



GCAQE Flight Safety Position Statement 15 July 2019

Aircraft breathing air contaminated air by synthetic jet engine oils, hydraulic fluids and/or deicing fluids are known to impair aircrew performance following exposure. This contravenes the aviation regulations, standards and guidance material and degrade crew performance.

The current use of the bleed air systems, drawing air off the engine compression section ensures low levels of oil will pass from the engine/APU into the breathing air supply (known as 'bleed air') in normal operations. This is because compressor pressurized air is used to both seal the engine oil bearing chambers as well as being the source of the cabin breathing air in all aircraft, except the Boeing 787 Dreamliner.

The chemicals used in the oils and other fluids are recognized as being associated with a range of hazardous effects. This is supported by the oil manufacturer's information and labeling such as 'do not breathe mist or vapour from heated product.'

Bleed air is unfiltered and there are no sensors or cockpit warning systems to notify when the air is contaminated or the level of contamination despite the regulations clearly stating the air should be free from 'harmful concentration of gases and vapours and should not cause undue discomfort, fatigue or impairment.'

Impairment associated with breathing contaminated air fumes range from minor to major effects on an increasingly frequent basis, while pilot and cabin crew incapacitation has been recorded globally.

There have been over 45 Bureau of air safety recommendations and findings, in 3 continents. Many of these have highlighted the serious safety deficiencies associated with contaminated bleed air. However, the risks identified have not been mitigated by the aviation regulators or airlines.

Under-reporting related to contaminated air fume events has been widely recognized and published for over 2 decades, yet regulators have failed to address this. Instead EASA has stated that contaminated air does not impact flight safety.

The majority of contaminated bleed air events are associated with fumes only, with no visible cue and it is known that people's perception of fumes will be decreased by 75% within 3 minutes. There is no requirement to have a sense of smell to operate aircraft and in some cases there may be no olfactory or visual cue to identify the air is contaminated.

The GCAQE calls for a range of risk mitigation strategies including:

- Checklists to cover fume events actions by crews;
- Guidance and education on the flight safety risks to be provided to all crews on a recurrent training basis;
- Pilots to use emergency oxygen whenever the air is suspected to be contaminated;
- All events to be reported;
- Supply air to be cleaned/filtered by effective technologies;
- Contaminated air detection systems to be fitted to all aircraft;
- Suitable de-contamination procedures to be implemented after events;
- Future aircraft to be designed bleed free like the Boeing 787.