

A conversation with Ron Folman

CEO & Founder of Tagra Biotechnologies Ltd.



Ron Folman, CEO of Tagra Biotechnologies Ltd.

EURO COSMETICS: Ron, your company is a leader in microencapsulation technology. Can you explain us this innovative technology to us?

Ron Folman: Microencapsulation is defined as the process of entrapping targeted liquids and/or solids within a polymeric shell. Tagra Biotechnologies has a patented platform technology, which is based on a physical process (modified solvent removal/extraction method) that does not affect the chemical properties of the encapsulated material; and as a result, there is no risk of residual monomers or solvents occurring.

Using this innovative technology enables Tagra to create two types of state-of-the-art microcapsules for cosmetic and dermacosmetic applications:

1. RND™ Breakable Microcapsules,
 2. Transparent Unbreakable Microcapsules.
- Tagra also has the knowledge and experience to design other capsules with different mechanisms of release.

EURO COSMETICS: What makes Tagra's microencapsulation so special?

Ron Folman: Tagra's unique RND™ microcapsules enable optimal isolation and are impermeable, preventing diffusion of the encapsulated material from and back into

the microcapsules. Therefore, the encapsulant is optimally protected from all environmental risk factors; light, temperature, pH, oxidation and interaction with other ingredients. Although impermeable, the polymer shell is elastic in nature, and is easily ruptured upon application of mechanical pressure, such as a rubbing action.

Capsules are in powder form.
High loading.

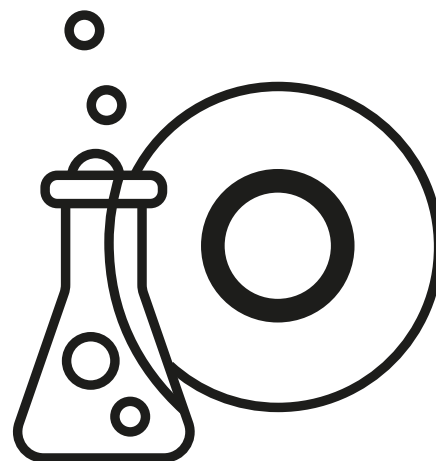
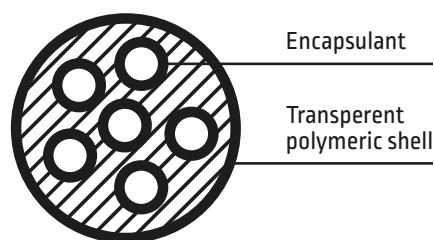
EURO COSMETICS: And what are the benefits, limitations and advantages?

Ron Folman: Tagra develops industry leading microencapsulation systems which overcome formulation, safety and regulatory challenges in the cosmetic industry giving formulators greater flexibility for creating stable, high-performance products in skin care and makeup segments for various applications.

Our cutting edge techniques and years of industry knowledge allow for cost-effective technology that was once out of reach. Tagra's RND™ (Release on Demand) microencapsulation technology platform combines high loading, optimal protection/isolation and release of the encapsulant in one system.

As a raw material TAGRA microcapsules appear in a powder form and do not break during their incorporation into the formulation; therefore, it is very easy to formulate with Tagra's capsules.

Upon application, while rubbing the formulation into skin, the polymeric shell collapses and the microcapsules begin to fracture, releasing the encapsulated active.



Microcapsules break down to invisible particles, but still retain a portion of the payload to continue and deliver over time (in the case of active molecules).

Advantages:

- Convert oily liquids into powder form
- Mask undesired properties such color and odor
- Are Non-nano products
- Easy to use and handle
- Can be used in any kind of vehicle
- Prolonged shelf life
- Sensorial benefits

Tagra's encapsulated products can bridge the gap and deliver potent and powerful actives without the harmful residual effects and enhance their delivery for maximum results.

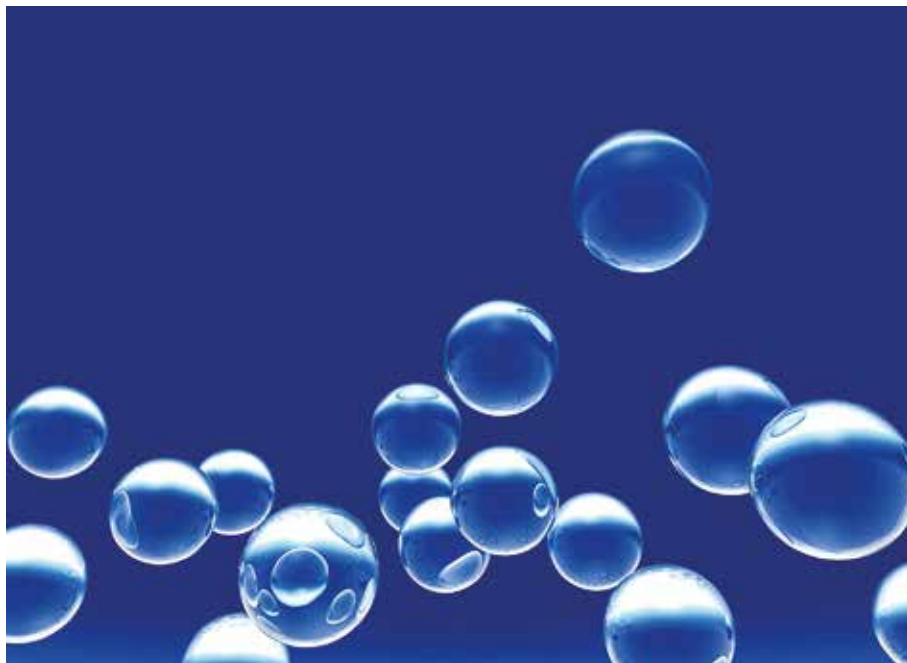
Capsules are made by physical process. No aggressive chlorinated solvents are used.

No residual solvents and monomers are present in dry capsules.

All ingredients composing the capsules are recognized as GRAS and are CTFA listed. High loading, targeted delivery and maximum efficacy.

New product innovation – Enable your imagination.

With a crowded marketplace, having a differentiated product is the key to standing out and being successful. Tagra's advanced



products allow new and creative formulations.

EURO COSMETICS: *Can Tagra encapsulate any material?*

Ron Folman: Only non-water soluble ingredients. Either oil dispersible or oil soluble ones

EURO COSMETICS: *How do I suspend the microcapsules into my formulation?*

Ron Folman: As a raw material TAGRA microcapsules appear in powder form and do not break during its incorporation into the formulation; therefore, it is very easy to formulate with Tagra's capsules.

They should be added to the already made base formulation (last stage of formulation preparation) using low shear mixing (paddle mixer – no homogenization) at room temperature.

We recommend not to exceed temperature of 50°C, although some of Tagra's products, such as the Cameleon Caps, can be formulated into lipsticks in which temperature can even reach up to 90°C.

EURO COSMETICS: *What are the shell materials for your encapsulation process?*

Ron Folman: Acrylic or cellulose based polymers.

EURO COSMETICS: *Which standard products do you have?*

Ron Folman:

- Tagravits – encapsulated vitamins such as Tagravit R1 – pure retinol, Tagravit C1 (Tetrahexyldecyl Ascorbate)
- Tagrols – encapsulated essential oils and extracts
- Tagranats – encapsulated flavonoids such as resveratrol, licorice
- SunCaps – encapsulated UV filters in unbreakable capsules. Both organic (Avobenzene, OMC, and others) and inorganic UV filters such as TiO₂ and ZnO



- CameleonCaps
- TagraCaps
- CarbonCap

EURO COSMETICS: *Do your products also fit mass market products?*

Ron Folman: Yes, we are proud of the fact

that many mass market products currently on the shelves contain Tagra's ingredients including those that sell for six Euros and up.

EURO COSMETICS: *What conditions can your microcapsules withstand?*

Ron Folman: Broad pH range can be incorporated into any kind of base formulation o/w, w/o, water gels, serums, silicone base products.

Limitations: No more than 20% of ethanol or glycols in total

No need to formulate under nitrogen conditions such as in the case of free retinol.

EURO COSMETICS: *Are you in compliance with all global regulations?*

Ron Folman: Yes we are fully ISO certified – 9001, 14001 (environmental), 22716 (GMP Cosmetics), Halal, China Compliance, etc.

EURO COSMETICS: *Last year you won the Bronze Innovation Award at In-Cosmetics in Barcelona. What are your plans for the next year?*

Ron Folman: New “green” capsules to meet the trend of Natural Cosmetics.

New technologies for converting non-water soluble ingredients into water soluble ones.

Customized projects for all industries.

EURO COSMETICS: *Thank you for the conversation.*

Tagra Biotechnologies

is a leading manufacturer and supplier of microencapsulated ingredients for the cosmetic and personal care industries. Tagra provides a wide range of innovative and highly functional active microencapsulated ingredients with proven efficacy.

Tagra's state of the art plant has several major production lines and highly trained technical teams.