

Marsupial Milk Replacers

The composition of marsupial milk undergoes both quantitative and qualitative changes as the joey develops. Wombaroo marsupial milk replacers are formulated as multi-staged products to provide balanced nutrition during all phases of joey development. The Wombaroo milk stages are related to the time that a joey has already spent in the pouch. Length of time in the pouch varies for different species of joey. To relate the pouch life of all joeys to a common time scale we introduced the concept of age factor and coded our milk replacers accordingly.

By definition all joeys at fully out of pouch age have an age factor of 1 and all joeys that are in some way confined to the pouch have an age factor of less than 1. In other words a joey at fully out of pouch age has used up 100% of its pouch life while one that still lives in or visits the pouch has some proportion of its pouch life to complete. For example our age factor codes for macropods are as follows.

<0.4 which means that less than 40% of pouch life has been completed.

0.4 which means that 40% of pouch life has been completed.

0.6 which means that 60% of pouch life has been completed.

>0.7 which means that more than 70% of pouch life has been completed.

Each Wombaroo staged marsupial milk replacer is identified by an icon which pictorially represents the development of the joey. Growth charts can also be used to determine which staged milk replacer to feed. Please note the values for body measurements in our charts do not take into account differences due to sex or subspecies and should only be used as a guide.

How to use Wombaroo

Use Wombaroo as a complete food for rearing orphaned young, as a supplement when mother's milk is limited or as supporting nutrition for debilitated or convalescing animals.

Our milk powders have different densities and should be weighed when preparing milk.

Do not concentrate our milk replacers by introducing additional nutrients or making them up to a volume less than stated on the label.

To make 1 litre of milk add the prescribed dose of powder to 400mL of preboiled warm water. Mix to paste then make up to 1 litre (do not add 1 litre) with warm preboiled water and mix thoroughly. We recommend using an electric whisk for mixing as this helps homogenise the milk. Prepared milk should be stored in the fridge for a day or frozen for longer periods. Ice cube trays are a convenient way to freeze small volumes of milk. Milk that has been thawed should be remixed before use but not refrozen.

Tables of suggested feed volumes are supplied with each milk replacer. These milk volumes are calculated from estimates of daily energy requirement. Energy requirement is determined from a mathematical relationship between body surface area, volume and weight. Weigh animals regularly to verify weight gains and determine the volume of milk to feed. Overfeeding milk can cause diarrhoea so feed the suggested volumes in our tables. Milk volumes in the feed tables become invalid once weaning commences because the animal is no longer fed solely on milk. The volume of milk required while weaning will depend on the amount and nutritional value of other food eaten.

Shipping & Storage of Wombaroo Milk Replacers

Careful shipping and storage of Wombaroo milk replacers is necessary to prevent microbial contamination and spoilage of milk products.

Wombaroo Milk Replacers should be stored in a cool, dry place, preferably under 30 degrees Celcius.

Moisture

Exposure to moisture is the most likely cause of microbial contamination. Once opened, we recommend storing milk powder in an air tight container. This is especially necessary in the more humid, tropical climates.

We **do not** advise storing milk powder in the refrigerator, due to condensation of moisture from the air. Every time the fridge door is opened, moisture-laden air can enter. When this is cooled, droplets of liquid water condense which can provide a suitable environment for microbial growth. While it's true that refrigeration will slow the rate of microbial growth, it does not prevent it altogether.

We **do not** advise storing milk powder in the freezer, due to the formation of ice crystals within the milk powder. These can disrupt the emulsion of fat in the milk and cause problems when trying to reconstitute the milk powder.

Temperature

High temperatures can accelerate oxidation of the fat in the milk, causing it to go rancid. This can create a noticeable change in texture, odour, colour, and taste. However, in the absence of moisture, short-term exposure to higher temperatures is not likely to cause significant microbial problems. Hence, we generally don't see a lot of problems caused by hotter shipping conditions, unless there has been a prolonged exposure to heat or excessive moisture.

Storage of Reconstituted Milk

Made up (reconstituted) milk should be stored in the fridge for a day, or frozen for longer periods. When small quantities of milk are required, it is more convenient to make up larger batches (ie 500mL – 1000mL) and store frozen in ice-cube trays. Then thaw out smaller quantities as required.

Do not refreeze thawed milk.

Latex Teats

Wombaroo makes latex teats with a sleeve to fit bottles with a neck diameter of 18-24mm. Wombaroo supplies a 120ml plastic bottle with graduations in mL and fl.oz., that fit these teats.

TEAT SELECTION: Teats should resemble mothers' in shape and length for mouth comfort, fit and correct tooth eruption. Marsupial teats get longer as the joey grows, so progression to longer teats is important. We suggest uses for our teats but carers will decide which is the best size and shape for their animal.

SIZE OF HOLE: There is no hole in the teats, so the carer can make a hole to suit the age of the animal. Pierce the tip of the teat with a hot needle to make a hole about 1mm in diameter, or for large animals, cut a hole with scissors. If the hole is too small, excessive sucking will quickly weaken the tip resulting in the end blowing out. If this is happening then the hole is probably too small for the animal. Make a larger hole. The hole should be large enough for milk to drip out slowly, when the bottle is inverted.

FEEDING TECHNIQUE: Small animals can be fed using a syringe with a teat pulled over the end, to give greater control of milk flow with the plunger. Guidance should be obtained from experienced carers on correct feeding technique for different animals.

STORAGE: Latex is a natural product. Deterioration can be slowed by storing teats in a dry place away from light. An opaque, airtight container should be used.

CARE: Teats should be washed in warm soapy water, immediately after use, dried and stored as above. Some carers sterilise by boiling or with infant sterilising solutions.