

# Copenhagen company to re-invent fresh air for city dwellers

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Earth's atmosphere cleans itself no matter what is spewed into it. Matthew Johnson, Professor in atmospheric chemistry at the University of Copenhagen was inspired by the atmospheres self cleaning properties, when he invented the uniquely versatile GPAO (Gas Phase Advanced Oxidation) method of emissions control. Credit: Mikal Schlosser/University of Copenhagen

Breathe in Beijing, and you might as well smoke 40 cigarettes a day. Live in London and a significant slice of your taxes go to paying fines for your cities illegal air quality. Be sporty in Santiago but refrain from running out of doors unless rain has recently cleared the air. Air pollution is making city living detrimental to health at an increasing clip. Now a new company with roots at the University of Copenhagen wants to develop clean air solutions for urbanites with greying lungs.

The new company, Airlabs, has been licensed to utilize the [air](#) cleaning technology Gas Phase Advanced Oxidation (GPAO) developed at Department of Chemistry, University of Copenhagen, by the atmospheric chemist Matthew Johnson. Professor Johnson has recently been hired by Airlabs as Chief Scientific Officer. A role where he will head the effort to invent research based solutions to problematic city air.

Air pollution is chemicals in gas phase. There are few molecules and they are far apart in the gas. For this reason gas is difficult to remove. Previous methods have either burnt, frozen, filtered or diluted the pollution but that is costly in terms of both money and energy. GPAO is inspired by the atmospheres natural self-cleaning process. It utilizes ultraviolet light and ozone to transform gas into dust particles. And where gas was hard to remove, dust is easy, so GPAO requires very little energy, even less maintenance and makes do without a chimney.

The University of Copenhagen has already sold a license to use GPAO to combat emissions from industrial polluters. Since 2013 the company Infuser A/S has removed nasty smells from a waste water treatment plant in Aarhus, Denmark, a snack producer in Sweden and an animal feed producer in Jelling, Denmark. During the latest months the company has also carried out full scale tests, showing the capacity of the technology to remove health impairing solvents from a iron foundry in Germany.

Where Infuser A/S concerns itself with solutions for industrial

enterprises where the source of pollution is very clear, Airlabs' plan is to deal with the more diffuse pollution found in cities. Towns are pestered by pollution mainly from traffic, where thousands of cars, busses and scooters each give a tiny contribution. From heating where many still use coal or wood fired units and from cooking that is still carried out over open fire in many instances.

With Airlabs, Johnson expects to develop "Blue sky" zones with clean air for cities. This might be at the bus stop, on the playground or in the shopping district. Ultimately, says Johnson, whole cities should have [clean air](#).

"We do not want to just sell a small black box which removes pollution from a limited area. Ideally we want to develop and sell all-encompassing solutions which secure that you can breathe wherever you are in the cities that buy our solutions", says Matthew Johnson.

Together with Infuser A/S, Airlabs plan to provide comprehensive solutions for cities: Emissions control for industrial production enterprises, indoor air cleaning for buildings and outdoor air cleaning.

Together the three types of solutions should provide a three legged [pollution](#) abatement system able to remedy all and any [air pollution](#) problem in cities and towns.

Provided by University of Copenhagen

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