Advantages for passengers and cabin crew of operating a Gas-Phase Adsorption air purifier in 11-h simulated flights

Experiments were carried out in a 3-row, 21-seat section of a simulated aircraft cabin installed in a climate chamber to evaluate the extent to which passengers’ perception of cabin air quality is affected by the operation of a Gas-Phase Adsorption (GPA) purification unit. A total of 68 subjects, divided into four groups of 17 subjects took part in simulated 11-hour flights. Each group experienced 4 conditions in balanced order, defined by two outside air supply rates (2.4 and 3.3 L/s per person), with and without the GPA purification unit installed in the recirculated air system. During each flight the subjects completed questionnaires five times to provide subjective assessments of air quality, cabin environment, intensity of symptoms, and thermal comfort. Additionally, the subjects' visual acuity, finger temperature, skin dryness and nasal peak flow were measured three times during each flight. Analysis of the subjective assessments showed that operating a GPA-unit in the recirculated air provided consistent advantages with no apparent disadvantages.

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