Lifa Air – a major contributor to academic research

Two innovative indoor air quality studies will be presented at the Clima 2007 Conference

Helsinki, 10.05.2007 – LIFA AIR Ltd will be presenting 2 scientific studies in Clima 2007 Conference in Helsinki from 10-13 June 2007. The conference is the most significant event of the year in the indoor air quality field – both for academic and business groups. The conference will focus on using scientific data to find practical solutions for the improvement of indoor air quality – and to highlight the crucial role that clean indoor air plays in securing healthier living.

LIFA AIR Ltd has been an active supporter of the two studies that will be presented at the conference – both in terms of funding and expertise. These studies contribute significantly to the ongoing discussion and current understanding of the importance of clean indoor air, and especially the importance of ultrafine particles and how to reduce them significantly. Furthermore we are continuing our active role in several other technical papers and by attending several work shops during the conference.

AIRSECURE- safety through filtration and detection

The AIRSECURE project develops a system that consists of filtration and detection solutions against airborne threats at airports. The design and operation of the system is based on Risk analysis and Risk management. Thus the complete AIRSECURE system can be divided into three main component groups: risk management, filtration solutions, and detection solutions.

The fear of terrorist attacks against civil targets has increased recently. One of the most frightful scenarios is the use of airborne chemical, biological or radiological (CBR) weapons against unprotected civilians. Of particular concern are airports where such an attack may cause extensive injury and severe impact on the aviation industry and the whole economy of the European Union.

The main idea of the AIRSECURE solution is to combine promising new filtration technologies for removal of both biological and chemical agents with a protective filtration unit. These distributed units can be flexibly and quickly installed in the supply or exhaust air ducts of the high-risk areas. The very low flow resistance of the filter allows its installation without extensive modifications to the ventilation systems. New particle detectors monitor the

performance of the filtration system for maximum security. The optimum number and location of both particle and gas detectors and protective filtration systems are based on risk analysis. The secure air-filtration and advanced warning systems can deter the attacks, and reduce the effects of a CBR agent release by removing the toxic agents from supply air of the building.

Filtering ultrafine particles and gases – targeted clean air

Indoor particulate and gaseous pollutants cause health problems and make living or working uncomfortable. Even though studies of outdoor pollutant concentrations and their drifting to indoor environment are abundant, and the awareness of the adverse health effects increase, the utilization of efficient filtration does not.

We have performed studies onboard cruise ships to study the particle number concentrations, the commonly used filters and the utilization of novel filtration technologies. We observed that the majority of particles in marine air - and this applies for polluted and clean outdoor air, but also the indoor air - are smaller than 1 micron, and mostly of the of the sizes of combustion particles (ultrafine particles). We also observed that the commonly used filters mainly filtered particles larger than 1 micron. Thus we were able to improve the indoor air quality dramatically by introducing a new filtration technology that filters efficiently not only particles but also gas/vapour phase impurities. The results of the studies can directly be applied to land applications and especially to cases where re-circulation of air is used. In many locations re-circulation of air is considered the most energy efficient method. Re-circulation, however, also circulates the impurities emitted indoors. By filtering air at the return air units or in a Fan Coil Unit it possible to increase the level of comfort and to protect the HVAC system.

In some buildings it is not possible to increase the power of the HVAC system to meet the clean air requirements of e.g. people with allergies. For example in premise with a suspected mould problem, where the actual source of the spores has not been located, clean air should be supplied to the person's breathing zone without a need to increase general air supply. Such an approach has also been studied in an office with good results.

Further information:

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Studies that will be presented at the Clima 2007 Conference:

AIRSECURE- safety through filtration and detection

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