GCAQE MEDIA RELEASE 8 MAY 2025

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Press Release

Global Cabin Air Quality Executive (GCAQE)

Major developments to prevent exposure to toxic oil fumes on aircraft: Blood test research, safer engine oil, and documentary film premiere

The Global Cabin Air Quality Executive (GCAQE) announces three major milestones in the field of aircraft cabin air quality:

1. A newly published scientific study by an American research team has identified physical biomarkers in the blood of airline crew members exposed to toxic oil fumes during normal flights.

2. French oil manufacturer, NYCO, is set to introduce a new safer jet engine oil with less-toxic additives, intended to reduce the hazard of breathing the current toxic engine oil formulations that can contaminate the ventilation systems on aircraft.

3. Former pilot and filmmaker, Tristan Loraine, will premiere his new documentary This is Your Captain Speaking in London in June 2025. The film exposes the aviation industry's ongoing failure to protect passengers and crew from oil-contaminated cabin air.

The GCAQE calls for immediate action to protect the health and safety of airline crews and passengers from exposure to oil fumes during otherwise-normal flights. Also, the GCAQE invites elected representatives, manufacturers, regulators, airlines, unions, researchers, consumer advocacy groups, crewmembers and other airline workers, passengers, and accident investigators to visit https://www.stopoilfumes.org/ and support our petition to support measures to systematically prevent exposure to oil fumes on aircraft.

> *"The ability to detect specific biological changes after breathing oil fumes is a critical step in protecting crew and passengers."*
> — **Prof. Clement Furlong**, Research Professor, University of Washington, Seattle, USA

> *"Fume events don't happen on every flight, but they can happen on any flight. Crews and passengers should not have to play that kind of Russian Roulette. It is past time to fix this problem."*
> — Capt. **Tristan Loraine**, BCAi Filmmaker & Former Airline Captain

> *"These three significant developments are an important step forward to finally resolving this issue."*
> — Capt. **NJ MCHUGH** BSc GCAQE Board member

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The **Global Cabin Air Quality Executive (GCAQE)** is the leading international organisation focused on contaminated air onboard commercial aircraft. Representing over 30 unions and associations worldwide, GCAQE advocates for stronger safety standards, toxic exposure monitoring, and informed public awareness.

Additional Information About New Developments

1) Blood Test Research

The findings of the newly released paper led by Professor Clement Furlong at the University of Washington in Seattle, USA confirms physical changes to a protein in the blood of airline crews exposed to oil fumes during otherwise normal flights.

The Furlong research findings come 25 years after a year-long enquiry by the Australian Senate which concluded that exposure to oil fumes on aircraft compromised health and flight safety.(ref) It has also been more than 15 years since the British Air Accidents Investigation Branch (AAIB) recommended to EASA and the US aviation regulator (FAA) that aircraft should have a system to provide "a flight deck warning of smoke or oil mist in the air delivered from each air conditioning unit."[1-2]

The Furlong research means an effective blood test to confirm exposure to oil fumes on aircraft is several steps closer to becoming a reality for crews and passengers.

2) Safer Engine Oil

The French engine oil manufacturer, NYCO, is reportedly close to announcing a new safer jet engine oil. This new oil has been purposefully developed with less-toxic additives, while maintaining the high-performance and stringent requirements expected within the aerospace industry. In contrast, another oil manufacturer is promoting a new aviation oil which advertises reduced odour.[3] Crewmembers are concerned that reducing odour without assurance that the oil is less toxic may compromise safety because the only sensors onboard are crewmembers' noses.

3) Documentary Film Premiere in London

A new investigative documentary film *This is Your Captain Speaking* will premiere in London this June. The film will highlight the risks that oil-contaminated cabin air poses to flight safety and the negative health effects on crew members and passengers. The film will also reveal what the industry and its regulators have failed to tell the travelling public.

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[1] *AAIB Bulletin: 4/2007 G-JECE* EW/C2005/08/10. 2007. UK Air Accidents Investigation Branch. Aldershot, England. https://perma.cc/L2GG-ZSLX.

[2] *AAIB Bulletin: 6/2009, G-BYAO EW/C2006/10/08*. UK Air Accidents Investigation Branch, Aldershot, England. https://www.gov.uk/aaib-reports/boeing-757-204-g-byao-22-october-2006.

[3] Eastman 2330 engine oil product information. Available at: https://www.eastman.com/en/products/product-detail/71124931/turbo-oil-2330; accessed 16-Apr-2025.

The Problem

1. **Source of fumes:** The ventilation air supplied to the aircraft cabin and flight deck is first compressed in an engine that is lubricated with oil which can contaminate the breathing air supply. Oil fumes can be transient (e.g., during engine power changes),[4] sustained (e.g., lasting one or more phases of flight), or potentially catastrophic (e.g., recent sudden, thick oil smoke after fan blade damage due to the Load Relief Device design of the engine).

2. **Definition of a fume event:** A fume event is the unintentional release of heated engine oil or hydraulic fluid into the aircraft cabin air supply, often characterized by a distinct smell described as "dirty socks" and usually without any visible smoke or haze.

3. **Health issue:** Globally, crewmembers and passengers have documented acute and chronic symptoms, dominated by neurological symptoms such as headache and cognitive impairment.[5]

4. **Flight safety issue:** Airline pilots have reported symptoms inflight coincident with exposure to oil fumes which have sometimes caused impairment and incapacitation. Air accident investigation bureaus have formally investigated and recognised the flight safety risks.

5. **Regulatory gap:** Despite extensive documentation dating back to the early 1950s, current regulations intended to ensure clean ventilation air on aircraft are not being met, and neither specialized filters nor sensor systems for oil fumes are required.

The Solution

1. Future pressurised aircraft designs **must not supply engine "bleed air"** to the cabin and flight deck.

2. Current pressurised aircraft that use bleed air systems must be fitted with **effective air cleaning/filtration or retrofitted with alternative technologies** like the electrical compressors used on the Boeing 787. Initiate this process by 23-Jun-2026 with fleet-wide compliance by 1-Jan-2030.

3. All pressurised aircraft that use bleed air systems must transition to the **least hazardous engine oils** available on the market.

4. Current pressurised aircraft with bleed air systems must be fitted with **real-time fume alert systems** (e.g., ultrafine particles and carbon dioxide) to help crews and engineers identify the source of oil fumes and to distinguish oil from exhaust fumes. Initiate this process by 23-Jun-2026 with fleet-wide compliance by 1-Jan-2030.

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[4] Johnson, D.W. Turbine engine lubricant and additive degradation mechanisms. In: Aerospace Engineering, Publisher: Intech Open, 2018, 19 pp. DOI: 10.5772/intechopen.82398

[5] Burdon J, Budnik LT, Baur X, Hageman G, Howard CV, et al. 2023. Health consequences of exposure to aircraft contaminated air and fume events: a narrative review and medical protocol for the investigation of exposed aircrew and passengers. Environ Health, 22(1):43. https://ehjournal.biomedcentral.com/articles/10.1186/s12940-023-00987-8.

5. Engines that have a **Load Relief Device** must be designed to ensure that oil does not contaminate the bleed air system after any engine malfunction.

6. Crewmembers and passengers who are symptomatic after exposure to onboard oil/hydraulic fumes **should be informed** with the relevant product safety data sheet and post-exposure medical protocol (Burdon et al., 2023) for medical treatment.

The Vision

Manufacturers, airlines, regulators, safety bureaus, worker organisations, and passenger groups will work collaboratively to mitigate and prevent exposure to oil fumes on aircraft.

Introducing the proposed solutions will ensure a healthier and safer flight environment for all passengers and crew. Also, airlines will save millions that is currently lost to the operational costs of oil fume events such as maintenance, diversions, aircraft out of service, and airline crews not fit to fly.

Media Assets

- Film Trailer (for media use) at: https://vimeo.com/1045726009/b08b2b29f3
- Film website: https://thisisyourcaptainspeakingfilm.com/
- NYCO patent attached

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