PlantaCORP
advanced liposomal technology

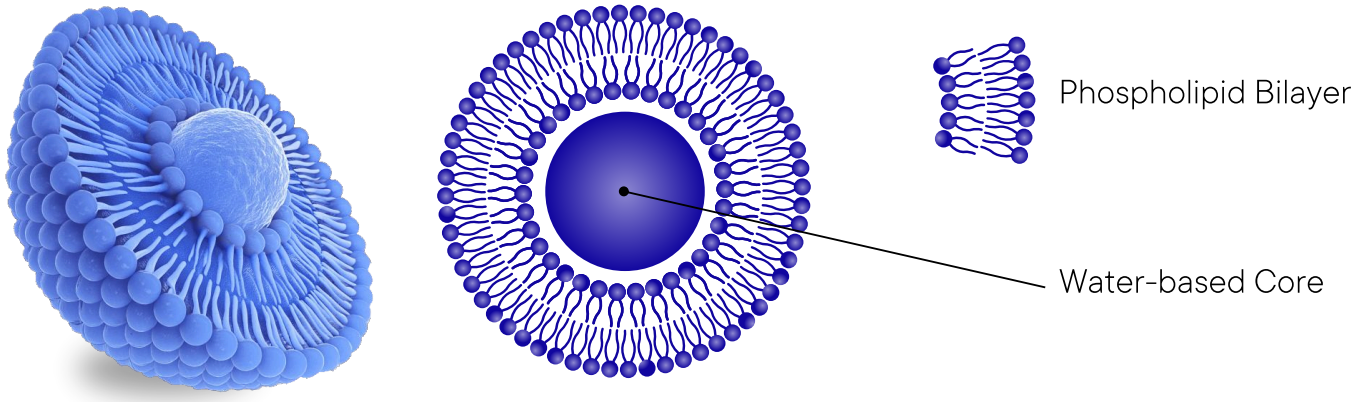
Liquid Liposomal Formulations

The Only True Standard in Nutrient Delivery

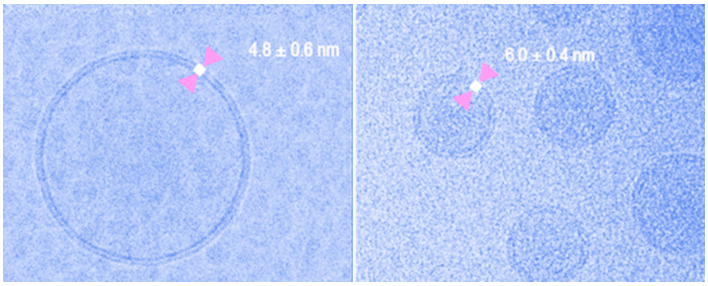
Liposomal technology represents a genuine breakthrough in nutrient delivery. However, only **liquid liposomal formulations** harness the full potential of this innovation. Powder liposomal products lack the essential structure that defines true liposomal effectiveness. In essence, while powdered supplements may contain some liposomes and offer some limited benefits compared to traditional supplements, their existence is hard to prove, and they cannot compare to the efficiency and effectiveness of true liquid liposomal formulations.

Why Liquid Liposomes Work

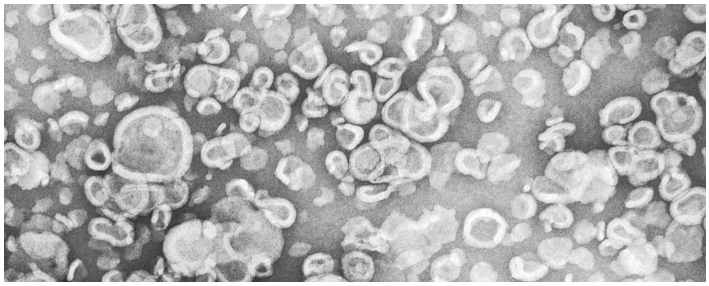
Water. It is the foundation of liposome stability and integrity, essential for forming the structure of liposomes, which directly influences their ability to encapsulate and protect the active ingredients.[1,2] Each liposome is a tiny, 100–300 nanometer sphere with an ultra-4-nanometer-thin membrane, composed of a plant-based phospholipid bilayer. This precise structure with a water-based core forms a stable, three-dimensional system that encapsulates the nutrient.



This hydrated core stabilizes the liposome by preventing collapse, supporting the bilayer's formation, and safeguarding the delicate nutrients within. Liposomes can be identified using (Cryo-)TEM imaging, which reveals their defining structure: a double-layered (bilayer) membrane encapsulating a water-based core with the nutrient.



Picture 1. Cryo-TEM images of empty (drug free) liposomes.
Source: https://doi.org/10.3390/pharmaceutics13010123



Picture 2. High-resolution TEM images of PlantaCorp liposomes in formulation.

[1] Drugs, in cyclodextrins, in liposomes: a novel approach to the chemical stability of drugs sensitive to hydrolysis. Yannis L Loukas et all. International Journal of Pharmaceutics, Volume 162, Issues 1–2, 20 March 1998, Pages 137–142

[2] Improving solubility and chemical stability of natural compounds for medicinal use by incorporation into liposomes. Maria Coimbra et all. International Journal of Pharmaceutics Volume 416, Issue 2, 2011, Pages 433–442

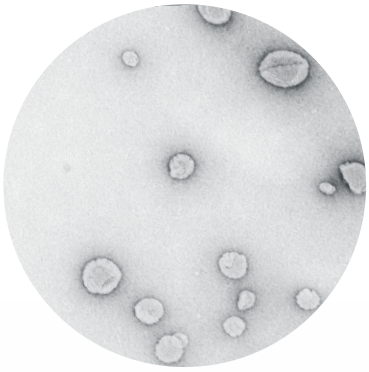
Liposomes travel through the digestive system to the small intestine, where they are absorbed and break down, releasing the active ingredient, which then enters the bloodstream.

At PlantaCorp, with our unique advanced liposomal technology, LipoSone™, and with a meticulous, multi-step process that incorporates shear force we craft liquid liposomes with unparalleled precision and reliability. Our method ensures that nutrients are securely encapsulated and protected, delivering maximum impact and superior health outcomes.

Why Powdered Liposomes Miss the Mark

Powdering liposomes removes water, the key element that maintains their structure, causing the bilayer to collapse into unstructured phospholipids and nutrients. This eliminates effective encapsulation, protection, and controlled release. Therefore, powdered liposomal supplements rely on reconstitution by the consumer - mixing with water or other liquids — to attempt to restore their liposomal structure and functionality.[3] However, this process is inherently imperfect, often resulting in incomplete or inconsistent liposome formation, which can compromise their efficacy.

Inherently, images of reconstituted dry liposomes can be ambiguous. The shapes may appear spherical but lack clear bilayer visualization, potentially representing collapsed or fused vesicles due to hydration loss or microscope limitations (as shown in Picture 3).



Picture 3. Cryo-TEM image of powdered liposomes from European manufacturer.

In contrast, liquid liposomal supplements are fully functional from the start, with intact liposomes that are ready to deliver nutrients effectively without requiring any additional preparation. Our human clinical studies confirm it: PlantaCorp's liquid liposomal Vitamin C, for example, delivers **21 times higher bioavailability** than other powder liposomal formulations.

For brands committed to delivering meaningful results, the choice is clear. Scientifically designed to maximize bioavailability, only liquid liposomes can preserve the structural integrity and efficacy essential for optimal nutrient delivery.

PlantaCorp's Commitment to Quality and Results

At PlantaCorp, we are dedicated to innovation grounded in rigorous science. While powdered forms continue to evolve, we are committed to producing high-quality liquid liposomal supplements. For now, this is the only format that fully leverages liposomal technology to deliver effective, reliable, and proven results.

Discover how our **unique advanced LipoSone™ technology** can enhance nutrient delivery and elevate your product line—reach out to learn more.

[3] Improvement of membrane stabilizer on the rehydrated reconstruction of spray-dried mannitol-based liposome powder, Chunxue Liang, 2024 Volume 302, pages 711–720, (2024) **Colloid and Polymer Science**