tagra™
of the efal group

SUNCAPS™

Non-breakable transparent microcapsules containing UV filters, ideal for all cosmetic formulations

芳典
FOUNTAIN
SunCaps
2019

in-cosmetics
Innovation Zone
Best Ingredient
Award 2015
BRONZE
Functional Ingredient

Leader in Microencapsulation Technology

SUNCAPS™

Unbreakable and Transparent Encapsulated UV Filters Range

This range includes:

AvoCap™	encapsulated Avobenzone 56% payload and 14% of Octocrylene
AvoCap2™	encapsulated Avobenzone, 53% payload
OmcCap™	encapsulated Octyl Methoxycinnamate, 60% payload
HomCap™	encapsulated Homosalate, 60% payload
OctiCap™	encapsulated Octisalate 60% payload
OctoCap™	encapsulated Octocrylene, 52% payload
Cellu™ ZinoCap	encapsulated ZnO, 70% payload
Cellu™TitanCap	encapsulated TiO2, 70% payload

Tagra's unique patented microencapsulation technology (US Patent Application No. 61/770,773) enables the manufacturing of a "green" unbreakable, transparent micron size microcapsules of organic and inorganic UV filters. This delivery system will:

- Prevent the UV filter leakage into the surrounding
- Retain the sunscreen on the superficial layers of the skin
- Improve safety profile - no risk of skin penetration and no skin irritatioin and/or photoallergy
- Enhance UV filters chemical stability and photostability
- Overcome incompatibilities between or among UV filters allowing new sunscreen combinations
- Prevent the crystallization of Avobenzone
- Enable UV filters dispersibility in water phase
- Prevent appearance of white residues caused by TiO2 and ZnO
- Avoid need for UV filters solubilizers, therefore enabling light, aesthetic, gentle, smooth and non-greasy feel formulations
- SunCaps™ exhibit improved sensorial profile with better tactile properties

SunCaps™ microcapsules are made of a single layer Cellulose based polymer shell which provides optimal isolation of the UV filter and prevents its degradation while improving its UV protection profile (Figure.1 and Table.1).

SUNCAPS™ SIGNIFICANTLY INCREASE UV FILTERS PHOTOSTABILITY AND OVERCOME INCOMPATIBILITIES

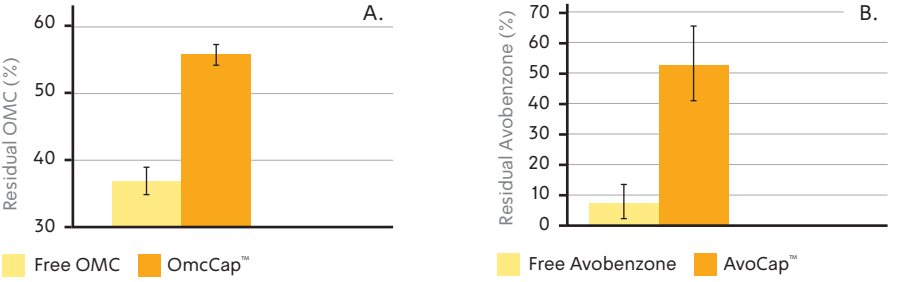

Figure.1. A. OmcCap™ significantly improves OMC stability in presence of 3% free Avobenzone within same formulation compared to free OMC. **B.** AvoCap™ increases Avobenzone photostability compared to free Avobenzone following 4 hours exposure to direct sunlight.

SUNCAPS™ SIGNIFICANTLY IMPROVE UV FILTERS PROTECTION PROFILE

	SPF	Filter Efficiency (SPF / %UV filter)	UVA PF	UVA PF/SPF (EC Recommendation > 0.33)	Erythema UVA PF
AvoCap™ (Tested Values)	7.9±0.82	2.11	18.23±1.73	2.31	13.61±0.98
Theoretical Values **	4.3	1.12	6.7	1.55	----
OmcCap™	8.10±0.41	2.70	2.47±0.22	0.31	2.10±0.11
Theoretical Values **	5.5	1.84	1.3	0.23	----

Table.1. AvoCap™ and OmcCap™ UV protection profiles were evaluated using In-Vitro SPF measurements in "base formulation". AvoCap™ formulation contained final avobenzone concentration of 3%. OmcCap™ formulation contained final OMC concentration of 3%.

**** Theoretical Values are calculated based on BASF sunscreen simulator.**

FORMULATING WITH SUNCAPS™

SunCaps™ products appear in a free flowing powder form which exhibit average particle size of 5 µm, therefore are very easy to handle and formulate with. SunCaps™ products are compatible with all types of formulations and should be added at the last step of the formulation preparation using either simple paddle mixer or homogenizer.

Face Mineral UV Defense

Light-weight high SPF formulation composed of encapsulated mineral UV filters

Attributes

- Light weight highly safe SPF moisturizer which soaks into the skin and blocks UV rays
- Enables high concentration of Zinc Oxide/ mineral UV filters incorporation into the formula
- Safe
- Decrease chalky, white residue appearance
- SPF = 34, In-Vivo

Featured Products

- Inorganic Sun Caps™; Cellu™TitanCap and Cellu™ZinoCap UVA/UVB

	Raw Material	INCI	% w/w	Supplier
Phase A	Miglyol Gel T	Caprylic/Capric Triglyceride (and) Stearalkonium Bentonite (and) Propylene Carbonate	7.5	IOI Oleo GmbH
	MCT 60/40	Caprylic/Capric triglyceride	5.2	IOI Oleo GmbH
	Miglyol Gel 829	Caprylic/Capric/Succinic Triglyceride	3.0	IOI Oleo GmbH
	IMWITOR® 600	Polyglyceryl-3 Polyricinoleate)	2.3	IOI Oleo GmbH
	Span™ 80	Sorbitan Oleate	0.7	Croda Inc
	Paraffin Oil	Mineral Oil	6.20	
	Cegesoft® PS 6	Vegetable Oil	3.8	BASF Care Creations
	Dermofeel® Toco 70 non-GMO	Tocopherol (and) Helianthus Annuus (Sunflower) Seed Oil	0.5	Dr. Straetmans
	Verstatil® PC	Phenoxyethanol (and) Caprylyl Glycol	1. 0	Dr. Straetmans
Phase B	Water	Aqua	41.5	
	Magnesium Sulfate	Magnesium sulfate	1.2	
Phase C	Cellu™TitanCap	Titanium Dioxide (and) Cellulose Acetate Propionate (and)Butylene Glycol Cocate	7.3	Tagra
	Cellu™ZinoCap	Zinc Oxide (and) Cellulose Acetate Propionate (and)Butylene Glycol Cocate	19.8	Tagra

Procedure

- Mix all the ingredients of Phase A together, then homogenize
- Mix Phase B separately then add it slowly to Phase A ,mixing by hand all the time
- Homogenize, then leave for 24 hours
- Mix Phase C
- Add the Cello™ZinoCap and mix well and lastly add the Cellu™TitanCap and mix until well dispersed

Contact the Tagra team to get more information at: info@tagra.com