

Nutrition Content Information

of MMBB Pasteurized Donor Human Milk

(8/1/2023)

The Minnesota Milk Bank for Babies (MMBB) has acquired a [Miris Human Milk Analyzer](#) (HMA) to measure macronutrient content of donors' milk. The Miris HMA is the only FDA-approved human milk analyzer registered as a medical device for hospital use. The Miris HMA uses mid-range infrared transmission spectroscopy principles and a patented process to analyze the macronutrients, energy, and total solids in human breast milk. MMBB's Miris HMA (Ser. No H2109-18, 2022), is operated by trained staff who follow manufacturer's guidelines for proper maintenance and calibration, and current Human Milk Banking Association of North America (HMBANA) nutrition analysis standards.

The composition of human milk varies based on factors such as gestation, milk expression methods, and handling. Donor human milk preparation and handling may impact macronutrients and their bioavailability. Fat content is particularly impacted by feeding method, such as bolus vs. continuous and position of feeding syringes during enteral feeds (vertical vs. horizontal). Among milk donor samples tested at MMBB, the caloric content ranges from 14kcal/oz to 28 kcal/oz. The MMBB uses the Miris HMA to analyze each donor's milk to target pool and optimize batches of pasteurized donor human milk (PDHM) for inpatient and outpatient use. At least 3 donors' milk are pooled for Term batches to maximize anti-infective and other properties unique to human milk.

MMBB provides macronutrient content information on bottle labels, including calories (kcal/oz) and total (crude) protein (g/dL). PDHM provided to hospitals for inpatients contains no less than 20 kcal/oz and 0.9 g/dL of total (crude) protein. While caloric content is identified as a specific number, the results should be treated as a range and can be used for the basis of fortification. The ranges are indicated below:

- 20kcal/oz includes milk from 19.5 to 21.4kcal/oz
- 22kcal/oz includes milk from 21.5 to 23.4kcal/oz
- 24kcal/oz includes milk from 23.5 to 25.4kcal/oz

Note that Miris HMA results should not be the sole basis for managing infant nutrition care. The HMA device provides the range of energy and macronutrients in PDHM but cannot determine the bioavailability of any nutrient. The results of human milk analysis will not alone predict infant growth. Multidisciplinary monitoring of the infant's weight, growth, and labs will remain the gold standard for assessing the infant's nutrition needs.



Additional Product Notes

T3.3 Term PDHM (3.3oz/100ml)

- Caloric content ranges from 20kcal/oz to 22kcal/oz.
- Each batch will have a minimum of 0.9g/dL total (crude) protein.

T4 Term PDHM (4oz/120ml)

- Hospitals may choose 20kcal/oz, 22kcal/oz, and/or 24kcal/oz.
- Each batch will have a minimum of 0.9g/dL total (crude) protein.

T4-OP Outpatient PDHM (4oz/120ml)

- PDHM <20kcal/oz is designated as outpatient milk.
- Caloric content is labeled by batch.

PT Preterm PDHM (1.7oz/50ml)

- Preterm milk is expressed from <37weeks gestation for the first 4 weeks after birth.
- Caloric content is labeled by batch with a minimum of 20kcal/oz and total protein in g/dL listed.
- Higher in total (crude) protein content than term milk.
- Availability may be limited due to the variable supply of eligible donors.
- Pooling multiple donors is the standard when available.

Milk Batch Analysis Report

[Request a Milk Batch Analysis Report](#) (MBAR) for additional macronutrient content by batch. Please reach out with any questions via email at orders@mnmilkbank.org or call (763) 290-1860.

Example MBAR for PDHM:

BATCH #:
Date HMA Performed:
Employee Performing Miris HMA:
Fat (g/100ml):
Carbohydrates (g/100ml):
Total (Crude) Protein (g/100ml):
Energy (kcal/100ml):
Calculated Calories (kcal/oz):