

NOTE

THIS GUIDE CONSTITUTES THE RECOMMENDATIONS OF APPLA IN CASE OF FUME/ODOURS EVENTS ONBOARD COMMERCIAL AIRCRAFT. IT IS BASED IN PUBLICLY AVAILABLE INFORMATION AND ITS DISTRIBUTION IS ENCOURAGED. IF ANY DIFFERENCE BETWEEN THIS DOCUMENT AND YOUR OPERATOR MANUALS AND PROCEDURES ARISES, THE LATER SHALL TAKE PRECEDENCE.

- **During a smoke/fumes event → MCC = Masks – Checklist – Communicate**
 - Crew Oxygen/100%/EMERG..... **APPLY IMMEDIATELY**
 - QRH «Smoke/Fumes» checklist **APPLY**
 - Communication with Cabin Crew and ATC..... **ESTABLISH**

- **After Landing/Aircraft on Ground/All checklist complete**
 - Tech-Log Entry..... **PERFORM AND KEEP**
Keep a record of the tech-log entry for future reference. Mention it in the ASR (TECH LOG REF field).
 - Air Safety Report..... **FILL OUT**
Fill out an ASR under one of the **mandatory** items, as per [EU Reg. 2015/1018](#):
 - Any burning, melting, smoke, fumes, arcing, overheating, fire or explosion.
 - Contaminated air in the cockpit or in the passenger compartment which has or could have endangered the aircraft, its occupants or any other person.
 - Any use of crew oxygen system by the crew.**Every crewmember is responsible for the report** according to [EU directive 376/2014](#).
 - Smoke/Smell Sheet (if available)..... **FILL OUT**
 - Operator/Flight-Report..... **FILL OUT**
 - Work accident form **FILL OUT**

- **As soon as possible**
 - Acute symptoms..... **MONITOR AND REGISTER**
Make a record of time (time zone), duration and intensity of symptoms, particularly any of the following:

| | | | |
|----------------------------|------------------------|---------------------------------------|-----------------|
| Headache | Drowsiness | Dizziness | Impaired vision |
| Nausea/vomiting | Tingling (hands, feet) | Trembling | Numbness |
| Irritated eyes/throat/nose | | Difficulty speaking and finding words | |
| Memory problems | Muscle incoordination | Breathing difficulties | Coughing |
 - Company Medical Services..... **REQUEST**
Inform your doctor that aviation engine oils usually contain 1-10% tricresylphosphates (TCPs) and ~1% phenyl-1-naphthylamine. Request blood/urine sampling, blood pressure, pulse rate, pulse oximetry and basic neurological examination. The [IATA Medical Protocol](#) for CAQ issues should be followed.
 - Sick note..... **CONSIDER**
Request your doctor to provide a sick note for work absence justification purposes.

- **As soon as practical**
 - Event..... **REPORT TO AIB AND CAA**
In Portugal, or for Portuguese Operators:
[GPAAAF](#); occreport@gpiaaf.gov.pt; [ANAC](#); reportedeocorrencias@anac.pt
 - Event..... **REPORT TO APPLA & PILOT'S REPRESENTATIVES**
For APPLA to gather effective information on the subject, please report your current and past events using the following link: <https://forms.gle/rjLzCeFd8ajKS9NR9>. Additionally, report directly to your Pilot's representatives/Union.

SMOKE/FUMES/ODOURS GUIDE – EXPANDED INFORMATION – ENGLISH

➤ **Background**

In some abnormal situations, air from the compressors of commercial aircraft’s engine and/or APU may become contaminated with oil fumes. This may lead to acute medical symptoms and, in severe cases, incapacitation of Pilots and crew, risking flight safety.

➤ **Identifying a serious event**

Beware that, specifically when fumes come from pyrolyzed oil (decomposed by very high temperatures), human’s sense of smell gets quickly adapted to the typical “dirty socks” odour, inducing a false sensation that everything is back to normal after a few minutes. When clearly facing some of the symptoms listed below, displayed in a short time frame after exposure to visible smoke or smell possibly associated with oil contamination, you should seriously consider the possibility of being under a cabin air contamination event.

| | | | |
|----------------------------|------------------------|---------------------------------------|-----------------|
| Headache | Drowsiness | Dizziness | Impaired vision |
| Nausea/vomiting | Tingling (hands, feet) | Trembling | Numbness |
| Irritated eyes/throat/nose | | Difficulty speaking and finding words | |
| Memory problems | Muscle incoordination | Breathing difficulties | Coughing |

➤ **During a smoke/fumes event**

When facing a cabin air contamination scenario, pilots should seriously consider the possibility of incapacitation of one of the flight crew members, and therefore the intrinsic need to keep an eye on each other and provide constant mutual support. Facing a health and safety threat, Pilots should make use of the applicable procedures foreseen by aircraft manufacturers and operators. Part of these procedures contemplate some items that should never be neglected:

MCC = Masks – Checklist – Communicate

MASKS

Donning face masks at 100% oxygen is both a preventative and corrective action. In fact, it protects the Pilot from continuously breathing in potentially toxic elements, while at the same time actively contributing to immediately start the process that will purge noxious gases that might have been inhaled. Remember to use the EMERGENCY selector to create an overpressure, which prevents smoke, smell or ashes from entering the mask.

CHECKLIST

Applying the «Smoke/Fumes» checklist should be an immediate action, fully respecting the aircraft manufacturer’s operational procedures. Note that, according to the usual checklists for this type of situations, this is a **LAND ASAP** condition, and if the source of smoke/fumes cannot be immediately isolated, a diversion is to be initiated, descending to FL100/MEA-MORA as appropriate.

COMMUNICATE

Communication between cockpit and cabin crew is paramount, targeting an adequate identification of the possible smoke/fume sources, as well as diagnosing the severity and evolution of the problem.

Talking to ATC in due time allows a more expedite handling of traffic and in view of an unplanned landing. Declaring an emergency should seriously be considered, after due risk assessment for passengers and crew.

➤ After the event

After all operational procedures are done (aircraft safely parked, all checklists complete), pilots should consider the following line of action:

- Report the event in the Technical Logbook, and keep a personal record of it, including slip number, for further reference while reporting an ASR. It is also important to check and keep a record of previous slips where related situations or maintenance procedures might have been reported.
- Fill out an ASR using one of the mandatory occurrence reporting items (according to [EU Reg. 2015/1018](#)) listed below:
 - Any burning, melting, smoke, fumes, arcing, overheating, fire or explosion.
 - Contaminated air in the cockpit or in the passenger compartment which has or could have endangered the aircraft, its occupants or any other person.
 - Any use of crew oxygen system by the crew.Note that, according to [EU directive 376/2014](#), **all crew members are responsible for reporting the situation**, and not only the Captain.
- Fill out the smoke/fumes reporting form, a document that originates in ICAO's Circular 344-AN/202.
- Report the event in the Captain's Flight Report, mentioning the ASR and Technical Logbook slip number.
- Fill out the work accident report form.

➤ As soon as possible

Timely collecting post-event clinical data is critical for an adequate medical and legal handling of the situation. Clinical evaluation is subject to the [IATA Guidance for airline health and safety staff on the medical response to Cabin Air Quality Events](#). This protocol **establishes that a thorough medical evaluation is not needed, if symptoms are not persistent, and if oxygen masks were not donned by the crew**. It is up to the Pilot to use the oxygen mask at any time smoke/fumes are noticed, and to demonstrate the seriousness of his/her symptoms, demanding a complete preventative clinical evaluation. An acute situation, where symptoms vanish by the time the subject gets a medical evaluation, is not uncommon. Nevertheless, medical experts recognize an effect named OPIDN - organophosphate induced delayed neuropathy, which mentions the possibility that certain neurological effects will only show up days, or even weeks later. As such, it is of the utmost importance that a strict symptoms record is kept, taking note of time, duration and intensity. Consider the table of symptoms provided above, but please remember that there might be other others.

Through your Airline, **request appropriate medical care right after the event**. When at the doctor, make sure to let him/her know all the events, symptoms and whatever information required. Remember to inform that you have been subject to cabin air contaminated with pyrolyzed jet engine oil, and that it usually contains 1-10% tricresylphosphates (TCPs) and ~1% phenyl-1-naphthylamine. Request blood/urine sampling, blood pressure, pulse rate, pulse oximetry and basic neurological examination. If there is an incapacitation for work, make sure you request the necessary documentation to support a sick leave request and possible work accident insurance claims. Confirm that, in this documentation, there is due record of the causes of the event, all reported symptoms as well as all the consequences triggered by such event. By law, it is up for the victim to demonstrate causality between the event and future effects that have not been duly recorded at the time of happening.

➤ **When appropriate**

With all operational and health issues appropriately taken care of, when appropriate, Pilots should:

- Report the event to the concerned authorities, namely the respective Accident Investigation Branch and Civil Aviation Authority. If in Portugal, or within a Portuguese Operator, consider the following contacts:
GPIAAF: <http://www.gpiaa.gov.pt/>; occreport@gpiaaf.gov.pt;
ANAC: [ANAC occurrence reporting](#); reportedeocorrencias@anac.pt
Note: every crew member is responsible for reporting, as per [EU directive 376/2014](#). Provide every record you have.
- Report the event to APPLA using this [online form](#), in order to get technical and medical support. APPLA is responsible for the statistical treatment of occurrences, targeting a benchmark analysis within different Airlines and Pilot's Associations worldwide.
- Report the event to your Union or Pilot's representatives, through your usual contacts, in order to get legal and labour advice.

For any inquiries, suggestions, or requests for support, please contact APPLA through our usual channels:

geral@appla.pt or (+351)217926810.

For any urgent situations, particularly if away from home base and/or country of origin, please consider using the

IFALPA EMERGENCY LINE (UK) → +44 (0) 1202653110

For permanently updated information about Cabin Air Quality, namely reference documents and updated versions of this Guide, please navigate to the following address:

<https://www.appla.pt/cabin-air-quality>
