

PEPHA[®]-CTIVE – energize your skin
with the power of microalgae.

PEPHA[®]-CTIVE is a biotechnologically produced extract of the microalga *Dunaliella salina*, which reloads the skin with new energy.

PEPHA[®]-CTIVE protects the mitochondria and increases the ATP-levels of skin cells leading to an enhancement of cell turnover and a youthful looking luminous skin.

Unlimited. **DSM**

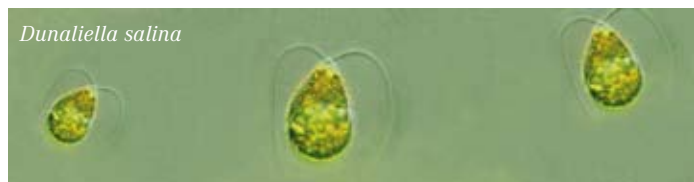
pentapharm

benefiting society through science



PEPHA[®]-CTIVE

The microalga *Dunaliella salina* is unique: its natural habitat is in salt lakes that have a salinity which is nine times higher than the salinity of sea water. Since *Dunaliella salina* is continually exposed to all kinds of stress like high osmotic pressure, high UV-levels and high oxygen levels it is considered as a stress manager. To withstand these conditions the alga needs a lot of energy and Pentapharm has found out that it has outstanding skin energizing properties. *Dunaliella salina* is cultivated by a special fermentation technology and its highly purified extract is processed to **PEPHA[®]-CTIVE**, the new innovative approach to supply the skin with new energy.



Properties:

- **PEPHA[®]-CTIVE** acts as an efficient skin energy generator and replenishes the energy stores of stressed skin which has lost its initial energy level.
- **PEPHA[®]-CTIVE** protects the mitochondria of the skin cells and keeps its functionality from being slowed from stress attacks. The skin becomes more radiant and its natural healthy look is improved.

Function:

- **PEPHA[®]-CTIVE** protects and stimulates the mitochondria, the energy centres of the skin cells
- **PEPHA[®]-CTIVE** enhances the ATP-levels to provide the skin with new energy
- **PEPHA[®]-CTIVE** increases cell turnover
- **PEPHA[®]-CTIVE** improves the overall skin complexion

Cosmetic applications:

- skin energizing applications
- de-stressing treatments
- skin care to give for radiant and luminous looking skin

Formulation:

PEPHA[®]-CTIVE is a clear yellowish liquid. It should be incorporated at the end of the formulation process (<50°C).

Suggested concentration:

1-3% **PEPHA[®]-CTIVE**

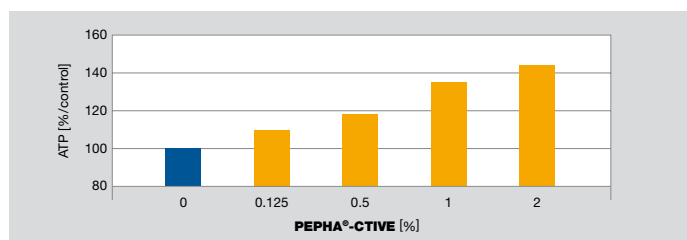
INCI Name:

Water, Algae Extract

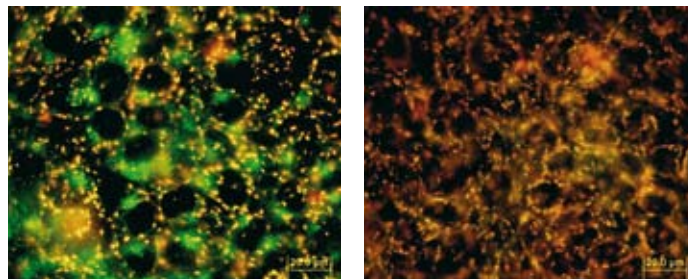
Efficacy Tests:

In vitro tests:

1. **PEPHA[®]-CTIVE** enhances the ATP-levels of human fibroblasts.



2. **PEPHA[®]-CTIVE** protects the mitochondria.

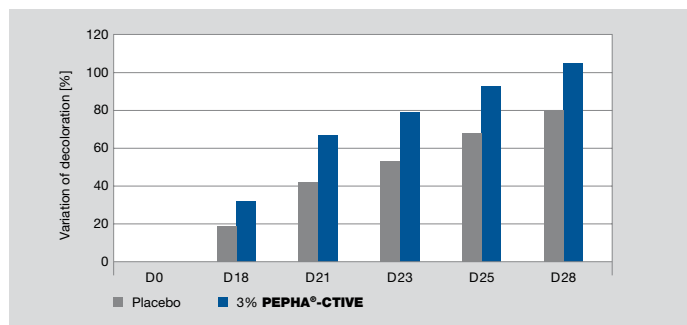


Control (stressed with H₂O₂): mitochondria depolarized and inactive.

1% PEPHA[®]-CTIVE (stressed with H₂O₂): mitochondria polarized and fully intact.

In vivo test:

1. An *in vivo* test was conducted with 20 volunteers applying a test treatment containing 3% **PEPHA[®]-CTIVE** for 4 weeks. It was demonstrated that **PEPHA[®]-CTIVE** significantly improves cell turnover, expressed as variation of decoloration.



2. The efficacy of **PEPHA[®]-CTIVE** was performed in an *in vivo* study with 30 volunteers applying a test gel containing 3% **PEPHA[®]-CTIVE** over 4 weeks. After a clinical evaluation by trained dermatologists, it was demonstrated that the **luminosity** of the skin was improved by **87%**, the **brightness** was improved by **80%** and the **transparency** was improved by **80%**.

Additionally the volunteers completed a self evaluation questionnaire: **67%** of the volunteers judged their skin as **more radiant**. **70%** of the volunteers assessed their **skin complexion as fresher**.