

THE MICRON TECHNOLOGY FOR BIG RESULTS

The interests of pharmaceutical and biochemical industries are now focused more and more on the very high pressure micro-nizing technology. The production of emulsions by mechanical breaking under the effect of high pressure, the dispersion of mixture components improving stability, the increase of the surface area to volume ratio between the two phases and the viscosity changes are the most commonly sought after results.

HIGH QUALITY SERVICE THROUGH VERY HIGH PRESSURE TECHNOLOGY

The principle of the very high pressure Microsizer involves pumping of the premix (powder, oil, water, additives, other) through a narrow orifice (micronizing valve) under



Energy Series Microsizer

very high pressure (up to 1500 bar). Inside the valve the product flows at very high speed (up to 200m/s) and due to the sudden pressure drop, cavitation can occur, resulting in particle micronization. The product flows continuously through the outlet, ready for the filling machine or post-micronization processes.

THE APPLICATIONS AND THE PRODUCTS

One of the most important aims of the micronization is the production of a stable emulsion like body emulsion, clinical nutrition, ointment and cream. There is a more and more frequent requirement in the chemical and biochemical industry to prepare a high quality product adding a greater quantity of water, while for pharmaceutical industries the aim is to mix

components (active principle, oil, vitamins, enzymes, proteins) having different properties.

The effect of the high pressure is due to the combination of two different actions which take place simultaneously during the Microsizer passage: Micronization and Dispersion.

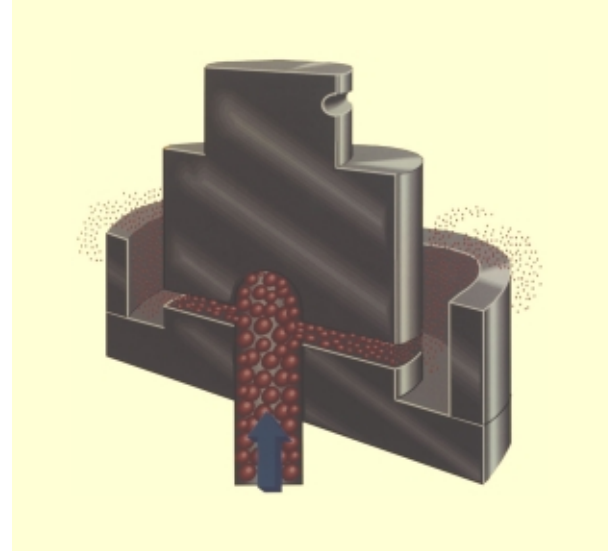
The result is a physically stable product with a longer shelf-life, improved appearance and effectiveness.

When the product is for injectable, inhalant or infusion applications, the Microsizer is normally used in order to obtain fine particle dispersion, giving an uniform and homogeneous end product. The average particle size must be below the micron.

The Microsizer grants a standardized final product with a pre-determined particle size distribution. Moreover, the high pressure effects can be controlled and adjusted according to the different level of micronization required for each product.

VERY HIGH PRESSURE HAS NO LIMITS

In biotechnology where the goal is to break cells in order to collect enzymes, proteins, intra-cell substances and liposomes, the high



Micronizing valve

pressure mechanical process can be the winning solution.

Normally lysis of cell was achieved by means of a chemical process adding high toxic and polluting substances that is vital to remove after their action. This process is expensive and not selective.

The effect of the high pressure is due to the high speed, the pressure drop, the shear, the impact and the cavitation, and its mechanical nature offers distinct advantages over the chemical methods which require the use of chemical reagents and produces changes to the extracts.

Micronization is used successfully in many processes where a drastic reduction (below the micron) of particles is required.

The micronization can be performed at low or high

temperature and special materials and components are used for the construction of the micronizing equipment.

THE SOLUTION IS HERE

The high pressure Microsizer is produced by Niro Soavi S.p.A. located in Parma, part of the GEA Group since 1993 with a world-wide agents network.

The Research and Development department has scientific contact with the University of Bologna, the Pharmaceutical department of Parma University, and D.I.S.T.A.M. of Milan.

The very well equipped laboratory, located in the Niro Soavi facility, is available for tests and compared analysis with the client's samples, in order to show and present the very high pressure technology.