Ingredients Information
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AVENA SATIVA (OAT) KERNEL PROTEIN

*Avena sativa* (oat) kernel protein is an extract of the seeds of "Avena sativa L". This cosmetic ingredient is used to fight against a nutritive deficiency by supplying cells with all the nutrients essential to their development and regeneration. It covers the skin with a hydrophilic, tensing and softening polymer. Additionally it increases the plasticity of the epidermis, targets and fills the wrinkles and improves the microrelief.

**Description:**
*Avena sativa* L. - commonly known as oat – is an annual herb – typically grows 0.70-1.25m tall; The fruit is a brown caryopsis. Oat is native to southern Europe and Asia. Nowadays, oat is cultivated in almost every temperate region in the world, especially in northern Latitudes.

*Closeup of oat flowers*

**Constituents of oat:**
Oat is rich in proteins, polysaccharides, starch, saponins, lipids and vitamins (especially of the B.group), silicates, silicic acid, flavonoids and oligoelements (Cu, Co, Mn, Zn, Fe).

**Properties of avena sativa kernel protein:**
Film-forming, moisturizing, tensing, targets and fills the wrinkles, improves microrelief.

**Cosmetic applications:**
Anti-aging, anti-wrinkle, cosmetics for sensitive skin.
**SQUALANE**

*Squalane* is an emollient for personal care products derived from olive oil. It is a clear, colorless and odorless oil and has a high stability against oxidation.

**Description:** Squalane ($C_{30}H_{62}$) is the saturated form of squalene. It does not contain any double bonds in its chemical structure and therefore is very stable against heat and oxidation. Squalene is an unsaturated hydrocarbon ($C_{30}H_{50}$) which is present in vegetable oils, and especially in fish oil. It was traditionally extracted from shark liver oil which, in dependence of the shark species, contains up to 60 per cent squalene. It is of large interest for cosmetics as it is found in human sebum at a level of 12 per cent. Squalene, however, is not suitable for cosmetic formulations because it is highly unsaturated and therefore oxidizes easily. Therefore, it was converted into squalane by hydrogenation and purification. Alternatively, squalene may be obtained from olive oil which has a significant squalane amount from 0.1-0.7 per cent. It has the identical chemical structure as squalane sourced from the shark liver with the benefit of being vegetal in origin.

**Chemical structure of squalane and squalene**

**Properties of squalane:**
Squalane is a very suitable emollient for cosmetic formulations, has an excellent compatibility with human skin and imparts an elegant non-greasy skin feel.

**Cosmetic applications:**
Skin care products, sun and after sun formulations, massage oils.
SACCHARIDES

A lot of Janssen Cosmetics cosmetic formulas contain a highly effective moisturizer that is composed of naturally occurring saccharides. The composition of the saccharide complex is very similar to that of the natural carbohydrate fraction found in the stratum corneum of human skin. It is highly substantive to the skin and binds moisture like a water magnet.

Description:
The saccharide complex is the outcome of a carefully designed process of isomerization of plant-derived D-Glucose.

Properties of Saccharides:
The saccharide complex, used in the Janssen Cosmetics cosmetic formulas, regulates and retains moisture in the skin under any conditions. It is highly substantive to skin, binding itself to Keratin like a magnet. Once bound to the skin surface, it cannot be washed off easily. Therefore the removal of the saccharides occurs only by the natural process of desquamation.

Cosmetic applications:
Day and evening creams, formulations for treating problem dry skin, xerotic skin, UV-exposed skin and aging skin.
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VITAMIN C (L-ASCORBIC ACID)

Vitamin C (L-ascorbic acid) is found in most higher animals and in plants in different amounts. It is synthesized in its pure form but as it is very unstable it has to be protected from water, light, air and heat. It supports the action of vitamin E by regenerating and reactivating it as a radical scavenger. Has itself scavenging properties and is involved in the formation of collagen.

Description:
Ascorbic acid is a sugar acid with antioxidant properties. Its appearance is white to light-yellow crystals or powder. It is water-soluble and must be formulated at low pH to stay active. The L-enantiomer of ascorbic acid is commonly known as vitamin C.

Chemical structure:

Properties of Vitamin C:
In clinical studies vitamin C has been found to act as an antioxidant and anti-inflammatory agent. In addition, vitamin C has been found to stimulate collagen synthesis and to reduce dark pigmentation of the skin (e.g. age spots). Thus, vitamin C is also considered an anti-aging ingredient.

Cosmetic applications:
Skin care, sun care, regeneration, repair, skin whitening.
HYALURONIC ACID

**Hyaluronic acid** is a non-sulfated glycosaminoglycan distributed widely throughout connective, epithelial, and neural tissues. It is one of the chief components of the extracellular matrix and binds water very strongly. In living tissue it serves as a water reservoir. Hyaluronic acid has a standard molecular weight between 1.5-1.8x10^6 Dalton. It is a very powerful hydration and film forming agent. Low molecular weight sodium salt of hyaluronic acid has a molecular weight below 1.0x10^6 Dalton. Due to its structure and lower molecular weight it is able to penetrate into the skin together with water and also with other substances attached. Low molecular weight hyaluronic acid can serve as an inner moisturizing agent or as a carrier of biological active substances.

**Description:**
The chemical structure of hyaluronan was determined in the 1950s in the laboratory of Karl Meyer. Hyaluronan is a polymer of disaccharides, themselves composed of D-glucuronicacid and D-N-acetylglucosamine, linked together via alternating β-1,4 and β-1,3 glycosidic bonds.

**Other names:**
Sodium hyaluronate, hyaluronan.

**Source:**
Hyaluronic acid is produced by fermentation.

**Cosmetic applications:**
Hyaluronic acid is a common ingredient in skin care products. It is a very effective moisturizer and film forming agent. Hyaluronic acid and its sodium salt are recommended in all cosmetic formulations where skin hydration is needed: daily skin care, night and regenerating preparations, after sun, decorative cosmetics, pre shaves, after shaves, hair care products.
MULBERRY (MORUS ALBA AND MORUS NIGRA) ROOT EXTRACT

Mulberry or *Morus* is a genus of 10–16 species of deciduous trees native to warm, temperate, and subtropical regions of Asia, Africa, and the Americas, with the majority of the species native to Asia. The most known species in Europe are morus alba and morus nigra. The extract of the bark and root contains substances that hinder the formation of melanin.

**Description:**
The mulberry tree has sawed leaves and grows up to 15 m. Its leaves are the basic food for silk worms. The fruits of the black mulberry look like blackberries and are edible.

**Constituents of mulberry extract:**
The roots are rich in phenylflavons. The leaves are rich in asparaginic acid and vitamin C.

**Properties of mulberry extract:**
The phenylflavons of mulberry would contribute in an effect of whitening, anti-inflammatory and moisturizing of the skin. The effect of whitening would be mainly the result of an inhibition of the activity of tyrosinase, an enzyme taking especially place in the synthesis of melanine.

**Cosmetic applications:**
Mulberry extracts are used for their treatment of skin lightening.
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MACADAMIA OIL

Macadamia oil (or Macadamia nut oil) is the non-volatile oil expressed from the nut meat of the macadamia (Macadamia ternifolia) tree. Macadamia oil is sometimes used in food as a frying or salad oil, and in cosmetic formulations as an emollient.

Description:
The Macadamia nut is also known as the 'Queensland nut'. As this name suggests, it is native to Australia, where it is a staple dietary component for Aboriginal peoples. The Macadamia nut was first cultivated in 1930, on Hawaii, since which time it has become the only plant of Australian origin to acquire commercial significance. Nowadays, these trees, which came originally from an area extending from Queensland to New South Wales and which grow to a height of 15 m, producing 8-15 ovaries per raceme, are cultivated all round the world and the (expensive) nuts are on sale everywhere. Major centres for cultivation are Australia, South Africa and the American state of Hawaii.

Constituents of Macadamia oil:
Macadamia nut oil covers a broad fatty acid spectrum, from myristic to tetracosanoic acid, dominated by oleic acid (53-67%), palmitoleic acid (16-24%) and palmitic acid (8-10%). Eicosanoic, eicos-9-enoic-, docosanoic, erucic and tetracosanoic acid amount to 1-3%.

Properties of Macadamia oil:
Macadamia oil is excellent as a skin moisturiser and softener.

Cosmetic applications:
Macadamia nut oil is an excellent oil for dry, chapped and sensitive skin, because its fatty acid composition is similar to human sebum. It smooths the skin, and it is softening and regenerating.
Vitamin A actually refers to a family of similarly shaped molecules: the retinoids. Its important part is the retinyl group, which can be found in several forms. Vitamin A can also exist as an aldehyde (retinal), or as an acid (retinoic acid). Precursors to the vitamin (provitamins) are present in foods of plant origin as some of the members of the carotenoid family of compounds.

Properties of Vitamin A:
Vitamin A is responsible for the normal texture and functioning of skin and other tissues. It activates the natural regeneration of dermal tissue and improves its elasticity. It counteracts excessive cornification of the skin. Delays formation of premature wrinkles.

Cosmetic applications:
Vitamin A /Vitamin A palmitate is used in anti-aging and anti-wrinkle products.
SHEA BUTTER (BUTYROSPERMUM PARKII)

Shea butter is obtained from the seeds of the Karité Tree (Butyrospermum Parkii) common to West Africa. From these seeds a soft, pliant “butter” is expeller pressed without the use of solvents, making it suitable for use in soaps, cosmetics, toiletries and OTC Pharmaceuticals. The Ultra Refined grade of Shea Butter is deodorized and filtered using natural clays to render a “butter” which is nearly white and odorless.

Description:

Shea (Butyrospermum parkii) is a tree indigenous to Africa, occurring in Mali, Cameroon, Congo, Côte d’Ivoire, Ghana, Guinea, Nigeria, Senegal, Sudan, Burkina Faso and Uganda. The shea fruit consists of a thin, tart, nutritious pulp that surrounds a relatively large, oil-rich seed from which is extracted shea butter.

Constituents of shea butter:
High content of unsaponifiables.

Properties of shea butter:
Shea butter is widely used in cosmetics as a moisturizer and an emollient. It is also a known anti-inflammatory agent. Shea butter provides natural ultraviolet sun protection, although the level of protection is extremely variable, ranging from none at all to approximately SPF 6. Sun-sensitive persons should not rely on shea butter for protection. Shea butter absorbs rapidly into the skin without leaving a greasy feeling.

Cosmetic applications: Shea Butter melts at skin temperatures, making it ideal for lip and body balms as well as bar soaps, lotions and skin creams.
**Cosmetic benefits:**
In cosmetics, panthenol is a humectant, emollient and moisturizer. It binds to hair follicles readily and is a frequent component of shampoos and hair conditioners (in concentrations of 0.1-1%). It coats the hair and seals its surface, lubricating follicles and making strands appear shiny.
In ointments it is mixed with allantoin, in concentrations of up to 2-5%, and is used for treatment of sunburns, mild burns and minor skin disorders.
Panthenol is not, however, absorbed through the skin and thus has limited effects that are not due to its provitamin character.
If ingested, panthenol is metabolized to pantothenic acid.

**Chemical structure:**

![Chemical structure of panthenol](image)

**Cosmetic applications:**
Panthenol is used in skin care, hair care, nail care, sun products, after sun.
AVOCADO OIL:

Avocado oil is obtained from the pressure of the fruits of *Persea gratissima*, containing vitamin A, vitamin D and vitamin E. The avocado is one of the most nutritive among fruits. The pulp has a buttery consistency, looks very much like cow's butter, and has a bland taste with a nutty flavor.

**Description:** The avocado (*Persea americana*) is a tree native to Mexico, Central America, and Guam, classified in the flowering plant family Lauraceae. The name "avocado" also refers to the fruit of the tree with an egg-shaped pit. *P. americana* has a long history of being cultivated in Central and South America; the tree grows to 20 metres, with alternately arranged leaves 12–25 centimetres long. The flowers are inconspicuous, greenish-yellow, 5–10 millimetres wide. The pear-shaped fruit is a true berry, from 7 to 20 centimetres long, weighs between 100 and 1000 grams, and has a large central seed, 5–6.4 centimetres long. An average avocado tree produces about 120 avocados annually.

**Constituents of Avocado oil:**
The major fatty acid of avocado oil is always oleic, followed by palmitic and linoleic acids. The oil is rich in phytosterols, vitamin A, E and D and minerals like potassium, manganese and phosphorus.

**Properties of Avocado oil:**
Avocado oil is an emollient, that is anti-aging and stimulates the skin. It also improves dermal metabolism.

**Cosmetic applications:**
Avocado oil has a high moisturizing and emollient power, that smooth and relax the skin. It is used in daily skin care, body lotions, sun products, after sun products.
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VITAMIN E / TOCOPHEROL / TOCOPHERYL ACETATE

Tocopherol (Vitamin E) is a fat soluble vitamin, that reinforces the antioxidative defenses of cell membranes. Tocopheryl Acetate is an ester of tocopherol and acetic acid, used to bind free radicals, and support cell renewal and cellular oxygen metabolism. In foods, the most abundant sources of vitamin E are vegetable oils such as palm oil, sunflower, corn, soybean, and olive oil. Nuts, sunflower seeds, seabuckthorn berries and wheat germ are also good sources.

Description:
Tocopherol describes a series of organic compounds consisting of various methylated phenols. Natural vitamin E exists in eight different forms, four tocopherols and four tocotrienols.

Properties of Vitamin E:
Vitamin E binds free radicals and prevents their destructive action on lipids, cells and cell membranes. Vitamin E promotes the biological stability of the cells and smoothes and strengthens the skin. It has also moisturizing properties.

Cosmetic applications:
Vitamin E is used in moisturizing creams, sun care, anti-aging products, after sun care, day creams, night creams, body care, hair care.