

## **S1.1.2 UNMET NEEDS AND CHALLENGES IN RESIDENTIAL IAQ**

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Cleaning of indoor air is an important option for reducing residents' exposure to indoor air pollutants. The negative impact of hazardous air pollutants can be reduced by properly designed and installed HVAC systems, equipped with filters possessing adequate performance in removing particulate and gas-phase pollutants.

Toxicological research has contributed to the development of methods to estimate the chronic health impact associated with the exposure to air pollutants, and measured in disability-adjusted life – years (DALY) lost. Based on these evaluations, the particulate matter (PM<sub>2.5</sub>), acrolein, formaldehyde and ozone accounted for the majority of DALY losses.

Defining the ongoing challenges and unmet needs are one of the critical aspects of residential IAQ. The IAQ experts look at the problem from the exposure to the air pollutants and minimizing indoor emissions, while HVAC engineers see problems in the existing residential HVAC systems. Both factors need to be considered, since they have a significant impact on the indoor concentration of air pollutants.

This presentation provides analysis of the current filtration technologies and residential HVAC systems in terms of reducing concentration of the critical air pollutants responsible for DALY losses.