedure – hand washing

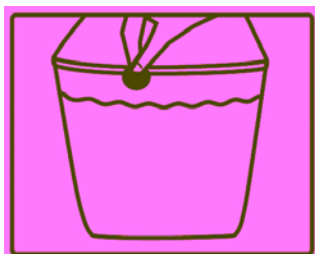
- The *Milton® Method* involves soaking pre-cleaned items in a special solution to kill harmful bacteria, viruses and fungi. After soaking, items can be hygienically stored and are ready-to-use *on demand*
- To make the solution, simply add either Milton® Tablets or Milton® Solution to recommended amount of cold water. Strictly follow manufacturer's instructions – same are well described on the tubs / Milton® containers.
- Breast expression equipment, baby bottles, teats, dummies, etc should not be rinsed after soaking in Milton®. To do so, gives an opportunity for recontamination of the sanitised items. Any tiny amount of residual Milton® solution remaining on items after soaking is rapidly destroyed (converted to sodium chloride i.e. common salt) by the protein in the milk and baby's saliva, resulting in a totally harmless liquid. Registered nurses (RNs) should reassure parents by explaining how Milton® works and why it is used in the NICU environment.



1. CLEAN

After use, separate components and rinse with cold water. Thoroughly wash items with warm water and detergent. Squeeze soapy water through teat holes then rinse thoroughly.

The active ingredient in Milton® will destabilise if exposed to the proteins in milk or soap – ensure all possible contaminants are thoroughly removed before soaking in Milton®.



2. PREPARE

Add 90mL of Milton® solution per 8 litres of clean cold water (1:80) into the Milton® tubs (or less volume for a smaller container). After squirting made-up solution through the teat holes, completely immerse all items, covering them with the white submerge plate to eliminate air bubbles. All surfaces must be submerged and in contact with the Milton® to be disinfected. Secure the lid and document time on the lid. *Avoid storing Milton® tubs in direct sunlight.*



3. READY TO USE

After soaking items in Milton® solution for 60 minutes, items are ready for use *on demand*. Please document time procedure completed on lid of container.

Wash hands and don gloves (hospital environment), remove items, shake off excess solution and use immediately. Items should not be rinsed. Any amount of residual Milton® after soaking is rapidly destroyed (converted to sodium chloride - salt) by the protein in the milk and baby's saliva.

The made-up solution should be renewed every 24 hours, after thoroughly washing the container with warm water and detergent. If the solution becomes cloudy or contaminated with a dirty utensil, the solution should be discarded and re made.

2. Thermal disinfectant (moist or dry heat) using an industrial dishwasher (Miele G 7835). All communal items able to withstand heat are sanitised using the dishwasher housed in the Feeding Room. The cycle is set at *programme 12* (baby bottles) and cannot be shortened once commenced. When completed (*1 ½ hours*) the LED will read Programme END *please open door*.

The *1 ½ hour* cycle follows the following format – 2 washes at approximately 28°C, thorough rinse, then the dishwasher holds 100°C for about 30 minutes before commencing the drying cycle (approx 10 minutes). If there is a malfunction and the cycle has not completed the LED will display the number of minutes left to go. Items must be removed and sanitised using the dishwasher on postnatal ward – *please contact the midwife in charge* on 5East2

3. AVENT Steam Steriliser (Philips) All mothers must be educated in the safe use of this appliance by the RNs. *The potential risks with this device include burns from the steam if the lid is removed prematurely and ineffective sterilisation.*

Cleaning and refilling the steriliser with sterile water should be demonstrated to all mothers before unsupervised use. If the RN has doubts about a mother's ability to safely use the steriliser, this should be discussed with the lactation specialists and RN in charge. Alternative options may need to be explored.

Always turn the steriliser off at the mains before emptying/ filling the device with water or during cleaning. The ward assistants clean the steriliser every 24 hours and it should also be cleaned by mothers before use.

Never immerse the steriliser in water

Ensure steriliser is placed on a firm stable surface. It is not to be used in the nursery and must be stored and used in the *Milk Preparation Room* at all times. Never place items on top of the steriliser even when not in use.

Procedure

Wash hands and clean items in warm soapy water and rinse well.

Ensure device is *turned off* at the mains, has cooled and items have been removed. Empty excess water and dry any remaining moisture inside the container / lid. Fill with 90mls sterile water (Water for Irrigation, Baxter).

Clean and ensure all traces of milk are removed from items to be disinfected. Place clean items / lactaset upside down on bottle rack, replace cover and turn on at the mains.

When in use the steriliser contains boiling water (100°C) and steam escapes from the lid. Both the container and lid are very hot and should not be handled by either the RN or mother. Never open the steriliser lid during a cycle. The cycle only lasts 6 minutes. *Wait at least 3 minutes for the steriliser to cool before removing items.*

Wash hands and always use gloves when handling disinfected equipment (hospital setting).

To stop the sterilisers during a cycle *turn off* at the mains. Items will not be sterile if cycle is interrupted.

4. Autoclave CSD

Lactasets are washed and cleaned with warm soapy water before sending to CSD. Pack in plastic bag and leave for collection in the utility room. Circuits are autoclaved and sent back to Newborn Care. Before use check date and integrity of packaging to ensure contents are sterile. If items are wet they must be returned to CSD as they are not considered sterile.

If there is not a sterile lactaset available – do not sterilise in the AVENT but give mother a single use lactaset kept in the Feed Room and discard after use.

References

Philips (2009). AVENT Electric Steam Steriliser. Manufacturers Instructions.

http://www.consumer.philips.com/consumer/en/au/consumer/cc/_productid_SCF276_26_AU_CONSUMER/Electronic-steam-sterilizer+SCF276-26 accessed July 27th 2009

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