

## **The pilots' perspective on fume events: flight safety, crew health, and what to do about it**

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There is a long and global history of compromised flight safety caused by exposure to oil fumes that sometimes contaminate the aircraft air supply system. An early report of pilot impairment caused by exposure to oil fumes was published in 1977, and a steady stream of reports has been published since then, describing pilots who are either impaired or incapacitated inflight as a result of exposure to oil fumes in the flight deck air supply system. In 2004, the FAA acknowledged that exposure to oil fumes inflight can impair pilots and compromise the safety of flight, but despite this, the FAA does not mandate bleed air filters or monitors to prevent exposure to oil fumes. Pilots on US commercial flights continue to report exposure to fumes inflight. To illustrate this point, a case series of repeated events during a three month period on a B767 operated by a major US airline will be described. Pilots and flight attendants on multiple flights reported neurological and respiratory symptoms after reporting dirty sock type odors and, in some cases, visible fumes. Aircraft mechanical records confirmed oil contamination in the air supply system, caused first by an auxiliary power unit that was “overserviced” with oil and then by a leaking oil seal on one of the aircraft engines. Without bleed air monitoring equipment, pilots must rely on their senses to assess the degree and nature of exposure to fumes inflight. Troubleshooting the air supply system takes time and may prolong the exposure to fumes for both the flight deck crew and cabin occupants. Pilots need an objective indication of the nature and location of bleed air contaminants so that they can troubleshoot the system efficiently and assess whether or not a diversion is necessary. Also, pilots and flight attendants need to be trained on how to recognize and respond to fume events, per recommendations published by the UK aviation authority and the Swedish transportation safety board.