This fact sheet provides essential information for the effective use of The Intelligent NanoDelivery System™ (INDS) in the Formulation of Personal Care Products.

What is the Intelligent NanoDelivery System™ (INDS)?
The INDS system consists of specially-formulated nanoliposomes and nanoemulsions made from biocompatible ingredients that are a convenient and cost-effective way to add highly effective ingredients into personal care product formulations.

What does INDS do?
Ingredients are only effective if they can penetrate the skin surface. Most personal care product contain penetration enhancers to help hard to absorb ingredients penetrate. But there is no guarantee that all of the active ingredient actually gets used. The INDS delivery system places your active ingredients in a protective, tiny capsule that itself has high skin penetration ability, enhancing the bioavailability of the active. This capsule is made from ingredients already present as part of the cell membrane of living skin cells, so that, in addition to delivering a specific active, the capsule itself can be used to target specific cellular structures and break apart inside the skin, and be used to make new skin better.

How does INDS differ from liposomal or micellar products already in the market?
The main differences between INDS and liposomal/micellar product additives are size and composition. The composition of the INDS particles is made from an optimized blend of lipids, fatty acids, proteins, and actives that create highly stable particles of specific size, charge, shape, and composition. Size and shape is important as it determines how quickly and how deep particles can penetrate tissues. Charge effects how the particles interact with each other, and with other compounds normally found in tissues. Composition affects permeability and recognition of the INDS package by living cells. Larger particles (e.g. liposomes) made of only a single component are more difficult to transport through the skin and smaller particles (e.g. micelles) lack carrying capacity and targeting ability. Each INDS formula has a combination of actives intended to produce a specific effect in the skin in a balanced and holistic manner.

Is INDS safe?
Yes, INDS is safe. “Nano” is a much misused and maligned term that creates unnecessary fear. Not all nano-sized particles are the same. Hard “nano”, small particulates of metals, glass, and other insoluble materials are not directly usable by the body’s cells, unless they dissolve into ions. They stay near the skin surface and are washed away or lost during skin sloughing. Interestingly, high resolution microscope studies show that nanoparticles in the dermis help maintain the crisp lines in tattoo body art. Soft “nano” particles, like those in INDS are made from biologically safe materials already found in the body, and, after penetrating deeply, can be assimilated into the skin or hair while releasing actives where they can be most effective.
A new generation of nano-products for personal care

How to store INDS?

INDS can be stored at room temperature under low light conditions for up to two years. We have tested its temperature stability in the range of -10°C and 45°C and find no significant change to the utility of the materials. Long term frozen storage is not recommended. All INDS products are shipped with microbial analysis information indicating CFU levels well below allowed levels. Because INDS products are rich in nutrients, you should follow good laboratory hygiene practices to avoid contamination during storage and use. If you are not sure of your methodology we will be happy to test a sample of your final product for a minimal fee. Talk with our technical staff about this service.

How to mix INDS?

INDS is designed to be used in formulations containing at minimum 3-6% of water. At 3-5% water content INDS can be used in place of all the water in your formulation. If your recipe contains more water, simply substitute an equal portion of water with an INDS product and mix. You will find that the INDS product gives you a convenient, and simple way to mix high value additives. INDS should be added to either the final product mixture or the aqueous portion prior to final mixing at temperatures of 45°C or lower. This will ensure stability of the INDS product and its actives. If you have a complex process, and would like some advice on how to best use INDS, our technical team will be happy to advise you. INDS is stable to high shear mixing. High power sonication of your formulation for extended periods after the addition of INDS is not recommended. Talk with our technical staff about what can be done to check the compatibility of your process with INDS.

What materials are compatible with INDS?

INDS is compatible with most glass, metal or plastic containers used in mixing. Once mixed in your formulation INDS should remain stable in your formulas during collection, storage and packaging. Excessively oily formulations, or ones with high surfactant content, may require some modification of the INDS capsule to increase stability. Talk with our technical staff about what can be done to check if this is needed and what changes can be implemented.

How to develop your formula using INDS?

Developing a new formula using INDS is simple. First, decide what characteristics you would like in your final product: moisturizing, regenerating, clarifying etc. Next select and appropriate INDS product that gives these effects at a price point that is comfortable. Use 3-6% by weight of each INDS product you have selected in place of the water normally used in your formula. The total amount of INDS you use should not exceed the amount of water you normally use in the formula. Because INDS products are concentrated, use of 3-6% by weight of any one INDS formula should give you enough active in your formula to be effective and safe under normal use. If you would like your product to have faster results (< 6 weeks), or, are making a specialty high intensity product, you can safely use more of any one product. Just be sure to check for skin sensitivity against the actives.

How to clean-up and dispose of INDS?

Please consult the provided Material Safety Data Sheet for safety and disposal instructions. Most INDS formulas contain only biologically compatible materials that are safe to dispose of following normal methods for food and cosmetic products. INDS products containing metals such as gold, silver, copper and zinc should be disposed of as mixed waste containing trace metals.