



Green Tea Pollution Defense features a potent trio of optimized botanical compounds that were highly successful when tested in some of the world's most polluted cities. Extracts from Camellia Sinensis, Grape seed, and Oak wood unite to create a powerful molecular barrier that defends your skin from a daily barrage of age-accelerating toxic pollutants. Even the tiniest and most harmful pollutant particles are prevented from damaging your skin.

✓ **FREE FROM: parabens, phthalates, cruel practices, and sulfates**

✓ **For women and men of all skin types**

Ingredients in this protective cream:

- Protect skin from a vast array of daily pollutants

Heavy Metal deposits on skins surface fell:

- 139% less Iron deposits
- 149.2% less Zinc deposits
- 99.8% less Chrome deposits
- 83.6% less Nickel deposits





Introduction

Over the past decade, we've developed a greater understanding of the ways in which pollution affects our planet and our health. We are increasingly challenged by the omnipresent issue of air pollution and its disastrous impact on all aspects of our well-being. Polluted air contains organic and inorganic substances that have been introduced into the atmosphere.

Air pollution is prematurely ageing the faces of city dwellers and country dwellers alike by accelerating wrinkles, depositing heavy metals in their skin and creating age spots, according to emerging scientific research.

A Worldwide Concern That is Now Being Recognized

Consumers are now acutely aware of the connection between pollution and skin condition. As a result, they are searching for new and innovative skin care products that work.

According to the World Health Organization, around 91% of the world's population live in areas where pollution exceeds safety guidelines, establishing a global need for skin care protection.

Air pollutants including heavy metals, persistent organic pollutants, gaseous pollutants (ozone and volatile organic compounds) and particulate matter, form a complex mixture of liquid and/or solid droplets suspended in gas.

These hazardous droplets have a highly negative impact on skin health. Unfortunately, it is difficult, if not impossible, to escape these corrosive forces given the enormity of the worldwide pollution.

In response to this pressing problem, Expert Remedies® has formulated a cosmeceutical product that includes an ingredient called Vitachelox™.

Extraordinary Results from Vitachelox™

Vitachelox™ is comprised of a selection of optimized botanical compounds that work to protect users from pollution, free radicals and chelating agents.



Created by Indena, Vitachelox™ is a unique and effective ingredient that helps protect the skin in polluted environments. Indena assessed the efficacy of the single ingredients and their combinations.

Backed by more than 90 years of botanical experience, today Indena is the world's leading company in the identification, development and production of active principles derived from plants, for use in the health food and personal care industries.

Studies on Vitachelox™

CLINICAL EFFICACY ON POLLUTION CHALLENGED SKIN₁

A single blind, placebo-controlled human trial on 30 outdoor workers was conducted to assess Vitachelox's™ ability in protecting the skin from environmental pollutants.

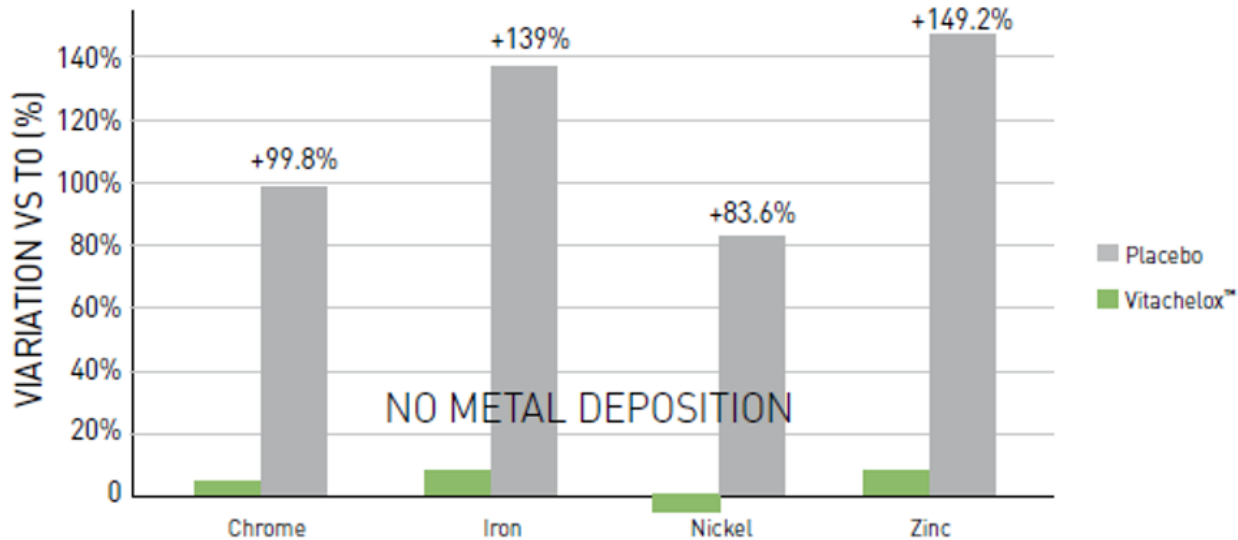
The study evaluated the protective capabilities of Vitachelox™ after 6 consecutive hours outdoors in an urban and polluted environment. Half the panel was exposed in the European Lombardy plain, the other half in Beijing, China.

Following the standardized application (2mg/cm²), skin strippings were taken (the first discharged) and heavy metals² quantified by atomic absorption spectrometry.

Results showed that Vitachelox™ had counteracted the totality of metal deposition, whereas in the placebo treated area metals found in the stratum corneum (outer skin layer) were up to 150% higher. (see chart below)

This qualifies Vitachelox™ as a “**molecular barrier**” **helping to maintain healthy skin in a polluted air environment**, controlling extrinsic skin ageing and iron mediated photocatalysis.

Metal deposition in the stratum corneum



***Stratum Corneum is the outer layer of the skin**

ANTIOXIDANT AND CHELATING ACTIVITY

The single components of Vitachelox™ have shown remarkable chelating activity on ferrous ions at very low concentration with an IC50 (5 to 20ppm), comparable to the benchmark EDTA.⁴

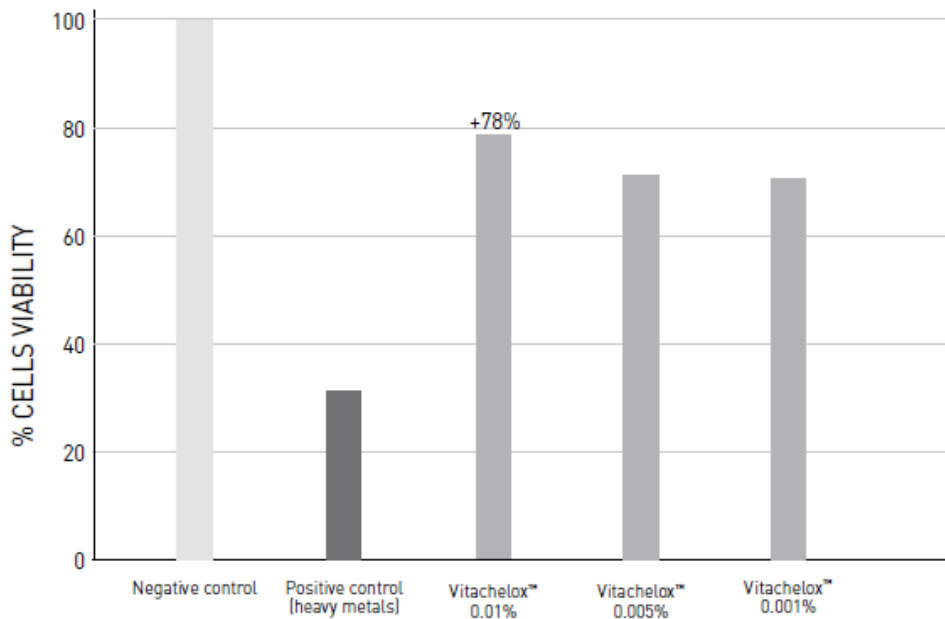
Protection of cells viability and metabolism⁴: Vitachelox™ added to fibroblasts incubated with heavy metals (Pb-Fe-Cr) **protected cells from the toxic effect of these metals by 78% (improvement in viability)⁵** The single components, as well as Vitachelox™, have both shown the ability to protect cells' metabolism by maintaining their protein production.⁶

Protection of different cell compartments⁴: In a similar trial, fibroblasts were incubated with heavy metals in the presence/absence of Vitachelox™.

Remarkable Success in Protecting the Different Components of the Cell was Demonstrated:

- **Lipids were protected from peroxidation by 66% (MDA)**
- **DNA oxidative protection reached 59% (8-OHdG)**
- **Proteins were protected by 87% (carbonylated proteins).**

Synergistic protection of cells viability in the presence of heavy metals



ANTIOXIDANT ACTIVITY: 18 TIMES MORE POWERFUL THAN BHT

Vitachelox™ has been compared to BHT at the same level (0.5%) in a standard gel emulsion with a new antioxidative power determination. Both antioxidant capacity and activity are used to characterize the antioxidant itself.

Results showed Vitachelox™ to be 18 times more powerful than BHT at T0 and 17 times more reactive. This magnitude was maintained over time, qualifying Vitachelox™ as a natural alternative to BHT.

CLINICAL EVIDENCES ON SKIN MICROBIOTA₃

Activity of skin microbiota in 20 subjects with acne-prone skin versus placebo was evaluated in a single blind trial over 28 days.

Vitachelox™ proved to be effective in selectively reducing the abnormal hyperproliferation of *P. acnes* without affecting the commensal beneficial skin flora, thus underlying the capacity of rebalancing disbiosis. Additionally, a global microbiome has shown that **Vitachelox™ does not damage the skin microbiota richness.**

EFFICACY ON PROTECTION FROM BLUE LIGHT₂

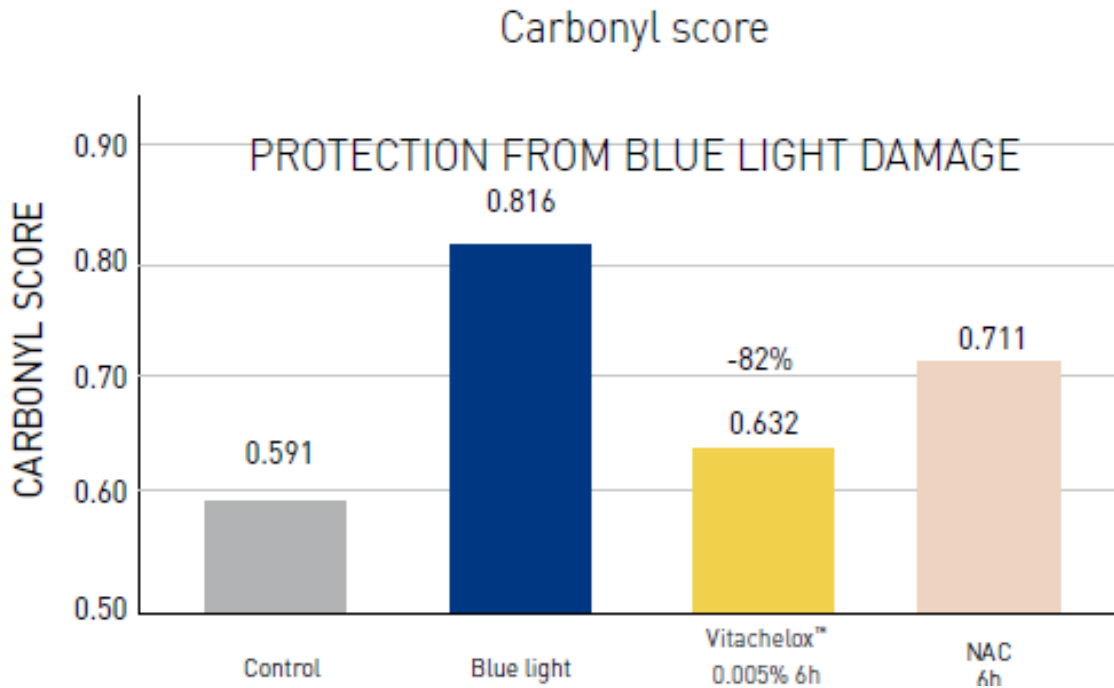
Human keratinocytes were irradiated by blue light (460nm) in the presence/absence of Vitachelox™ when compared to a positive benchmark (N-acetyl cysteine).

Just after irradiation, proteins were extracted and analyzed for their carbonylation rate, a marker of protein damage. Whereas a significant increase in protein oxidative damage was observed upon blue light irradiation, Vitachelox™ was shown to be more effective than the benchmark in protecting proteins from blue-light protein damage.

At a dosage of 0.005%, Vitachelox™ reached a protection rate of 82%.

Regarding blue light, on Aug 31, 2018, **FORBES magazine states on their site**, “While the habit of checking your smartphone at night may seem like an innocent practice, the reality is that it could actually be leading to permanent damage to your eyes.

“Laptops, smartphones, Ipads and e-readers all transmit [blue light](#) which is toxic to specialized cells known as photoreceptors located in the retina, and responsible for our vision.”



Coverage in America's Leading Publications

The phenomenon of skin damage caused by environmental pollutants has been extensively covered by numerous scientific and general sources. These quotes provide an understanding of the severity and immediacy of this problem and why it is imperative to protect one's skin from these detrimental forces.

Please find below a selection of quotes pertaining to environmental pollution.

The National Institutes of Health: Urban particulate matter in air pollution penetrates the barrier-disrupted skin and produces ROS-dependent cutaneous inflammatory response in vivo.

“Recently, it has been reported that Particle Matter is associated with increased risks of skin diseases. Particle Matter penetrates into the barrier-disrupted skin, causing inflammation, demonstrating detrimental effects in the skin.”

<https://www.ncbi.nlm.nih.gov/pubmed/29731195>

The New York Times: “Toxic Air Affects the Skin’s Aging Process.”

“Scientists are just beginning to uncover how toxic air affects the skin’s aging process. A study done this year on data from subjects in Germany and China appeared to link increased air pollution to brown spots on the skin.”

<https://www.nytimes.com/2016/06/30/fashion/skin-beauty-health-tips-pollution.html>

Journal of Dermatological Science: “Air Pollution Is Also Affecting Skin Integrity.”

“This is mostly from oxidative stress, which is defined as an over-production of destructive reactive oxygen species (ROS free radicals) and an inability of the body’s natural antioxidant network to neutralize them before they do damage to skin and other organs.”

<https://www.sciencedirect.com/science/article/pii/S0923181114001935>

ResearchGate Publications: Effects of air pollution on the skin: A review

“The increase in air pollution over the years has had major effects on the human skin. Various air pollutants such as ultraviolet radiation, polycyclic aromatic hydrocarbons, volatile organic compounds, oxides, particulate matter, ozone and cigarette smoke affect the skin.”

[https://www.researchgate.net/publication/313676378 Effects of air pollution on the skin A review](https://www.researchgate.net/publication/313676378_Effects_of_air_pollution_on_the_skin_A_review)

The Wall Street Journal: A Major Market That’s Growing

“The harmful effects of pollutants on skin are about to break out as a major focus for product marketers.”

<https://www.wsj.com/articles/beauty-companies-want-to-protect-your-skin-from-air-pollution-1412118685>

Vogue Magazine: “What is Pollution Doing to Your Skin?”

“Second only to the sun, pollution is the biggest aggressor when it comes to ageing your skin. The worldwide heatwave has made the air in our cities as lethargic as we are, causing pollutants to languish at ground level or swirl into smog.”

<https://www.vogue.com.au/beauty/skin/what-is-pollution-doing-to-your-skin/image-gallery/c2a7d314697011b2165a77646b40d2ec>

MD magazine: “The Impact of Pollution on the Skin”

“The effects of pollution on skin are profound and seen as an increased risk of skin cancer, skin sensitivity, premature skin aging, discoloration, dryness, dullness, and roughness.”

<https://www.mdmag.com/medical-news/the-impact-of-pollution-on-the-skin>

The Telegraph: How Can Air Quality Affect Your Skin

"Pollution particles, sometimes twenty times smaller than pores, can infiltrate deeper layers of the epidermis, causing not only inflammation and dehydration, but also a cellular-level reaction that leads to lost elasticity and firmness," says Dr Sarah Shah.

<https://www.telegraph.co.uk/beauty/skin/best-anti-pollution-skincare-products/>

References

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2. Indena, data on file, Oxiproteomics report D01GM113) –
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6. Indena, data on file, Farcoderm report TV.01.C_2015/3168-2015/3169-2015/3175, **2016**. –