



## **MINITUBES™: THE MICROEXPLOSIONS TECHNOLOGY TO FREE US FROM THE DUST!**

Modern industrial processes are requested to create products always more and more effective in terms of activity, as well as safe and easy to handle, paying attention to the reduction of costs.

The harsh and difficult use of preparations in powder form, due to particles that can easily cause irritation, allergic reactions or even severe symptoms in the most vulnerable people, has led to the development of new techniques which don't have completely solved this problem.



*DC-POL G – PVPP con tecnologia miniTubes™*

For example:

- **Aqueous solutions:** it seems they eliminate the problem, but they let other arise, as the inhalation of aerosols (causing allergies and bronchial accumulation), the increasing of dermal reactivity, etc. Moreover, using the same dose, solutions of many preparations are usually less active than the pure powder, being diluted, so they must be tuned to the concentrations of the active ingredients, increasing the treatment costs, even too much. The higher transport costs must be also considered.

- **Production of small grains or pellets:** these techniques are not without problems, because the product is too compact, with considerable difficulties during dispersion. In addition, the

pellet is necessarily a product impure, due to the presence of one or more binders.

From the analysis of the problems described above, and the subsequent application of a new technique designed for the purpose, it has been developed the technology miniTubes™, based on the microencapsulation of extremely thin canals within a homogeneous mass of active ingredient, all carried out in an inert atmosphere inside a partially pressurized reactor.

These microcanals (miniTubes™) create a network of microscopic voids, which in aqueous (polar) phase initially tend to collapse on themselves, due to a structural failure, and in fractions of a second the pressure generated by the microcanals saturated with inert gas leads to the "explosion" of the structure, causing an exponential increase in wettability and dissolution of the product.

applicata nella pratica presso lo stabilimento produttivo di Foggia, che possiede l'impiantistica e il know-how necessari. The technical production of this new technology was refined after a couple of years of experience and research in Dal Cin, practically applied in the manufacturing plant in Foggia, where equipments and needed know-how are present.

**The overall effects are:**

- Complete dispersion of the product in the liquid to be treated without any flotation, with a wetting effect that involves almost instantly every single particle of the product, thus avoiding the classic (and longer) hydration layer by layer;
- Total absence of dust;
- No waste of active ingredient (100% utilization);
- No cleaning after using the product.

All this means significant savings of time and money, and a sincere and real attention to health.