



Guidance on the Implementation of Aircraft Disinsection Measures for the Prevention of *Aedes aegypti* Establishment in Greece (Q+A manual)

Purpose and rationale of the guidance

In recent years, several southern European countries, such as France and Italy, have reported autochthonous cases of dengue and chikungunya transmitted by the mosquito *Aedes albopictus*, a vector already established in Greece and other European and Mediterranean countries. The presence of this species poses a significant public health concern, as it increases the risk of transmission and spread of arboviral diseases such as dengue, chikungunya, and Zika.

In addition to *Aedes albopictus* (the Asian tiger mosquito), another vector species of even greater epidemiological importance, *Aedes aegypti* (the yellow fever mosquito), has been recorded in several parts of the world. In Europe, established populations of *Aedes aegypti* are currently found in Madeira and Cyprus. In Madeira, the species became established in 2005 and was responsible for a major dengue outbreak in 2012, resulting in more than 2,000 reported cases. Outside Europe, *Aedes aegypti* has also been reported in neighboring regions, including parts of Turkey and Egypt.

In Greece, a primary concern in the field of vector-borne diseases is the potential establishment of *Aedes aegypti*. To prevent its introduction, specific measures—such as the disinsection of aircraft arriving from countries where *Aedes aegypti* is established—have already been adopted and are in force under the **Government Gazette of the Hellenic Republic 3041B/19.06.2025**, titled “*Mosquito Control Measures in Aircraft*” (GG 3041B). In addition, an enhanced surveillance system has been established, and preventive





measures have been implemented at major airports and ports, which represent potential points of entry for this vector species.

Given the increased risk to public health, the reinforcement of surveillance and prevention measures is both necessary and urgent. This document was developed following several meetings of entomologists, epidemiologists, representatives from research institutions, universities, ministries, public health authorities, airlines and airports in Greece. The purpose of the meeting was to support the effective implementation of the aircraft disinsection measures, in accordance with current regulations.

Additionally, through the meetings, a collaborative network among all relevant stakeholders is established, to strengthen preparedness and safeguard public health. This network is expected to facilitate the assessment of the current epidemiological situation, review existing surveillance and prevention strategies, and identify additional actions needed to prevent the establishment of *Aedes aegypti* in Greece.

The present guidance is structured as a Q&A manual designed to address key issues related to the proper and effective implementation of mosquito control measures in aircraft, as specified in the Government Gazette of the Hellenic Republic 3041B/19.06.2025, “Mosquito Control Measures in Aircraft” (GG 3041B).



Q+A manual

Q1 - What are the potential security, safety, and operational consequences if an aircraft arrives without a valid disinsection certificate, or if passengers are permitted to disembark before completion of the in-flight disinsection process (aerosol method) while their baggage remains unattended on board, considering that such practices may create security vulnerabilities, disrupt biosecurity protocols, and raise concerns about compliance with WHO-approved disinsection procedures and the use of authorized biocidal products?

A1 - According to Article 5, Paragraph 4 of the *Government Gazette of the Hellenic Republic* (3041B/19.06.2025, *Mosquito Control Measures in Aircraft*), aircraft arriving from high-risk countries must hold a valid disinsection certificate before passengers are allowed to disembark. In the absence of such a certificate, the aircraft cabin must be sprayed with a passenger-safe aerosol before disembarkation. Spraying should preferably occur during the aircraft's descent to prevent delays and ensure passenger comfort. If necessary, it may instead be conducted after boarding is completed and before takeoff, with all cabins overhead storage compartments opened.

Allowing passengers to leave the aircraft before completion of disinsection, while their baggage remains unattended on board, could lead to serious consequences. It would create potential security risks due to unattended baggage, undermine biosecurity protocols by increasing the likelihood of vector introduction, and cause operational and regulatory issues, including delays, re-disinsection requirements, or non-compliance with national and WHO-approved procedures for the use of authorized biocidal products.

Q2 - Have the potential health and environmental impacts of this aerosol been evaluated?

A2 - Yes, the potential impacts on both human health and the environment have been thoroughly evaluated.





This product is approved for use on the EU/EEA market. The regulatory assessment confirms that it is non-allergenic for humans and has no adverse effects on the environment. For detailed regulatory information, you can refer to the official EU legislation: Commission Implementing Regulation (EU) 2021/368.

Important Note for Passengers: While the product is certified as safe, we recommend that passengers with specific health concerns, particularly severe allergies or respiratory conditions, consult with their doctor before use. As a precaution, the decision to use the product and the responsibility for that choice ultimately lies with the passenger. We advise you to inform yourself fully beforehand.

Q3 - The Hellenic Republic's Government Gazette recommends 'residual spray application' in addition to aerosols for mosquito control in aircraft. What is this method?

A3 - Residual Spray Application is a method of applying an insecticide not directly onto insects, but onto surfaces where insects are likely to settle.

The word "residual" means that the product is designed to leave a long-lasting active layer (deposit) on a surface. When insects later come into contact with this treated surface, they pick up the insecticide on their legs and bodies, which eventually kills them.

It's essentially creating an invisible, toxic "film" that keeps working for days, weeks, or even months after the initial spray, rather than just killing on direct contact during the moment of application.

Q4 - According to the Hellenic Republic's Government Gazette (taking into account documents Nos. 22 and 23) and document No. 86462/31-03-2025 of the Ministry of Rural Development and Food, no biocidal products approved for use inside aircraft within the European Economic Area (EEA) currently meet WHO recommendations for residual spray application (2% w/w permethrin), nor are there products that can be diluted to this concentration. What are the recommended procedures or alternatives if residual spray application must be implemented under these circumstances?



A4 - When referring to residual spraying, this always involves an empty aircraft. Once a decision is made to implement residual spraying, the interval between applications should be determined according to the residual activity and the specific instructions for use in the label. On the condition that residual spray applications should be performed, permethrin-based biocidal products approved in the Greek market for surface residual treatments indoors against mosquitoes diluted to 2% w/w solutions can be used, taking into consideration that according to the WHO aircraft disinsection methods and procedures (second edition) *“Residual disinsection with permethrin 2% EC at a rate of 0.2 g a.i./m² provides an insecticidal deposit on all internal aircraft surfaces (cargo areas and/or passenger cabins) to kill target insects that come into contact with the treated surface. Properly applied permethrin 2% EC deposits are intended to remain effective for 8 weeks. When permethrin formulations other than 2% EC are authorized for use by national regulatory agencies, the application rate of such products is adjusted to achieve the final target rate of 0.2 g a.i./m² on cabin surfaces.”* If the aircraft is not in Greece at the scheduled time, the biocidal product used must also be approved in the country of implementation, and local regulations take precedence.

In Greece, if an airline company chooses to carry out residual spraying, there is a mandatory requirement to have a responsible scientist overseeing the process, ensuring that the application is carried out correctly and safely. Specialists must also ensure that the biocide solution is diluted to the permitted 2% concentration, in accordance with approved guidelines, and adhere to recommended methods and timing for application.

Q5 - *How should aircraft operators manage situations where manufacturer positions conflict—for example, approval for residual disinsection by Airbus EU for the A320 versus rejection by Airbus Canada due to potential interior damage—given that WHO-recommended chemicals for residual spraying must be approved by both the European Chemicals Agency (ECHA) and the aircraft manufacturer?*

A5 - In cases where there is a conflict between aircraft manufacturer positions regarding the use of WHO-recommended chemicals for residual disinsection, the priority must always be the safety and integrity of the aircraft. Therefore, operators should follow the guidance and restrictions of the





manufacturer, even if the product is approved by ECHA or recommended by WHO. Compliance with manufacturer specifications ensures that the aircraft's interior, systems, and operational safety are not compromised, while also maintaining adherence to international and national biosecurity standards.

Q6 - Is residual disinfection mandatory in addition to aerosol disinsection, or is only one of the two methods required?

A6 - Only one of the two methods is required for a given compartment of the aircraft (cabin or cargo area), as the legislation specifies that protection against insect vectors must be ensured, without mandating a specific method. The choice of implementation—residual spraying or aerosol disinsection—is left to the discretion of each airline company.

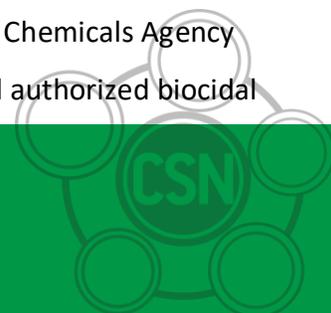
Q7 - Are there any additional disinsection requirements for airlines operating to new destinations, for example, due to the presence of other endemic mosquito species in the area?

A7 - Yes. Any country listed as having an established population of *Aedes aegypti* is subject to the provisions of the *Government Gazette of the Hellenic Republic* (3041B/19.06.2025, *Mosquito Control Measures in Aircraft*). Airlines must comply with disinsection requirements when operating to these destinations. The list of countries will be regularly reviewed and updated by the relevant committees of the Ministry of Health, and the information will be made available on the designated website for reference.

Other Useful Information

Biocides in the EU/EEA

Biocides that are approved or registered in the EU can be found on the European Chemicals Agency (ECHA) website, which maintains updated lists of approved active substances and authorized biocidal



products. Approval is granted only if the active substance meets safety and efficacy standards for its specific product type under the Biocidal Products Regulation (BPR), following a science-based assessment by the ECHA Biocidal Products Committee.

In Greece, the application of biocides on aircraft must follow procedures established in the relevant WHO manual, depending on the chosen disinsection method. Only biocidal products approved by the Ministry of Rural Development and Food may be used, and they must be applied in accordance with the terms and conditions of their marketing authorization, adhering to all relevant safety precautions.

Important note: If the aircraft is located in another country at the time of application, national regulations of that country take precedence, and the biocidal products and procedures used must comply with local legislation.

Disinsection methods

Aerosol: Using an aerosol is generally easier than residual spraying, as it can be applied quickly and does not depend on the aircraft's cleaning schedule. Passengers should be informed during the booking process, before the ticket is finalized, about the active substance and the commercial name of the formulation used. From that point onward, the passenger assumes responsibility for their choice and may consult a specialist to receive guidance if needed.

Residual Spraying: Residual spraying is often the preferred method for commercial aircraft or for treating the baggage compartment, as it provides longer-lasting protection. However, the effectiveness of the active substance can be reduced each time aircraft surfaces are cleaned, so this should be taken into account when planning disinsection schedules.



Useful links

<p>Χώρες και περιοχές με εγκατεστημένους πληθυσμούς κουνουπιού <i>Aedes aegypti</i> -</p> <p>Countries and regions with established aedes aegypti mosquito populations</p>	<p>https://www.moh.gov.gr/articles/health/dieythynsh-dhmosias-ygieinhs/metadotika-kai-mh-metadotika-noshmata/noshmata-poy-metadidontai-me-diabibastes-ndash-koynoypia/13529-xwres-kai-perioxes-me-egkatesthmenoys-plhthysmoys-koynoypioy-aedes-aegypti-h-me-katagegrammenoys-plhthysmoys-aedes-aegypti-kai-ektimwmeno-aykshmeno-kindyno-egkatastashs</p>
<p>Μέτρα ελέγχου/καταπολέμησης των κουνουπιών σε πτητικά μέσα</p> <p>Mosquito Control Measures in Aircraft</p>	<p>https://www.moh.gov.gr/articles/health/dieythynsh-dhmosias-ygieinhs/metadotika-kai-mh-metadotika-noshmata/noshmata-poy-metadidontai-me-diabibastes-ndash-koynoypia/13460-metra-elegxoy-katapolemshshs-twn-koynoypiwn-se-pthtika-mesa</p>
<p>Ιστοσελίδα Υπ. Υγείας για τα Νοσήματα που μεταδίδονται με διαβιβαστές – Κουνούπια</p> <p>Ministry of Health main web page for “Diseases transmitted by vectors – Mosquitoes” (Google translated web pages)</p>	<p>https://www-moh-gov-gr.translate.google/articles/health/dieythynsh-dhmosias-ygieinhs/metadotika-kai-mh-metadotika-noshmata/noshmata-poy-metadidontai-me-diabibastes-ndash-koynoypia? x tr sl=en& x tr tl=en& x tr hl=en& x tr pto=wapp</p>
<p>Επίσημη ιστοσελίδα των εγκεκριμένων εντομοκτόνων και βιοκτόνων στην Ελλάδα</p>	<p>https://1click.minagric.gr/oneClickUI/frmFytoPro.zul</p>





Co-funded by
the European Union

<p>Official website for authorized plant protection products & biocides in Greece</p>	
---	--

