A delayed takeoff for new passenger cabin air purification technology

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Further improvements are needed before a promising new technology can be used to upgrade air quality in commercial jetliner cabins, scientists from Austria, Denmark and the United States have concluded in a study scheduled for the Jan. 1 issue of ACS' *Environmental Science & Technology*, a semi-monthly publication.

Armin Wisthaler and colleagues studied photocatalytic oxidation, a leading candidate for improving the quality of air in commercial jetliners. Existing air purification technology removes airborne particles, but not odors and the volatile organic compounds (VOCs) that may cause eye and nose irritation. Photocatalytic oxidation units can remove VOCs, and aircraft manufacturers have considered using that technology in combination with existing air filtration systems.

The researchers checked the ability of two prototype air cleaners, combining filtration and photocatalytic oxidation, during simulated seven-hour flights. A seemingly trivial event — opening of alcohol-moistened wet wipes distributed with airline meals for hand cleaning — tipped off the researchers to an unanticipated problem with the photocatalytic technology.

Photocatalytic oxidation changed airborne alcohol from the wipes into unacceptably high levels of acetaldehyde in cabin air. Alcohol also can get into cabin air from other hygienic products, alcoholic beverages, cosmetics and medicines, the researchers note.

Source: ACS