PRESS RELEASE

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PreciseInhale delivers high precision and novel results in new study on inhaled household pollutant in Journal of Environmental Science and Pollution Research

(Stockholm 29 June 2022) A new paper in the Journal of Environmental Science and Pollution Research explores the effects of inhaling, vs ingesting, PFOA (perfluoro-octanic acid), in house dust. PFOA is a common toxicant found in industries and households worldwide. In the study, carried out at the Institute of Environmental Medicine at Karolinska Institute, PreciseInhale achieved a standard deviation of 10-15% and demonstrated that PFOA concentration was four times higher via inhalation than ingestion – a novel result not previously published.

Perfluoro-octanic acid (PFOA) is an industrial surfactant used in industries, chemical processes and households worldwide. It is commonly to be found in carpeting, upholstery, clothing, floor wax, sealants, textiles and many more. Concerns about and research into the toxicity of PFOA are long-established, with the substance thought to be a possible carcinogen, liver toxicant and immune system toxicant (1).

Now, in a new study carried out at KI's Institute of Environmental Medicine, scientists explored the effects on rats of PFOA in household dust when inhaled vs. ingested. To expose the rats, scientists chose to use ISAB's unique one-animal-at-a-time *in vivo* intubation method: "A relevant inhalation exposure condition was established by using the PreciseInhale system, where intubated rats inhaled house dust spontaneously."

Unlike conventional 'tower testing' technologies ISAB's intubation method delivers aerosol directly to the lungs of individual test rodents, bypassing the nose, whilst carefully monitoring aerosol concentration and individual breathing patterns. The result is exceptionally high-precision data.

In this study the precision of PreciseInhale's results were indeed high – with a standard deviation of within 10-15% in all exposed subjects. In novel, previously unpublished results PreciseInhale also revealed that the PFOA concentration in the rats' blood was four times higher via inhalation than ingestion following exposure to the same levels of dust. This is a highly socially relevant result demonstrating that inhalation is an effective exposure channel for pollutants like PFOA in both the home and work environments.

ISAB CEO Manoush Masarrat: "These precise, revealing and important results show how much Inhalation Sciences can offer research into environmental medicine and air pollution.

The unique accuracy and precision offered by PreciseInhale in this case really enabled scientists to reach a higher level of understanding of aerosol data."

The publication is titled ***"Bioavailability of inhaled or ingested PFOA adsorbed to house dust".*** Read the publication here.

Its authors are: Åsa Gustafsson and Bei Wang (MTM Research Center, School of Science and Technology, Örebro University) Per Gerde (Institute of Environmental Medicine, Karolinska Institutet and Inhalation Sciences AB) and Åke Bergman and Leo W. Y. Yeung (Department of Environmental Science, Stockholm University.)

1. https://en.wikipedia.org/wiki/Perfluorooctanoic_acid#Health_concerns

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About Inhalations Sciences Sweden AB (publ)

Inhalation Sciences Sweden AB (publ) develops and commercializes world-leading instruments and services for research into inhalation. The company's patented lab instruments PreciseInhale® and DissolvIt® enable researchers in the pharma industry to make drug pipeline decisions at an early stage, saving time and resources for R&D departments, and enables researchers in academic institutions to define how aerosols and small particles impact our lungs, and so our health, when being inhaled.