

formula feeding

How to feed your
baby safely



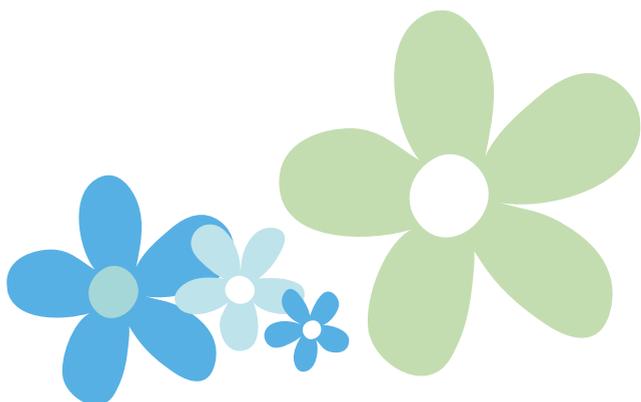
This resource includes information, used with kind permission, from Department of Health, the Food Standards Agency and UNICEF.

The content of this resource has been approved by UNICEF UK Baby Friendly Initiative.



Contents

Introduction	3
What you need for formula feeding	4
Cleaning bottles	5
Sterilising bottles	6
Making up a formula feed	10
Signs that your baby is getting hungry	20
Feeding your baby	21
Your baby's growth	24
Storing a feed	26
Feeding your baby while away from home	28
Types of infant formula	32
Further information	34
Quick reference step-by-step guide	36



This booklet will give you the up-to-date national guidance on how to make up a formula feed safely, including the most recent changes to the information on preparing and storing feeds.

If you are mixing breastfeeding and formula feeding, then continuing to breastfeed as often as you can will provide benefits for both you and your baby. For more information about mixed feeding see *Off to a Good Start: all you need to know about breastfeeding* at: www.healthscotland.com/documents/120.aspx



Introduction

Infant formula is processed, powdered cow's milk, which has been treated to make it suitable for babies. There are regulations in the UK to make sure that all infant formulas readily available in this country have the basic ingredients your baby needs.

Key messages for keeping safe

Make sure that you wash and dry your hands thoroughly before making up a feed. It is important to clean and disinfect all surfaces before using sterilised equipment.

Formula powder is not sterile and when made up it provides an ideal medium for bacteria to grow. Using boiled water of at least 70°C to make up the feed will reduce the risk of your baby becoming unwell with infections like sickness or diarrhoea. Any harmful bacteria present will be killed at this temperature.

Feeds should be made up one at a time. This is because the risk of bacteria growing in formula increases with storage time, even in a fridge.

To reduce the risk of injury, make sure your baby is not near the hot water when you are making up a feed. Take care not to scald yourself.

Adding too much or too little formula powder to the measured amount of water can cause your baby to become ill. If you add too much powder your baby can become dehydrated, if you add too little powder your baby will not get enough nutrients.

What you need for formula feeding

It is important to make sure you clean and sterilise the equipment to prevent your baby getting infections and stomach upsets. You'll need:

bottles with teats and bottle covers



formula powder



bottle brush, teat brush



sterilising equipment such as a cold water steriliser or steam steriliser (microwave or electric)

Cleaning bottles

1



Clean the bottle and teat in hot soapy water as soon as possible after a feed, using clean teat and bottle brushes. Make sure you clean inside the screw cap and around the rim of the bottle.

2



Rinse all your equipment in clean-running cold water before sterilising.



safety first

Dishwashers will clean bottle-feeding equipment but will not sterilise it.

Why? The temperatures reached in a dishwasher are not high enough for sterilisation – so you need to both clean and sterilise bottles.

Sterilising bottles

There are two different ways to sterilise: cold water sterilising and steam sterilising.

Store all sterilising equipment safely out of the reach of children.

Cold water sterilising

1



Make up a new sterilising solution every 24 hours.

Place the equipment that you have already washed and rinsed into the sterilising solution.

2



Make sure there is no air trapped in the bottles or teats when putting them in the sterilising solution.



safety first

Change the sterilising solution every 24 hours.

Why? The solution is only sterile for 24 hours. Bottles that you have not used within 24 hours will no longer be sterile. They will need to be re-sterilised in new solution before you use them for a feed. Keep your steriliser clean by washing in hot, soapy water and rinsing before adding new solution every day.

3



Keep all of the equipment under the solution with a floating cover.

Leave the feeding equipment in the sterilising solution for at least 30 minutes.

You can sterilise more than one bottle at a time as long as they are kept in the steriliser.

Bottles can remain in the sterilising solution for up to 24 hours until they are required.

Always wash and dry your hands before taking the equipment out of the steriliser.

Steam sterilising (electric or microwave)

Make sure the feeding equipment has been thoroughly washed in hot soapy water and rinsed before sterilising.

Follow the manufacturer's instructions.

The manufacturer's instructions will tell you how long equipment can be left after sterilising before it will need to be re-sterilised. It is important to stick to any recommended 'cooling period' before removing the bottles.



Make sure the openings of the bottles and teats are facing down in the steriliser.

Always wash and dry your hands before taking the equipment out of the steriliser.





safety first

All equipment must be cleaned thoroughly with hot soapy water and then rinsed before sterilising.

Why? Sterilising will not work unless all equipment is thoroughly cleaned and rinsed first.

Store all sterilising equipment safely out of the reach of children.

Making up a formula feed

Before making up a formula feed, it is really important that you wash your hands with soap and hot water and then dry them. Make sure that the surface you are going to use is cleaned and disinfected with an antibacterial cleaning product using a clean cloth or detergent wipes.

1



Always wash and dry your hands before making up a feed.

2



If you are using a cold water steriliser, shake off any excess solution from the bottle and the teat, or rinse the bottle with cooled boiled water from the kettle (not the tap). Drip-dry or dry only the outside with a clean cloth.

Always make sure your hands and all surfaces are clean before using sterilised equipment.

3



Use fresh tap water to fill the kettle with 1 litre of water to make the feed (do not use water that has been boiled before).



safety first

It's important to make up a formula feed safely: cleaning and sterilising bottles and preparing each feed carefully.

Why? Formula powder is not sterile and can sometimes contain harmful bacteria. Although this is rare, these bacteria can cause infections and make your baby seriously ill. Make sure that water is at least 70°C to kill any bacteria in the formula powder when you make up a feed (see page 13). Once you have made up the formula with boiled water, it will be safe to cool the formula before giving it to your baby.

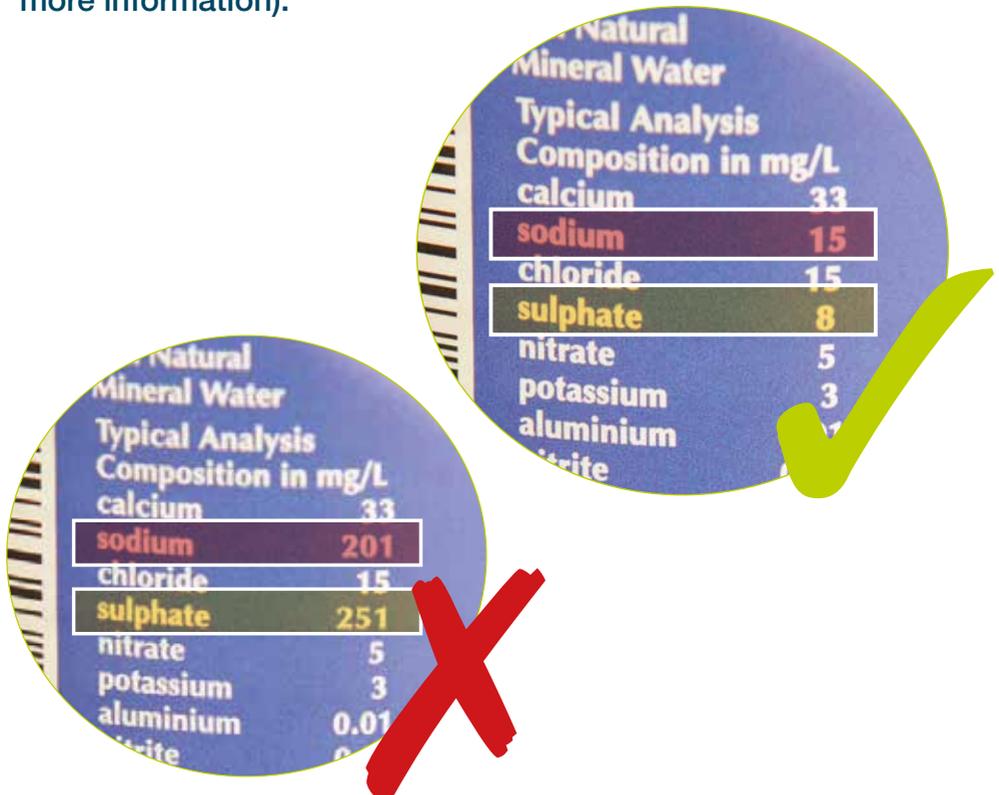
Harmful bacteria can also enter the formula from surfaces, equipment or your hands. To reduce the risk of infection when preparing a feed, always make sure your hands and surfaces are clean.

It is better to use tap water, but if you need to use bottled water remember that any bottled water that is labelled 'natural mineral water' might contain too much sodium or sulphate for babies. Check the label to make sure:

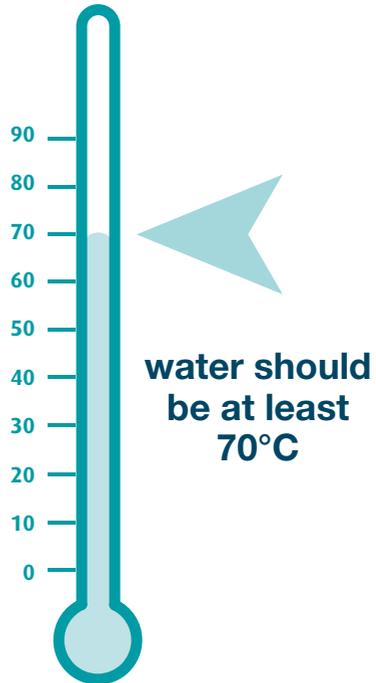
- the figure for sodium (also written as 'Na') is no higher than 200 milligrams (or 'mg') a litre
- the figure for sulphate (also written as 'SO' or 'SO₄') is no higher than 250 milligrams (or mg) a litre.

Make sure that you use still water (not sparkling) and that the seal is not broken. Once opened, store the bottled water in a fridge and use within the recommended time, for example, 'use within 3 days of opening'.

Bottled water also needs to be boiled before you prepare the feed (see pages 30–31 for more information).



After the water for the feed is boiled, it should be at a temperature of at least 70°C when the formula powder is added. Do not let the water cool for too long after boiling it. A kettle with 1 litre of boiled water should cool for no more than 30 minutes. A kettle with 500 ml of boiled water should cool for no more than 15 minutes.



Check the manufacturer's instructions to find out how much water and powdered infant formula you will need. Different types of formula come with different scoops. Make sure that you use only the scoop that comes with the powdered infant formula that you are using.

Always take care as, at this temperature, the water is still hot enough to scald adults and children.

4



Stand the bottle on a clean surface. Keep the teat and cap on the upturned lid of the steriliser to avoid putting them on the work surface.

5



Before adding the formula powder, pour the boiled water into the bottle up to the required mark.



safety first

Always pour the water into the bottle before adding the formula powder.

Why? Pouring the water in first allows you to measure the water accurately. If the formula powder was added first, it could mean that too little water was added to make up the feed, and this could be dangerous.

6



Always check the water level is correct.

7



Loosely fill the scoop provided with formula powder and level it off with the flat edge of a clean, dry knife or the leveller provided. Only use one scoop of powder to 30 ml or 1 oz of water.



safety first

It is important to use only the scoop provided with the formula you are using, as different products have different scoop sizes.

Why? Making up a feed with too much powder can give your baby constipation and can cause your baby to become dehydrated. Too little powder will not provide your baby with enough nutrition. By using the scoop provided, you can be sure you are adding the correct amount of formula powder.

8



Add the formula powder to the measured water.

9



Holding the edge of the teat with your fingers or using the tongs provided with the steriliser, put it on the bottle. (The tongs should be clean and sterilised too.) Screw the retaining ring on to the bottle.

Never add anything to infant formula. This includes sugars and cereals such as baby rice or rusks. Research shows that babies need nothing but breast milk or formula for the first six months of life.

10



Cover the teat with a cap.

11



Shake the bottle until the formula powder has dissolved.



safety first

Never use a microwave to heat up infant formula.

Why? There is a danger of overheating the formula feed. It can also heat the feed unevenly and could scald your baby's mouth.

12



Cool down the feed using one of the following methods:

- holding the bottom half of the bottle under cold running water
- putting it in a bowl of cold water
- leaving it at room temperature until it is cool enough to feed your baby.

Make sure the cap is covering the teat, whichever method you choose.



safety first

Make sure the made-up formula is cooled down properly before giving it to your baby.

Why? If the formula is not cooled down properly, there is a danger that the feed would be too hot and may scald your baby's mouth.

13



To prevent scalding, test the temperature of the feed by dropping a little on to the inside of your wrist. Before giving it to your baby it should be body temperature, which means it should feel warm or cool, but not hot.

Any infant formula not used during the feed must be thrown away after two hours. This is because bacteria multiply very fast at room temperature. This increases the risk of infection for the baby.

Any unused boiled water should also be thrown away.

Remember to ask your midwife or health visitor if you are not sure about making up a feed.



Signs that your baby is getting hungry

- They begin to move their head and mouth around.
- They find something to suck, usually their fingers.

It's important to feed your baby when they are hungry rather than trying to develop a regular routine. Keeping your baby close will help you to learn and interpret your baby's needs. This will help you to pick up on the signs that they are hungry. If you can spot these before they cry for food, your baby will be more calm and will be easier to feed.



Feeding your baby

Feeding your baby is a special time. It's a time to be close, to get to know your baby and to build a close and loving relationship. Before you start, make sure that you are sitting comfortably. It is important to look for the signs that your baby is ready to feed – the photos on page 20 will give you an idea of what to look for. Responding to your baby's needs will make feeding more enjoyable for you both.

Hold your baby close but in a fairly upright position, with their head supported comfortably. Brush the teat against your baby's lips and, when they open their mouth wide, allow them to draw in the teat. Hold the bottle horizontal to the ground, tilting it just enough to make sure the baby is taking in feed, not air, through the teat.



If your baby takes in air instead of feed, this can give them a sore tummy or colic. Babies feed in bursts of sucking with short pauses to rest. Holding your baby in the upright position means that the feed will stop flowing when your baby pauses. This will allow your baby to have a short rest before starting to suck again.

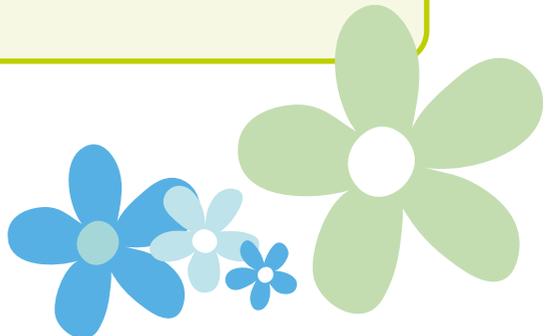
Always hold your baby while feeding and never leave them alone with a bottle as they might choke.

You will see bubbles in the bottle as your baby feeds. If you cannot see any bubbles, move the teat slightly to the side of your baby's mouth. You should then see bubbles rushing back up into the feed.

Let your baby set the pace for feeding – look out for the signs (cues) that they need a rest, need a burp or have had enough. Never force your baby to finish a feed if they appear full.

Stopping the feed from time to time also gives your baby a chance to see how 'full' they are and to learn to control how much they drink. This will help them develop a sense of their appetite. It will also give you the chance to start to recognise your baby's cues that they are full.

Try to keep the number of people who feed your baby as low as possible – mainly the baby's parent(s). Always hold your baby close, look into their eyes and talk to your baby soothingly when feeding. This will help your baby to get to know your touch, smell and voice, which will make them feel loved, safe and secure.



Winding your baby

Formula-fed babies need to be winded during and at the end of their feed to stop wind being trapped in their tummies. You can do this by:

- gently sitting your baby up, supporting them under the chin and rubbing their back until they burp
- or by leaning them against your shoulder and either rubbing or patting their back.



As well as a burp, your baby might also bring up a little feed. This is normal – so make sure you have a clean, dry cloth handy.

If your baby brings up anything that is a different colour from feed you should speak to your midwife or health visitor.

Your baby's growth

How much your baby grows and what is in their nappies will tell you whether they are getting enough to eat.

You should avoid overfeeding, as giving lots of formula in one feed might make your baby sick, or make them put on too much weight. Do not try and make your baby finish the feed if they do not seem to want it.

If your baby is bringing a lot of feed back up, this may mean that they want smaller amounts (but more often) than the guidance information on the tin or packet suggests.

You can talk to your health visitor about how your baby is growing.

- Your baby should be producing one or more wet nappies a day for the first two days. This will gradually increase to five or six wet nappies a day by the end of the first week.
- Babies should produce at least six heavy, wet nappies a day after the first week.
- For the first few days, your baby will pass dark sticky stools (meconium). This will change (and become paler) during the first week.
- After the first week, your baby should pass pale yellow or yellowish-brown stools.

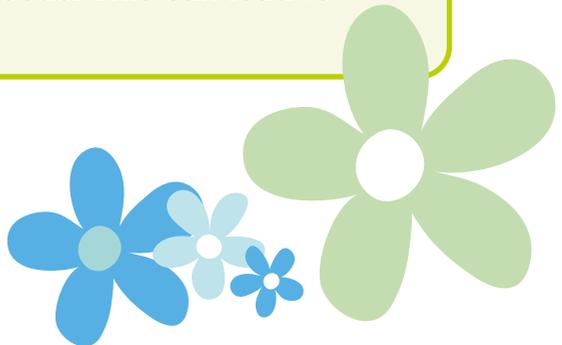
Formula-fed babies will normally need to pass stools at least once a day to feel comfortable.

How much formula should I give my baby?

Remember, breast or formula is the main source of nutrition for the first year of life. Newborn babies may drink small amounts to start with, but by the end of the first week of life most babies will drink around **150–200 ml of formula per kg of the baby's weight per day** until they start solids at around six months old. This will vary from baby to baby. As solid food is introduced, your baby will gradually take less formula feed.

After their first birthday babies can move on to full-fat cow's milk instead of formula feed. Ask your midwife or health visitor for more information.

You should feed your baby as much or as little formula as they want, and as often as they want. This is the same way that breast-fed babies feed and it will help your baby learn to control their appetite. It is important not to encourage your baby to take on a bit more formula so that they will go longer between feeds. This can lead to them overeating.



Storing a feed

Storage of formula powder

It is very important to follow the storage instructions on the package and to use the powdered formula before the use-by date. Once opened, store the powder with the lid on in a cool, dry place (not in the fridge).

Storage of a made-up formula feed

Make sure you follow the instructions on the formula powder packaging. It is recommended that feeds are made up one at a time. Feed that has not been used and has been kept at room temperature must be thrown away after two hours.

If there are occasions when you have no choice and need to store a feed, it should always be stored in a fridge and for no more than 24 hours. Even at fridge temperatures (0–5°C) bacteria can still multiply, although at a slower rate. This means the longer the prepared feed is stored, the greater the risk of infection. That is why it is safer to make up the feed with freshly boiled water each time your baby needs it.



safety first

Formula powder should not be added to cool water, even if it has been boiled and then stored in the fridge.

Why? The water needs to be boiled and at a temperature of at least 70°C when the formula powder is added. If the water is cooler than 70°C, the bacteria that might be present in the formula powder will not be killed.

Ready-made formula

Ready-made formula is available in cartons so you do not have to worry about mixing it when you are out and about, but this is normally more expensive.

If using ready-made formula, it is very important to prepare and store it following the manufacturer's instructions. Do not open these formula cartons and feed them to your baby if they are out of date.



safety first

Once these ready-made formula cartons are opened, any unused formula needs to be stored in the fridge in the carton with the cut corner turned down, or in a sterilised container, for no more than 24 hours.

Why? Ready-made formula is sterilised already. However, once the carton is opened it is possible for bacteria to get into the formula and grow, even in a fridge. Any unused formula stored in the fridge should be thrown away after 24 hours to minimise the risk of infection.

Feeding your baby while away from home

If you need to feed your baby when you are out, plan ahead. It is always best to use freshly made formula feed. You can do this by:

- boiling some water
- putting it in a clean vacuum flask to take with you.

Make the feed up when your baby needs it by:

- pouring the correct amount of hot water from the vacuum flask into a sterilised bottle
- adding the formula powder.

Remember to cool the formula feed down by holding the bottom half of the bottle under cold running water, with the cap covering the teat.



safety first

Make sure the flask is full and securely sealed.

Why? This will ensure the water stays above 70°C. The vacuum flask needs to be clean but does not need to be sterilised before use. The boiling water will kill any bacteria present in the vacuum flask.

If there are occasions when you are unable to take boiled water with you to make up a fresh feed and you have no choice, you can make up **one feed** just before going out. However, you will need to cool it as rapidly as possible and then keep it chilled in a cool bag until you need it.

Remember that in the cool bag bacteria can still survive and multiply, although at a slower rate than at room temperature. This means that the longer the prepared formula is stored, the greater the risk of infection. Always make sure that the bottle stays cool and that you use the feed as soon as possible.

When you are ready to use it, place the bottle in a container of warm water to heat it up.



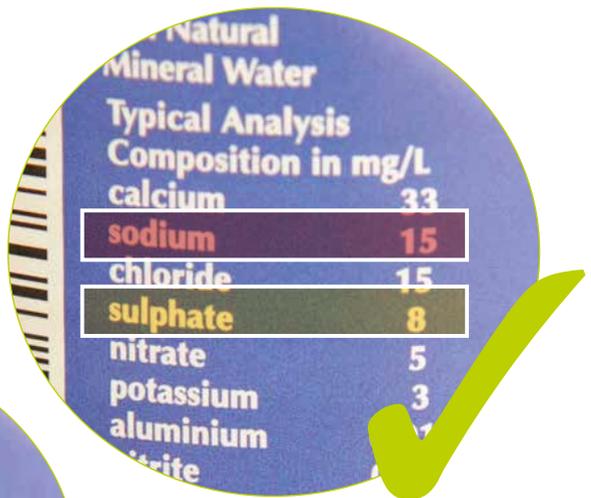
safety first

Never use a microwave to heat up infant formula.

Why? There is a danger of overheating the formula. It can also heat the feed unevenly and could scald your baby's mouth.

If you are abroad, you will need to use bottled water that has been boiled and is still over 70°C. Do not use tap water. Remember that any bottled water that is labelled 'natural mineral water' might contain too much sodium or sulphate for babies. Check the label to make sure that:

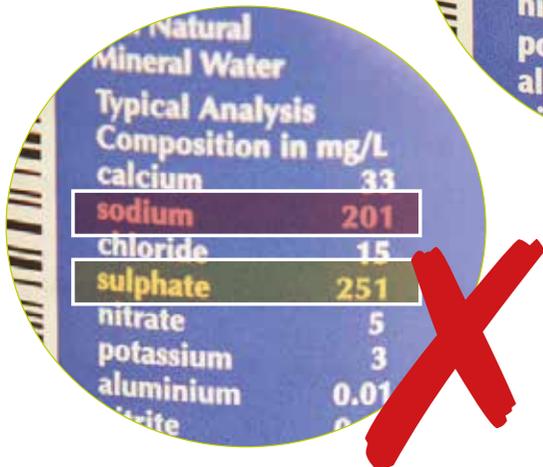
- the figure for sodium (also written as 'Na') is no higher than 200 milligrams (or 'mg') a litre
- the figure for sulphate (also written as 'SO' or 'SO₄') is less than 250 milligrams (or 'mg') a litre.



Natural Mineral Water
Typical Analysis
Composition in mg/L

calcium	33
sodium	15
chloride	15
sulphate	8
nitrate	5
potassium	3
aluminium	1
strite	

A circular inset of a water label with a green checkmark. The label shows a typical analysis of a natural mineral water. The sodium content is 15 mg/L and the sulphate content is 8 mg/L, both of which are within the safe limits for babies.



Natural Mineral Water
Typical Analysis
Composition in mg/L

calcium	33
sodium	201
chloride	15
sulphate	251
nitrate	5
potassium	3
aluminium	0.01
strite	

A circular inset of a water label with a red X. The label shows a typical analysis of a natural mineral water. The sodium content is 201 mg/L and the sulphate content is 251 mg/L, both of which are above the safe limits for babies.

You should choose water that has the lowest sodium content you can find.

Make sure that you use still water (not sparkling) and that the seal is not broken.

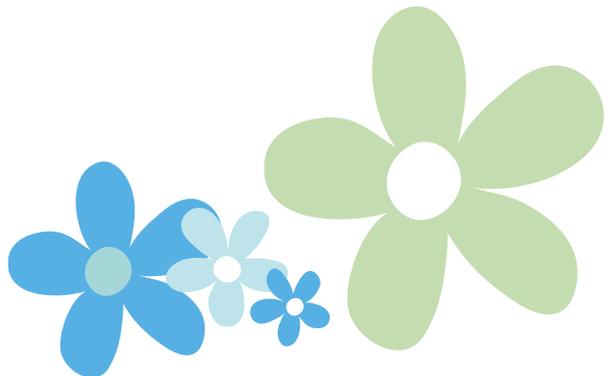
Once opened, store the bottled water in a fridge and use within the recommended time, for example, 'use within 3 days'.



safety first

Check that bottled water contains no more than 200 mg a litre of sodium (Na) and no more than 250 mg a litre of sulphate (SO or SO₄).

Why? This is because babies' kidneys are not properly developed yet, which means that they cannot get rid of too much sodium or sulphate from their bodies. If they eat or drink too much sodium or sulphate they can become ill.



Types of infant formula

Formula can be bought:

- as formula powder, which needs to be mixed with water
- ready-made, which is ready to use.



First formula milks

Babies should only drink first milks (whey-based formula) until they are 1 year old. Read the label carefully.

Unless your doctor or health visitor gives you different advice, this is the best type of infant formula for your baby until the age of 1 year. If you are formula feeding, first milk is the only food your baby needs for the first six months of life.

There are different brands of infant formula but there is no real difference between them. No one brand is recommended over another. Speak to your health visitor if you are not sure.

First milk is the most suitable type of formula for your baby for the first year of life.

Follow-on formulas

Other formulas are also available for babies aged six months and over, such as ‘follow-on formula’, ‘toddler formula’ and ‘growing-up milk’. There is no need to switch to any of these formulas – babies can drink first milks until they are 1 year old.

These follow-on formulas are not necessary for babies. First milks are recommended until babies are 1 year old.

‘Hungry baby milks’ (casein-based formulas) are also available and state that they are suitable for use from birth. Unless your doctor or health visitor gives you different advice, there is no need to switch to these formulas. First milk (whey-based formula) is the best type of formula for your baby until the age of 1 year.

Soya formula

This is made from soya, not cow’s milk. You should not give soya formula to your baby unless your doctor advises you to. Other soya-based drinks should be avoided until your baby is 1 year old.

Goat’s milk-based infant formula

Goat’s milk infant formula is now permitted for sale in the UK. However, goat’s milk formula is not suitable for babies with a cow’s milk protein allergy and should therefore not be given to them, unless directed by a health professional.

Ordinary cow’s milk

Full-fat cow’s milk can be given as a drink once your baby is over 1 year old. Pasteurised full-fat cow’s milk can be used in cooking from six months onwards, for example, to make custard or in mashed potatoes.

Further information

At around six months your baby is ready to eat solid food (weaning). Babies should never be weaned before four months. Further information on weaning can be found in Fun First Foods: www.healthscotland.com/documents/303.aspx
You can also get a copy of the booklet and discuss weaning with your health visitor.

Protecting your baby's teeth

Once your baby is six months old, try giving them feed in a free-flow cup (non-spill cups are not recommended). Free-flow cups are given out by your health visitor as part of the Childsmile programme. You should aim for your baby to stop using a feeding bottle by their first birthday. For advice on how to look after your baby's teeth, go to www.child-smile.org.uk

For information and advice about feeding your baby, please ask your midwife, health visitor or GP.



safety first

If you are giving your baby infant formula, you should continue with this until they are 1 year old, after which time full-fat cow's milk can be introduced.

Why? Cow's milk is not suitable for babies as their main drink until the age of 1 – it does not have the right mix of nutrients. It can be used in cooking from the age of six months.

Websites

Ready Steady Baby! www.nhsinform.scot/readysteadybaby

Ready Steady Toddler! www.readysteadytoddler.org.uk

You can ask your midwife for a copy of these books too.

You may be entitled to Best Start Foods. Ask your midwife or health visitor for more information.

www.mygov.scot/best-start-grant-best-start-foods

Breastfeeding is the healthiest way to feed your baby. It has a range of health benefits for both baby and mother, and is the natural and most convenient way to feed babies. It is always available at the right temperature and with the right ingredients, wherever you are, and does not cost any money. Formula feeding has associated costs for the formula itself and for bottles, teats and sterilising equipment. Exclusive breastfeeding is recommended until babies are six months old.

If you decide not to breastfeed or to stop breastfeeding, it is possible to restart but it will be difficult. Giving infant formula to a breast-fed baby will reduce your breast milk supply.

You do not need to eat any special foods while breastfeeding, but it is a good idea for you, just like everyone else, to eat a healthy diet. Eating a healthy diet during pregnancy prepares your body for maintaining breastfeeding.

It is recommended that all pregnant and breastfeeding women take a daily supplement of 10 micrograms (mcg) of vitamin D. Visit the Healthy Start website or ask your health visitor for more information.

Quick reference step-by-step guide

1

Clean, rinse and sterilise formula feeding bottles, teats and covers.

See pages 4 to 9.

2

Clean and disinfect surfaces, wash and dry your hands.

See pages 10 to 11.

3

Boil 1 litre of fresh tap water and leave to cool for no more than 30 minutes.

See pages 11 to 13.

4

Read the formula powder instructions carefully.

5

Pour the boiled water into the sterile bottle and check the water level is correct.

See pages 14 and 15.

- 6** Add the correct amount of formula powder using the scoop provided.
See page 15.

- 7** Put the sterile teat and cover on to the bottle and shake well.
See pages 16 and 17.

- 8** Cool the bottle quickly under cold running water and check temperature.
See pages 18 and 19.

- 9** Hold your baby close in a fairly upright position, support their head. Feed your baby from the slightly tilted bottle at their own pace and check for bubbles.
See page 21.

- 10** Throw away any unused boiled water and formula.

This guide will tell you how to safely make up infant formula milk powder for bottle feeding your baby. It will explain what different types of formula milk there are and what equipment you will need. It will also tell you how to clean and sterilise bottles, how to make up and store formula milk, and how to feed your baby while away from home.

This resource may also be made available on request in the following formats:



☎ 0131 314 5300

✉ nhs.healthscotland-alternativeformats@nhs.net

Published by NHS Health Scotland

1 South Gyle Crescent
Edinburgh EH12 9EB

© NHS Health Scotland 2020

First published 2011

All rights reserved. Material contained in this publication may not be reproduced in whole or part without prior permission of NHS Health Scotland (or other copyright owners). While every effort is made to ensure that the information given here is accurate, no legal responsibility is accepted for any errors, omissions or misleading statements.

NHS Health Scotland is a WHO Collaborating Centre for Health Promotion and Public Health Development.



www.nhsinform.scot/readysteadybaby