

Our Liposomes

Transtech is between the three most advanced liposome producers of the world. This status is the result of a combination of emotional elements, like a passion for perfection that we distilled by means of technical elements and protocols.

Although there are many methods for the production of liposomes described such as sonication, extrusion, solvent injection method, not all of them are able to produce liposomes that comply with the conditions and requirements of a product, specially pharmaceutical.

A fabrication method must be simple, standardized, replicable and of a reasonable cost. The final product has to be homogenous and stable during a sufficient period of time. The size and other characteristics and properties have to be as controllable as possible. TRANSTECHNICS developed a low energy production method based on the physicochemical concepts that the human body applies for the fabrication of its own membranes and vesicles.

By a simple, replicable method, which is easily transferred from an experimental level to the scale of industrial production, a high quality liposome population is produced that also complies with the requirements of pharmaceutical fabrication methods. TRANSTECHNICS' liposomes are generally unilamellar and characterized by homogenous particle size and high physicochemical stability. The diameter ranges from 50 to 200 nm depending on the active substance and the lipidic mix. The tools required for the production of the liposomes are limited and widely available in pharmaceutical manufacturing plants. One of the major advantages of the technique is the possibility of using unsaturated lipids and encapsulated labile substances without compromising neither the stability of the structure nor the stability of the components. The technique is versatile and it allows, depending on the application and the active product, the utilization of different types and qualities of lipids.

Due to its capacity to work with high lipidic concentrations a high efficiency of the encapsulation of hydrosoluble substances is obtained. The most utilized lipids are the soy lecithin with a purity of 94-98% in phosphatidilcholine. Soy lecithin is primarily utilized for technical and security reasons.

Furthermore, normally intervene in its composition other products in different proportions. All these components, well known in the pharmaceutical industry, GRAS-qualified, are utilized due to their structural and functional contributions. The following figures show the stability of

sodium ascorbate liposome solution (NA), a labile and demonstrative substance, in relation to the parameters studied in order to prove the stability of a product. These parameters are: stability of the active principles and the phospholipids, particle size, pH, and viscosity.

If it is considered necessary it is also possible to undertake studies of the encapsulating capacity as well as leakage of which figures are included. Our experience has demonstrated to us that very few techniques of liposomal preparation allow such a high variety for encapsulating distinct active principles.

Production methodology

- Production methods of low energy bases on the physicochemical concepts that the human body uses for the synthesis of its own membranes and vesicles
- Standardised & replicable method.
- It complies with all requirements of the pharmaceutical manufacturing methods.
- Possibility of encapsulation of the high range of active principles (ideal for labiles products).
- Possibility of use of polisaturados phospholipids.

Composition

- Natural composition, similar to the body membranes composition, ensuring optimal compatibility with the human tissues.
- All the liposomes components are substances GRAS (Generally Regarded As Safe).

Specification

- Liposome of high quality (pharmaceutical grade).
- Unilamellar.
- Homogenous particle size.
- Diametre from 50 to 200 nm depending on the active substance and the lipidic mix.
- High physicochemical stability.
- Improved stability of the active principle (in vitro and in vivo).
- Enhanced effect/efficacy of the active principle.
- Superior biocompatibility. Excellent penetration and diffusion.
- Ample range of uses in the fields of the health, the personal care and the industry.