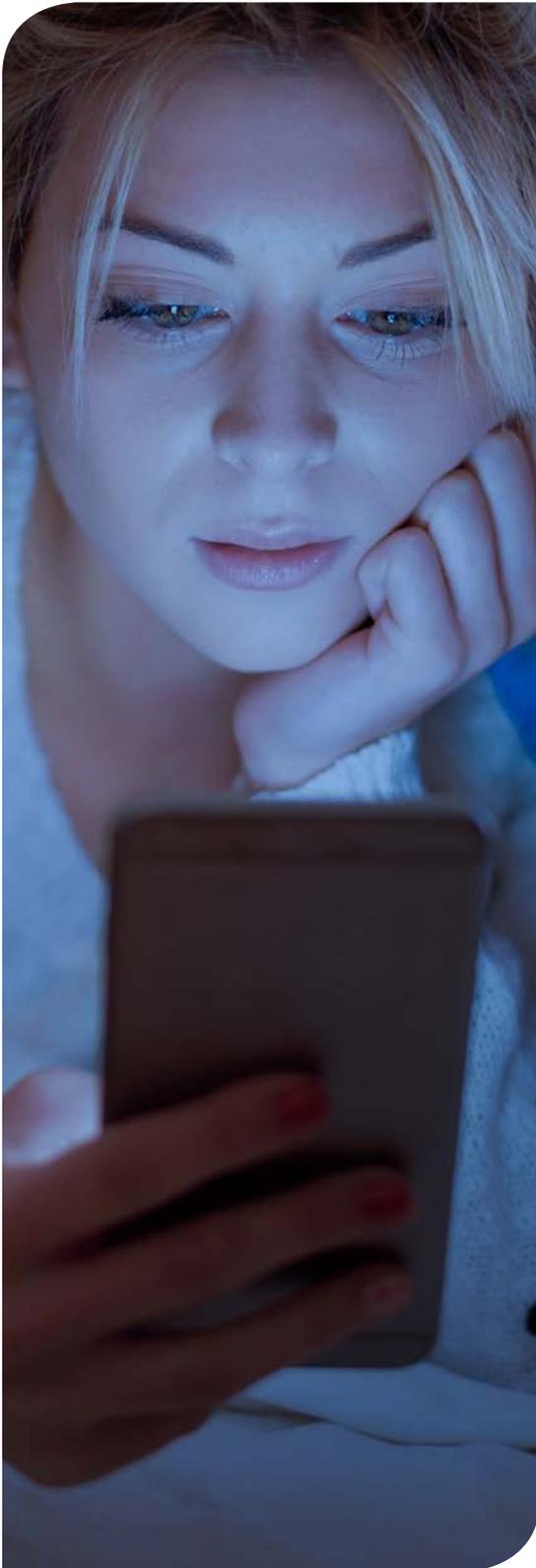




Skin protection from Bluelight



Skin ageing is influenced by external factors, including light. Nowadays smartphones and tablets are our constant source of information, our daily friend. Unfortunately, as the studies show more and more, they are the enemies of our skin. The blue light emanating from our mobile phones and computers, but especially from the sun, regularly illuminates our face. But what is Blue Light?

Blue Light is a part of daylight. Because of its intensity, it is called HEV (High Energy Visible Light) and represents 50% of the sunlight spectrum, next to the invisible UV-A and UV-B rays (5%) and infrared light (45%).

Studies show that blue light penetrates deeply in the skin, forms large amounts of free radicals and damages the dermis and even the DNA. In addition to the diffusion of blue light through UV particulate filters, our partner BASF has developed three unique extracts of plant leaves, inspired by plant protection strategies, to provide complete daily protection for our skin, in particular from the blue light.

Ciste'M® is an extract of Rock Rose, a plant adapted to dry climates, protects DNA from skin cells from the effects of UVB exposure and prevents the harmful effects of blue light. As *in vitro* study shows that Ciste'M® protects collagen from blue light emitted by sun and electronic devices as well as reduces collagen degradation by 43%. A placebo-controlled clinical study in 19 elderly panelists from 35 to 55 years of age has shown that a cream containing 0,1% Ciste'M® reduces the signs of premature aging of the crow's feet caused by natural light after 4 weeks.

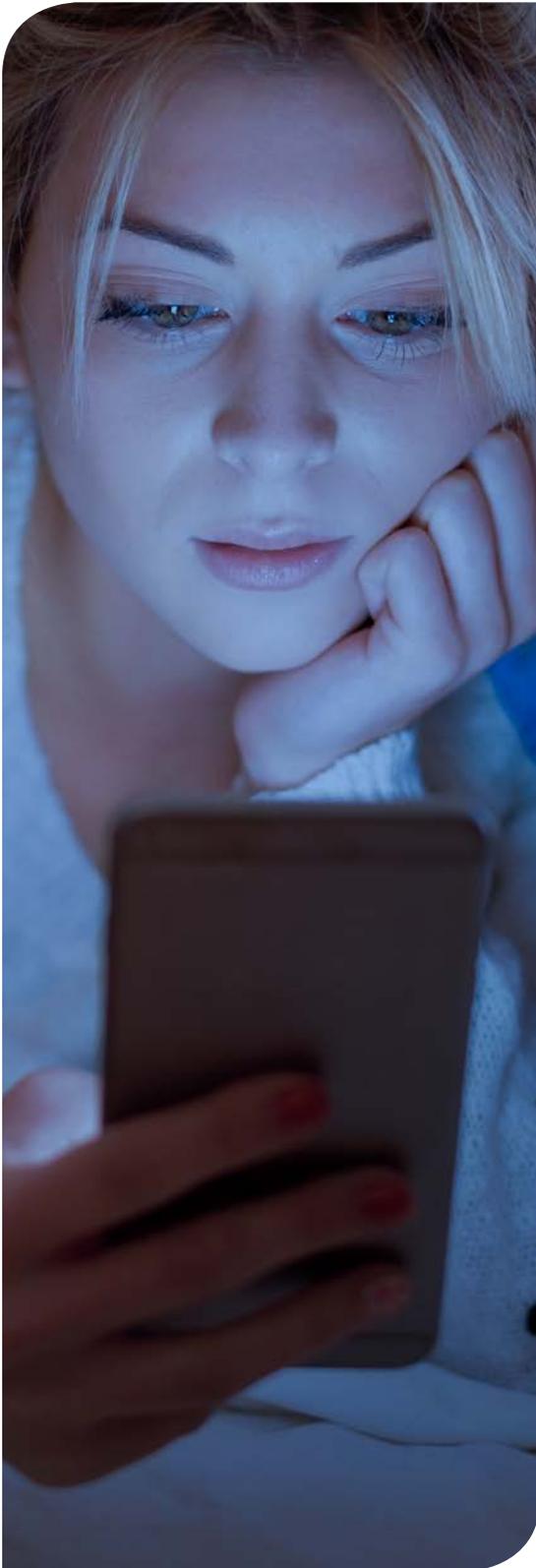
DN-Age® is an extract of the leaves of the candle tree, *Cassia alata*, delays aging of skin cells caused by solar radiation. It helps to protect cellular DNA from UVA, UVB and blue light (*in vitro*: -83% DNA oxidation) and promotes the natural repair process of skin DNA. During *in vivo* studies volunteers at the age of 30 to 50 years were pretreated with a cream containing 3% DN-Age® for 6 days, then irradiated and treated for four days. After 6 days, the microrelief changes have been visualized. The results showed that DN-Age® acts on the visible signs of photo-aging.

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Arganyl® is an extract from argan leaves, reduces DNA damage caused by blue light (*in vitro*: -70%) and reduces double strand DNA breaks (*in vitro*: -49%). A clinical study presents that the application twice a day of a cream containing 3% Arganyl® decreased the ROS production induced by sunlight and provides protection against the damage caused by other external factors like particulate pollutants.

Overview of the studies

| | | Ciste'M® | DN-Age® | Arganyl® |
|------------------------------|---------------------------|---------------|------------|-------------------|
| In vitro | | | | |
| Blue light protection | | | | |
| | Dermal protection | ● | ● | ● |
| | DNA protection | | ● | ● |
| UV protection | | | | |
| | Reduction of inflammation | ● | | |
| | DNA Protection | ● | ● | |
| Pollution protection | | | | |
| | Reduction of inflammation | | | ● |
| | Cellular protection | ● | | ● |
| Additional properties | | | | |
| | | | | |
| | | Skin recovery | DNA repair | Dermal protection |
| Clinical | | | | |
| | Anti-wrinkles | ● | | |
| | Skin texture | ● | ● | ● |
| | Skin renewal | ● | | |
| | Anti-oxidant | | | ● |

Product overview

| Product description | | | |
|-------------------------|---|---|---|
| Product name | ▪ Ciste'M® BC10023 | ▪ DN-Age® LS 9547 ▪ DN-Age® PW LS9827 | ▪ Arganyl® LS 9781 ▪ Arganyl® PW LS 9830 |
| Plant / Sourcing | ▪ Rockrose (<i>Cistus Monspeliensis</i>) ▪ Origin: Morocco | ▪ Candle bush (<i>Cassia Alata</i>) ▪ Origin: Burkina Faso | ▪ Argan Tree (<i>Argania Spinosa</i>) ▪ Origin: Morocco |
| INCI | Maltodextrin, <i>Cistus monspeliensis</i> flower/leaf/stem extract | Water, Glycerin, <i>Cassia Alata</i> Leaf Extract Maltodextrin, <i>Cassia Alata</i> Leaf Extract | Water, Glycerin, <i>Argania Spinosa</i> Leaf Extract <i>Argania Spinosa</i> Leaf Extract, Maltodextrin |
| Dose of use | ▪ 0.1% | ▪ 1 – 3% ▪ 0.1 - 0.25% | ▪ 1 – 3% ▪ 0.21% |
| Aspect | ▪ Yellow beige to light brown powder | ▪ Dark brown opaque liquid ▪ Beige to ochre powder | ▪ Amber colored liquid ▪ Yellow to ochre powder |
| Solubility | ▪ Soluble in water, insoluble in oils | ▪ Soluble in water ▪ Insoluble in oils and fats | ▪ Soluble in water ▪ Insoluble in oils and fats |
| Regulatory | ▪ Ecocertified raw material ▪ Cosmos approved ▪ 100% natural / Vegan friendly | Raw material conforms to Cosmos standard of natural and Organic cosmetics | Raw material conforms to Cosmos standard of natural and Organic cosmetics |
| Titration | ▪ Flavonoids: Myricetin glycosides | ▪ Flavonoids: Kaempferol-3-O-sophoroside | ▪ Flavonoids: Myricitrin (=Myricetin-3-O-rhamnoside) |

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