Encapsulation Technologies Inc.
8 John Walsh Blvd.
Peekskill, NY 10566
877-Encap It / 877-362-2748
info@encapsulationtech.com



# TRUE ENCAPSULATIONS & MOLECULAR ENTRAPMENTS

There are hundreds of methods used to control the release of materials in product formulations. Few of these methods are, by definition, true encapsulations. Non-encapsulation systems for which some form of release control is claimed include absorption, polymer entrapment, open-celled polymer sponge, and polymer solution technologies. Though some non-encapsulation technologies are adequate for simple, undemanding release functions and storage conditions, there are distinct advantages to those few technologies that provide true encapsulation.

Encapsulations are characterized by the effectiveness of the barrier between the internal phase of the capsule and the external phase of the product. With OptiMizer™ encapsulations, the separation of internal and external phase is so complete that deliberate attempts to extract the internal phase will fail until the appropriate release event has occurred.

For instance, in a paper product using a typical non- encapsulation system of fragrance absorbed on zeolite, 30% of the fragrance purportedly "trapped" on the zeolite is lost through evaporation under normal shelf conditions. Because OptiMizers™ are true encapsulations, only 0.1% of the fragrance is lost under identical conditions.

True encapsulations are also "true" to the character of the core materials, leaving the internal-phase materials unaffected by the encapsulation process. This is true of ET's OptiMax technology, whether the core material is a highly-volatile complex mixture, or whether it is a heat-sensitive, unstable, single component. ET uses GC as it's primary assay method for production quality assurance, for all systems involving volatile mixtures. Matching the un-encapsulated (control) material is always the standard. The ratio of encapsulated to unencapsulated material may also be measured by extraction and subsequent GC.

Values are typically 98.5% encapsulated (or better), typically 1 .5% or less extractable (in hexane), 2.5% as a maximum at 50% w/w loading. Lower extractable levels are not only possible, but reflect the extent of "tailoring" of the matrix system, core material, and processing.

Molecular entrapment offers some of the performance characteristics of encapsulation for materials that do not readily phase separate in water. Though differences exist in the formulation of systems for molecular entrapment, many of the outstanding benefits of ET's OptiMizer™ systems can also be achieved for those materials that are hydrophilic. We have also succeeded in encapsulating many hydrophilic materials.