



 **Asense**

XAntiAge™

Xanthohumol
Active Substance





A-Sense is a Polish chemical company founded in 2017

Our goal is development through the development and implementation of new technologies and the production of specialty chemicals, including custom-made synthesis.

Our company operates in the heart of agricultural Poland and has access to many raw materials of natural origin.

A very important factor in our business is always research and the continuous development of our products.



Offer to B2B customers, without competing with customers



Products of the highest, reproducible quality



Flexibility and openness to all technologies



Products tailored to specific customer needs



Full product liability



LC/MS and GC/MS analyses in our laboratory



Xanthohumol is a chemical compound belonging to the flavonoid group, specifically to the xanthoflavonoid subgroup. It is a naturally occurring compound present in hops (*Humulus lupulus*), and is also obtained synthetically.

Xanthohumol is known for its potential health benefits and biological properties, and has a distinctive taste, aroma and color.

XAntiAge™ from A-Sense

- 1 At A-Sense, we obtain **pure xanthohumol down to its crystalline form**, then transfer it to an oil carrier such as MCT oil with INCI: Caprylic/Capric Triglyceride.
- 2 The raw material is **yellow-orange in color** and, depending on the dosage, may tint the cosmetic mass. The standard dosage of XAntiAge™ is in the range of 0.1-3%.
- 3 The content of pure xanthohumol XAntiAge™ is **0,5%, 1%, 5% or ≤100%**.

The concentration of xanthohumol in hops averages between 0.1 and 1.5% by weight of dry plant constituents. It can also be found in other plants, although in smaller amounts, such as field horsetail (*Equisetum arvense*) and chamomile (*Matricaria chamomilla*). In XAntiAge™ from A-Sense, it is guaranteed to be of the **highest quality and always a reproducible composition, thanks to an advanced technological process.**

XAntiAge™ INCI: Caprylic/Capric Triglyceride, Xanthohumol.

Ingredient name	INCI name	CAS number	EC number
Xanthohumol	Xanthohumol	6754-58-1	-
MCT oil	Caprylic/Capric Triglyceride	73398-61-5/ 65381-09-1	277-452-2/ 265-724-3

Solubility: in oils.

Odor: characteristic.

Color: yellow-orange.

Form: liquid/powder.

Dosage: standard 0.1-3%.

Standard dosage of xanthohumol

Face creams:

- Daily care: 0.1% - 1% xanthohumol (1 mg/g - 10 mg/g)
- Intensive rejuvenating creams: 1% - 3% xanthohumol (10 mg/g - 30 mg/g)

Face serums:

- Moisturizing serums: 0.5% - 1% xanthohumol (5 mg/mL - 10 mg/mL)
- Anti-aging serum: 1% - 2% xanthohumol (10 mg/mL - 20 mg/mL)

Body lotions:

- Daily care: 0.1% - 0.5% xanthohumol (1 mg/g - 5 mg/g)
- Nourishing and firming lotions: 0.5% - 1% xanthohumol (5 mg/g - 10 mg/g)

Facial masks:

- Cleansing masks: 0.5% - 1% xanthohumol (5 mg/g - 10 mg/g)
- Rejuvenating and revitalizing masks: 1% - 3% xanthohumol (10 mg/g - 30 mg/g)

Xanthohumol in liposomes NANO PLUS™

The use of xanthohumol in liposomes has many potential benefits:

1

Enhanced bioavailability - liposomes can increase the bioavailability of xanthohumol, allowing better absorption and penetration of the ingredient deep into the skin, as well as helping the active ingredient penetrate the epidermal barrier and deliver it to the layers of the skin.

2

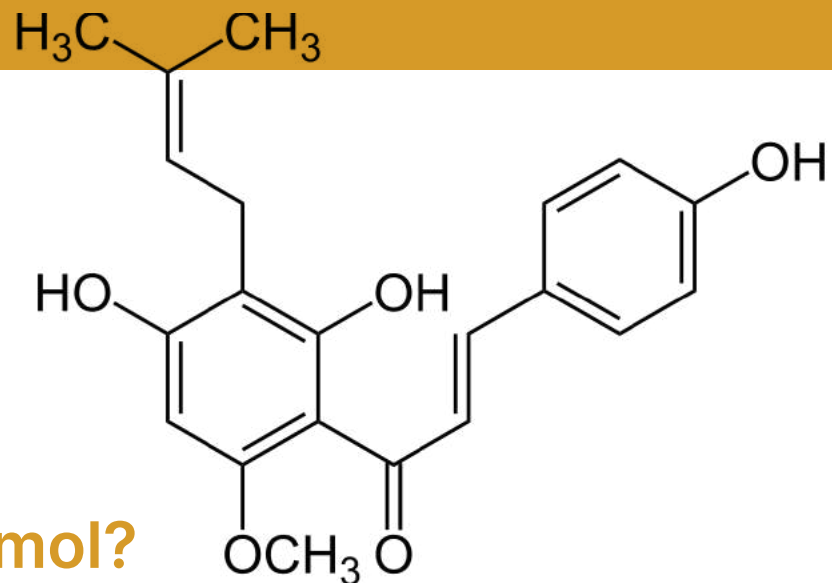
Moisturizing effect - liposomes can also act as moisturizers. Lipids in the structure of liposomes have the ability to keep the skin moisturized, which contributes to improving the condition and elasticity of the skin.

3

The effect of xanthohumol through liposomes is prolonged, which is beneficial for anti-aging, among other things.



Liposomes allow targeted delivery of xanthohumol to specific areas of the skin where it is needed most. They can deliver it directly to areas affected by inflammation, oxidative damage or other skin problems for maximum effectiveness.



I. What is xanthohumol?

Xanthohumol is a potent and versatile active ingredient that can provide numerous benefits to the skin. Its antioxidant, anti-inflammatory, UV-protective and potential anticancer properties make it a valuable cosmetic raw material that can be used in a variety of skin care products.

II. Antioxidant properties

Xanthohumol, as a powerful antioxidant, shows antioxidant activity in cosmetics. Its ability to neutralize free radicals, which are responsible for oxidative stress, makes it a valuable ingredient in skin care products.

Oxidative stress is a process in which free radicals, such as oxygen radicals or reactive oxygen species (ROS), are excessively present in the body. These free radicals are generated by external factors such as UV radiation, environmental pollutants and stress. They are harmful to the skin, as they can lead to damage to DNA, proteins and lipids, and accelerate the aging process.

Xanthohumol acts as an effective trap for these free radicals. It works by neutralizing and removing excess free radicals, thus preventing their negative effects on the skin. Xanthohumol's antioxidant activity helps protect the skin from oxidative stress, reducing cellular damage and counteracting skin aging.

III. UV-protective properties

Xanthohumol, being a cosmetic ingredient, also exhibits **protective effects** against the harmful effects of UV radiation. UV radiation, especially UV-A and UV-B, is a major cause of skin damage such as photoaging, sunburn and the risk of developing skin cancer.

Xanthohumol has the **ability to absorb UV radiation**, especially in the UV-A range. It acts as a natural sunscreen that absorbs UV radiation and protects the skin from its harmful effects. By reducing UV exposure, xanthohumol helps reduce the risk of DNA damage, collagen loss, loss of skin elasticity and the formation of hyperpigmentation.

Xanthohumol can be used in skin care products such as sunscreens, suntan lotions, moisturizers and protective serums. It works **synergistically with other UV filters to provide comprehensive protection against harmful UV rays**.

IV. Anti-inflammatory properties

Xanthohumol, as a cosmetic ingredient, also exhibits **anti-inflammatory effects** on the skin. Skin inflammation can be caused by various factors, such as trauma, irritation, infection or allergic reactions. Chronic inflammation can lead to tissue damage, redness, swelling, burning and itching of the skin.

Xanthohumol shows the **ability to inhibit inflammatory processes by regulating the secretion of inflammatory mediators and modulating signaling pathways associated with the skin's immune response**. It can reduce the production of pro-inflammatory cytokines such as interleukins (IL-1 β , IL-6) and tumor necrosis factor alpha (TNF- α). In addition, xanthohumol can affect the inhibition of nuclear factor kappa B (NF- κ B) activation, which plays a key role in inflammatory processes.

Through its anti-inflammatory properties, xanthohumol can **help soothe inflamed skin, reducing redness, swelling and other symptoms associated with inflammatory reactions**. It can be used in skin care products such as soothing creams, after-sun products or products dedicated to sensitive and reactive skin.

V. Properties that regulate skin pigmentation

Xanthohumol, as a cosmetic ingredient, has also been shown to **regulate skin pigmentation**. Abnormal production of melanin, the pigment responsible for skin color, can lead to various pigmentation disorders, such as hyperpigmentation, pigment spots and uneven skin tone.

Xanthohumol can affect the regulation of skin pigmentation by **inhibiting the activity of tyrosinase**, the enzyme responsible for converting tyrosine into melanin. By inhibiting the activity of this enzyme, xanthohumol can help reduce melanin production, especially in areas with excessively pigmented spots.

In addition, xanthohumol can act on the migration processes of melanocytes, the cells responsible for melanin production. It can influence the inhibition of their excessive activity and proliferation, which contributes to the reduction of hyperpigmentation and uneven skin pigmentation.

Thanks to its properties that regulate skin pigmentation, xanthohumol is used in cosmetics that aim to even skin tone, **reduce discoloration and pigmentation spots**, and improve the overall appearance of the skin. It can be used in brightening creams, serums for the **reduction of hyperpigmentation, or anti-aging products**, which also have the effect of equalizing skin tone.

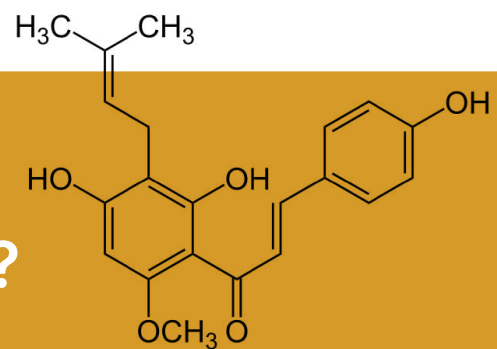




Xanthohumol is a valuable cosmetic raw material that offers many benefits to the skin. Its **unique antioxidant properties help protect the skin from oxidative stress, neutralizing the effects of free radicals and delaying the skin's aging process.** In addition, xanthohumol **exhibits anti-inflammatory properties, soothing skin inflammation and reducing allergic reactions.**

Xanthohumol also has the **ability to regulate skin pigmentation, helping to even out skin tone, reducing discoloration and pigmentation spots.** Its UV-protective activity makes it a desirable ingredient in sunscreens, providing additional protection from harmful rays.

Can xanthohumol in a cosmetic be allergenic?



There are no reported cases of allergy to xanthohumol in cosmetics in the scientific literature. However, each skin can react differently to different ingredients, including xanthohumol. There is always the possibility of individual intolerance or allergy to a specific cosmetic ingredient, including xanthohumol.

With which cosmetic ingredients to combine xanthohumol?

Xanthohumol is a cosmetic ingredient that combines well with many other ingredients, depending on the purpose and type of cosmetic. Here are some cosmetic ingredients that can combine well with xanthohumol:

Vitamin C - is a powerful antioxidant that helps protect the skin from free radical damage. The combination of vitamin C with xanthohumol can enhance antioxidant activity and provide additional protection against oxidative stressors.

Hyaluronic acid - an ingredient with strong moisturizing and moisture retaining properties in the skin. The combination of xanthohumol and hyaluronic acid can provide the skin with both antioxidant protection and intense hydration, helping to improve skin elasticity and firmness.

Peptides - can have a variety of actions in cosmetics, such as stimulating collagen production, reducing wrinkles and improving skin elasticity. The combination of xanthohumol with appropriately selected peptides can promote skin regeneration, reduce signs of aging and improve overall skin condition.

Plant extracts* - there are many plant extracts with different properties that can be combined with xanthohumol to achieve the desired effects. For example, extracts of green tea, aloe vera or chamomile have anti-inflammatory and soothing properties that can work in tandem with the anti-inflammatory effects of xanthohumol.

UV filters - xanthohumol has the potential to protect against UV radiation, and can be combined with UV filters to increase the effectiveness of sun protection.

However, it is worth remembering that the selection of cosmetic ingredients should be tailored to the individual needs of the skin and the purpose of using the cosmetic.

*produced in A-Sense

What is the difference between xanthohumol and hop extract?

Hops extract is a mixture of various chemical compounds, including phenols, flavonoids, essential oils and other components. It is obtained by extracting the hop plant, usually using solvents such as alcohol or water. Hops extract can contain various active substances, such as humulones, lupulones, polyphenolic compounds and phytoestrogens. Its composition and activity depend on the hop variety, growing conditions and the extraction process.

Xanthohumol, on the other hand, is one of the specific compounds found naturally in hops. It is primarily xanthohumol that is responsible for its many beneficial properties for the skin. It is a natural phytochemical from the flavonoid group, which has **strong antioxidant and anti-inflammatory properties.** Xanthohumol is thought to be the main factor responsible for some of the health benefits associated with hops, including its **potential to protect the skin from oxidative stress, UV damage and inflammation.**

Compared to hops extract, xanthohumol is a more concentrated and isolated compound. It can be extracted from hops extract using purification and separation processes. Its purity and concentration can be controlled to obtain an unambiguously defined active substance.



What pH for xanthohumol is optimal?

The optimal pH for xanthohumol in a cosmetic may depend on the specific application and other ingredients present in the product. **Xanthohumol is stable over a wide pH range.**

There is no information in the scientific literature to suggest that it has specific pH requirements in cosmetics. Therefore, it is recommended to use a pH consistent with the optimal pH for the skin, which is around 5.5.

1. Katarzyna Adamiak, Alina Sionkowska, The influence of UV irradiation on fish skin collagen films in the presence of xanthohumol and propanediol, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, Volume 282, 2022, 121652.
 2. Philips N, Samuel M, Arena R, et al. Direct inhibition of elastase and matrixmetalloproteinases and stimulation of biosynthesis of fibrillar collagens, elastin, and fibrillins by xanthohumol. *Journal of Cosmetic Science*. 2010 Mar-Apr;61(2):125-132. PMID: 20447364.
 3. Philips, Neena; Bynum, David; Hwang, Hyeondo, Source: *Anti-Inflammatory & Anti-Allergy Agents in Medicinal Chemistry (Formerly Current Medicinal Chemistry - Anti-Inflammatory and Anti-Allergy Agents)*, Bentham Science Publishers, Volume 9, Number 2, 2010, pp. 142-149(8).
 4. Mário Lima-Fontes, Raquel Costa, Ilda Rodrigues, and Raquel Soares . Xanthohumol Restores Hepatic Glucolipid Metabolism Balance in Type 1 Diabetic Wistar Rats. *Journal of Agricultural and Food Chemistry* 2017, 65 (34) , 7433-7439.
 5. Gerbson Vicente de Andrade Silva, Giordana Demaman Arend, Acácio Antonio Ferreira Zielinski, Marco Di Luccio, Alan Ambrosi. Xanthohumol properties and strategies for extraction from hops and brewery residues: A review. *Food Chemistry* 2023, 404 , 134629.
 6. Christian Niederau, Shruti Bhargava, Rebekka Schneider-Kramman, Joachim Jankowski, Rogerio B. Craveiro, Michael Wolf. Xanthohumol exerts anti-inflammatory effects in an in vitro model of mechanically stimulated cementoblasts. *Scientific Reports* 2022, 12 (1).
 7. Corina-Aurelia Zugravu, Roxana-Elena Bohiltea, Teodor Salmen, Elena Pogurschi, Marina Ruxandra Otelea. Antioxidants in Hops: Bioavailability, Health Effects and Perspectives for New Products. *Antioxidants* 2022, 11 (2) , 241.
 8. Yuxi Lin, Ruochen Zang, Yanlong Ma, Zhuoya Wang, Li Li, Siyuan Ding, Rong Zhang, Zhiqiang Wei, Jinbo Yang, Xin Wang. Xanthohumol Is a Potent Pan-Inhibitor of Coronaviruses Targeting Main Protease. *International Journal of Molecular Sciences* 2021, 22 (22) , 12134.
 9. Xuxiu Lu, Mingfei Liu, Hui Dong, Jinlai Miao, Dimitrios Stagos, Ming Liu. Dietary prenylated flavonoid xanthohumol alleviates oxidative damage and accelerates diabetic wound healing via Nrf2 activation. *Food and Chemical Toxicology* 2022, 160, 112813.
-

Contact

Sales Department



DIRECTOR OF COSMETIC RAW MATERIALS DEPARTMENT

Emilia Kwiecień

+48 794 704 440

emilia.kwiecien@a-sense.pl



MARKETING AND TRADE SPECIALIST

Paulina Bąkała

+48 795 439 793

paulina.bakala@a-sense.pl

A-Sense Sp. z o.o.

Puławy Science and Technology Park

ul. Ignacego Mościckiego 1, 24-110 Puławy

