Zoologic®

nutritional components

M•I•L•K M•A•T•R•I•X

# MIXING GUIDE

The information in this formulation book provides guidelines for mixing milk replacers for infant animals that have been orphaned or need to receive supplementary feeding. Formulas have been developed based on the known composition of each species' milk.


# INTRODUCTION

The information in this formulation book provides guidelines for mixing milk replacers for infant animals that have been orphaned or need to receive supplementary feeding. Formulas have been developed based on the known composition of each species' milk. The solids concentration in milks vary with the stage of lactation and therefore the amount of solids may need to be initially diluted and later concentrated as the animal grows. Many of the animals listed in this book have unique milk compositions and it is not always possible to exactly match the milk profile. In each case the closest possible formula is given, but it may be improved by the addition of certain ingredients such as cream, fish oil, or vegetable oils. Animals in the cat family will benefit from the addition of taurine to the formulas. Many animals have milks that are low in lactose. If the lactose level in the formula is too high or if the animal seems to have a lactose intolerance, then a lactase such as Lactaid® may be added.

All the formulas have been listed so they can be prepared by weights as well as by volume measurements. It must be remembered that when preparing by volume the percentages used are approximations since the density of each measure of powder may vary by as much as ten percent.

Please remember that these formulations serve as the backbone of a recipe and like all good recipes they should be modified and adjusted to best meet the needs of the final consumer.


ZOOlogic
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20
M•I•L•K M•A•T•R•I•X
14
A milk replacer and nutritional supplement fortified with vitamins and minerals to be used in feeding wild and exotic non-domestic animals such as Zebras and Rhinoceros. Part of an integrated system designed to let you virtually match any mammal's milk.
NET WT. 5 LB. (2.27kg)
Sold by weight, not by volume

# ZOOLOGIC® Nutritional Components Milk Matrix 20/14

A milk replacer and nutritional supplement containing a high level of lactose. Part of an integrated system designed to let you virtually match any mammal's milk.

## PRODUCT INFORMATION

**Milk Replacer:** Milk Matrix 20/14 may be used alone or blended with other products in the Matrix family to formulate a milk replacer with nutrient levels that closely match a species' natural milk.

As a general rule, liquid or reconstituted milk replacer should be fed at a rate of 10% or 20% of body weight daily as tolerated and required for steady growth and for proper stool condition. Divide the total daily amount into 6 to 12 feedings per day, depending on age, condition, species and staffing.

Reconstituted milk replacer should be refrigerated and used within 24 hours. Feed at room temperature or body temperature, depending on size and condition of animal.

**Weaning Food Supplement:** Because of its highly digestible milk nutrients, the formula used during suckling is an excellent supplement during weaning as a transition from milk to solid food. Add to the diet at the rate of one teaspoon per 10 pounds of body weight.

## MILK MATRIX 20/14 Typical Nutritional Analysis

### Composition per 100 grams powder

| | | | |
|---|---|---|---|
| Energy kcal | 388.7 | Fiber, g | 0.0 |
| Protein g | 20.6 | Moisture g | 5.0 |
| Fat g | 16.0 | Ash g | 6.8 |
| Carbohydrate g | 51.6 | | |

### Minerals per 100 grams powder

| | | | |
|---|---|---|---|
| Calcium mg | 1000.0 | Iron mg | 10.8 |
| Phosphorus mg | 800.0 | Copper mg | 2.8 |
| Potassium mg | 1300.0 | Zinc mg | 8.7 |
| Sodium mg | 510.0 | Manganese mg | 7.6 |
| Magnesium mg | 95.0 | Total Chloride mg | 1020.0 |

### Vitamins per 100 grams powder

| | | | |
|---|---|---|---|
| Vitamin A I.U. | 3882.0 | Pantothenic Acid mg | 3.7 |
| Vitamin D3 I.U. | 542.0 | Vitamin B6 mg | 0.4 |
| Vitamin E I.U. | 11.5 | Choline mg | 136.0 |
| Thiamin mg | 0.6 | Folic Acid mg | 0.2 |
| Riboflavin mg | 2.0 | Vitamin B12 mcg | 4.5 |
| Niacin mg | 4.1 | Biotin mcg | 10.7 |

### Amino Acids per 100 grams powder

| | | | |
|---|---|---|---|
| Lysine g | 1.38 | Valine g | 1.09 |
| Arginine g | 0.54 | Histidine g | 0.46 |
| Methionine g | 0.41 | Alanine g | 0.96 |
| Cystine g | 0.43 | Aspartic Acid g | 2.00 |
| Tryptophane g | 0.28 | Glutamic Acid g | 3.32 |
| Threonine g | 1.08 | Glycine g | 0.43 |
| Isoleucine g | 1.16 | Proline g | 1.99 |
| Leucine g | 1.86 | Serine g | 0.95 |
| Phenylalanine g | 0.67 | Tryosine g | 0.45 |

### Fatty Acids per 100 grams powder

| | | | |
|---|---|---|---|
| 8:0 Caprylic Acid g | 0.06 | 16:1 Palmitoleic Acid g | 0.19 |
| 10:0 Capric Acid g | 1.97 | 18:0 Stearic Acid g | 1.12 |
| 12:0 Lauric Acid g | 5.25 | 18:1 Oleic Acid g | 3.86 |
| 14:0 Myristic Acid g | 0.32 | 18:2Linoleic Acid g | 1.28 |
| 16:0 Palmitic Acid g | 1.95 | 18:3 Linolenic Acid g | 0 |

### Guaranteed Analysis

| | | | |
|---|---|---|---|
| Crude Protein %, min. | 20.0 | Moisture %, max. | 6.000 |
| Crude Fat %, min | 14.0 | Ash %, max | 8.500 |
| Crude Fiber %, max. | 0.1 | Copper %, max | 0.003 |

## INGREDIENTS

Dried whey, dried skimmed milk, animal and vegetable fat (preserved with BHA), dried protein concentrate, malto dextrins, dried corn syrup, dried milk protein, lecithin, calcium carbonate, dicalcium phosphate, natural and artificial flavors added, vitamin E supplement, magnesium sulfate, ferrous sulfate, manganese sulfate, vitamin A supplement, vitamin D3 supplement, copper sulfate, zinc sulfate, vitamin B12 supplement, calcium pantothenate, niacin supplement, riboflavin supplement, thiamine mononitrate, folic acid, pyridoxine hydrochloride, menadione sodium bisulfite complex, ethylenediamine dihydroiodide, biotin, and sodium selenite.


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23
M•I•L•K M•A•T•R•I•X
30
A milk replacer and nutritional supplement fortified with vitamins and minerals to be used in feeding wild and exotic non-domestic animals such as Giraffes, Llamas, Goats and Pigs. Part of an integrated system designed to let you virtually match any mammal's milk.
NET WT. 5 LB. (2.27kg)
Sold by weight, not by volume

# ZOOLOGIC® Nutritional Components Milk Matrix 23/30

A milk replacer and nutritional supplement containing a medium level of lactose. Part of an integrated system designed to let you virtually match any mammal's milk.

## PRODUCT INFORMATION

**Milk Replacer:** Milk Matrix 23/30 may be used alone or blended with other products in the Matrix family to formulate a milk replacer with nutrient levels that closely match a species' natural milk.

As a general rule, liquid or reconstituted milk replacer should be fed at a rate of 10% or 20% of body weight daily as tolerated and required for steady growth and for proper stool condition. Divide the total daily amount into 6 to 12 feedings per day, depending on age, condition, species and staffing.

Reconstituted milk replacer should be refrigerated and used within 24 hours. Feed at room temperature or body temperature, depending on size and condition of animal.

**Weaning Food Supplement:** Because of its highly digestible milk nutrients, the formula used during suckling is an excellent supplement during weaning as a transition from milk to solid food. Add to the diet at the rate of one teaspoon per 10 pounds of body weight.

# MILK MATRIX 23/30 Typical Nutritional Analysis

## Composition per 100 grams powder

| | | | |
|---|---|---|---|
| Energy kcal | 460.5 | Fiber, g | 0.0 |
| Protein g | 23.9 | Moisture g | 4.5 |
| Fat g | 30.0 | Ash g | 6.8 |
| Carbohydrate g | 34.8 | | |

## Minerals per 100 grams powder

| | | | |
|---|---|---|---|
| Calcium mg | 1130.0 | Iron mg | 11.0 |
| Phosphorus mg | 519.0 | Copper mg | 2.2 |
| Potassium mg | 1540.0 | Zinc mg | 12.3 |
| Sodium mg | 330.0 | Manganese mg | 7.5 |
| Magnesium mg | 76.0 | Total Chloride mg | 1520.0 |

## Vitamins per 100 grams powder

| | | | |
|---|---|---|---|
| Vitamin A I.U. | 5054.0 | Pantothenic Acid mg | 3.9 |
| Vitamin D3 I.U. | 1107.0 | Vitamin B6 mg | 0.1 |
| Vitamin E I.U. | 13.3 | Choline mg | 72.0 |
| Thiamin mg | 0.7 | Folic Acid mg | 0.4 |
| Riboflavin mg | 1.7 | Vitamin B12 mcg | 4.5 |
| Niacin mg | 7.8 | Biotin mcg | 11.6 |

## Amino Acids per 100 grams powder

| | | | |
|---|---|---|---|
| Lysine g | 2.01 | Valine g | 1.37 |
| Arginine g | 0.53 | Histidine g | 0.44 |
| Methionine g | 0.50 | Alanine g | 1.18 |
| Cystine g | 0.62 | Aspartic Acid g | 2.94 |
| Tryptophane g | 0.37 | Glutamic Acid g | 4.19 |
| Threonine g | 1.82 | Glycine g | 0.46 |
| Isoleucine g | 1.38 | Proline g | 1.39 |
| Leucine g | 2.36 | Serine g | 1.28 |
| Phenylalanine g | 0.71 | Tryosine g | 0.30 |

## Fatty Acids per 100 grams powder

| | | | |
|---|---|---|---|
| 8:0 Caprylic Acid g | 0.03 | 16:1 Palmitoleic Acid g | 0.80 |
| 10:0 Capric Acid g | 0.09 | 18:0 Stearic Acid g | 3.63 |
| 12:0 Lauric Acid g | 0.12 | 18:1 Oleic Acid g | 12.65 |
| 14:0 Myristic Acid g | 0.67 | 18:2 Linoleic Acid g | 3.36 |
| 16:0 Palmitic Acid g | 7.14 | 18:3 Linolenic Acid g | 0.16 |

## Guaranteed Analysis

| | | | |
|---|---|---|---|
| Crude Protein %, min. | 23.0 | Moisture %, max. | 5.0 |
| Crude Fat %, min | 30.0 | Ash %, max | 8.0 |
| Crude Fiber %, max. | 0.2 | | |

## INGREDIENTS

Dried whey protein concentrate, dried whey, vegetable oil and animal fat (preserved with BHA), dried whey product, lecithin, dl-methionine, l-lysine, vitamin A acetate, vitamin D3 supplement, vitamin E supplement, vitamin B12 supplement, folic acid, choline chloride, riboflavin supplement, niacin supplement, calcium pantothenate, thiamine mononitrate, sodium propionate, citric acid, potassium sorbate, calcium propionate (preservatives), ferrous sulfate, cobalt sulfate, zinc sulfate, manganese sulfate, magnesium oxide, ethylenediamine dihydroiodide, silicon dioxide, sodium selenite, artificial flavor.


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30
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52
A high fat milk protein powder containing low levels of lactose and fortified with vitamins and minerals to be used in feeding wild and exotic non-domestic animals such as Bears, Seals, Dolphins and Whales. Part of an integrated system designed to let you virtually match any mammal's milk.
NET WT. 4 LB. (1.8kg)
Sold by weight, not by volume

# ZOOLOGIC® Nutritional Components Milk Matrix 30/52

A milk replacer and nutritional supplement containing a level of 3.1% lactose. Part of an integrated system designed to let you virtually match any mammal's milk.

## PRODUCT INFORMATION

**Milk Replacer:** Milk Matrix 30/52 may be used alone or blended with other products in the Matrix family to formulate a milk replacer with nutrient levels that closely match a species' natural milk.

As a general rule, liquid or reconstituted milk replacer should be fed at a rate of 10% or 20% of body weight daily as tolerated and required for steady growth and for proper stool condition. Divide the total daily amount into 6 to 12 feedings per day, depending on age, condition, species and staffing.

Reconstituted milk replacer should be refrigerated and used within 24 hours. Feed at room temperature or body temperature, depending on size and condition of animal.

**Weaning Food Supplement:** Milk Matrix 30/52 is an excellent supplement that can be used during weaning as a transition from milk to solid food. This powder contains highly digestible nutrients which can be fed at a rate of one teaspoon per 10 pounds of body weight per day.

## MILK MATRIX 30/52 Typical Nutritional Analysis

### Composition per 100 grams powder

| | | | |
|---|---|---|---|
| Energy kcal | 595.0 | Fiber, g | 0.0 |
| Protein g | 31.3 | Moisture g | 3.6 |
| Fat g | 52.0 | Ash g | 7.0 |
| Carbohydrate g | 3.1 | | |

### Minerals per 100 grams powder

| | | | |
|---|---|---|---|
| Calcium mg | 1090.0 | Iron mg | 11.0 |
| Phosphorus mg | 753.0 | Copper mg | 1.0 |
| Potassium mg | 805.0 | Zinc mg | 6.0 |
| Sodium mg | 575.0 | Manganese mg | 1.4 |
| Magnesium mg | 88.0 | Total Chloride mg | 741.0 |

### Vitamins per 100 grams powder

| | | | |
|---|---|---|---|
| Vitamin A I.U. | 3656.0 | Pantothenic Acid mg | 7.0 |
| Vitamin D3 I.U. | 1023.0 | Vitamin B6 mg | 0.4 |
| Vitamin E I.U. | 34.4 | Choline mg | 498.0 |
| Thiamin mg | 0.4 | Folic Acid mg | 0.3 |
| Riboflavin mg | 0.9 | Vitamin B12 mcg | 6.0 |
| Niacin mg | 7.6 | Biotin mcg | 31.1 |

### Amino Acids per 100 grams powder

| | | | |
|---|---|---|---|
| Lysine g | 2.15 | Valine g | 1.85 |
| Arginine g | 0.99 | Histidine g | 0.86 |
| Methionine g | 1.08 | Alanine g | 0.60 |
| Cystine g | 0.11 | Aspartic Acid g | 2.39 |
| Tryptophane g | 0.38 | Glutamic Acid g | 6.01 |
| Threonine g | 1.32 | Glycine g | 0.58 |
| Isoleucine g | 1.47 | Proline g | 3.07 |
| Leucine g | 2.41 | Serine g | 1.65 |
| Phenylalanine g | 1.55 | Tryosine g | 1.39 |

### Fatty Acids per 100 grams powder

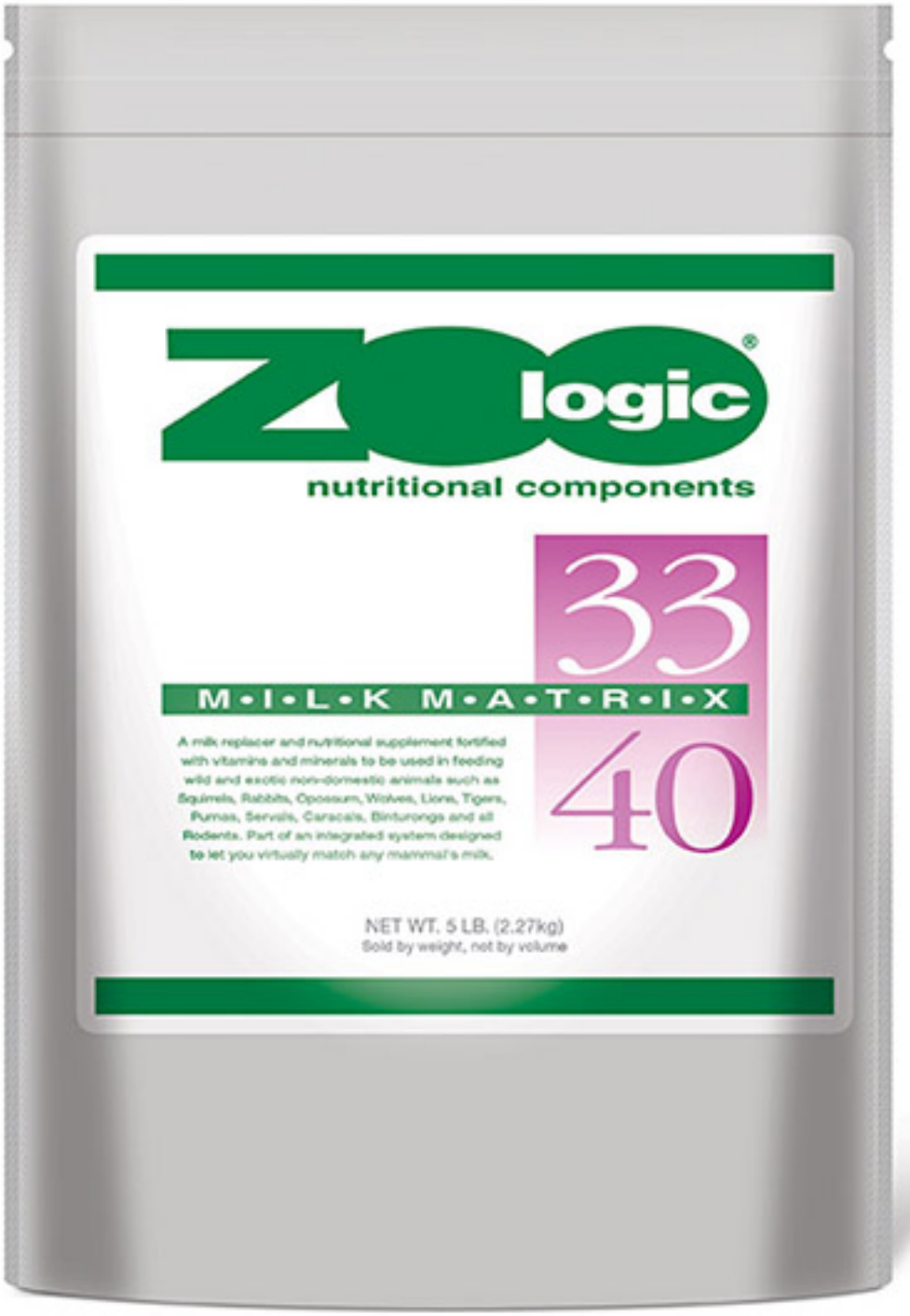
| | | | |
|---|---|---|---|
| 8:0 Caprylic Acid g | 0.02 | 16:1 Palmitoleic Acid g | 1.57 |
| 10:0 Capric Acid g | 0.06 | 18:0 Stearic Acid g | 6.94 |
| 12:0 Lauric Acid g | 0.10 | 18:1 Oleic Acid g | 23.31 |
| 14:0 Myristic Acid g | 0.78 | 18:2 Linoleic Acid g | 4.91 |
| 16:0 Palmitic Acid g | 12.71 | 18:3 Linolenic Acid g | 0.20 |

### Guaranteed Analysis

| | | | |
|---|---|---|---|
| Crude Protein %, min. | 30.0 | Moisture %, max. | 5.0 |
| Crude Fat %, min | 55.0 | Ash %, max | 8.0 |
| Crude Fiber %, max. | 0.25 | | |

## INGREDIENTS

Animal fat (preserved with BHA and citric acid), casein, dicalcium phosphate, condensed whey, vegetable oil, calcium carbonate, lecithin, potassium chloride, choline chloride, magnesium sulfate, vitamin E supplement, vitamin A supplement, zinc methionine, ferrous sulfate, calcium pantothenate, vitamin B12 supplement, niacin supplement, manganese sulfate, copper sulfate, vitamin D3 supplement, riboflavin, thiamine mononitrate, pyridoxine hydrochloride, menadione sodium bisulfite complex, folic acid, calcium iodate, biotin, sodium selenite, mono and diglycerides.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33
M•I•L•K M•A•T•R•I•X
40
A milk replacer and nutritional supplement fortified with vitamins and minerals to be used in feeding wild and exotic non-domestic animals such as Squirrels, Rabbits, Opossum, Wolves, Lions, Tigers, Pumas, Servals, Caracals, Binturongs and all Rodents. Part of an integrated system designed to let you virtually match any mammal's milk.
NET WT. 5 LB. (2.27kg)
Sold by weight, not by volume

# ZOOLOGIC® Nutritional Components Milk Matrix 33/40

A milk replacer and nutritional supplement containing a low level of lactose. Part of an integrated system designed to let you virtually match any mammal's milk.

## PRODUCT INFORMATION

**Milk Replacer:** Milk Matrix 33/40 may be used alone or blended with other products in the Matrix family to formulate a milk replacer with nutrient levels that closely match a species' natural milk.

As a general rule, liquid or reconstituted milk replacer should be fed at a rate of 10% or 20% of body weight daily as tolerated and required for steady growth and for proper stool condition. Divide the total daily amount into 6 to 12 feedings per day, depending on age, condition, species and staffing.

Reconstituted milk replacer should be refrigerated and used within 24 hours. Feed at room temperature or body temperature, depending on size and condition of animal.

**Weaning Food Supplement:** Because of its highly digestible milk nutrients, the formula used during suckling is an excellent supplement during weaning as a transition from milk to solid food. Add to the diet at the rate of one teaspoon per 10 pounds of body weight.

## MILK MATRIX 33/40 Typical Nutritional Analysis

### Composition per 100 grams powder

| | | | |
|---|---|---|---|
| Energy kcal | 538.3 | Fiber, g | 0.0 |
| Protein g | 34.0 | Moisture g | 2.1 |
| Fat g | 42.9 | Ash g | 5.4 |
| Carbohydrate g | 15.6 | | |

### Minerals per 100 grams powder

| | | | |
|---|---|---|---|
| Calcium mg | 1164.0 | Iron mg | 4.2 |
| Phosphorus mg | 800.0 | Copper mg | 1.3 |
| Potassium mg | 640.0 | Zinc mg | 7.9 |
| Sodium mg | 430.0 | Manganese mg | 0.9 |
| Magnesium mg | 62.0 | Total Chloride mg | 734.0 |

### Vitamins per 100 grams powder

| | | | |
|---|---|---|---|
| Vitamin A I.U. | 3084.0 | Pantothenic Acid mg | 4.0 |
| Vitamin D3 I.U. | 760.0 | Vitamin B6 mg | 0.4 |
| Vitamin E I.U. | 12.0 | Choline mg | 306.0 |
| Thiamin mg | 0.5 | Folic Acid mg | 0.8 |
| Riboflavin mg | 1.3 | Vitamin B12 mcg | 4.2 |
| Niacin mg | 4.9 | Biotin mcg | 11.4 |

### Amino Acids per 100 grams powder

| | | | |
|---|---|---|---|
| Lysine g | 2.36 | Valine g | 1.75 |
| Arginine g | 1.86 | Histidine g | 0.80 |
| Methionine g | 1.83 | Alanine g | 0.82 |
| Cystine g | 0.17 | Aspartic Acid g | 2.33 |
| Tryptophane g | 0.47 | Glutamic Acid g | 6.14 |
| Threonine g | 1.25 | Glycine g | 0.54 |
| Isoleucine g | 1.40 | Proline g | 2.85 |
| Leucine g | 2.49 | Serine g | 1.66 |
| Phenylalanine g | 1.33 | Tryosine g | 1.07 |

### Fatty Acids per 100 grams powder

| | | | |
|---|---|---|---|
| 8:0 Caprylic Acid g | 0.41 | 16:1 Palmitoleic Acid g | 0.00 |
| 10:0 Capric Acid g | 0.47 | 18:0 Stearic Acid g | 1.52 |
| 12:0 Lauric Acid g | 4.65 | 18:1 Oleic Acid g | 8.67 |
| 14:0 Myristic Acid g | 1.93 | 18:2 Linoleic Acid g | 16.23 |
| 16:0 Palmitic Acid g | 6.98 | 18:3 Linolenic Acid g | 2.04 |

### Guaranteed Analysis

| | | | |
|---|---|---|---|
| Crude Protein %, min. | 33.0 | Moisture %, max. | 5.0 |
| Crude Fat %, min | 40.0 | Ash %, max | 6.0 |
| Crude Fiber %, max. | 0.0 | | |

## INGREDIENTS

Vegetable oil (preserved with BHA. BHT, propyl gallate and citric acid), casein, dried skimmed milk, egg yolk, l-arginine, dl-methionine, calcium carbonate precipitated, potassium phosphate monobasic dried corn syrup, calcium hydroxide, salt, lecithin, monocalcium phosphate, sodium hydroxide, choline chloride, potassium chloride, magnesium carbonate, magnesium sulfate, vitamin A supplement, zinc sulfate, vitamin E supplement, iron sulfate, niacin supplement, copper sulfate, calcium pantothenate, Vitamin B12 supplement, manganese sulfate, vitamin D3 supplement, folic acid, riboflavin thiamine hydrochloride, calcium iodate, pyridoxine hydrochloride.


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42
M•I•L•K M•A•T•R•I•X
25
A milk replacer and nutritional supplement fortified with vitamins and minerals to be used in feeding wild and exotic non-domestic animals such as Racoons, Bobcats, Lynx, Leopards and Jaguars. Part of an integrated system designed to let you virtually match any mammal's milk.
NET WT. 5 LB. (2.27kg)
Sold by weight, not by volume

# ZOOLOGIC® Nutritional Components Milk Matrix 42/25

A milk replacer and nutritional supplement containing a low level of lactose. Part of an integrated system designed to let you virtually match any mammal's milk.

## PRODUCT INFORMATION

**Milk Replacer:** Milk Matrix 42/25 may be used alone or blended with other products in the Matrix family to formulate a milk replacer with nutrient levels that closely match a species' natural milk.

As a general rule, liquid or reconstituted milk replacer should be fed at a rate of 10% or 20% of body weight daily as tolerated and required for steady growth and for proper stool condition. Divide the total daily amount into 6 to 12 feedings per day, depending on age, condition, species and staffing.

Reconstituted milk replacer should be refrigerated and used within 24 hours. Feed at room temperature or body temperature, depending on size and condition of animal.

**Weaning Food Supplement:** Because of its highly digestible milk nutrients, the formula used during suckling is an excellent supplement during weaning as a transition from milk to solid food. Add to the diet at the rate of one teaspoon per 10 pounds of body weight.

# MILK MATRIX 42/25 Typical Nutritional Analysis

## Composition per 100 grams powder

| | | | |
|---|---|---|---|
| Energy kcal | 463.5 | Fiber, g | 0.0 |
| Protein g | 43.4 | Moisture g | 2.7 |
| Fat g | 29.0 | Ash g | 6.3 |
| Carbohydrate g | 18.6 | | |

## Minerals per 100 grams powder

| | | | |
|---|---|---|---|
| Calcium mg | 1320.0 | Iron mg | 4.4 |
| Phosphorus mg | 1000.0 | Copper mg | 1.4 |
| Potassium mg | 710.0 | Zinc mg | 8.0 |
| Sodium mg | 450.0 | Manganese mg | 1.2 |
| Magnesium mg | 70.0 | Total Chloride mg | 808.0 |

## Vitamins per 100 grams powder

| | | | |
|---|---|---|---|
| Vitamin A I.U. | 3238.0 | Pantothenic Acid mg | 3.8 |
| Vitamin D3 I.U. | 782.0 | Vitamin B6 mg | 0.4 |
| Vitamin E I.U. | 11.0 | Choline mg | 210.0 |
| Thiamin mg | 0.6 | Folic Acid mg | 0.8 |
| Riboflavin mg | 1.4 | Vitamin B12 mcg | 3.6 |
| Niacin mg | 4.9 | Biotin mcg | 14.0 |

## Amino Acids per 100 grams powder

| | | | |
|---|---|---|---|
| Lysine g | 3.11 | Valine g | 2.64 |
| Arginine g | 2.00 | Histidine g | 1.19 |
| Methionine g | 1.26 | Alanine g | 1.36 |
| Cystine g | 0.39 | Aspartic Acid g | 3.65 |
| Tryptophane g | 0.55 | Glutamic Acid g | 9.84 |
| Threonine g | 1.93 | Glycine g | 0.82 |
| Isoleucine g | 2.08 | Proline g | 4.89 |
| Leucine g | 3.80 | Serine g | 2.52 |
| Phenylalanine g | 2.03 | Tryosine g | 2.13 |
| | | Taurine g | 0.04 |

## Fatty Acids per 100 grams powder

| | | | |
|---|---|---|---|
| 8:0 Caprylic Acid g | <1.0 | 16:1 Palmitoleic Acid g | 0.00 |
| 10:0 Capric Acid g | <1.0 | 18:0 Stearic Acid g | 1.22 |
| 12:0 Lauric Acid g | 2.81 | 18:1 Oleic Acid g | 6.84 |
| 14:0 Myristic Acid g | 0.84 | 18:2 Linoleic Acid g | 10.79 |
| 16:0 Palmitic Acid g | 4.09 | 18:3 Linolenic Acid g | 1.33 |

## Guaranteed Analysis

| | | | |
|---|---|---|---|
| Crude Protein %, min. | 42.0 | Moisture %, max. | 5.0 |
| Crude Fat %, min | 25.0 | Ash %, max | 7.0 |
| Crude Fiber %, max. | 0.0 | | |

## INGREDIENTS

Vegetable oil (preserved with BHA. BHT, propyl gallate and citric acid), casein, dried skimmed milk, egg yolk, calcium carbonate precipitated, potassium phosphate monobasic, l-arginine, dried corn syrup, calcium hydroxide, salt, lecithin, monocalcium phosphate, sodium hydroxide, choline chloride, potassium chloride, magnesium carbonate, taurine, magnesium sulfate, vitamin A supplement, zinc sulfate, vitamin E supplement, iron sulfate, niacin supplement, copper sulfate, calcium pantothenate, vitamin B12 supplement, manganese sulfate, vitamin D3 supplement, folic acid, riboflavin, thiamine hydrochloride, calcium iodate, pyridoxine hydrochloride.

# Artiodactyla

# YEZO BROWN BEAR

(Ursidae ursus arctos yesoensis)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 19.6 | 57.6 | 5.6 | 40.3 |
| Milk 1 | 29.0 | 49.0 | 7,7 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 86.5 | 7.00 |
| | 23/30 | 13.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1,00 volume of water to make a milk of 28.2% solids.

# ASIAN (Indian) ELEPHANT

(Elephantidae elephas maximus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 24.0 | 41.0 | 29.0 | 17.7 |
| Milk 1 | 24.8 | 35.7 | 28.4 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 23/30 | 74.0 | 2.5 |
| | 30/52 | 26.0 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 17.7 grams of powder with 82.3 grams of water or 1.0 volume of powder to 2.0 volumes of water to make a milk of 17.7% solids.

# AMERICAN BISON

(Bovidae bison bison)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 30.8 | 24.0 | 34.9 | 14.6 |
| Milk 1 | 30.5 | 22.9 | 34.6 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 20/14 | 46.3 | 2.00 |
| | 42/25 | 34.4 | 1.66 |
| | 33/40 | 19.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 14.6 grams of powder with 85.4 grams of water or 1.00 volume of powder to 2.50 volumes of water to make a milk of 14.6% solids.

# DORCAS GAZELLE

(Bovidae gazella dorcas)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 37.0 | 37.0 | 24.0 | 24.1 |
| Milk 1 | 36.0 | 36.0 | 19.4 | |
| Milk 2 | 37.7 | 36.0 | 17.9 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 62.8 | 13.00 |
| 42/25 | 31.2 | 5.66 |
| 20/14 | 6.0 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 58.8 | 1.66 |
| 42/25 | 41.2 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 24.1 grams of powder with 75.9 grams of water or 1.00 volume of powder to 1.25 volumes of water to make a milk of 24.1% solids.

# DALL SHEEP

(Bovidae ovis dalli)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 30.0 | 41.0 | 23.0 | 22.9 |
| Milk 1 | 30.3 | 37.3 | 20.0 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 33/40 | 73.2 | 3.25 |
| | 23/30 | 26.8 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 22.9 grams of powder with 77.1 grams of water or 1.00 volume of powder to 1.25 volumes of water to make a milk of 22.9% solids.

# BIGHORN SHEEP

(Bovidae ovis canadensis)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 35.6 | 47.1 | 10.0 | 34.0 |
| Milk 1 | 31.7 | 44.8 | 11.5 | |
| Milk 2 | 34.3 | 42.2 | 8.1 | |
| Milk 3 | 32.6 | 46.0 | 6.1 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 59.8 | 1.5 |
| 30/52 | 40.2 | 1.0 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 63.8 | 2.0 |
| 42/25 | 36.1 | 1.0 |

**3**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 77.9 | 4.0 |
| 42/25 | 22.1 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# BACTRIAN CAMEL

(Camelidae camelus bactrianus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 26.0 | 36.0 | 34.0 | 15.0 |
| Milk 1 | 25.1 | 29.0 | 33.0 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 23/30 | 48.3 | 2.0 |
| | 33/40 | 27.6 | 1.3 |
| | 20/14 | 24.1 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 15.0 grams of powder with 85.0 grams of water or 1.0 volume of powder to 2.5 volumes of water to make a milk of 15.0% solids.

# DROMEDARY

(Camelidae camelus dromedarius)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 26.5 | 33.1 | 36.8 | 13.6 |
| Milk 1 | 23.8 | 31.2 | 31.3 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 23/30 | 42.3 | 1.3 |
| | 20/14 | 32.5 | 1.0 |
| | 33/40 | 25.2 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 13.6 grams of powder with 86.4 grams of water or 1.00 volume of powder to 2.66 volumes of water to make a milk of 13.6% solids.

# ELAND

(Bovidae tragelaphus oryx)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 27.0 | 45.0 | 20.0 | 21.9 |
| Milk 1 | 26.2 | 40.2 | 21.2 | |
| Milk 2 | 27.1 | 42.9 | 17.2 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 23/30 | 53.2 | 1.0 |
| 30/52 | 46.8 | 1.0 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 58.7 | 1.5 |
| 23/30 | 41.3 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 21.9 grams of powder with 78.1 grams of water or 1.0 volume of powder to 1.5 volumes of water to make a milk of 21.9% solids.

# IMPALA

(Bovidae aepyceros melampus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 30.6 | 57.8 | 6.8 | 35.3 |
| Milk 1 | 29.8 | 48.1 | 8.4 | |
| Milk 2 | 30.7 | 48.8 | 6.8 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 75.3 | 9.75 |
| 33/40 | 15.5 | 2.00 |
| 23/30 | 9.2 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 73.5 | 2.75 |
| 33/40 | 26.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# IBEX

(Bovidae capra ibex)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 24.0 | 53.0 | 19.0 | 23.3 |
| Milk 1 | 26.4 | 40.9 | 20.2 | |
| Milk 2 | 27.1 | 42.9 | 17.2 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 23/30 | 50.2 | 1.00 |
| 30/52 | 49.8 | 1.25 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 58.7 | 1.66 |
| 23/30 | 41.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 23.3 grams of powder with 76.7 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 23.3% solids.

# HIPPOPOTAMUS

(Hippopotamidae hippopotamus amphibius)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 46.1 | 30.4 | 37.4 | 11.5 |
| Milk 1 | 36.9 | 23.0 | 29.1 | |
| Milk 2 | 38.5 | 22.8 | 28.0 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 70.3 | 12.75 |
| 20/14 | 24.8 | 4.33 |
| 33/40 | 4.8 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 80.1 | 4.25 |
| 20/14 | 19.9 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 11.5 grams of powder with 88.5 grams of water or 2.00 volumes of powder to 5.33 volumes of water to make a milk of 11.5% solids.

# HIMALAYAN TAHR

(Bovidae hemitragus jemlahicus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 30.7 | 51.9 | 17.5 | 18.9 |
| Milk 1 | 29.1 | 40.3 | 19.3 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 33/40 | 42.8 | 1.75 |
| | 23/30 | 29.8 | 1.00 |
| | 30/52 | 27.4 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 18.9 grams of powder with 81.1 grams of water or 1.00 volume of powder to 1.66 volumes of water to make a milk of 18.9% solids.

# GREATER KUDU

(Bovidae tragelaphus strepsiceros)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 43.9 | 36.0 | 16.5 | 27.8 |
| Milk 1 | 37.8 | 33.9 | 12.7 | |
| Milk 2 | 37.9 | 34.0 | 12.3 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 64.7 | 12.25 |
| 30/52 | 30.5 | 6.33 |
| 33/40 | 4.7 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 66.5 | 1.75 |
| 30/52 | 33.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 27.8 grams of powder with 72.2 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 27.8% solids.

# GRANT'S GAZELLE

(Bovidae gazella granti)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 30.5 | 57.2 | 8.2 | 34.1 |
| Milk 1 | 29.7 | 47.0 | 9.9 | |
| Milk 2 | 30.9 | 48.0 | 7.7 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 68.4 | 7.0 |
| 33/40 | 19.8 | 2.0 |
| 23/30 | 11.8 | 1.0 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 66.9 | 2.0 |
| 33/40 | 33.1 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# GIRAFFE

(Giraffidae giraffa camelopardalis)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 27.0 | 33.0 | 34.0 | 14.5 |
| Milk 1 | 25.5 | 29.6 | 32.0 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 23/30 | 44.9 | 2.00 |
| | 33/40 | 31.9 | 1.66 |
| | 20/14 | 23.2 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 14.5 grams of powder with 85.5 grams of water or 1.0 volume of powder to 2.5 volumes of water to make a milk of 14.5% solids.

# GERENUK

(Bovidae litocranius walleri)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 55.1 | 15.4 | 29.4 | 13.6 |
| Milk 1 | 40.3 | 18.0 | 30.5 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 70.7 | 2.5 |
| Nonfat Dry Milk | 29.3 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 13.6 grams of powder with 86.4 grams of water or 1.00 volume of powder to 2.75 volumes of water to make a milk of 13.6% solids.

# GAYAL

(Bovidae bos frontalis)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 30.0 | 35.0 | 26.0 | 20.0 |
| Milk 1 | 28.4 | 32.4 | 25.8 | |
| Milk 2 | 28.6 | 33.6 | 26.4 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 20/14 | 35.3 | 3.75 |
| 33/40 | 30.7 | 4.00 |
| 30/52 | 25.0 | 3.00 |
| 42/25 | 9.0 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 53.4 | 4.00 |
| 20/14 | 32.6 | 2.00 |
| 30/52 | 14.0 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 20.0 grams of powder with 80.0 grams of water or 1.00 volume of powder to 1.66 volumes of water to make a milk of 20.0% solids.

# FALLOW DEER

(Cervidae cervus dama)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 25.7 | 49.8 | 24.1 | 25.3 |
| Milk 1 | 25.2 | 37.0 | 26.3 | |
| Milk 2 | 26.2 | 40.2 | 21.2 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 23/30 | 68.1 | 2.0 |
| 30/52 | 31.9 | 1.0 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 23/30 | 53.2 | 1.0 |
| 30/52 | 46.8 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 25.3 grams of powder with 74.7 grams of water or 1.00 volume of powder to 1.25 volumes of water to make a milk of 25.3% solids.

# MOOSE

(Cervidae alces alces)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 38.0 | 47.0 | 14.0 | 21.5 |
| Milk 1 | 32.5 | 41.6 | 15.2 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 33/40 | 86.5 | 6.75 |
| | 30/52 | 13.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 21.5 grams of powder with 78.5 grams of water or 1.0 volume of powder to 1.5 volumes of water to make a milk of 21.5% solids.

# YAK

(Bovidae bos grunniens)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 33.5 | 37.6 | 26.6 | 17.3 |
| Milk 1 | 30.8 | 33.2 | 23.8 | |
| Milk 2 | 30.2 | 34.4 | 23.0 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 70.6 | 11.50 |
| 20/14 | 22.4 | 3.00 |
| 42/25 | 7.0 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 78.4 | 4.25 |
| 20/14 | 21.6 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 17.3 grams of powder with 82.7 grams of water or 1.00 volume of powder to 1.75 volumes of water to make a milk of 17.3% solids.

# WILD BOAR

(suidae sus scrofa)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 25.5 | 36.2 | 29.2 | 18.8 |
| Milk 1 | 40.6 | 28.0 | 15.4 | |
| Milk 2 | 39.8 | 29.7 | 14.5 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 88.8 | 7.33 |
| 30/52 | 11.2 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 82.4 | 4.25 |
| 33/40 | 17.6 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 18.8 grams of powder with 81.2 grams of water or 1.0 volume of powder to 2.0 volumes of water to make a milk of 18.8% solids.

# WATER BUFFALO

(Bovidae bublalus bubalis)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 24.0 | 39.0 | 29.0 | 16.8 |
| Milk 1 | 24.1 | 33.7 | 31.4 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 23/30 | 83.0 | 4.25 |
| | 30/52 | 17.0 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 16.8 grams of powder with 83.2 grams of water or 1.00 volume of powder to 2.25 volumes of water to make a milk of 16.8% solids.

# THOMSON'S GAZELLE

(Bovidae gazella thomsoni)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 30.7 | 57.3 | 7.9 | 34.2 |
| Milk 1 | 29.5 | 48.6 | 7.8 | |
| Milk 2 | 29.1 | 49.4 | 7.1 | |
| Milk 3 | 30.7 | 48.8 | 6.8 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 80.7 | 9.50 |
| 23/30 | 10.0 | 1.00 |
| 33/40 | 9.3 | 1.25 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 88.2 | 9.00 |
| 23/30 | 11.8 | 1.00 |

**3**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 73.5 | 2.75 |
| 33/40 | 26.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# SIKA DEER

(Cervidae cervus nippon)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 34.3 | 52.6 | 9.4 | 36.1 |
| Milk 1 | 31.6 | 45.3 | 10.9 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 33/40 | 55.7 | 1.25 |
| | 30/52 | 44.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# ROE DEER

(Cervidae capreolus capreolus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 45.4 | 34.5 | 20.1 | 19.4 |
| Milk 1 | 38.6 | 31.6 | 18.9 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 55.9 | 1.25 |
| 33/40 | 44.1 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 19.4 grams of powder with 80.6 grams of water or 1.00 volume of powder to 1.66 volumes of water to make a milk of 19.4% solids.

# NORTH AMERICAN ELK

(Cervidae cervus elephus nelsoni)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 28.0 | 35.0 | 22.0 | 19.0 |
| Milk 1 | 28.0 | 35.0 | 25.2 | |
| Milk 2 | 29.0 | 36.0 | 23.3 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 50.0 | 1.0 |
| 23/30 | 50.0 | 1.0 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 60.0 | 1.5 |
| 23/30 | 40.0 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 19.0 grams of powder with 81.0 grams of water or 1.0 volume of powder to 2.0 volumes of water to make a milk of 19.0% solids.

# REINDEER

(Cervidae rangifer tarandus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 34.0 | 41.0 | 13.0 | 26.3 |
| Milk 1 | 35.3 | 39.9 | 9.2 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 55.5 | 1.33 |
| | 42/25 | 44.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 26.3 grams of powder with 73.7 grams of water or 1.00 volume of powder to 1.25 volumes of water to make a milk of 26.3% solids.

# RED DEER (WAPITI)

(Cervidae cervus elephas)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 34.0 | 40.0 | 21.0 | 21.1 |
| Milk 1 | 32.1 | 36.4 | 19.5 | |
| Milk 2 | 32.0 | 37.9 | 18.0 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 83.6 | 17.7 |
| 20/14 | 11.0 | 2.0 |
| 42/25 | 5.4 | 1.0 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 91.9 | 13.5 |
| 20/14 | 8.1 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 21.1 grams of powder with 78.9 grams of water or 1.0 volume of powder to 1.5 volumes of water to make a milk of 21.1% solids.

# PRONGHORN

(Antilocapridae antilocapra americana)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 27.7 | 52.2 | 16.1 | 24.9 |
| Milk 1 | 26.8 | 42.2 | 18.3 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 55.5 | 1.33 |
| | 23/30 | 44.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 24.9 grams of powder with 75.1 grams of water or 1.00 volume of powder to 1.25 volumes of water to make a milk of 24.9% solids.

# PECCARY

(Tayassuidae tayassu tajacu)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 32.9 | 21.3 | 39.6 | 16.4 |
| Milk 1 | 31.8 | 19.6 | 37.0 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 50.7 | 1.0 |
| | 20/14 | 49.3 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 16.4 grams of powder with 83.6 grams of water or 1.00 volume of powder to 2.25 volumes of water to make a milk of 16.4% solids.

# OKAPI

(Giraffidae okapia johnstoni)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 37.3 | 10.8 | 27.6 | 18.5 |
| Milk 1 | 40.0 | 16.9 | 31.9 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 65.8 | 2.0 |
| Nonfat Dry Milk | 34.1 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 18.5 grams of powder with 81.5 grams of water or 1.0 volume of powder to 2.0 volumes of water to make a milk of 18.5 solids.

# MUSK OX

(Bovidae ovibos moschatus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 32.3 | 32.9 | 25.0 | 16.4 |
| Milk 1 | 33.1 | 30.1 | 21.3 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 46.8 | 2.00 |
| | 30/52 | 28.9 | 1.33 |
| | 20/14 | 24.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 16.4 grams of powder with 83.6 grams of water or 1.0 volume of powder to 2.0 volumes of water to make a milk of 16.4% solids.

# MULE DEER

(Cervidae odocoileus hemionus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 31.1 | 44.7 | 22.1 | 24.4 |
| Milk 1 | 28.4 | 37.7 | 23.1 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 33/40 | 43.8 | 3.00 |
| | 23/30 | 40.7 | 2.25 |
| | 30/52 | 15.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 24.4 grams of powder with 75.6 grams of water or 1.00 volume of powder to 1.25 volumes of water to make a milk of 24.4% solids.

# MOUNTAIN GOAT

(Bovidae oreamnos americanus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 30.0 | 38.0 | 20.0 | 21.3 |
| Milk 1 | 30.5 | 37.5 | 20.4 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 33/40 | 75.0 | 3.0 |
| | 23/30 | 25.0 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 21.3 grams of powder with 78.7 grams of water or 1.00 volume of powder to 1.75 volumes of water to make a milk of 21.3% solids.

# MOUNTAIN GAZELLE

(Bovidae gazella gazella)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 34.3 | 52.6 | 9.1 | 36.1 |
| Milk 1 | 31.6 | 45.5 | 10.6 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 33/40 | 53.7 | 1.25 |
| | 30/52 | 46.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# ZEBU

(Bovidae bos indicus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 23.7 | 34.8 | 36.3 | 13.5 |
| Milk 1 | 23.3 | 31.1 | 35.5 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 23/30 | 95.0 | 14.6 |
| 30/52 | 5.0 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 13.5 grams of powder with 86.5 grams of water or 1.0 volume of powder to 3.0 volumes of water to make a milk of 13.5% solids.

# LLAMA

(Camelidae lama glama)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 45.1 | 14.8 | 37.0 | 16.2 |
| Milk 1 | 31.0 | 19.5 | 35.1 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 50.0 | 1.00 |
| | 20/14 | 50.0 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 16.2 grams of powder with 83.8 grams of water or 1.00 volume of powder to 2.25 volumes of water to make a milk of 16.2% solids.

# AFRICAN HUNTING DOG

(Canidae lycaon pictus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 39.4 | 40.3 | 14.8 | 23.6 |
| Milk 1 | 35.5 | 37.5 | 13.5 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 33/40 | 38.2 | 1.50 |
| | 42/25 | 36.5 | 1.33 |
| | 30/52 | 25.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 23.6 grams of powder with 76.4 grams of water or 1.00 volume of powder to 1.25 volume of water to make a milk of 23.6% solids.

# KODIAK BEAR

(Ursidae ursus arctos middendorffi)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 37.8 | 46.2 | 7.7 | 31.2 |
| Milk 1 | 33.9 | 43.0 | 7.7 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 66.9 | 12.00 |
| | 42/25 | 33.1 | 5.70 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# HOG-NOSE SKUNK

(Mustelidae conepatus leucontus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 31.2 | 31.2 | 7.8 | 34.6 |
| Milk 1 | 35.7 | 39.0 | 9.7 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 52.1 | 9.4 |
| 42/25 | 47.9 | 8.3 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# HARP SEAL

(Phocidae phoca groenlandica)2

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 12.3 | 81.6 | 0.0 | 63.5 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# GRIZZLY BEAR - ZOO

(Ursidae ursus arctos horribilis-zoo)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 25.4 | 54.6 | 8.2 | 29.1 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume | |
|---|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 | L |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# GRIZZLY BEAR - WILD

Ursidae ursus arctos horribilis-wild)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 27.3 | 54.9 | 1.0 | 40.6 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

5

# GREY WOLF

(Canidae canis lupus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 39.3 | 41.0 | 14.5 | 23.4 |
| Milk 1 | 33.0 | 40.0 | 15.6 | |
| Milk 2 | 36.1 | 38.0 | 10.2 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 100.0 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 51.6 | 9.00 |
| 30/52 | 48.4 | 8.70 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 23.4 grams of powder with 76.6 grams of water or 1.00 volume of powder to 1.25volume of water to make a milk of 23.4%* solids.

# GREY SEAL

(Phocidae halichoerus grypus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 16.5 | 78.6 | 3.8 | 67.7 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# GOLDEN JACKAL

(Canidae canis aureus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 40.5 | 42.5 | 12.1 | 24.7 |
| Milk 1 | 35.7 | 39.0 | 9.7 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 52.1 | 9.40 |
| | 42/25 | 47.9 | 8.30 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 24.7 grams of powder with 75.3 grams of water or 1.00 volume of powder to 1.25 volume of water to make a milk of 24.7% solids.

# COYOTE

(Canidae canis latrans)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 40.4 | 43.7 | 12.2 | 24.5 |
| Milk 1 | 34.8 | 40.5 | 9.9 | |
| Milk 2 | 33.9 | 40.9 | 12.0 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 51.2 | 9.30 |
| 42/25 | 37.4 | 6.10 |
| 33/40 | 11.4 | 2.10 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 40.7 | 7.60 |
| 30/52 | 36.3 | 6.50 |
| 42/25 | 23.0 | 4.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 24.5 grams of powder with 75.5 grams of water or 1.00 volume of powder to 1.25 volume of water to make a milk of 24.5% solids.

# COATI

(Procyonidae nasua nasua)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 21.2 | 42.7 | 18.3 | 34.9 |
| Milk 1 | 26.4 | 40.7 | 20.5 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 23/30 | 51.1 | 7.80 |
| | 30/52 | 48.9 | 8.90 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 30.0 grams of powder with 70.0 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 30.0% solids.

# CHEETAH

(Felidae acinonyx jubatus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 39.7 | 40.1 | 14.8 | 23.7 |
| Milk 1 | 36.6 | 37.0 | 10.7 | |
| Milk 2 | 35.6 | 37.4 | 13.4 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 55.3 | 9.50 |
| 30/52 | 44.7 | 8.20 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 38.1 | 6.50 |
| 33/40 | 35.9 | 6.70 |
| 30/52 | 26.0 | 4.70 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 23.7 grams of powder with 76.3 grams of water or 1.00 volume of powder to 1.33 volume of water to make a milk of 23.7% solids.

# CALIFORNIA SEA LION

(Otariidae zalophus californianus)2

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 16.4 | 80.6 | 1.1 | 54.2 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water of 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# BLACK BEAR

(Ursidae ursus americanus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 32.6 | 55.1 | 0.1 | 44.5 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.9 grams of water of 1.0 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# BADGER

(Mustelidae taxidea taxus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 38.7 | 33.9 | 18.8 | 18.6 |
| Milk 1 | 39.1 | 31.4 | 13.6 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 76.2 | 13.10 |
| | 30/52 | 23.8 | 4.40 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 18.6 grams of powder with 81.4 grams of water or 1.00 volume of powder to 2.00 volume of water to make a milk of 18.6% solids.

# ARCTIC FOX

(Canidae alopex lagopus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 38.0 | 47.0 | 10.0 | 28.6 |
| Milk 1 | 34.3 | 42.1 | 8.1 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 63.5 | 2.00 |
| | 42/25 | 36.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# LION

(Felidae panthera leo)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 30.8 | 57.9 | 11.2 | 30.2 |
| Milk 1 | 31.7 | 44.8 | 11.5 | |
| Milk 2 | 33.0 | 40.0 | 15.6 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 59.7 | 11.00 |
| 30/52 | 40.3 | 7.30 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 100.0 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# RED KANGAROO

(Macropodidae macropus rufus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 28.0 | 21.0 | 43.0 | 22.8 |
| Milk 1 | 24.3 | 22.6 | 39.6 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 20/14 | 66.7 | 2.00 |
| | 33/40 | 33.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 22.8 grams of powder with 77.2 grams of water or 1.00 volume of powder to 1.75 volume of water to make a milk of 22.8% solids.

# Red-Necked Wallaby (Bennett's Wallaby)

(Macropus rufogrisesus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 28.8 | 33.1 | 32.4 | 13.9 |
| Milk 1 | 28.7 | 31.3 | 27.6 | |
| Milk 2 | 26.3 | 33.3 | 28.4 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 66.7 | 2.00 |
| 20/14 | 33.3 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 23/30 | 66.7 | 2.00 |
| 33/40 | 33.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 13.9 grams of powder with 86.1 grams of water or 1.00 volume of powder to 3.00 volume of water to make a milk of 13.9% solids.

# MINK

(Mustelidae mustela vison)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 26.0 | 33.0 | 21.0 | 21.7 |
| Milk 1 | 25.5 | 35.1 | 24.6 | |
| Milk 2 | 25.3 | 37.3 | 25.9 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 55.6 | 1.25 |
| 20/14 | 44.4 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 23/30 | 66.7 | 2.00 |
| 30/52 | 33.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 21.7 grams of powder with 78.3 grams of water or 1.00 volume of powder to 1.50 volume of water to make a milk of 21.7% solids.

# PUMA

(Felidae felis concolor)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 33.8 | 52.4 | 11.0 | 35.5 |
| Milk 1 | 33.0 | 40.0 | 15.6 | |
| Milk 2 | 31.9 | 44.0 | 12.4 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 100.0 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 66.4 | 2.00 |
| 30/52 | 33.6 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# WEDDELL SEAL

(Phocidae leptonychotes weddelli)2

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 13.4 | 81.0 | 0.0 | 66.2 |
| Milk 2 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder with 1.00 volume of water to make a milk of 28.2 % solids.

# STRIPED SKUNK

(Mustelidae mephitis mephitis)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 32.0 | 45.0 | 10.0 | 30.6 |
| Milk 1 | 30.6 | 40.9 | 15.0 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 78.3 | 3.50 |
| Non-fat Dry Milk | 21.7 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# SOUTHERN ELEPHANT SEAL

(Phocidae mirounga leonina)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 18.0 | 80.0 | 0.0 | 48.8 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# RED FOX

(Canidae vulpes vulpes)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 35.0 | 32.0 | 25.0 | 18.1 |
| Milk 1 | 31.1 | 30.5 | 25.6 | |
| Milk 2 | 27.4 | 30.1 | 25.8 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 56.1 | 10.4 |
| 20/14 | 26.4 | 3.9 |
| 42/25 | 17.5 | 3.0 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 64.5 | 12.8 |
| 20/14 | 30.5 | 4.5 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 18.1 grams of powder with 81.9 grams of water or 1.0 volume of powder to 2.0 volumes of water to make a milk of 18.1 solids.

# RACCOON DOG

(Canidae nyctereuctes procyonoides)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 42.1 | 18.4 | 34.7 | 19.0 |
| Milk 1 | 39.8 | 17.3 | 32.2 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 64.7 | 1.75 |
| Non-fat Dry Milk | 35.2 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 19.0 grams of powder with 81.0 grams of water or 1.0 volume of powder to 1.75 volumes of water to make a milk of 19.0% solids.

# POLAR BEAR

(Ursidae ursus martimus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 22.9 | 69.5 | 1.0 | 47.6 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# OTTER

(Mustelidae lutra sp.)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 28.9 | 63.0 | 0.3 | 38.0 |
| Milk 1 | 30.0 | 52.9 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# NORTHERN FUR SEAL

(Otariidae callorhinus ursinus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 16.0 | 81.0 | 0.2 | 61.0 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2 % solids.

# MINK

(Mustelidae mustela vison)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 26.0 | 33.0 | 21.0 | 21.7 |
| Milk 1 | 25.5 | 35.1 | 24.6 | |
| Milk 2 | 25.3 | 37.3 | 25.9 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 55.6 | 1.25 |
| 20/14 | 44.4 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 23/30 | 66.7 | 2.00 |
| 30/52 | 33.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 21.7 grams of powder with 78.3 grams of water or 1.00 volume of powder to 1.50 volume of water to make a milk of 21.7% solids.

# MALAYAN SUN BEAR

(Ursidae helarctos malayanus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 30.9 | 39.7 | 11.8 | 27.2 |
| Milk 1 | 35.2 | 40.2 | 9.1 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 56.3 | 10.00 |
| | 42/25 | 43.7 | 7.60 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 27.2 grams of powder with 72.2 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 27.2% solids.

# LYNX

(Felidae lynx rufus)4x

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 47.0 | 28.6 | 20.7 | 21.7 |
| Milk 1 | 41.2 | 26.6 | 16.1 | |
| Milk 2 | 42.0 | 25.0 | 18.6 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 94.0 | 16.20 |
| 30/52 | 6.0 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 100.0 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 21.7 grams of powder with 78.3 grams of water or 1.00 volume of powder to 1.50 volume of water to make a milk of 21.7% solids.

# LEOPARD

(Felidae panthera pardus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 49.1 | 28.8 | 18.6 | 22.6 |
| Milk 1 | 40.6 | 27.9 | 15.4 | |
| Milk 2 | 42.0 | 25.0 | 18.6 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 89.0 | 15.30 |
| 30/52 | 11.0 | 2.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 100.0 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 22.6 grams of powder with 77.4 grams of water or 1.00 volume of powder to 1.50 volume of water to make a milk of 22.6% solids.

# Carnivora

# FERRET

(Mustelidae mustela putorius)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 25.5 | 34.0 | 16.2 | 23.5 |
| Milk 1 | 25.5 | 35.1 | 24.6 | |
| Milk 2 | 25.5 | 33.0 | 27.3 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 55.6 | 1.25 |
| 20/14 | 44.4 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 50.0 | 1.00 |
| 20/14 | 50.0 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 23.5 grams of powder with 76.5 grams of water or 1.00 volume of powder to 1.50 volume of water to make a milk of 23.5% solids.

* Lactaid may need to be added to reduce the lactose.

# Cetacea

# ATLANTIC BOTTLENOSE DOLPHIN

(Delphinidae tursiops truncatus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 16.3 | 79.1 | 2.6 | 41.7 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# SPOTTED DOLPHIN

(Delphinidae stenella attenuata)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 30.3 | 58.1 | 1.9 | 31.0 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 31.0 grams of powder with 69.0 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 31.00 % solids.

# SPERM WHALE

(Physeteridae physeter macrocephalus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 8.7 | 83.7 | 0.0 | 43.5 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# SEI WHALE

(Balaenopteridae balaenoptera borealis)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 33.7 | 62.3 | 5.0 | 35.6 |
| Milk 1 | 30.7 | 48.8 | 6.8 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 73.5 | 2.80 |
| | 33/40 | 26.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# FIN WHALE

(Balaenopteridae balaenoptera physalus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 27.5 | 69.7 | 0.1 | 46.5 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a mike of 28.2 % solids.

# BLUE WHALE

(Balaenopteridae balaenoptera musculus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 19.1 | 74.1 | 2.3 | 57.1 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# BELUGA WHALE

(Monodontidae delphinapterus leucas)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 25.9 | 65.6 | 1.7 | 41.0 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water of 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# ATLANTIC HARBOR PORPOISE

(Delphinidae phocoena phocoena)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 0.0 | 89.7 | 2.8 | 45.8 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# SPOTTED PORPOISE

(Delphinidae stenella graffmani)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 23.9 | 72.9 | 3.2 | 34.7 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/55 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# Chiroptera

# FRINGED MYOTIS

(Vespertilionidae myotis thysanodes)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 29.9 | 44.2 | 8.4 | 40.5 |
| Milk 1 | 30.7 | 44.2 | 10.0 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 75.5 | 9.00 |
| 42/25 | 14.4 | 1.60 |
| 20/14 | 10.1 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# BROWN BEAR

(Ursidae ursus arctos)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 25.0 | 55.0 | 7.0 | 33.6 |
| Milk 1 | 28.9 | 48.7 | 8.1 | |
| Milk 2 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 85.3 | 6.75 |
| 23/30 | 14.7 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# VIRGINIA OPOSSUM

(Didelphidae didelphis virginiana)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 19.7 | 28.7 | 16.8 | 24.4 |
| Milk 1 | 25.5 | 35.2 | 24.4 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 55.9 | 1.25 |
| | 20/14 | 44.1 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 24.4 grams of powder with 75.6 grams of water or 1.00 volume of powder to 1.5 volumes of water to make a milk of 24.4% solids.

# SHEEP

(Bovidae ovia aries)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 23.0 | 39.0 | 27.0 | 18.2 |
| Milk 1 | 23.0 | 30.0 | 34.8 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 23/30 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 18.2 grams of powder with 81.8 grams of water or 1.0 volume of powder to 2.0 volumes of water to make a milk of 18.2% solids.

# RACCOON

(Procyonidae procyon lotor)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 37.7 | 25.9 | 29.6 | 16.2 |
| Milk 1 | 42.0 | 25.0 | 18.6 | |
| Milk 2 | 39.0 | 23.5 | 23.0 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 100.0 | 1.0 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 42/25 | 86.6 | 15.0 |
| 20/14 | 13.4 | 1.9 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 16.2 grams of powder with 83.8 grams of water or 1.0 volume of powder to 2.25 volumes of water to make a milk of 16.2% solids.

# RABBIT

(Leporidae oryctolagus cuniculus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 32.0 | 49.0 | 6.0 | 31.2 |
| Milk 1 | 32.1 | 47.1 | 5.6 | |
| Milk 2 | 31.3 | 46.4 | 9.6 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 82.0 | 14.9 |
| 42/25 | 18.0 | 3.1 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 53.6 | 9.8 |
| 33/40 | 46.4 | 8.5 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 31.2 grams of powder with 68.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 31.2% solids.

# PONY

(Equidae equus caballus)3

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 17.5 | 14.0 | 64.8 | 10.4 |
| Milk 1 | 20.0 | 14.0 | 51.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 20/14 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 10.5 grams of powder with 89.5 grams of water or 1.0 volume of powder to 4.0 volumes of water to make a milk of 10.5% solids.

# HOUSE MOUSE

(Muridae mus musculus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 31.0 | 45.0 | 10.0 | 29.3 |
| Milk 1 | 32.1 | 43.2 | 13.4 | |

## MILK SUBSTITUTE

1.0

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 73.1 | 13.5 |
| 30/52 | 26.9 | 4.9 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 29.3 grams of powder with 70.7 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 29.3% solids.

# HORSE

(Equidae equus caballus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 18.0 | 12.0 | 66.0 | 10.5 |
| Milk 1 | 20.0 | 14.0 | 51.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 20/14 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 10.5 grams of powder with 89.5 grams of water or 1.0 volume of powder to 4.0 volumes of water to make a milk of 10.5% solids.

# GUINEA PIG

(Caviidae cavia porcellus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 36.0 | 33.0 | 28.0 | 17.5 |
| Milk 1 | 34.1 | 30.1 | 22.8 | |
| Milk 2 | 33.2 | 43.0 | 15.6 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 46.5 | 3.4 |
| 42/25 | 36.5 | 2.6 |
| 20/14 | 17.0 | 1.0 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 100.0 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 17.5 grams of powder with 82.5 grams of water or 1.00 volume of powder to 2.00 volumes of water to make a milk of 17.5% solids.

# GOLDEN HAMSTER

(Muridae mesocricetus auratus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 42.0 | 22.0 | 22.0 | 22.6 |
| Milk 1 | 42.2 | 25.0 | 18.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 42/25 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 22.6 grams of powder with 77.4 grams of water or 1.0 volume of powder to 1.5 volumes of water to make a milk of 22.6% solids.

# GOAT

(Bovidae capra hircus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 22.0 | 32.0 | 39.0 | 12.0 |
| Milk 1 | 23.0 | 30.0 | 34.8 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 23/30 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 12.0 grams of powder with 88.0 grams of water or 1.0 volume of powder to 3.5 volumes of water to make a milk of 12.0% solids.

# EUROPEAN BEAVER

(Castoridae castor fiber)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 33.0 | 56.0 | 5.0 | 34.1 |
| Milk 1 | 30.7 | 48.8 | 6.8 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 73.5 | 2.75 |
| | 33/40 | 26.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# EASTERN GRAY SQUIRREL

(Sciuridae sciurus carolinensis)5

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 35.4 | 47.6 | 11.8 | 25.4 |
| Milk 1 | 33.0 | 40.0 | 15.6 | |
| Milk 2 | 32.0 | 43.9 | 12.5 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 100.0 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 66.7 | 2.00 |
| 30/52 | 33.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 22.7 grams of powder with 77.3 grams of water or 1.00 volume of powder to 1.50 volumes of water to make a milk of 22.7% solids.

# EASTERN GRAY SQUIRREL

(Sciuridae sciurus carolinensis)5

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 35.4 | 47.6 | 11.8 | 25.4 |
| Milk 1 | 33.0 | 40.0 | 15.6 | |
| Milk 2 | 32.0 | 43.9 | 12.5 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 100.0 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 33/40 | 66.7 | 2.00 |
| 30/52 | 33.3 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 22.7 grams of powder with 77.3 grams of water or 1.00 volume of powder to 1.50 volumes of water to make a milk of 22.7% solids.

# DOG (DOMESTIC)

(Canidae canis lupus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 33.0 | 41.0 | 17.0 | 22.7 |
| Milk 1 | 33.0 | 40.0 | 15.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 33/40 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 22.7 grams of powder with 77.3 grams of water or 1.0 volume of powder to 1.5 volumes of water to make a milk of 22.7% solids.

# CAT (DOMESTIC)

(Felidae felis catus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 42.2 | 25.0 | 26.1 | 18.2 |
| Milk 1 | 42.0 | 25.0 | 18.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 42/25 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 18.2 grams of powder with 81.8 grams of water or 1.0 volume of powder to 2.0 volumes of water to make a milk of 18.0% solids.

# WHITE-TAIL DEER

(Cervidae odocoileus virginianus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 35.0 | 34.0 | 20.0 | 22.5 |
| Milk 1 | 31.1 | 31.1 | 25.5 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 30/55 | 59.2 | 10.8 |
| Nonfat Dry Milk | 40.7 | 7.5 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 22.5 grams of powder with 77.5 grams of water or 1.0 volume of powder to 1.5 volumes of water to make a milk of 22.5% solids.

# LONGNOSED BAT

(Phyllostomatidae leptonycteris curasoae)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 36.4 | 14.0 | 44.6 | 12.1 |
| Milk 1 | 36.7 | 8.7 | 42.0 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| Non-fat Dry Milk | 68.2 | 2.25 |
| 42/25 | 31.8 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 12.1 grams of powder with 87.9 grams of water or 1.0 volume of powder to 3.0 volumes of water to make a milk of 12.1% solids.

# MEXICAN FREETAIL BAT

(Molossidae tadarida brasiliensis)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 32.3 | 54.9 | 10.8 | 34.4 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.2 grams of water or 1.00 volume of powder to 1.00 volume of water to make a mike of 28.2 % solids.

# Common or Domestic Animals

# PIG

(Suidae sus scrofa)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 23.0 | 41.0 | 25.0 | 20.1 |
| Milk 1 | 23.0 | 30.0 | 34.8 | |
| Milk 2 | 25.3 | 37.3 | 25.9 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 23/30 | 100.0 | 1.0 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 23/30 | 66.7 | 2.0 |
| 30/52 | 33.3 | 1.00 |

Mix 20.1 grams of powder with 79.9 grams of water or 1.0 volume of powder to 4.0 volumes of water to make a milk of 20.1% solids.

Edentata

# ANT EATER

(Myrmecophagidae myrmecophaga tridactyla)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 34.2 | 62.3 | 0.9 | 32.1 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# Insectivora

# HEDGEHOG

(Erinaceidae erinaceus europacus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 33.3 | 46.8 | 9.3 | 21.6 |
| Milk 1 | 30.5 | 43.0 | 12.7 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 82.5 | 14.90 |
| Non-fat Dry Milk | 17.5 | 3.30 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 21.6 grams of powder with 78.4 grams of water or 1.00 volume of powder to 1.50 volume of water to make a milk of 21.6% solids.

# WATER SHREW

(Soricidae neomys fodiens)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 28.6 | 57.1 | 0.3 | 35.0 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# SHORT-TAILED SHREW

(Soricidae blarina brevicauda)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 51.2 | 30.2 | 14.9 | 19.9 |
| Milk 1 | 39.3 | 31.0 | 13.9 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 77.6 | 13.40 |
| | 30/52 | 22.4 | 4.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 21.5 grams of powder with 78.5 grams of water or 1.00 volume of powder to 1.50 volume of water to make a milk of 19.9 solids.

# WHITE-TOOTHED SHREW

(Soricidae crocidura russula)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 19.0 | 62.0 | 0.0 | 51.2 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# Lagomorpha

# ARCTIC HARE

(Leporidae lepus timidus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 49.1 | 48.6 | 2.3 | 39.7 |
| Milk 1 | 31.8 | 47.7 | 5,2 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 84.2 | 15.30 |
| 42/25 | 15.8 | 2.80 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# EUROPEAN BROWN HARE

(Leporidae lepus capensis)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 31.0 | 46.0 | 5.0 | 32.2 |
| Milk 1 | 33.0 | 45.1 | 6.6 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 74.8 | 13.60 |
| | 42/25 | 25.2 | 4.30 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# WHITE-TAIL JACKRABBIT

(Leporidae lepus townsendii)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 58.1 | 34.1 | 4.2 | 40.8 |
| Milk 1 | 37.5 | 35.0 | 11.8 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 62.8 | 10.90 |
| | 30/52 | 37.2 | 6.70 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2% solids.

# Marsupialia

# BRUSH TAILED POSSUM

(Phalangeridae trichosurus vulpecula)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 36.0 | 25.0 | 13.0 | 24.5 |
| Milk 1 | 40.0 | 29.4 | 14.7 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 83.6 | 5.00 |
| | 30/52 | 16.4 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 24.5 grams of powder with 75.5 grams of water or 1.00 volume of powder to 1.25 volume of water to make a milk of 24.5% solids.

# TAMMAR WALLABY (Dama Wallaby)

(Macropodidae wallabia eugenii)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 23.0 | 0.0 | 53.0 | 23.5 |
| Milk 1 | 25.7 | 16.1 | 45.0 | |
| Milk 2 | 25.6 | 14.8 | 47.1 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 20/14 | 57.6 | 8.50 |
| Non-fat Dry Milk | 23.2 | 4.20 |
| 33/40 | 19.2 | 3.50 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 20/14 | 53.2 | 7.80 |
| Non-fat Dry Milk | 33.2 | 6.00 |
| 30/52 | 13.6 | 2.50 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 23.5 grams of powder with 76.5 grams of water or 1.00 volume of powder to 1.50 volume of water to make a milk of 23.5% solids.

# SILVER-GREY PHALANGER

(Phalangeridae phalanger orientalis)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 46.0 | 30.5 | 16.0 | 20.0 |
| Milk 1 | 39.7 | 29.9 | 14.4 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 81.6 | 4.25 |
| | 30/52 | 18.4 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 20.0 grams of powder with 80.0 grams of water or 1.00 volume of powder to 1.66 volume of water to make a milk of 20.0% solids.

# QUOKKA

(Macropodidae setonix brachyarus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 29.9 | 6.7 | 25.4 | 13.4 |
| Milk 1 | 37.9 | 11.8 | 38.1 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| Non-fat Dry Milk | 55.3 | 1.3 |
| 42/25 | 44.7 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 13.4 grams of powder with 86.6 grams of water or 1.00 volume of powder to 2.5 volumes of water to make a milk of 13.4% solids.

# WALLAROO

(Macropodidae macropus robustus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 40.1 | 29.9 | 6.0 | 21.7 |
| Milk 1 | 38.1 | 33.6 | 12.5 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 67.8 | 2.00 |
| | 30/52 | 32.2 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 21.7 grams of powder with 78.3 grams of water or 1.00 volume of powder to 1.50 volume of water to make a milk of 21.7% solids.

# Monotremata

# ECHIDNA

(Tachyglossidae tachyglossus aculeatus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 54.3 | 41.9 | 0.04 | 23.0 |
| Milk 1 | 33.9 | 43.0 | 7.7 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 66.9 | 12.20 |
| | 42/25 | 33.1 | 5.70 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 23.0 grams of powder with 77.0 grams of water or 1.00 volume of powder to 1.25 volume of water to make a milk of 23.0% solids.

# Perissodactyla

# ASS

(Equidae equus asinus)3

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 16.1 | 16.8 | 54.3 | 10.8 |
| Milk 1 | 20.0 | 14.0 | 52.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 20/14 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 10.8 grams of powder with 89.2 grams of water or 1.00 volume of powder to 3.75 volumes of water to make a milk of 10.8 % solids.

# TAPIR

(Tapiridae tapirus indicus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 36.3 | 21.7 | 42.0 | 15.7 |
| Milk 1 | 33.3 | 20.3 | 35.0 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 57.0 | 1.3 |
| | 20/14 | 43.0 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 15.7 grams of powder with 84.3 grams of water or 1.0 volume of powder to 2.5 volumes of water to make a milk of 15.7% solids.

# PRZEWALSKI'S HORSE

(Equidae equus przewalski)3

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 14.8 | 14.3 | 64.0 | 10.5 |
| Milk 1 | 20.0 | 14.0 | 52.6 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 20/14 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 10.5 grams of powder with 89.5 grams of water or 1.0 volume of powder to 4.0 volumes of water to make a milk of 10.5 % solids.

# PLAINS ZEBRA

(Equidae equus burchelli)3

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 14.4 | 19.5 | 61.9 | 11.3 |
| Milk 1 | 20.0 | 14.0 | 52.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 20/14 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 11.3 grams of powder with 88.7 grams of water or 1.00 volume of powder to 3.66 volumes of water to make a milk of 11.3 % solids.

# MOUNTAIN ZEBRA

(Equidae equus zebra hartmannae)3

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 15.6 | 10.2 | 69.2 | 10.0 |
| Milk 1 | 20.0 | 14.0 | 52.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 20/14 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 10.0 grams of powder with 90.0 grams of water or 1.0 volume of powder to 4.0 volumes of water to make a milk of 10.0 % solids.

# GREVY'S ZEBRA

(Equidae equus grevyi)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 13.6 | 9.9 | 71.6 | 8.1 |
| Milk 1 | 20.0 | 14.0 | 52.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 20/14 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 8.1 grams of powder with 91.9 grams of water or 1.0 volume of powder to 5.2 volumes of water to make a milk of 8.1 % solids.

# BLACK RHINOCEROS

(Rhinocerotidae diceros bicornis)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 12.0 | 2.0 | 75.0 | 8.8 |
| Milk 1 | 20.0 | 14.0 | 52.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 20/14 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 8.8 grams of powder with 91.2 grams of water or 1.00 volume of powder to 4.75 volumes of water to make a milk of 8.8 % solids.

# WHITE RHINOCEROS

(Rhinocerotidae ceratotherium simum)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 16.7 | 3.6 | 79.8 | 8.4 |
| Milk 1 | 20.0 | 14.0 | 52.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 20/14 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 8.6 grams of powder with 91.6 grams of water or 1.00 volume of powder to 4.75 volumes of water to make a milk of 8.4 % solids.

# Primates

# COTTON-HEADED TAMARIN

(Callithricidae saguinus oedipus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 29.0 | 23.7 | 44.3 | 13.1 |
| Milk 1 | 25.6 | 20.3 | 39.8 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 20/14 | 62.9 | 7.0 |
| 30/52 | 15.4 | 2.0 |
| 42/25 | 13.9 | 1.6 |
| Non-Fat Dry Milk | 7.8 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 13.1 grams of powder with 86.9 grams of water or 1.0 volume of powder to 3.0 volumes of water to make a milk of 13.1% solids.

# TALAPOIN MONKEY

(Cercopithecidae cercopithecus talapoin)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 15.0 | 24.0 | 59.0 | 12.3 |
| Milk 1 | 20.0 | 14.0 | 52.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 20/14 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 12.3 grams of powder with 87.7 grams of water or 1.00 volume of powder to 3.25 volumes of water to make a milk of 12.3% solids.

# SQUIRREL MONKEY

(Cebidae saimiri sciureus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 24.6 | 8.2 | 57.4 | 12.2 |
| Milk 1 | 24.7 | 9.5 | 52.2 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 20/14 | 65.5 | 1.6 |
| Non-Fat Dry Milk | 34.5 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 12.2 grams of powder with 87.8 grams of water or 1.00 volume of powder to 3.25 volumes of water to make a milk of 12.2% solids.

# SLOW LORIS

(Lorisidae nycticebus coucang)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 16.7 | 54.6 | 28.7 | 21.6 |
| Milk 1 | 24.8 | 36.4 | 25.0 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 23/30 | 74.0 | 2.5 |
| | 33/40 | 26.0 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 21.6 grams of powder with 78.4 grams of water or 1.00 volume of powder to 1.66 volumes of water to make a milk of 21.6% solids.

# GREEN MONKEY

(Cercopithecidae cercopithecus sabeus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 18.9 | 24.4 | 62.2 | 16.4 |
| Milk 1 | 20.0 | 14.0 | 52.6 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 20/14 | 100.0 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 16.4 grams of powder with 83.6 grams of water or 1.00 volume of powder to 2.25 volumes of water to make a milk of 16.4% solids.

# THICK TAILED GALAGA

(Galaginae galago cressicaudatus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 37.7 | 31.5 | 30.8 | 14.6 |
| Milk 1 | 33.6 | 27.4 | 27.4 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 42/25 | 39.0 | 6.4 |
| | 33/40 | 34.9 | 6.5 |
| | 20/14 | 26.0 | 5.6 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 14.6 grams of powder with 85.4 grams of water or 1.0 volume of powder to 2.5 volumes of water to make a milk of 14.6% solids.

# Proboscidea

# AFRICAN ELEPHANT

(Elephantidae loxodonta africana)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 21.0 | 29.0 | 31.0 | 17.3 |
| Milk 1 | 23.0 | 30.0 | 34.8 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 23/30 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 17.3 grams of powder with 82.7 grams of water or 1.0 volume of powder to 2.3 volumes of water to make a milk of 17.3% solids.

# Rodentia

# CACTUS MOUSE

(Cricetidae peromyscus eremicus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 39.0 | 55.8 | 5.1 | 33.1 |
| Milk 1 | 32.3 | 46.3 | 5.8 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 80.0 | 4.0 |
| | 33/40 | 19.8 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# PORCUPINE, AMERICAN

(Erethizontidae erethizon dorsatum)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 43.0 | 45.8 | 6.25 | 28.8 |
| Milk 1 | 34.7 | 42.2 | 8.1 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 63.9 | 2.0 |
| | 42/25 | 36.1 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# NORWAY (Brown Rat)

(Muridae rattus norvegicus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother 1 | 37.0 | 40.0 | 17.0 | 22.1 |
| Mother 4 | 40.0 | 49.0 | 12.6 | 21.0 |
| Milk 1 | 32.7 | 42.9 | 9.6 | |
| Milk 2 | 33.5 | 35.7 | 16.8 | |

## MILK SUBSTITUTE

**1**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | `72.4 | 11.00 |
| 42/25 | 21.0 | 3.00 |
| Non-Fat Dry Milk | 6.6 | 1.00 |

**2**

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 56.2 | 3.00 |
| 42/25 | 25.3 | 1.25 |
| Non-Fat Dry Milk | 18.5 | 1.00 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 22.9 grams of powder with 77.1 grams of water or 1.0 volume of powder to 1.5 volumes of water to make a milk of 22.9% solids.

# FLORIDA MOUSE

(Cricetidae peromyscus floridanus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 63.2 | 30.3 | 6.5 | 22.8 |
| Milk 1 | 37.9 | 34.0 | 12.3 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 66.5 | 2.0 |
| | 30/52 | 33.5 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 22.8 grams of powder with 77.2 grams of water or 1.0 volume of powder to 1.5 volumes of water to make a milk of 22.8% solids.

# CLOUD RAT

(Muridae phloeomys cumingi)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 27.3 | 51.7 | 13.4 | 41.0 |
| Milk 1 | 27.9 | 45.5 | 13.1 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 70.5 | 3.0 |
| | 23/30 | 29.5 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# CANYON MOUSE

(Cricetidae peromyscus crinitus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 37.2 | 54.7 | 14.8 | 24.7 |
| Milk 1 | 32.3 | 42.4 | 14.3 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 33/40 | 79.8 | 4.0 |
| | 30/52 | 20.2 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 24.7 grams of powder with 75.3 grams of water or 1.00 volume of powder to 1.25 volumes of water to make a milk of 24.7% solids.

# CALIFORNIA MOUSE

(Cricetidae peromyscus californicus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 27.5 | 67.1 | 5.4 | 28.0 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 28.0 grams of powder with 72.0 grams of water or 1.0 volume powder to 1.0 volume of water to make a milk of 28.0% solids.

# WHITE-FOOTED MOUSE

(Cricetidae peromyscus leucopus)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 34.9 | 58.8 | 6.2 | 28.9 |
| Milk 1 | 30.7 | 48.9 | 6.6 | |

## MILK SUBSTITUTE

1

| Ingredient | Percent | Volume |
|---|---|---|
| 30/52 | 74.5 | 3.0 |
| 33/40 | 25.5 | 1.0 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# Tubulidentata

# AARDVARK

(Orycteropidae orycteropus afer)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 45.4 | 38.4 | 14.6 | 31.5 |
| Milk 1 | 37.3 | 35.3 | 11.6 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 42/25 | 61.6 | 61.6 |
| | 30/55 | 38.4 | 38.4 |

## MIXING DIRECTIONS

The dry powders may be blended together and stored in a closed container following label directions. This allows the blended milk replacer to be reconstituted more quickly when needed. Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2% solids.

# HUMPBACK WHALE

(Balaenopteridae megaptera novaeangliae)4

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 25.8 | 68.2 | 2.3 | 48.4 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# NORTHERN ELEPHANT SEAL

(Phocidae mirounga angustirostris)2

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 13.4 | 81.1 | 0.4 | 67.2 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| 1 | Ingredient | Percent | Volume |
|---|---|---|---|
| | 30/52 | 100.0 | 1.00 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.00 volume of powder to 1.00 volume of water to make a milk of 28.2 % solids.

# NORTHERN FUR SEAL

(Otariidae callorhinus ursinus)1

## MOTHER'S MILK COMPARISON

| Diet | % Protein | %Fat | %Lactose | % Solids |
|---|---|---|---|---|
| Mother | 16.0 | 81.0 | 0.2 | 61.0 |
| Milk 1 | 30.0 | 52.0 | 3.1 | |

## MILK SUBSTITUTE

| | Ingredient | Percent | Volume |
|---|---|---|---|
| 1 | 30/52 | 100.0 | 1.0 |

## MIXING DIRECTIONS

Mix 28.2 grams of powder with 71.8 grams of water or 1.0 volume of powder to 1.0 volume of water to make a milk of 28.2 % solids.

# MARINE MAMMAL NOTES

Much is still unknown about feeding orphaned marine mammals. While it would appear that formulas can be produced that grossly match the mother's milk there are still the unknowns of fatty acid and amino acid composition which play a major role in the utilization of the milks. In cases where the fat levels of the milk are very high it would appear that the addition of fat to the milk could be beneficial to the infant. If fat supplementation is chosen, however, the fat source should be carefully selected to best match the fatty acid composi tion of the mother's milk if that information is available.

The milk of marine mammals is very high in solids concentration. Because of the difficulty of making a solution from dry powders that is flowable when it is fifty percent or higher in solids all formulas given in this section have a solids content of no higher than thirty percent. Because of the decrease in solids concentration the animals will need to consume a higher volume to meet their energy needs. This is best accomplished by more frequent feedings.

# APPENDIX 1

Formulas used for Species without
Mother's Milk Composition

| Species | Formula |
|---|---|
| AFRICAN SERVAL<br>(Felidae felis serval) | 33/40 alone |
| CAPUCHIN<br>(Cebidae cebus) | Squirrel Monkey Formula |
| DAMA WALLABY<br>(Macropodidae wallabia eugenii) | Tammar Wallaby Formula #1 |
| HARBOR SEAL<br>(Phocidae phoca groenlandica) | 30/55 and Salmon Oil or 30/55 (1.75 parts water to 1 part powder |
| JAGUAR<br>(Felidae panthera onca) | Leopard Formula #2 |
| KILLER WHALE<br>(Delphinidae orcinus orca) | 30/55 |
| MARMOSET (COMMON)<br>(Callithricidae callithrix jacchus) | Cotton-Headed Tamarin Formula |
| RED-HANDED TAMARIN<br>(Callithricidae saguinus midas) | Cotton-Headed Tamarin Formula |
| SPOTTED SKUNK<br>(Mustelidae spilogale putorius) | Striped Skunk Formula |
| STELLAR SEA LION<br>Otariidae eumetopias jubatus) | 30/55 |
| TIGER<br>(Felidae panthera tigris) | Lion Formula #2 |
| TURKOMEN MARKOHR (MOUNTAIN GOAT)<br>(Bovidae capra falconeri) | Ibex Formula #1 |
| WALRUS<br>(Odobenidae odobenus rosmarus) | 30/55<br>2.5 parts water to 1 part powder then<br>2 parts water to 1 part powder |

# APPENDIX 2

Additional Formulas used for Species without Mother's Milk Composition

| Species | Formula |
|---|---|
| BIG BROWN BAT (Vespertilionidae eptesicus fuscus) | Fringed Myotis Formula |
| BINTURONG (Viverridae arctictis binturong) | 33/40 at 1:3 |
| BOBCAT (Felidae lynx rufus) | 42/25 and yogurt |
| CARACAL (Felidae lynx caracal) | 33/40 alone |
| FISHING CAT (Felidae felis viverrina) | 33/40 alone |
| GIANT OTTER (Mustelidae pteronura brasiliensis) | 30/55 |
| MUNTJAC (Cervidae muntiacus muntjak) | Dall Sheep Formula or Greater Kudu Formula #2 |
| OCELOT (Felidae felis pardalis) | 33/40 |
| RING TAILED LEMUR (Lemuridae lemur catta) | 20/14 |
| RUFFED LEMUR (Lemuridae varecia variegata) | 2 pts 20/14 + 1 pt 42/25 |
| SPIDER MONKEY (Cebidae atles geoffryi) | Squirrel Monkey Formula |
| WOODCHUCK (Sciuridae marmota monax) | Squirrel Formula #2 |

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