QUEST

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Liposomal
Magnesium 150mg

Increased bioavailability and absorption

Nutritional Information

One sachet provides:		*%NRV
Magnesium	150 mg	40

*Nutrient Reference Values

Dissolve one sachet in a glass (200ml) of cool water.
Consume up to 2 sachets per day.

SUMMARY

- Advanced delivery of oral magnesium.
- High bioavailability and absorption of magnesium.
- Increased cellular delivery of magnesium.
- Highly stable magnesium and protected from degradation.
- Liposomal magnesium is well tolerated.
- Supported by studies and advanced manufacturing processes.

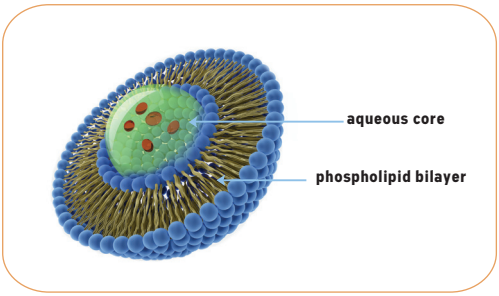
LIPOSOMES & LIPOSOMAL DELIVERY

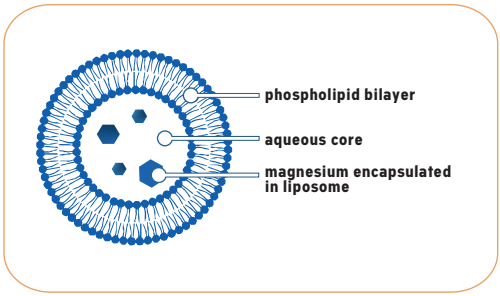
Liposomes are a form of lipid-based delivery that promote intestinal absorption, intracellular uptake and bioavailability of active nutrients, such as iron. Liposomes are microscopic-sized spherical envelopes or pockets containing an aqueous core. The phospholipids are arranged into a spherical cell membrane like lipid bilayer, knows as a phospholipid bilayer.

Liposomes structures can be used for advanced delivery of magnesium, which is then described as liposomal iron. The liposomal magnesium is created through a careful manufacturing process resulting in an innovative delivery form of the nutrient with significant advantages for the consumer.

In the case of water-soluble nutrients (hydrophilic), such as magnesium, the active nutrient is entrapped inside the aqueous core of the liposome.

Illustrations of liposomal magnesium structure





ADVANTAGES OF LIPOSOMAL DELIVERY OF MAGNESIUM

The advantages of liposomal nutrients are derived from the liposome structure itself. Magnesium is contained within the aqueous core and is sealed and encapsulated. Liposomal encapsulation provides a barrier around the active magnesium, increasing resistance to digestive enzymes, acidity, intestinal flora, and oxidation.[1] This results in the protection of the magnesium from degradation and oxidation as well as protecting the digestive tract from potential irritation, thereby improving delivery and bioavailability. In addition, interactions between the liposome's phospholipid bilayer membrane and the body's cell membranes offer enhanced cellular uptake through endosomal mechanisms.

As a result, the advantages of liposomal nutrients include:

- High bioavailability and absorption of magnesium compared with conventional oral forms of magnesium.
- Protection of magnesium against the acid environment of the stomach, oxidation, and degradation.
- Protection of the digestive tract from potential irritation by magnesium.
- Increased transmucosal (oral) uptake and absorption of magnesium.
- Increased intracellular delivery of magnesium.
- High stability of magnesium
- Cost effective by being able to take a lower dose of magnesium for the same effect.

LIPOSOMAL MANUFACTURING PROCESS

The Liposomal nutrients used by Quest are supplied by Lipsovit® and manufactured using a carefully controlled manufacturing process and the liposome structures are additionally verified using cryogenic transmission and scanning electron microscopy. Particle size plays a vital role in nanoparticle adhesion to and interaction with biological cells in the body.[2,3] At Quest we use Liposomal nutrients within a particle size of 200-400 nanometres (nm), ensuring they are a highly effective delivery system. The size of the liposomes and their particle size distribution are determined using a LUMiSizer® 651 particle size analyzer.

Image of Lipsovit® liposome structures using cryogenic transmission electron microscopy.

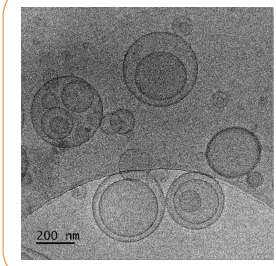


Image of Lipsovit® liposome structures using x1000 magnification under scanning electron microscope.

BENEFITS OF MAGNESIUM SUPPLEMENTATION

Magnesium is the second most abundant mineral in the human body. It is involved in more than 300 enzymatic reactions and is needed for a wide range of body processes. Magnesium contributes to normal muscle function and contraction including of the heart muscle tissue. It is needed for the maintenance of normal bones and teeth, electrolyte balance, the functioning of the nervous system and neurotransmission, protein synthesis, cell division, normal psychological function and energy metabolism. It helps to reduce tiredness and fatigue and muscle cramps, particularly in pregnancy and active individuals.

HEALTH NEEDS

HEART & CIRCULATION

STRESS & HECTIC LIFESTYLE

WOMEN'S HEALTH

JOINTS & MUSCLES

SCIENTIFIC REFERENCES

1. Nanoscale Res Lett 8, 102 (2013)
2. Biomaterials. 2005;26: 2713-2722
3. Small. 2010;6:12-21

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