

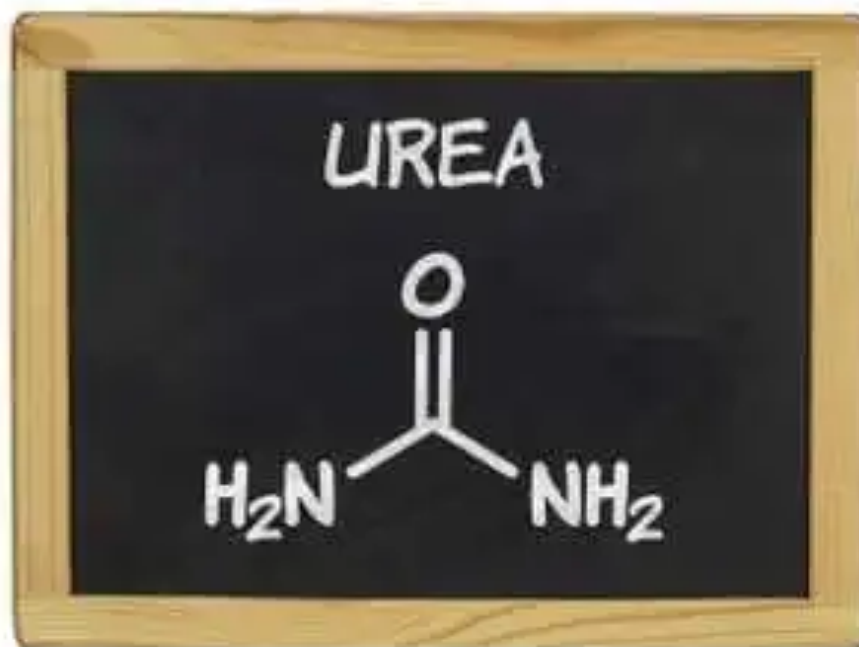


INGREDIENTS

What is Urea and its Benefits in Skin Care?

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It often happens in the search for new therapeutic agents that some old stand-by is overlooked, whose lustre has worn off, but which may have useful applications in moments when the miracle drugs falter. In the world of topical therapy, urea is such a drug. Youthful skin with a visible glow – it's the holy grail of skincare.

Albert Kligman

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What if we told you the key to super-healthy skin and anti-ageing is hydration?

Dehydrated skin causes horizontal lines to appear; the type that leads to deep-seated wrinkles, especially if not treated correctly.

That's right; something as simple as keeping your skin plump and moist, can ward off **premature ageing** for many years to come.

But shhh! There is one little "beauty secret" that not too many people know about.

And that is gorgeous urea, and in our opinion, this ingredient is one of the most effective moisturisers in cosmetic chemistry.

Its role on your skin is quite remarkable; at low percentages, it can help maintain a healthy moisture balance.

At higher percentages it encourages cellular turnover, which is why you will often find it in foot products.

In dermatology, urea is used for both its keratolytic and hydrating properties; this dual effect gently exfoliates and moisturises at the same time.

It seems ironic to think that as far back as 1957, urea was viewed as a forgotten therapy despite being rediscovered by Dr Kligman, the man behind Retin A.

And yet, even today there is little information about what could be considered, the holy grail of the skincare world.

What is urea?

Urea is a **humectant**, referred to as hydroxyethyl urea, not to be confused with the preservatives imidazolidinyl urea and Diazolidinyl Urea, we discuss in more detail below.

It is a naturally-occurring substance found on the surface of the skin. It is an active part of our **natural moisturising factor** (NMF), which functions to keep our skin lovely plump, supple, and working efficiently.

Urea is a natural component of your skin's tissues. It makes up 7% of our natural moisturising factor, along with 12% **sodium PCA** and 9% glycerol, all of which are water-binding – which is essential for maintaining the health, function, and hydration of the outer layer of skin.

Like many naturally occurring compounds in our skin, urea decreases with age and trauma from harsh ingredients and environmental pollutants, making the skin more susceptible to dryness, inflammation, and ageing.

From the many thousands of skins we have clinically treated over the years, we believe that inflammation and dehydration is the leading cause of premature ageing, the fact that urea has the potential to treat both of these concerns, it's no wonder we refer to it as the veritable 'fountain of youth'.

As if that isn't enough from this wonder ingredient, when topically applied, those with dehydrated and dry skin can see an improvement in their symptoms of as much as 50%, and in those with eczema, as much as 80%.

There is also **evidence** to suggest, that urea helps to treat skin conditions such as ichthyosis, dermatitis, psoriasis, xerosis, and even nail fungus – all these conditions share a similar pathological cause — namely, a yeast called malassezia.

Urea's skin-loving benefits

Hydrophilic: This term means “water-loving”, which gives urea its amazing ability to hold onto water molecules, keeping your skin plump and moist.

Not only does it readily absorb water, but it also has a very high water content, which helps to reduce the amount of water that is lost through your skin.

On a molecular level, urea modifies the structure of amino chains and polypeptides within your skin, which is important for moisturising the skin's delicate tissues. There is a direct correlation between the skin's water content and its levels of amino acids. Basically, the more dehydrated and dry the skin is, the lower its share of dissolved amino acids.

Studies suggest that urea's keratolytic and hydrating effects are due to the breakage of hydrogen bonds in the stratum corneum, the outer layer of skin; it is essential to loosen epidermal keratin and increases the water-binding sites within the skin.

Improved barrier function: One of the many ways urea benefits your skin is strengthening and protecting the **barrier function** and keeping it healthy.

Natural Exfoliant: At higher percentages within a formula urea becomes a natural keratolytic (exfoliator). This, combined with its hydrating properties, makes it a potent skin treatment. Urea works in synergy with other ingredients like lactic acid, which make up the molecular structure of healthy skin, thus enhancing the penetration of other ingredients.

Combined, urea and lactic actively remove dead skin cells and substances from the skin; improving cellular turnover, whilst dramatically improving the water-binding capability of the skin, literally rebuilding skin from the inside out.

Fights Acne: Urea improves your skin's health by metabolising the antimicrobial peptide LL-37, which attacks acne-causing bacteria within the skin. An *in vitro* **study** found that urea directly inhibits the yeast *Malassezia*, which is often the cause of fungal acne.

Possible Anesthetic: Urea has another interesting profile; it can create a local anaesthetic effect on your skin and has anti-itch properties. This is really useful in reducing cycles of **inflammation** and flare-ups, making it our ingredient of choice if you have sensitive skin.

Penetration: **Studies** have found, that urea plays a key role in increasing the permeability of certain skin care ingredients, working as a vehicle for other performance ingredients, by encouraging them to penetrate the epidermis easily.

Natural Moisturiser: **Dry skin** can be due to a reduction of urea in your skin's tissues, leading to tightness and flakiness. Urea is a key component of the natural moisturising

factor found within your skin, offering instant relief if you have dry skin.

For this reason, we include urea in [H₂O Hydrating Complex](#) and [Quench ultra-hydrating water gel](#) , both of which work as a moisture magnet to infuse dry, skin with moisture.

The gentle exfoliating action of urea helps to leave the skin super smooth, especially when layered; the skin's texture is visibly softer, giving it a youthful glow. Our clinic has seen some great results from both these formulas on our clients who suffer from extremely dry, dehydrated skin.

Testimonials

So you have heard it here from us first, ureas laundry list of skin-loving benefits.

But if your still not convinced don't just take our word for it, here are some of our client's testimonial who have had great results at varying percentages:

Lorree from Brisbane wrote

I use a cream called containing 5% carbamide/urea. I use it for my dry scalp issues and apply after showering, and it takes away all the dryness/flakiness.

Jane from London wrote

I have a carbamide cream at 10% that also contains Shea and a 30% foot gel for my partner. Both are working exceptionally well and this summarises why urea is such a fantastic ingredient. Thank you so much for writing this article.

Kathy from Auckland wrote

I started using your serum H2O with 1% Urea twice daily on my face. I have then been sealing it with my chosen moisturiser and am really impressed with the results, I am already noticing visible improvements in my skin it feels really hydrated and much smoother and it has its youthful glow back.

So happy that you introduced me to this wonder ingredient Samantha

John from Texas wrote

Initially, I began using a cream with 15% urea peeling but washed it off after 5min because it was irritating. Next, I tried 5-6% and it was still sensitising – small red bumps appeared on my higher cheeks and near the lipline. I switched to 2% and love it, it is really hydrating and I found it helps to prevent the dead skin buildup that often clogs my pores? I have a very sensitive skin, which doesn't like actives like AHA/BHA and physical exfoliation.

Kelly a client wrote

I have suffered from eczema on my hands and neck and I have been using a 5% urea cream coupled with layering your Fortify barrier repair cream repair, a gentle no foam wash, and no exfoliating products at all. My skin is getting better, the texture is smoother, and not so irritated. I am so pleased with the results, thank you so much, Samantha, I wish you every success in the future and appreciate all you do, I agree it certainly is your calling.

The sciencey skin bit

To understand how urea works, it is important to understand your skin's structure, so please bear with us as we get a little technical here:

Your outermost layer of skin the **stratum corneum** – is made up of *corneocytes* and an intercellular cement which has a high resistance to many chemical agents. Inside the corneocytes is our natural moisturising factor (NMF), here a mixture of substances regulates moisture levels on the surface by binding water molecules.

Whilst applications of emollients and occlusive ingredients coat your skin's surface to create instant moisturisation it is only a temporary fix, they don't improve your skin's ability to create and hold water the way urea does. When applied to your skin, it penetrates the stratum corneum where it readily absorbs and retains water; increasing your skin's capacity to hold moisture and rehydrate.

To conclude, it helps to regulate the cell cycle; encouraging natural desquamation or exfoliation, enhancing your barrier function, which in turn regulates the good microflora that keeps your all-important **acid mantle** intact.

The dry skin connection

Dry skin results from a lack of oil and water in the outer layer of your skin; thus, your skin can become scaly, cracked, and itchy.

Moisture is normally retained in the epidermis by a surface film of substances, urea is one of these water-holding substances, along with lactic and amino acid.

As discussed previously, reduced levels of urea can lead to a lower water-binding capacity within your skin, which in turn leads to roughness, tightness, flaking, and irritation.

Research has found a link between severe dry skin conditions and drastically reduced urea in the stratum corneum. Urea stimulates the skin components that keep it healthy, which is referred to as 'epidermal gene expression.'

When applied topically, it increases filaggrin formation; an important protein found within your skin keeps everything balanced. It also maintains a healthy barrier function by building up your skin's defence mechanisms.

Percentages Used in Skincare Products

Less than 10%: This can help with water retention in your skin, helping to bind moisture; this is due to its extremely hydrophilic nature, making it a popular choice for its moisturising effect.

Over 10%: This has a light keratolytic effect, making it a great choice if you have dry, flaky skin that requires an extra boost. It is still hydrating at this percentage, but it becomes quite exfoliating, it can be irritating at this percentage when used on the face but is ideal in body preparations.

At higher doses of 20-40%: It becomes a powerful keratolytic (exfoliator), making it great for more serious therapeutic uses, such as treating psoriasis and calloused skin on the feet.

Getting to grips with the types of urea

Urea is often referred to as Carbamide the primary organic solid of urine, which is waste that has been produced by the body after it metabolises protein.

Thankfully, the urea used in the cosmetic industry is made from synthetic sources and is not animal-derived. It is formed from ammonia and carbon dioxide and produced in either a solid or liquid form.

There are three forms of urea found in personal care products: Hydroxyethyl Urea, Diazolidinyl Urea, and Imidazolidinyl Urea. People often get confused by these, but they are, in fact, completely different ingredients.

Diazolidinyl and Imidazolidinyl Urea are antimicrobial preservatives used in the skincare industry to protect personal care products from bacteria, yeast, and mould. They do get a lot of bad press as a preservative since they are proven to release formaldehyde.

Hydrovance (INCI name "Hydroxyethyl Urea") is a potent humectant and considered safe as a cosmetic ingredient.

Conclusion

Phew! With so many beautifying properties, we appreciate its a lot to take in

For the benefit of those who require a little recap, here are this cool little ingredient's best bits:

- your skin naturally produces urea
- it regulates your skin's moisture content and is an essential component of your NMF
- urea is hygroscopic – it is able to bind moisture on to the outermost layer of your skin
- it is the perfect treatment if you have dry skin, it has anti-itch and anti-microbial properties
- it can help to prevent acne-causing bacteria
- it is a keratolytic at higher percentages, meaning it breaks down the connections between dead skin cells; naturally exfoliating your skin and helping ingredients to