

Dare to dream in the battle to beat urban skin stress

Creative ideas are often shelved until the technology is ready to realise them. In this article, we demonstrate that where urban skin stress is concerned, technologies are keeping pace with creative aspiration. From monitors warning of excessive pollution to diagnostic tools which measure the impact of pollution on the skin, the market is poised for some exciting, new innovations.

Strolling down a street in Shanghai, Mexico City or Sao Paulo, the impact of pollution from traffic and heavy industry on people's health has long been a source of concern. The World Health Organisation (WHO) estimates that over 90% of the world's population live in areas where pollution levels exceed WHO guidelines¹. In particular, respiratory problems, such as asthma and lung infections, have all been attributed to pollution. Now attention is also turning to the impact of pollution on people's skin.

Airborne particles, such as harmful carbon-based molecules, from vehicle exhausts and factory emissions land on the skin causing irritation and chemical damage. Prolonged exposure can lead to accelerated aging. Ultraviolet (UV) radiation from the sun combined with pollutants has a catalytic effect causing greater damage to the skin surface.

There is a belief that exposure to pollution can also create allergen pathways, leading to certain skin



conditions such as rashes, itching and eczema. Children and infants, who have immature immune systems, are particularly susceptible to developing allergies. They are also more vulnerable to the impacts of air pollution generally, as they ingest pollutants deeper into their lungs than adults and their skin has fewer barrier properties.

▸ [The fight back against skin pollutants](#)

Many cosmetic and personal care companies are now saying that urban skin stress (the impact of pollution on the skin) should not just be dismissed as an unfortunate environmental consequence of living in the city. They are considering how individuals can take action against pollution to protect themselves and their children. Many of the innovations in this space are not just in the concept or prototype stage, but are ready for the market now. In the battle against skin pollutants, marketing professionals and their R&D colleagues can afford to dream.

↳ In the moment pollution monitoring

Pollution levels fluctuate from day-to-day, and even hour-to-hour, depending on traffic and emissions from factories and local industry. The weather, too, affects how pollutants are distributed in the air. We are used to weather forecasts to help us plan our activities or what we should wear. Now the market is calling for ways to accurately read the pollution levels in the air in order to warn consumers about excessive exposure to pollution.



Monitors containing sensors, for example, could help an individual measure the level of pollution in their immediate environment – the device could warn the person if the pollution is particularly heavy that day by sending information to an app, enabling them to take appropriate action to protect themselves. There are a number of monitoring solutions which are ready for the market and are relatively inexpensive to produce. L’Oreal has developed a low-cost, heart-shaped patch called ‘My UV Patch’ which is worn on the skin and changes colour in the presence of UV – the colour is quantified by an app and the individual’s dosage of UV is calculated. It is possible to create a similar patch which changes colour in the presence of pollutants. This could be measured in the moment to warn someone of particularly high pollution or at the end of the day to quantify the level of exposure to pollution over time.

↳ Innovation in anti-pollution cosmetics

In cities where pollution is consistently high and people are subjected to pollution day in day out, there is a need, not just to warn people about the levels of

pollution, but also to actively protect them. Here the cosmetics industry is leading the charge by focussing innovation efforts on creating cosmetic products with anti-pollution technology, as well as UV protection, to safeguard the skin. Certain products are even being marketed as ‘reversing the damage of pollution’; for example, this might be in the form of cosmetic treatments which individuals can apply to their skin at the end of the day.

In spite of the growing interest in this area, there are very few substantiated methodologies for measuring the efficacy of anti-pollution products. With consumers needing to be convinced by a product’s performance, Sagentia believes product efficacy testing should be a key component of the product development process for any personal care company working in this area. Sagentia actively works with companies to help develop bespoke testing equipment and rigorous techniques to do the large-scale sample measurements and the verification required to make accurate claims.

↳ Personalised skincare systems to meet individual needs

Skincare requirements differ from individual to individual. You only need to think about how we each react to sun exposure (some individuals needing higher SPF against UV) to understand that pollution affects an individual’s skin in very specific and personal ways. The next generation of anti-pollution skincare products will focus on diagnosing a person’s skin requirements and then identifying cosmetic products which are a direct match with that person’s needs.



In the case of diagnostics, the technology is now available to create portable devices capable of scanning an individual’s face to identify problem areas,

such as highlighting the signs of aging or pinpointing target areas which need extra protection to minimise damage. Sagentia is working on portable, diagnostic tools to measure the 'antioxidative' protective power of skin (how well the skin is able to fend off chemical damage).

After diagnosis or assessment, part two of the personalisation story is identifying the skincare products which match the individual's needs. 'ageLOC-me' from Nu Skin is a diagnostic and personalised dispensing system, developed in conjunction with Sagentia and launched in 2016. The device assesses an individual's skin requirements, mixes together the right serums for his or her skin and then dispenses a personalised cream directly into the

person's hand, once in the morning and again at night-time – for the consumer, this could signal the end of complicated, multi-step skincare regimes.

↳ [Let vision be your guide](#)

The subject of urban skin stress is attracting attention. From pollution monitors to diagnostic tools to personalised cosmetics to protect the skin from the effects of pollution, innovation teams are moving quickly from prototypes into marketable products. For once, the technology is keeping up with the vision of marketing professionals and R&D teams. At Sagentia, we tell our clients not to be restrained in their aspirations, but to dream big and the technology to deliver your aspirations will follow.

¹ WHO (2015) Reducing global health risks through mitigation of short-lived climate pollutants. Accessed: http://www.who.int/phe/health_topics/outdoorair/en/