

The first step in a
healthy preterm baby's
life is **nutrition**

Measure with Miris.
And make every drop count.



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Neonatal medicine has made great strides in the care of preterm babies. Thanks to a better understanding of nutrition we now know that human milk gives preterm babies the best start in life. Miris helps you measure the nutritional status of human milk for a successful outcome for the baby, the family and the clinic.



“ Premature babies are incredibly fragile and what we do during the first few weeks of life has great relevance. ”

Preterm health begins with nutrition

Newborns and their mothers are unprepared for a premature arrival into the world. Mothers may have difficulty producing milk. Preterm babies with their tiny digestive systems can only take in small feeds. Milk must therefore have the best nutritional quality to ensure growth. At this stage, every drop counts.

Human milk is best for baby

Human milk kick-starts the immune system. For sick or pre-term babies, this can be a lifesaver. Studies show that milk-fed babies have a lower incidence of NEC when compared to formula fed babies. Miris Human Milk Analyser provides a fast and simple way to uphold human milk as the primary source of nutrition during the first challenging weeks of life.

Optimise to get back on track

Although human milk boosts immunity it may not always meet the nutritional requirements of each individual. Extreme and very low weight babies often need additional energy and protein to enable growth similar to intrauterine growth rates. Miris Human Milk Analyser helps you develop individualised nutritional programmes.

Understanding composition

There is no such thing as standard human milk, or an average preterm baby. That the nutritional status of milk varies with time and from mother to mother is a well established fact. When preterm babies are fed on expressed milk, the only way to be certain of its composition is to analyse.



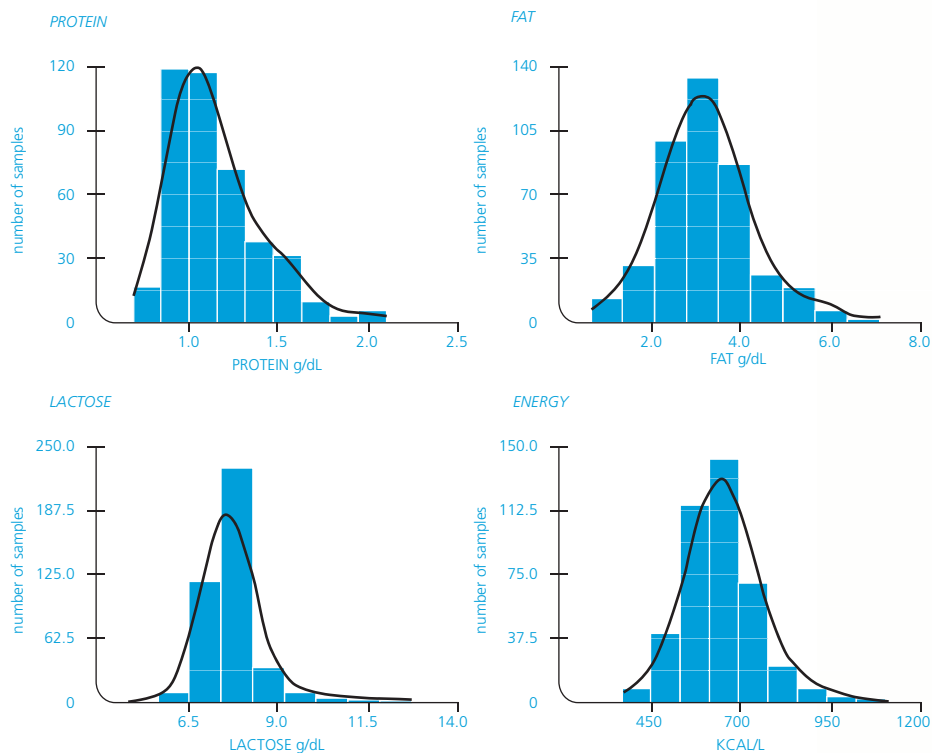
Optimised nutrition for special needs

By checking the nutritional status of human milk it becomes easy to identify what measures are needed.

During the last trimester, the fetus has a growth rate that is three times greater than a term baby. The dilemma is that preterm babies are born with high energy requirements and low reserves of macronutrients. Furthermore, individual metabolic status, organ maturity and health can vary greatly. Because of this, one feeding regimen cannot be applied to all.

According to ESPGHAN* there are three weight classes of preterm baby that require their own, specific nutritional management to mimic intrauterine growth:

Extreme low birth weight infants	< 1000 g
Very low birth weight infants	< 1500 g
Low birth weight infants	< 2500 g



There are large variations in the macronutrient content of human milk used in neonatal care. Mother to mother variation, stage of lactation, and methods of storage and treatment can all affect composition. The only way to be certain of milk composition is to analyse. Miris Human Milk Analyser provides the information that clinicians need to decide what nutritional measures are best.

* The European Society for Pediatric Gastroenterology, Hepatology and Nutrition



Protein recommendations

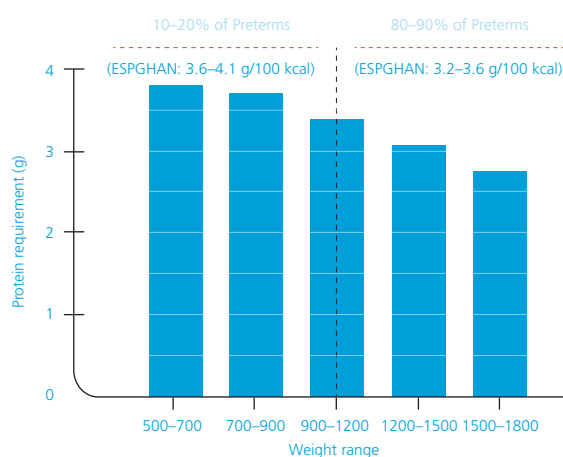
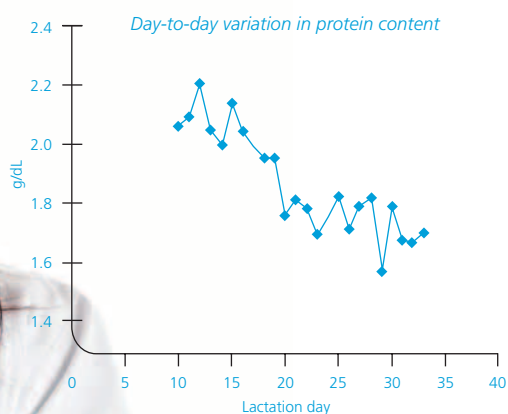
Protein rather than energy limits growth rate of preterm babies

Miris Human Milk Analyser helps clinicians manage protein intake. ESPGHAN indicates that most preterm babies have a protein deficit that is linked to their weight and composition of their feed. This is significant since protein in human milk declines after birth. However, protein levels must be kept within the recommendations as excessive intake can lead to adverse effects such as uraemia and NEC.

Protein requirements according to ESPGHAN.

Body weight	Protein requirements
< 1000 g	4.0 – 4.5 g/kg/day
1000 - 1800 g	3.5 – 4.0 g/kg/day

With the minimum of time and fuss, Miris Human Milk Analyser gives energy, fat, carbohydrate, and true protein content in milk. By excluding non-protein compounds such as urea, Miris gives a relevant measurement of protein status. Now it's easy to optimise nutrition for each preterm baby.



Left: Protein content of human milk declines after birth.

Right: The specific protein requirements of preterm babies, as recommended by ESPGHAN.

Measuring with Miris is easy

Miris Human Milk Analyser is fast and simple to use. It needs no special resources and enables decisions to be made close to the patient.

Made for the clinic

Used routinely in leading neonatal units and milk banks, Miris Human Milk Analyser has been extensively tested throughout the world.

Results in 60 seconds

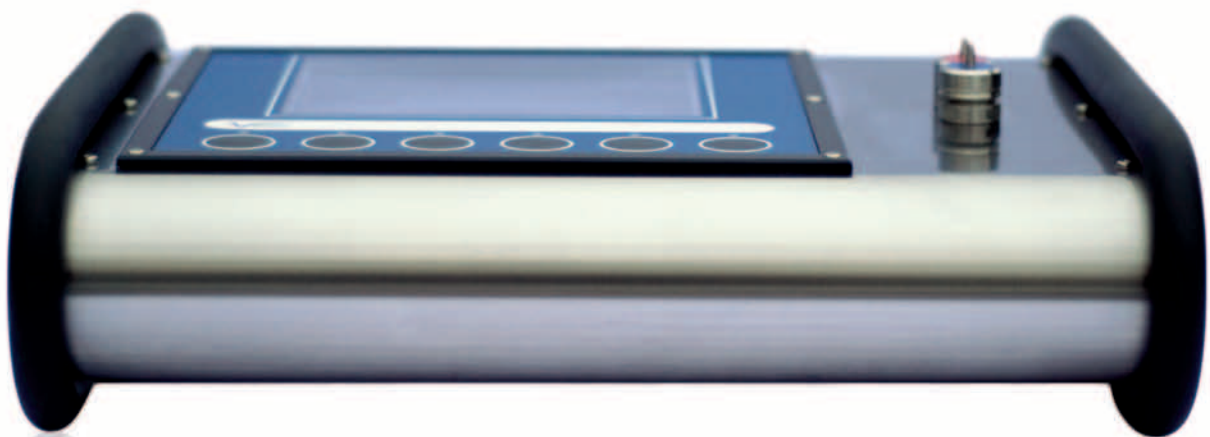
Determine nutritional content in just 60 seconds. The results are presented instantly on the display and can be transferred to your PC or USB device.

Small sample volume

All you need is a 1–3 ml sample to analyse fat, protein, carbohydrate, energy and dry matter. Analysis is done without chemicals.

True protein is the best indicator

For a more accurate representation of the nutritionally available protein, Miris Human Milk Analyser indicates true protein levels rather than total nitrogen or crude (total) protein.



No waiting. No chemicals.

Miris Human Milk Analyser works seamlessly with the resources in your neonatal clinic.

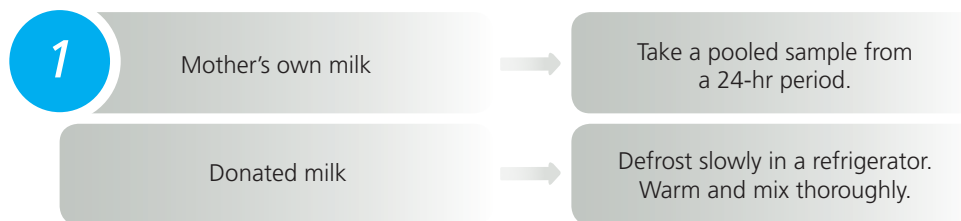
Analyse without chemicals

Anyone can learn to use Miris Human Milk Analyser. No specialist skills, no dedicated laboratory or staff are required. The analysis does not use chemical reagents and the instrument is robust and easy to maintain.

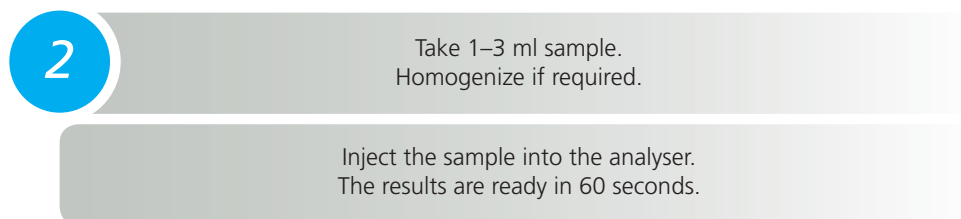
Work flows with Miris

Users of Miris Human Milk Analyser agree that its speed and ease of use fit well in the clinical setting. Analysis takes only 60 seconds and allows decisions to be made close to the patient.

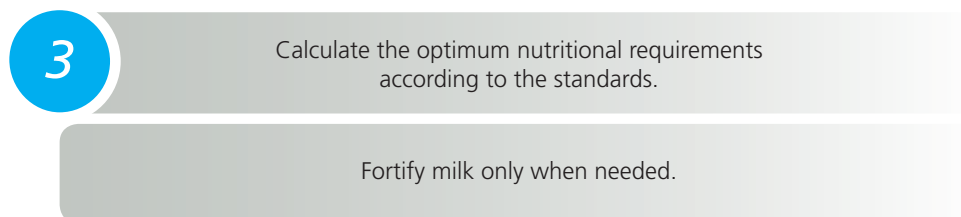
Collect



Analyse



Optimise



Technical specifications and options

MIRIS Human Milk Analyser is based on IR-technology (Infrared transmission spectroscopy) using a unique, patented technique. It is accurate and all the nutritional components are analysed in a single run. The results are presented on the instrument display and can easily be transferred to a PC or to a USB flash drive. MIRIS Human Milk Analyser is CE approved for *in vitro* diagnostics according to European Commission Directive 98/79/EC.

Technical specifications

Dimensions (HxWxB)	9 × 26 × 31 cm	
Weight	3 kg	
Time for analysis	60 seconds / measurement	
Power supply	15V, 4A DC	
Analytical method	Mid infrared transmission spectroscopy	
Units of measurement	Fat	g/100 ml
	Carbohydrates	g/100 ml
	Protein	g/100 ml
	Energy	kcal/100 ml
	Dry matter	g/100 ml
Connections	USB B for data transfer and Program updates via ActiveSync or Windows Mobile Device Center	
	USB A for data storage and devices e.g. keyboard, mouse, scanner.	
	RS232 and Ethernet	
Backup of measurement data	Internal persistent flash memory	
Operative system	Windows CE 5.0	
Measurement performance	Repeatability (SD) <0.05% ; Accuracy (SD) <0.1 %	
Shown value	1 decimal	
Standards	CE class B LVD, FCC, Medical Device	

Miris Human Milk Analyser comes with a starter kit that includes:

- Syringes, detergents, AC/DC adapter.
- USB Cable for data transfer to PC, CD with manual.
- Quick guide, spare parts for inlet filter and outlet valve.
- Robust carrying case.

Products and Accessories

Miris has a range of products and accessories for effective analysis and working procedures.

Miris Clean	A detergent for regular cleaning of the measuring unit of the analysis is included with the purchase of the analysis instrument. The detergent quantity is sufficient for 10 litres of distilled water. Recommended consumption: use about 15 ml detergent for every 10 th milk sample.
Miris Check	A neutral solution for maintaining measurement accuracy is included with the purchase of the analysis instrument. Mix with 0.5 litres distilled water. Recommended consumption: Use about 5 ml neutral solution for every 10 th milk sample.
Syringes	Syringes for injecting milk, MIRIS Clean and MIRIS Check. Ten 2 ml syringes are included with the analysis instrument.
In/outlet kit	A kit containing a filter and several different types of gaskets for in- and outlet valve is included with the analysis instrument.
Printer	A portable printer for direct printing of analysis results. (Supplied separately)
Miris Terminal cable	The RS232 cable allows results to be transferred online to a computer with a Windows terminal function (Supplied separately).
Miris Sonicator	Storage and or thawing can cause fat separation and protein aggregation in milk. The Miris sonicator homogenises milk samples to give reliable results that truly reflect composition (Supplied separately).
Barcode reader	(Supplied separately)

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