TOX/2013/38

COMMITTEE ON TOXICITY OF CHEMICALS IN FOOD CONSUMER PRODUCTS AND THE ENVIRONMENT

UPDATE DISCUSSION PAPER ON EXPOSURE MONITORING OF THE AIRCRAFT CABIN ENVIRONMENT

(Previous discussion paper TOX/2013/32)

INTRODUCTION

1. The Department for Transport (DfT) has asked the Committee on Toxicity (COT) to undertake an independent scientific review of the results of DfT-funded aircraft cabin environment research commissioned in response to recommendations made by COT in 2007. The DfT commissioned four studies relating to air monitoring equipment assessment, air and residues monitoring in aircraft, and a statistical analysis of fume event and operational parameter data in aircraft. The Public Health England (PHE) COT Secretariat and through them the PHE Toxicology Unit, Imperial College, London have been commissioned by the DfT to review the submission and prepare a discussion paper for the COT.

2. Throughout this paper terms relating to an air contamination incident (fume incident, fume event) are intended to refer to incidents with internal sources (e.g. passengers, aircraft components, cleaning materials, dust, disinsection procedures, contaminants arising from aircraft systems such as engine oil). External contamination, such as that arising from ground level air pollution, is not covered in this evaluation.

3. The discussion paper considered on 17 September 2013 presented the results of the studies commissioned by DfT. The Committee agreed to seek the views of a Member with expertise in environmental monitoring who had been unable to attend the meeting before finalisation of the proposals for future research and the Committee statement.

4. This paper provides further information to assist Members in their discussion: a summary of engine air quality measurements undertaken on a BAe 146 aircraft (Annex 1), a list of workplace exposure limits for chemicals (Annex 2), and draft COT conclusions on exposure monitoring of the aircraft cabin environment, ill-health in aircraft crews and the possible relationship to smoke/fume events in aircraft (Annex 3).

BACKGROUND

5. Between July 2006 and July 2007, the COT considered a referral from DfT to review data submitted by the British Airline Pilots Association (BALPA) to DfT due to concerns about the possible effects on aircrew health of

oil/hydraulic fluid smoke/fume contamination incidents in commercial aircraft and published a statement on its advice and recommendations (Annex 1). The submitted data related to organophosphates (OPs), the cabin air environment, ill-health in aircraft crews and the possible relationship to fume events in aircraft. The objectives for COT were, firstly, to evaluate the submission and data sourced by the Secretariat, assess the risk of exposure of aircraft crews to OPs and oil/hydraulic fluid pyrolysis products in cabin air and determine whether there is a case for a relationship between exposure and the ill-health in aircraft crews. Secondly, to provide the DfT with appropriate advice on any further research required to evaluate this subject.

COT DISCUSSION

The Committee is asked to consider the further information presented in Annexes 1-3 and to address the following questions:

i. Do Members have any comments on which chemicals should be the focus for further investigation?

ii. How high would exposure to these chemicals need to be in order to cause health symptoms?

iii. In light of the work to date, could Members provide specific recommendations for further research to efficiently test whether exposures during fume events reach levels likely to cause health symptoms?

iv. Do Members have any comments on the draft COT conclusions?

PHE COT Secretariat

October 2013

Annexes

Annex 1: Summary of engine air quality measurements undertaken on a BAe 146 aircraft (TOX/2006/21).

Annex 2: List of approved workplace exposure limits (as consolidated with amendments October 2007). Health & Safety Executive.

Annex 3: Draft conclusions on exposure monitoring of the aircraft cabin environment, ill-health in aircraft crews and the possible relationship to smoke/fume events in aircraft