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Cranfield professor proposes action over toxic cabin air

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A workshop held on Cranfield University's campus has reviewed measures to deal with contaminated cabin air and has concluded that onboard contaminant detection systems are vital for the safety of aircraft, and work to eliminate the toxins from the cabin environment should be accelerated.

This flies in the face of recent Cranfield research carried out for the UK Department for Transport that suggested any toxins were at low levels. Prof Jeremy Ramsden, chairman of the 11 October seminar on "Inhalable Toxic Chemicals in Aircraft Cabin Air" and the current head of nanotechnology at the university, commented on the earlier study: "This report actually found significant concentrations of organophosphate neurotoxins and other noxious substances in cabin air even under normal flying conditions.

"Unfortunately," said Ramsden, "the final conclusion of the report is the statement: 'With respect to the conditions of flight that were experienced during the study, there was no evidence for target pollutants occurring in the cabin at levels exceeding available health and safety standards and guidelines.'

"The first phrase underlines the fact that the study failed to achieve measurement of a 'fume event', even though that was one of its principal objectives. Even for 'normal flying conditions' the purported conclusion is irrelevant because no standards are available for some of the most problematical substances. Nevertheless, despite the fact that this 'conclusion' is neither sound nor justified by the actual work carried out, it has been carelessly and uncritically quoted, including by the UK Minister for Transport Theresa Villiers, and widely used to infer that there is no safety and health problem."

The seminar assembled a multi-disciplinary, international group of presenters, backed by the independent Swiss research organisation Collegium Basilea. Ramsden said that the most obvious solution is to eliminate the source of the worst neurotoxic contaminants, namely engine oil additives, but since the additive is a highly effective anti-wear ingredient he suggested that a more realistic method would be the retrofitting of contaminant detection systems and bleed air filtration.

In the meantime, effective treatment of crew and passengers who have suffered neurological damage might now be practical. "Highly encouragingly, successful biochemical treatments are being developed and are already available," said Ramsden. But treatment can only be provided if the patients are informed of contamination events, because, as Ramsden points out, misdiagnosis is frequent.

Ramsden pointed out that the [Boeing 787](#) will be free of this problem because it does not use engine bleed air for cabin ventilation and pressurisation. For most aircraft types this is not the case, and Ramsden remarked: "The mandatory inclusion of a health warning [on air](#) tickets, as on cigarette packets, would seem to be the alternative in the face of technical inaction."

Ramsden said that the assembled papers will be published by Collegium Basilea for peer review.

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