

# Concentrated agents: sera and ampoules

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Quick results, problem solutions, intensive care... these are the keywords connected with sera, ampoules and active agent concentrates to be applied either directly or in form of masks, packs or other special treatments in the beauty institutes.

**C**oncentrated and effective active agents are a focal point in the cosmetic treatment. A profound and in-depth cosmetic know-how is required to achieve appropriate results in the beauty institutes.

## **Sterile or preserved**

Active agents are available in different packing systems. Ampoules made of various materials are offered for single applications whereas dealing with glass ampoules still conveys the idea of a certain therapeutic significance. The advantage of ampoules is that they are easy to sterilize during the manufacturing process so that preservatives can be avoided. This is an important prerequisite for the tolerance of the product also for sensitive skin. However, the sterilization process only is possible for active agents which are heat-resistant.

The content of breakable ampoules has to be used in one application as the remaining product is impossible to store. That is the reason why more and more pipettes are used as they allow withdrawing the appropriate amount and can be used for a certain length of time after being opened. Meanwhile also systems free of preservatives are available with a shelf life of more than 30 months. The advantage of these systems is that they can be applied directly in pure form or as an additive for masks, packs or for individually prepared skin care creams for the daily use at home. They are mixable among each other which allows a very specific treatment adapted to the individual skin.

In cases of dehydrated skin for example active agent concentrates based on NMF and amino acids or filming moisturizing substances like hyaluronic acid may be applied but also nanoparticles with encapsulated triglycerides. A very interesting substance in this connection also is CM glucan, a polysaccharide which on the one hand increases the skin hydration and on the other hand has anti-inflammatory effects.

Aloe vera products have a similar sphere of activity. Dry skin is caused by skin barrier disorders which are still more developed in

cases of atopic dermatitis. Urea which has anti-pruritic effects as well as evening primrose oil are recommended as appropriate preventive substances.

## **Transport systems**

In terms of efficacy the transport of active agents by means of vehicles like liposomes and nanoparticles is essential as they enable the active agents to penetrate into the deeper skin layers in order to release the active substances right at the appropriate sphere of activity. Vitamins which only permeate into the stratum corneum generally are ineffective. As the penetration not necessarily requires the active agents to be encapsulated but will be reached by fluidizing the lipid bilayers of the skin barrier the liposomes or nanoparticles can also be mixed just before their application with other active agent concentrates like extracts, oils or essential fatty acids or also vitamin solutions. As a rule, this procedure intensifies and prolongs the effect of active agents.

## **Multi-purpose vitamins**

Some substances are applied as so-called derivatives as they are more resistant to oxidation, readily soluble or are easier to be encapsulated. Retinyl acetate (INCI) may be mentioned here as an example which is transformed into acetic acid and vitamin A in the deeper layers of the skin. Vitamin A together with the metabolite vitamin A acid accelerates the formation of new cells which is a welcome effect in cases of bad skin with a disposition for acne. The active agent in combination with the vitamins C and E also is successfully used in products for the elderly skin.

Masks and packs with highly concentrated additives have shown excellent results in practice. D-panthenol may be a recommended supplement for inflamed skin. In this connection also vitamin K should be mentioned which is helpful in cases of irritated skin and generally is used to soothe the skin.

Vitamin K is also applied in cases of couperosis or rosacea.

### **Effective extracts**

On the other hand a treatment with green tea has revitalizing effects, which, above all, is a welcome result for the elderly skin and is achieved by stimulating the microcirculation. For this type of skin also combinations with coenzym Q10, vitamins and hyaluronic acid may be recommended. Regarding the extracts, also Echinacea which is a beneficial treatment in cases of couperosis and sun burned skin as well as algae with their moisturizing and anti-microbial spectrum should be mentioned. For extracts it is important to apply high-quality substances free of preservatives which contain the adequate amount of concentrated agents.

Hamamelis extract already has a reputation as a traditional treatment for cracked and broken skin due to its astringent effect.

Whitening extracts are relatively new developments which excel by their tyrosinase-inhibiting vegetable components.

It should be kept in mind that extracts may include the risk of allergic reactions as they generally contain a broad variety of natural components. It is recommended here to test the product on the forearm and to receive detailed information from the customer in order to avoid irritations and complaints in cases of sensitive skin.

### **Pre-treating the skin**

Active agent concentrates should be applied on cleansed skin or if necessary after pre-treating the skin with a facial tonic to make the skin receptive for the active agent. Especially products containing D-panthenol or plain liposomes are appropriate here. Liposomes show positive results in the therapy of cornification disorders which play a major role around the sebaceous gland orifices in cases of acne. After applying the active agent concentrate it is recommended to use a skin care cream which is able to protect the skin against external influences.

### **Masks and fleeces**

Active agent concentrates may be applied in different ways. Besides the application of the pure concentrate the use of fleeces allows a long-term and steady effect of the concentrates. Fleeces offer the advantage of simultaneously applying different active agents without mixing the substances before the application. The fleece should be left on for

about 20 to 30 minutes similar to the cream masks which are individually adapted with concentrated active substances. Also packs with healing earth have proved successful. There is a multitude of different treatments available especially for cases of problem skin.

### **The appropriate dosage**

Ampoules and active agent concentrates are expected to contain a high dosage of active substances. They are also supposed to be non-irritant just like any other product but overdoses should nevertheless be avoided. Also in cases of long-term application it is recommended to exclude strains for the skin as well as habitual effects. Therefore it is important to follow the instructions of the manufacturer.

A crucial point for combining products of different manufacturers is the composition of the products. Thus it does not make sense to use a liposome concentrate free of preservatives together with a preserved extract.

This also applies for products free of emulsifiers and products containing emulsifying agents. Above all membrane structures in form of liposomes or nanoparticles are very sensitive and will be destroyed in this case. Consulting the INCI and the product information is recommended.

### **Speeding up the penetration**

The mechanical energy generated by massaging will accelerate the penetration of active agent concentrates into the skin. Alternatively also ultrasound or iontophoresis may be supportive measures.

Irrespective of supportive measures however the size of molecules also plays a major role. Large molecules (macromolecules) more or less stay on the surface of the skin whereas smaller molecules are easier to penetrate.

Especially the ultrasound treatment requires the same attention as the treatment with transport vehicles in form of liposomes and nanoparticles. The products used here should be free of preservatives and perfumes (both are low-molecular substances) as these substances bear the risk of sensitization as they also deeply penetrate into the skin and thus may activate the immune system. Emulsifiers also are crucial substances unless they can be integrated into the physiology of the skin. Most synthetic emulsifiers belong to this category. They may cause barrier disorders and counterproductive wash-out effects. When liposomes and nanoparticles are

applied, ultrasound and iontophoresis treatments can be avoided as the transport systems already provide an optimal distribution and penetration of active agents.

Occlusive masks can also be avoided in these cases. It is however recommended to apply creams based on membrane structures after the use of active agent concentrates as they strengthen the skin barrier and inhibit the wash-out of active agents.

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