

S1.2.1 END-USERS AND AIR QUALITY: HOW THE UNDERSTANDING OF PM2.5 AFFECTS FILTER MEDIA DESIGN

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Air filters exist because end-users are trying to improve the quality of the air they need. But how do we define air quality, both of polluted air and filtered air? These definitions of inputs and outputs inform how we design, construct and test air filters, as well as how we design, construct and test air filter media.

Global awareness of air quality is increasing as defined by the Air Quality Index and PM2.5 particle pollution concentration levels. Data is now widely and instantly available for ambient PM2.5 concentrations. Evidence is increasing of both acute and chronic effects of exposure to ambient PM2.5 and PM1. New air filtration test standards are emerging that allow us to characterize air filter and air filter media performance in terms of PM2.5 reduction.

This paper will discuss the sources of generation for ambient PM2.5 and the current levels of PM2.5 in Urban and Rural environments. Different air filtration media technologies at a variety of efficiency levels will be tested in flat sheet configuration using ASHRAE 52.2 and ISO 16890 test methodologies to compare their performance, and discuss the results in terms of PM10, PM2.5 and PM1 removal.