SAIFx® Technology

Liposomes are tiny phospholipid bubbles with a bilayer structure very similar to that of our cell membranes. In the 1960's, scientists discovered the use of liposomal delivery in medicine. By encapsulating a drug within a phospholipid, the drug became highly biocompatible, delivering measured amounts of therapeutic substances to specific tissues of the body.

Liposomes are able to carry both fat and water-soluble payloads, making them ideal for nutrient bioavailability.

A very small number of nutritional supplement manufacturers are currently pioneering the benefits of this unique science within the nutraceutical industry.

GMPriority Pharma have been involved in the research and development of liposomal encapsulation for over 20 years and made their products commercially available in 2012.

SAIFx® technology represents a quality by design approach, implementing innovation and quality throughout all aspects of the development and manufacturing processes.

This results in proprietary, stable and efficient formulations of authenticated liposomal content.

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SCIENTIFIC

GMPriority Pharma's foundation is its robust scientific approach. The company has over 35 years of combined expertise in liposome technology, leveraging nanoencapsulation for enhanced delivery and absorption of nutrients. The SAIFx® process ensures that the liposomes are meticulously engineered for precise size, stability, and efficacy.

Independent peer-reviewed studies provide tangible evidence of the superior bioavailability achieved with GMPriority Pharma's liposomal formulations. For instance, the liposomal vitamin C demonstrated exceptional plasma levels compared to standard formulations, as shown in comparative studies.

Additionally, the company has collaborated with academic institutions such as Anglia Ruskin University to validate and refine its liposomal technologies. This partnership yielded groundbreaking innovations, including liquid liposomal and dry powders liposomal, a world's first truly liposome in the nutraceutical field, and globally recognised as gold standard for nutraceutical liposomal technology.

AUTHENTIC

Authenticity is a cornerstone of GMPriority Pharma's operations. The commitment to transparency and rigorous testing ensures that all formulations meet the highest industry standards. Every batch undergoes advanced quality control measures, including Transmission Electron Microscopy (TEM), to verify particle size, distribution and structural integrity.

The authenticity extends to ingredient sourcing, prioritising biocompatibility and biodegradability. This ensures liposomal products are not only effective but also environmentally conscious and safe for consumption.

A testament to dedication is the range of third-party validations the products have received. These include clinical trials and scholarly articles published in peer-reviewed journals, solidifying GMPriority Pharma's reputation as a leader in liposomal science.

GMPriority Pharma R&D division also supports custom projects, offering services such as feasibility studies, formulation development, stability testing, and analytical characterisation. The company's focus on scaling up ensures a seamless transition from concept to GMP-compliant production, supporting regulatory requirements.

INNOVATIVE

Innovation is the driving force behind GMPriority Pharma's success. The development of SAIFx® technology represents a significant leap in liposomal encapsulation science. This advanced system by utilising the state-of-the-art manufacturing facilities, incorporating R&D laboratories, Class 7 cleanroom, and accredited FSSC ISO 22000 production suite ensures the creation of smaller, single-layer liposomes with unparalleled stability and efficiency, enabling the company to cross cellular barriers with ease.

Working within the interface between industry and academia, Professor Najlah as the Chief Scientist and Co-founder of the company is able to assimilate, then transfer knowledge between sectors to valuable effect. In particular, his research on developing scaling-up technologies for nanomedicines has attracted several collaborations with industries, which led to several KTP and KEEP+ projects funded by Innovate UK and European Regional Development Fund, respectively. The innovations are not limited to liquid formulations. The company's dry liposomal powders, developed through a three years collaborative project supported by Innovate UK, mark a revolutionary step forward. These powders provide the same superior bioavailability and stability as the liquid counterparts, offering versatility for various applications.

GMPriority Pharma's packaging solutions also reflect their innovative spirit. Options like Unicadose®, compact and pre-measured, ensure consistent dosing and convenience for consumers.

FORMULATIONS

At the heart of GMPriority Pharma's offerings are meticulously crafted formulations. Using SAIFx® technology, the liposomes encapsulate bioactive compounds in stable, single-layer spheres designed to maximise bioavailability. The formulations are tailored to deliver nutrients directly into the bloodstream, bypassing traditional absorption barriers.

The product development process incorporates rigorous stability studies, advanced characterisation, and continuous quality improvement from laboratory to full production scale. Each formulation's design begins with a detailed understanding of the source, benefits, and consistency of individual ingredients.

From liquid supplements to dry powders, GMPriority Pharma offers a diverse range of products designed to meet the unique needs of their clients. These formulations are employed by leading pharmaceutical and nutraceutical brands worldwide, solidifying the company's position as a global leader.

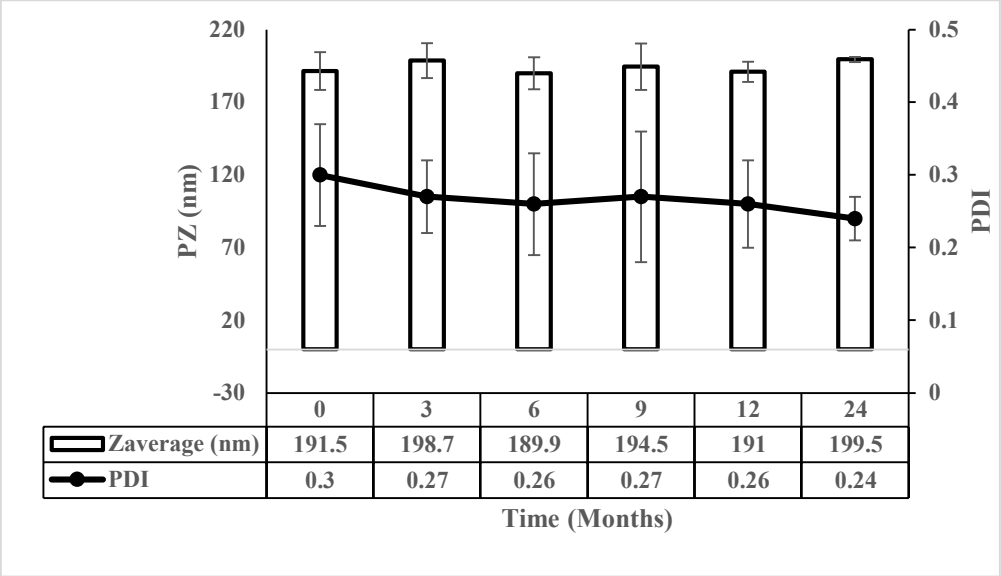
SAIFx® Technology: A Vision for the Future

SAIFx® encapsulates GMPriority Pharma's philosophy: merging science, authenticity, innovation, and premium formulations to deliver unparalleled quality. This technology not only enhances the bioavailability and efficacy of liposomal supplements but also sets new benchmarks for the nutraceutical industry.

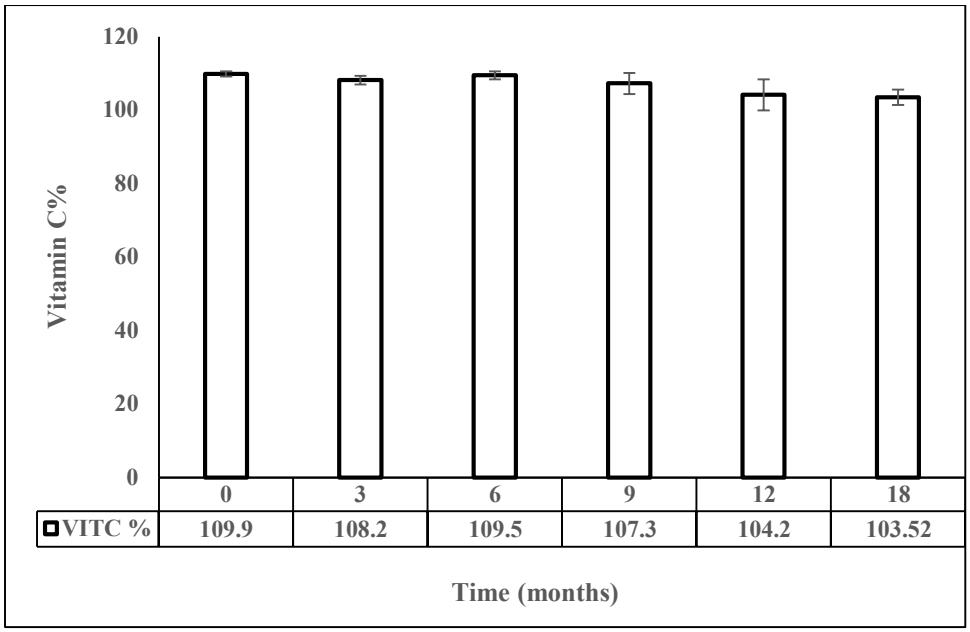
As the global market for liposomal supplements continues to grow, GMPriority Pharma remains at the forefront, shaping the future of bioavailability science. The dedication to advancing liposomal technology ensures that consumers receive products that are scientifically validated, authentically produced, innovatively designed, and expertly formulated.

By choosing GMPriority Pharma, clients and consumers alike benefit from a legacy of excellence and a commitment to health and well-being.

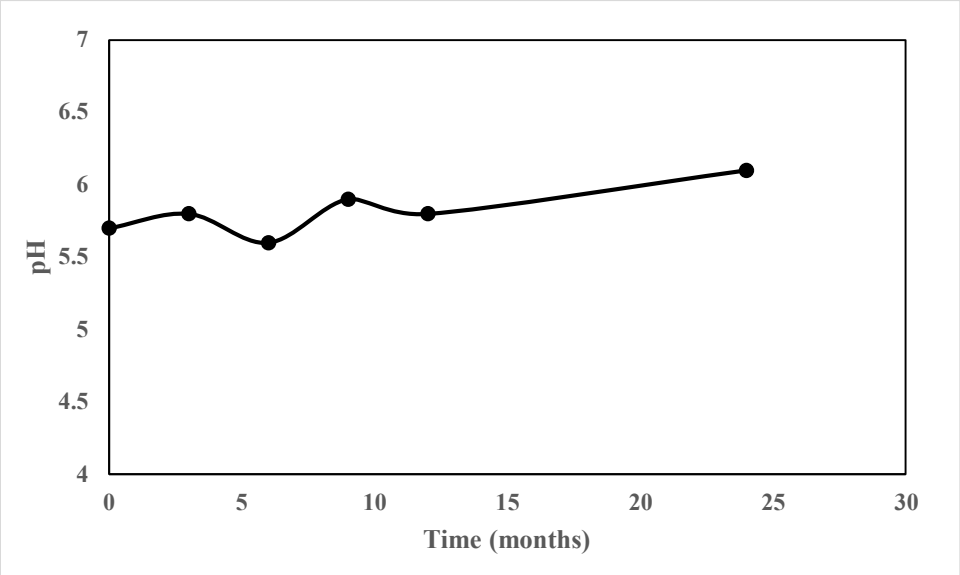
SAIFx® Evidence - Liquid



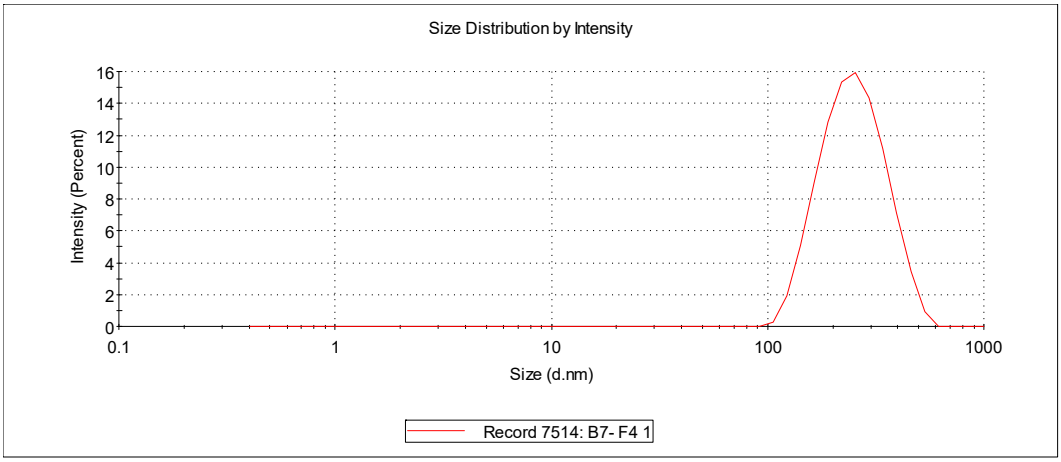
Particle size average and PDI of liquid Vitamin C products for 24 months



Average of Vitamin C concentration for 18 months



pH of Vitamin C products for 24 months



Size Distribution - flavoured Vitamin C

Size Distribution Report by Intensity

v2.2

Malvern

Sample Details

Sample Name: Stability Study - S31 3
SOP Name: mansettings.nano
General Notes:

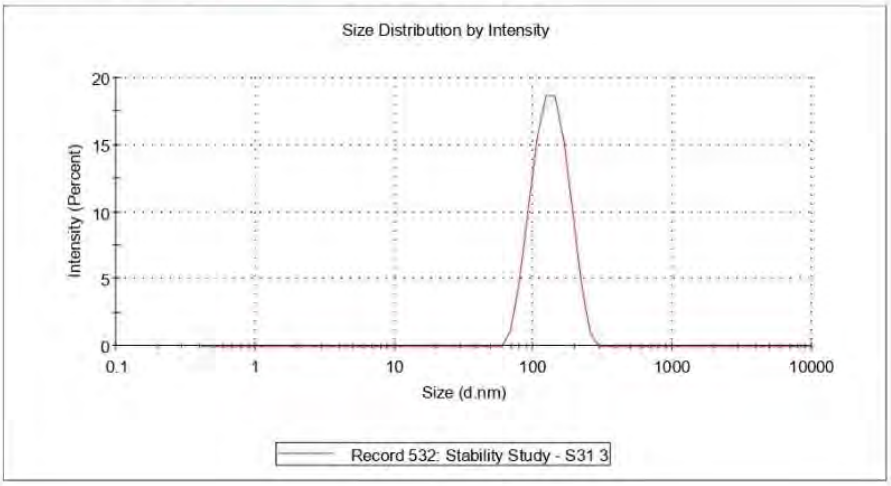
File Name:	Example Results.dts	**Dispersant Name:**	Water
Record Number:	532	**Dispersant RI:**	1.330
Material RI:	1.59	**Viscosity (cP):**	0.8872
Material Absorbtion:	0.010	**Measurement Date and Time:**	03 March 2022 09:27:02

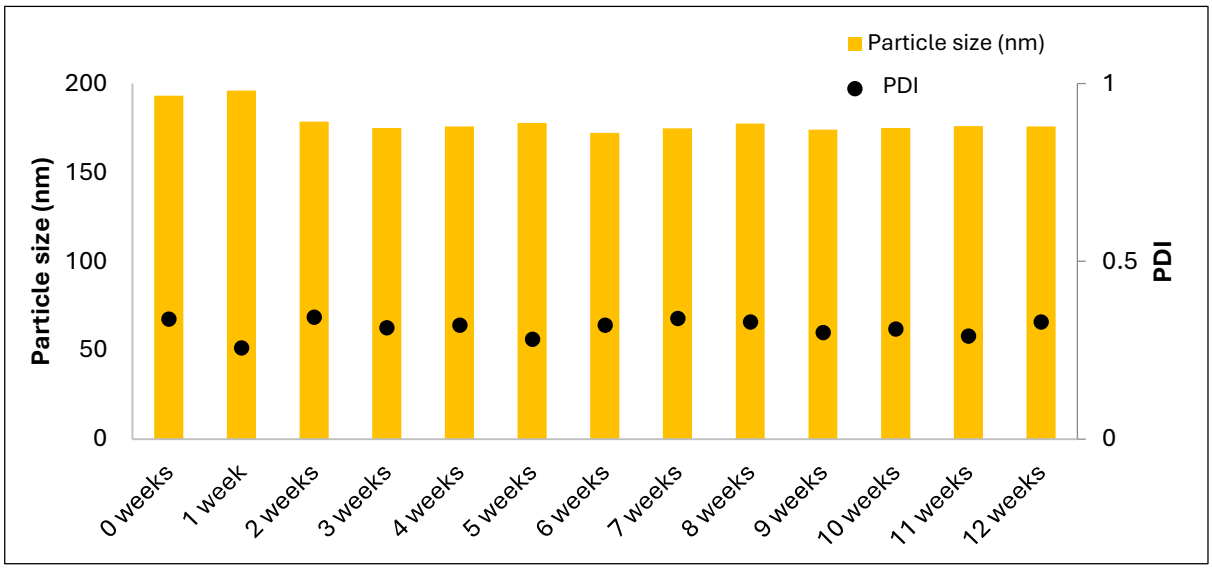
System

Temperature (°C):	25.0	**Duration Used (s):**	60
Count Rate (kcps):	253.8	**Measurement Position (mm):**	4.65
Cell Description:	Disposable sizing cuvette	**Attenuator:**	5

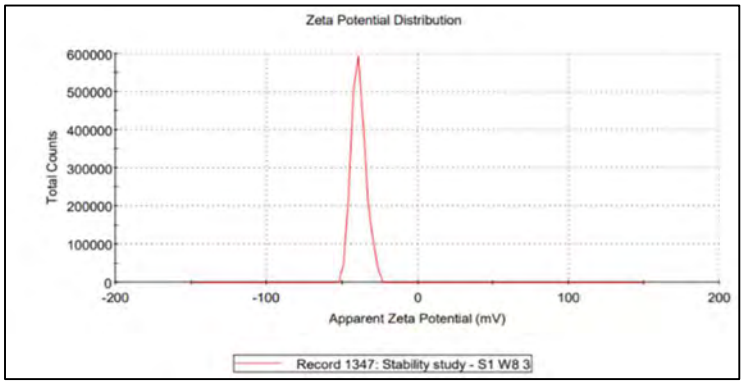
Results

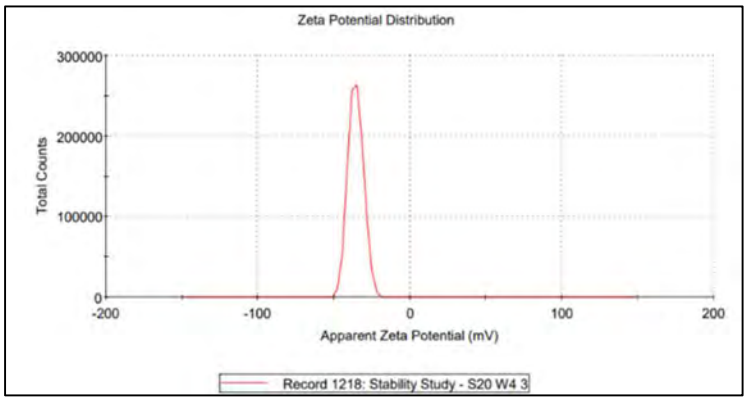
			Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm):	146.7	**Peak 1:**	136.6	100.0	38.53
PdI:	0.278	**Peak 2:**	0.000	0.0	0.000
Intercept:	0.933	**Peak 3:**	0.000	0.0	0.000
Result quality	Good				





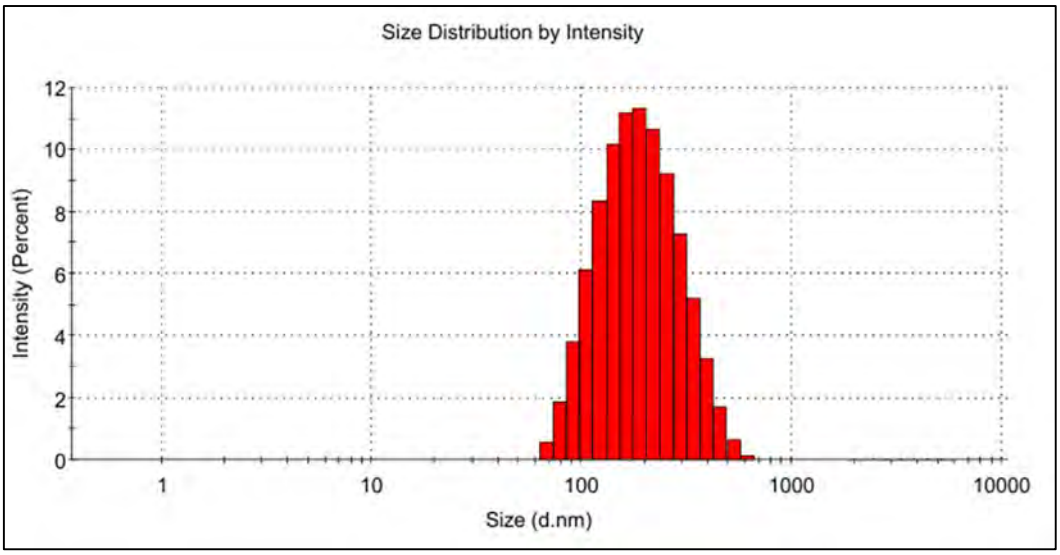
Particle size average and PDI of Glutathione (GSH).





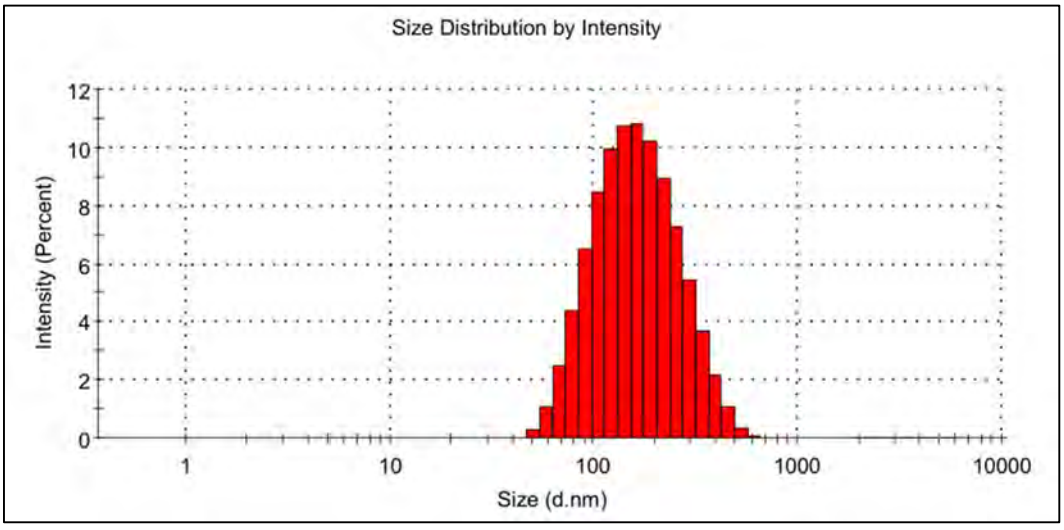
Zeta potential - Glutathione

Day One (-35.5 Mv) and Day Ninety (-38.9 Mv).



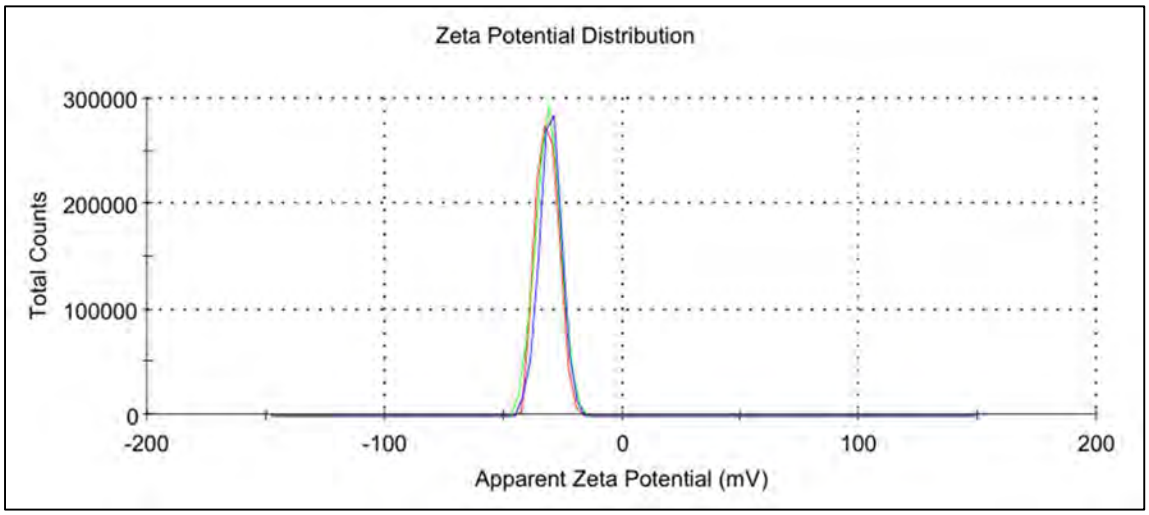
Size analysis and PDI

SAIFx® Vitamin C Batch VC20523121 - May 2023



Size analysis and PDI

SAIFx® Vitamin C Batch VC20523121 - December 2024



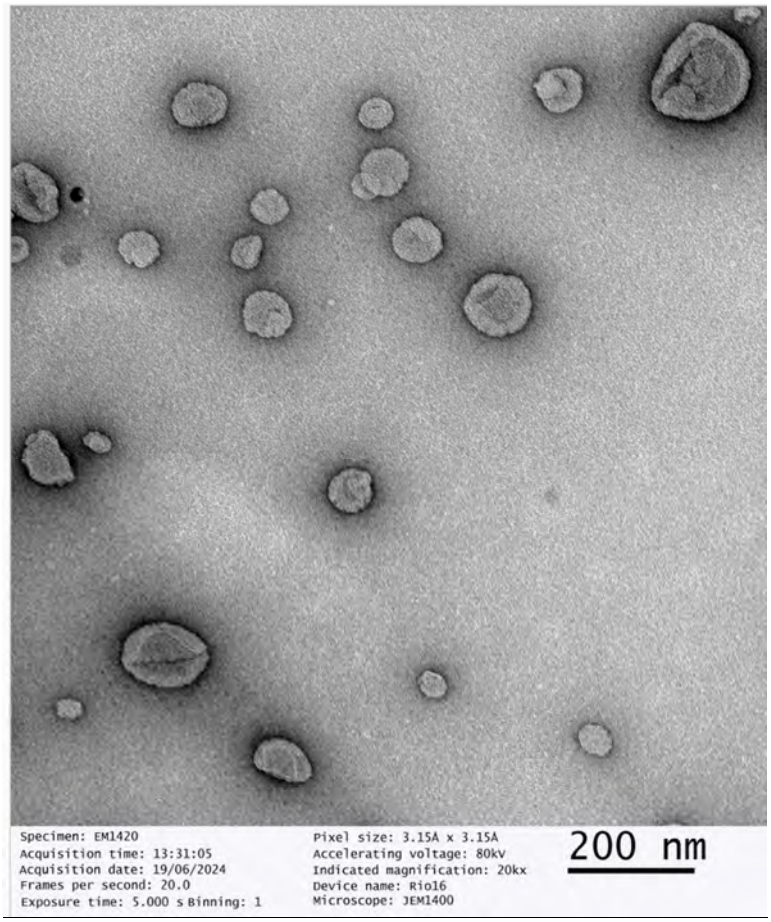
SAIFx® Vitamin C Batch VC20523121

Zeta potential after 19 months

Particle Size (Nm)	Zetasizer	160.1	Desired size range (below 200 nm) with a narrow size distribution
Particle Size Distribution (PDI)	Zetasizer	0.266	
Zeta Potential	Zetasizer	-31.5	Indicates long-term colloidal stability

SAIFx® Evidence - Dry

The TEM micrograph showed uniform distribution of spherical liposomes in nanometre range (100-200nm).



Transmission electron microscopic images at 20kx magnification; SAIFx® Liposomal Vitamin C powder showing presence of uni-lamellar nanosized liposomes, uniformly distributed throughout the frame.

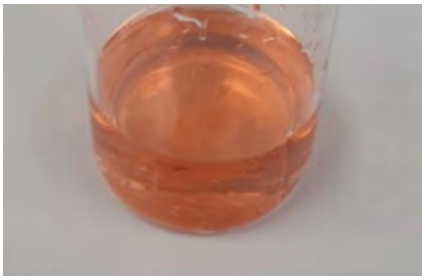
Sudan Test

Sudan III reacts with the lipids or triglycerides to stain red in colour. Lysochromes such as Sudan III bind to lipids but does not stick to any other substrate, hence will confirm the presence of lipids.

For this test, we included water as a negative control, 10% almond oil as a positive control and SAIFx® Vitamin C as test product. All products were treated with Sudan reagent using the standard protocol.

Under negative control, Sudan reagent dispersed in water instantaneously; under positive control, a very distinct and sharp red ring was formed on the top layer.

The SAIFx® Vitamin C stain formed sharp red-ring on top-layer.



NEGATIVE CONTROL

POSITIVE CONTROL

SAIFx® TEST PRODUCT