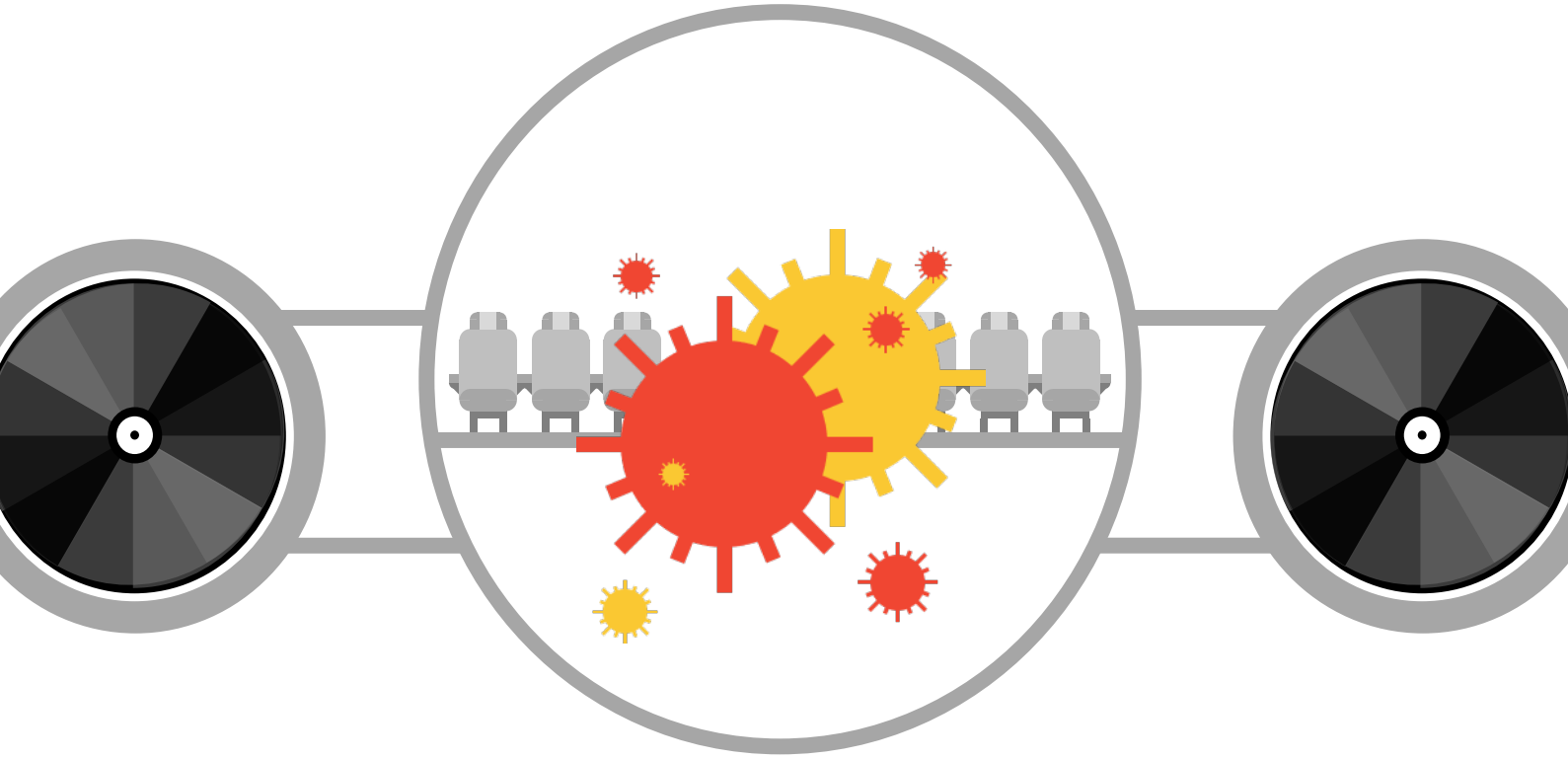
Aircraft cleaning and disinfection during and post pandemic

Ed. 2 – 22 January 2021



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Revision record

Symbol	Meaning
□	Insertion
△	Amendment
⊗	Deletion

Revision table

Revision	Date	Section	Significant changes
Draft	29 May 2020	N/A	
Edition 1	19 Jun 2020	N/A	
Edition 2	22 Jan 2021	Entire document	Overall revision to align with AHM1100/1111, IGOM Ed.10, ICAO Cart Take Off, RTCA/EUROCAE and other relevant industry guidance
		1	No revision
		2	Minor editorial revision
		3	Enhancement of terminology
		4	Revised, to include crosslink to section with resource links
		5	Revised numbering and minor revision in section 5.1, 5.2.4 and 5.2.5 5.3 is entirely new section
		6	Entire revision
		7	Alignment with IGOM 10th Edition 3.7 and editorial revisions 7.4 is entirely new section
		8	Alignment with IGOM 10th Edition 3.7
		9	No revision
		10	Minor revision of cross-links in footnotes
		11	Minor editorial revision

1 Introduction

The COVID-19 pandemic has significantly disrupted the airline business and resulted in crisis of the entire aviation industry. Governments together with all aviation stakeholders are joining forces to come up with a common plan for a progressive restart of the operations.

According to IATA Medical Advisory Group, the cleaning and disinfection procedures, in excess of the previous norms, are likely to form part of the range of measures required in a restart process. It is likely that improved routine cleaning could provide reassurance to passengers and increase their confidence in the reduced risk of the transmission of communicable diseases in aviation processes.

△ 2 Purpose

The purpose of this guidance is to provide airlines and ground handling providers with standardized procedures for cleaning and disinfecting of the cabin, flight deck and cargo compartments while taking in consideration the operational impact, cost and the practicality of mitigation measures for pandemic management.

This guidance document has been developed in cooperation with various IATA expert groups, aircraft manufactures and industry stakeholders. It has been based on the various international regulations and guidance's as well as based on aircraft's OEMs and industry recommended practices applicable to aviation and public health, as listed in Section 4 - Regulatory and industry references.

In principal, the standard cleaning procedures remain unchanged, however additional disinfection measures need to be added in the context of pandemic management. The standardization of aircraft cleaning and disinfection processes is essential to successfully restart operations and reinstall passenger confidence.

It is important that the ground handling community endeavors to remain fully updated on all guidance material as well as remain flexible to adapt the measures according to risk-based and data-driven decisions.

All IATA ground handling guidance are posted on IATA's Ground Operations page .

△ 3 Definitions and terminology

Cleaning: Removal of visible dirt or particles through mechanical action undertaken on a routine and frequent basis. **Cleaning intervals:**

(a) **Turnaround cleaning**: Performed on aircraft while on ground prior to departure within a defined ground time.
(b) **Transit cleaning**: Type of turnaround clean that may be performed with transit passengers onboard
(c) **Layover/Night-stop cleaning**: Performed when the aircraft is on a longer predefined time. The clean doesn't involve removal of cabin panels and/or gallery inserts.
(d) **Inflight cleaning**: Performed by cabin crew while the aircraft is airborne.
(e) **Deep cleaning**: Performed when the aircraft is on a longer predefined time. The cleaning may include the removal of cabin panels and/or galley inserts under the supervision of maintenance; This type of cleaning is NOT addressed in the scope of this document.

Disinfection: The procedure whereby measures are taken to control or kill infectious agents on a human or animal body, on a surface or in or on baggage, cargo, containers, conveyances and goods by direct exposure to chemical or physical agents. This definition is based on WHO Guide to Hygiene and Sanitation in Aviation and ICAO Annex 9 .

Note: Process of cleaning and disinfection in some industry guidance is also referred to as "Sanitation/Sanitization", which means clean of germs or pathogens.

Cleaning and disinfectant products: A commercially produced chemical substances (which is typically used in the form of liquid solution or spray) that destroys pathogens.

Event: An occurrence of suspected or confirmed COVID-19 case or other communicable disease onboard of aircraft; aircraft contaminated with body fluids, or other non-standard (uncommon) situation requesting additional cleaning and disinfection.

△ 4 Regulatory and industry references

The following regulatory references, industry references, and OEM's guidance were consulted, and its content used for the development of this guidance. Further requirements may be applicable as per your local regulation.

WHO

- International Health Regulation
- Guide to Hygiene and Sanitation in Aviation
- Operational considerations for managing COVID-19 cases or outbreak in aviation
- Q&A on Coronavirus disease (COVID-19)
- Coronavirus physical distancing

ICAO

- Annex 9 - Facilities required for implementation of public health measures
- Annex 14 - The aerodrome emergency plan
- Facilitation Manual and Model National Air Transport Facilitation Programme
- CART Take off Guidance

IATA

- Restarting aviation following COVID-19 Medical evidence for various strategies
- Guidance for Ground handling return to service
- Guidance for Cabin Operations During and Post Pandemic
- Suspected Communicable Disease Guidelines for cleaning crew
- Guidance for Flight Operations During and Post Pandemic
- Airport Handling Manual, Ch.1110 and 1111 Ground Operations Training Program, Training syllabi Aircraft Cleaning and Disinfection
- IATA Ground Operations Manual, Ch.3.7 Aircraft Cleaning and Disinfection

EASA

- Annex 1 – List of airports located in affected areas with high risk of transmission of the COVID-19 infection
- Guidance on Aircraft Cleaning and Disinfection in relation to the SARS-CoV-2 pandemics
- EASA SD No.: 2020-04 -Operational measures to prevent the spread of Coronavirus `SARS-CoV-2` infection
- EASA SIB No.: 2020-02R5 Coronavirus 'SARS-CoV-2' Infections – Operational Recommendations

FAA

- Updated Interim Occupational Health and Safety Guidance for Air Carriers and Crews
- Aircraft Interior Disinfection, Special Airworthiness Bulletin, SAIB: NM-20-17

US Center for Disease Control (CDC)

- Updated Interim Guidance for Airlines and Airline Crew: Coronavirus Disease 2019 (COVID-19)

US States Environmental Protection Agency

- List N: Disinfectants for Coronavirus (COVID-19)

CAAC

- Preventing Spread of Coronavirus Disease 2019 (COVID-19) Guideline for Airlines

RTCA/EUROCEA

- RTCA-DO388/ EUROCAE-ED-287 Guidance Document on Aircraft Cleaning and Disinfection

SAE

- AMS1451C, Disinfectant, Aircraft
- AMS1452C, Disinfectant, Aircraft, General Purpose (concentrated liquid).
- AMS1453A Disinfectant Cleaner for Aircraft Interior General Purpose Liquid (diluted).
- AMS1550B Cleaner for Interior Materials of Aircraft Biodegradable, Water-Base
- AMS1525D Cleaner for Aircraft Exterior Metallic Surfaces, Wipe Solvent, Cold Operations.
- AMS1526C Cleaner for Aircraft Exterior Surfaces, Water-Miscible, Pressure

Aircraft manufacturers (OEM)

- Airbus – Operators Information Transmission – SUBJECT: ATA 21 – Virus Outbreaks – Novel Corona Virus
- ATR – Operators Information Message OIM 2020-002 (COVID-19) CABIN AIR SUPPLY
- ATR – Operators Information Message OIM 2020-007 (COVID-19) AIRCRAFT CLEANING AND DISINFECTION
- Boeing – MOM-MOM-20-0053-01B

Refer to the OEM's for most current information as documents below might have been updated or superseded.

△ 5 Cleaning & disinfection programs during pandemic

△ 5.1 Programs update

During the pandemic, companies shall review and amend their cleaning and disinfection programs based on the local regulatory requirements, airport plan for enhanced cleaning and disinfection and company risk assessment. It shall be kept updated in accordance with the WHO Guide to Hygiene and Sanitation in Aviation and industry standards and recommendations.

It is important to emphasize that any measures taken due to COVID-19 and other communicable diseases shall be progressive and should be adjusted to the existing situation– enhanced at the initial stage of in case of higher risk level and reduced or removed as regional conditions improve.

△ 5.1.1 Operational risk assessment

It is essential that airlines, in cooperation with their cleaning companies, evaluate and assess the following aspects as well as its impact on the operations:

(a) Pandemic Management
   1. Flight schedules, aircraft type and size, and ground (stopover) times
   2. The risk levels for passenger, personnel on each route based on exposure to COVID-19 or other communicable disease
   3. Pandemic situation at destination from where passengers are connecting
   4. Readiness and availability of cleaning companies at airports
   5. Availability of personal protective equipment (PPE)
   6. Required safety and health measures such as physical distancing, hygiene, use of PPEs, etc.

(b) Personnel Readiness
   1. Availability and allocation of cleaning personnel to perform the job tasks
   2. Existing competency and skill gaps
   3. Training currency, training needs and requirements
   4. Occupational safety regulatory compliance, continuity

(c) Operational readiness
   1. Cleaning and disinfections types, methods and application frequency
   2. Enhancement of standard cleaning and disinfection procedures due to technical needs, events causing health risks
   3. Type and availability of cleaning and disinfection products that are not detrimental to aircraft materials
   4. Updated procedures for removal and safe disposal of any contaminated water, food, human or animal waste, wastewater and any other contaminated matter from a conveyance
   5. Regulatory and airport requirements

For further guidance on pandemic management, airport, personnel and operational readiness, please refer to IATA Guidance for ground handling return to service.

5.1.2 Risk assessment of routes

Airlines are required to monitor and assess the risk level of transition of the COVID-19 at each route. The risk levels will change frequently according to the rate of local transmission, booked passenger load, the length of the flight(s) operated and other factors.

It is recommended that airlines develop their own methodology for conducting a risk assessment of exposure to COVID-19 for each route to determine whether additional mitigations are required in relation to services, policies or procedures.

Some health agencies have published dashboard information relating to infection rates, which assist in assessing risk. Please refer to WHO, European Center for Disease Prevention and Control , EASA Annex 1 – List of airports located in affected areas with high risk of transmission of the COVID-19 infection and US Center for Disease Control.

Further guidance on risk assessment and mitigation actions based on the risk level can be found in the CAAC Preventing Spread of Coronavirus Disease 2019 (COVID-19) Guideline for Airlines, Guidance for ground handling return to service and IATA Guidance for Cabin Operations During and Post Pandemic.

5.2 Cleaning personnel

5.2.1 Occupational health and safety

Organizations shall ensure the development and implementation of occupational health and safety (OHS) pandemic strategies to ensure that personnel are protected. Strategies must comply with all applicable legislations, local requirements and guidelines pertaining to COVID-19 or other communicable disease.

Such strategies include enhanced hygiene routines, ensuring the availability of relevant facilities and disinfectants, health and wellness checks, proper use of personnel protection equipment, awareness campaigns and training, etc. For details on such OHS strategies, please refer IATA Guidance for ground handling return to service.

5.2.2 Personnel protection

Based on the pandemic demands, each company shall develop a multi-layered approach strategy which may include:

(a) Hygiene routines
   1. Availability of hand washing facilities
   2. Frequent handwashing and/or use of alcohol-based sanitizers
   3. Personal hygiene to include minimal face-touching, encourage covering of mouth to avoid droplet spreading via coughing
   4. Understanding and recognition of COVID-19 symptoms or other communicable disease
   5. Encourage testing and vaccinations when needed and where available
   6.

(b) Physical distancing
   1. Distances to be observed between personnel while on duty and/or during breaks
   2. Separation of teams during a shift and movement to/from the aircraft and other workplace
   3. Scheduling of the same teams to work the same days, creation of "bubble" teams.
   4. Conduct contactless handovers, i.e. via telephone, videoconference, electronic logs, or at a minimum through physical distancing
   5. Reduction of unnecessary personnel movement around the airport

(c) Personal protection equipment (PPE) e.g. procedural masks, face covers, shields, goggles, gloves, gowns, aprons, etc.
   1. Each company shall define the type of PPE their cleaning personnel shall use depending on local rules and regulation and on the risk of exposure (e.g. type of activity) and the transmission dynamics (e.g. droplet spread)
      i. If splashing is possible, eye protection may be required according to the manufacturer's label
      ii. Disposable gloves are recommended by the manufacturer of the disinfectant
      iii. Disposable gowns should be worn while cleaning the cabin and lavatories

(d) Health monitoring, screening and testing such as temperature measuring of personnel, symptom recognition, health declaration etc.

Please refer to Attachment 1: Poster in staff area.

The levels of adequate protection for cleaning personnel should be evaluated on a case by case basis. In the initial stages, the combination of the above approaches might be required to mitigate the risks.

Please refer to IATA Restarting aviation following COVID-19 Medical evidence for various strategies and Guidance for Ground handling return to service for further details.

5.2.3 Personnel competency

To ensure that all cleaning personnel are qualified and competent before they start to perform their tasks, companies shall ensure that:

(a) No person is assigned to perform a task for which he/she does not hold a record of training
(b) Initial training is provided to all new personnel before they are scheduled for work
(c) The recurrent training is provided according to the training plans
(d) Where recurrent training may not be achieved due to the pandemic ensure validity has been extended in accordance with the regulatory requirements; refer to AHM1111
(e) Start-up programs are provided to all personnel returning from various types of leave
(f) Online training and virtual classrooms are used as much as possible for theoretical training
(g) Practical training and competency checks are provided for topics which cannot not be conducted via computer
(h) All training material is updated to address changes in health and safety measures and cleaning processes
(i) Awareness campaigns, posters, signs, videos, on job training. are in place
(j) Extended supervision is performed especially in the initial stage

△ 5.2.4 Training

Only trained and qualified personnel shall carry out aircraft cleaning tasks. In addition to the current training, all cleaning personnel shall be training for COVID-19 or other communicable disease measures and changes in the cleaning process derived from those measures. The training shall be always aligned with the national health authority guidance. For current, competent cleaning staff, any updates will need to be communicated either by briefing, notice or other effective method. The training shall include, but is not limited to, the following topics:

(a) Covid-19 or other communicable disease awareness
(b) Personnel protection
    1. Changes in PPEs required for new products used
    2. Use of PPEs relevant to COVID-19 or other communicable disease
    3. Performing job while using PPEs and physical distancing
    4. Cross contamination
(c) Changes in type and use of cleaning and disinfection products
    1. Chemical composition and effects of product used on aircraft
    2. Efficacy and application methods, techniques including dwell time
    3. Understanding of the Safety Data Sheets (SDS) for the products used
    4. Hazards of the chemicals used in cleaning and disinfection on personnel health and aircraft interior and equipment
    5. PPEs required for products used
(d) New or amended standards and procedures
    1. Changes in cleaning and disinfection tasks and techniques
    2. Routines and frequency
    3. Use of ventilation and air-conditioning according to OMEs and local regulations Airline specific requirements
    4. Non-routine procedures, post-event cleaning and disinfection

△ 5.2.5 Pandemic awareness

As the pandemic situation is very dynamic, regulatory and health authorities' requirements are changing almost daily, it is essential to provide regular briefs and updates to all personnel on the following topics:

(a) Changes introduced by new regulations on COVID-19 or other communicable diseases
(b) Organizational and management changes / updates
(c) New or amended procedures during the COVID-19 or other communicable diseases
(d) Health and safety actions
(e) Hygiene routine reminders

Cooperation with airport operators is recommended to ensure that airport requirements and instructions are incorporated into the training and updates.

Refer to IATA Guidance for ground handling during COVID-19 for detailed guidance related to personnel competency and training and to ICAO CART Take Off Guidance.

□ 5.3 Management oversight

An oversight program should be established to ensure the effectiveness of cleaning and disinfection. An oversight program needs to include not only a "visual" review of clean the program needs to have a process control review to ensure disinfectants are removing microbial agents. These process controls need to include the following:

(a) Cleaning and disinfection methods, techniques and frequencies
(b) Cleaning and disinfection products, use and effects
(c) Personnel competency and training
(d) Performance measures need to include process effectiveness.
(e) Tracking and tracing positive or suspicious cases

A periodic review is done to ensure process controls and measures have been established and are being used.

△ 6 Cleaning and disinfection

□ 6.1 Cleaning

Cleaning is an important first step in the disinfection process. Cleaning procedures remain generally unchanged, nevertheless the frequency and areas of cleaning might need to be adjusted. While cleaning is usually a separate process from the disinfection (as the dirt/soil needs to be removed before disinfection), cleaning done with disinfection products also results in disinfection and can therefore be combined into one process.

□ 6.2 Disinfection

Disinfection is performed on previously cleaned surface. Each airlines should implement procedures and processes for disinfection of aircraft based on the company risk assessment, taking in consideration risk levels of routes, destinations, transit stops, aircraft types configurations, methods and products used, duration of the disinfecting effects of the method, cleaning intervals and other factors.

□ 6.2.1 Disinfection procedures

(a) Routine disinfection is considered as a standard process routinely performed in addition to the cleaning process.
(b) Event based disinfection (also known as post-event) is performed during or after a specific event (e.g. after the transport of suspected or confirmed cases of communicable diseases onboard, spill of body fluids in the aircraft). This disinfection is not a standard practice and the requirements, methods, procedures as well as training for personnel will most likely differ. The regulatory recommendation and requirements are described in the World Health Organization (WHO) Guide to Hygiene and Sanitation in Aviation, and ICAO Annex 9.

□ 6.2.2 Disinfection methods

It is necessary for a airline to exercise caution in selecting disinfecting methods to ensure that it is suitable for aircraft use and that it does not have any negative effects on human health and on aircraft interiors and components.

There are currently two disinfection methods:

(a) Chemical disinfection is primarily the most common method used, where elimination of pathogens is done via use of chemicals disinfectants; Techniques of application may include :
    1. Wiping procedures – wipe on/wipe out
    2. Electrostatic Spraying
    3. Fogging
(b) Non-chemical disinfection is also being used or developed to eliminate or neutralize targeted pathogens via different techniques of application such as:
    1. Aircraft Environmental Control System (ECS) - HEPA Filters
    2. Ultraviolet light
    3. Ionization
    4. Thermal treatments
    5. Other technologies as they may be identified

Note: Non-chemical method is not in the scope of this document. Most non-chemicals techniques are presently in the testing and approval process by airlines and OEMs for the application in the aircraft. If airlines decide to implement any of the non-chemical techniques, the following processes should be completed:

- *The airline has done a thorough evaluation of the proposed techniques to ensure it is safe for the aircraft and that it complies to health regulations.*
- *The aircraft manufacturer (OEM) and/or regulator has approved the technique.*

- *If applicable, the technique has been certified by the appropriate governing body (Civil Aviation Authority; CAA and the appropriate Health Authority that has the oversight) for use in the air*craft.

For further guidance on disinfection methods, its application, effects, frequency, and other topics, refer to RTCA-DO388/ EUROCAE-ED-287 Guidance Document on Aircraft Cleaning and Disinfection.

△ 6.3 Cleaning and Disinfection Products

Informed selection and the correct use of chemical products is vital in ensuring effective cleaning and disinfection of an aircraft without damaging the aircraft interior, systems, and equipment while minimizing the likelihood of the transmission of COVID-19 or any other communicable diseases.

For detailed guidance on disinfection products selection, application, effects, and other topics, refer to RTCA-DO388/ EUROCAE-ED-287 Guidance Document on Aircraft Cleaning and Disinfection.

△ 6.3.1 Product selection

The selection of chemicals to be used to mitigate pathogens must be safe for the aircraft use, with no harmful effect on crew, passengers, and employee's health.

(a) Refer to the local health authorities for recommendations on products effective against COVID-19 or other communicable disease.

Note: The selection of the product may need to be approved by the local authorities if applicable.

(b) Refer to the aircraft manufacturers (OEM) guidance for the most recent recommendations
Note: The ICAO CART Guidance includes OEMs recommendation to use a 70% Isopropyl Alcohol (IPA) solution as a disinfectant for the touch surfaces in the cockpit, cabin and cargo holds.

(c) Cleaning and disinfection products should comply with and be certified or tested according to OEM standards and/or industry test standards, such as SAE International standards as listed in the Section 4 of this document. Consultant with OEMs before using any disinfection agents that do not comply with SAE standards is required.

(d) Refer to the cleaning and disinfection product manufacturer's instructions to ensure that the proper application, frequency, quantity, ventilation and personal protection equipment is used.

△ 6.3.2 Product use

It is the airline's responsibility to ensure correct procedures and chemical products used by the ground handling or cleaning company are based on the aircraft manufacturers (OEM) recommendations and aligned with local health authorities. Any products used need to be approved by the airline.

It is important that the cleaning and disinfectant products are used exclusively according to the product specifications and manufacturer Safety Data Sheet (SDS), personnel uses relevant PPE and airlines ensure that the use is periodically reviewed and any effects monitored and evaluated within company SMS.

(a) Use premixed cleaning and disinfection liquids where possible to avoid mixing ratio errors.

(b) Special attention must be paid to the application instructions and mixing ratios (e.g. wipe on, wipe off, water rinsing, drying after cleaning, etc.).

(c) Use only the limited bottle sizes on board to minimize the risk of spilling the cleaning disinfection and disinfection solutions.

(d) Do not spray cleaning and disinfection liquids in the cargo compartment. Instead, apply as per the product and/or airline application instructions (e.g., wipe on/off).

(e) Do not allow cleaning and disinfection liquid to contact critical equipment (e.g. smoke detector, electronic door operation equipment and fire extinguishing discharge nozzle).

(f) Take precautions around potential sources of ignition, especially hidden sources such as electronic boxes mounted in the cargo compartment as disinfectants are flammable.

(g) Airlines should periodically inspect the aircraft interior and cargo holds to ensure that there are no long-term effects or damage over time due to frequent use of cleaning and disinfection products. If damage is observed, contact the OEM.

⚠ Caution:

(a) Use of non-certified cleaning and disinfection liquids can lead to severe damage to material in the aircraft's interior.
(b) Use of cleaning and disinfection liquids in the wrong mixing ratio or using the wrong application method can lead to severe damage to material in the aircraft's interior.
(c) Cleaning and disinfectant solutions tend to be oxidizers. The interior of an aircraft contains many materials susceptible to damage from oxidization. Care must be exercised when using cleaning products and disinfectants.
(d) Metals used in aircraft construction may corrode upon exposure to cleaning and disinfection products.
(e) Safety-critical cables and wires may deteriorate upon exposure and aircraft furnishings may have their fire-resistant properties reduced.
(f) Some cleaning and disinfection products, such as IPA, are flammable. Care must be exercised in the aircraft interior, especially near various electric installations and boxes as these are sources of ignition.

△ 7 Aircraft cleaning and disinfection on ground

During a pandemic, all existing cleaning best practices are, in principal, still applicable. However, they may need to be revised and amended based on the regulatory requirements, airport cleaning plan, and OEM's recommendations to include new measures addressing the threat.

Based on the conducted risk assessment, each airline may implement different cleaning and disinfection schedules, techniques, and products, which consider the operational circumstances and the duration of the disinfecting effects of the substance(s) used.

△ 7.1 Action prior to cleaning

To minimize person-generated contaminant concentrations during ground and flight operations, OEMs recommend maximizing total cabin airflow; therefore, care should be taken to avoid blocking air vents (particularly along the floor).

The following are general recommendations for cabin air considerations and there may be exceptions for specific aircraft models. It is strongly recommended that operators consult with the aircraft OEM for questions specific to an aircraft type.

(a) The aircraft Auxiliary Power Unit (APU) should be permitted to be used at the gate/stand to enable the aircraft's air conditioning system to be operated, if equivalent filtration from the external Pre-Conditioned Air (PCA) is not available.
(b) If the aircraft has an air recirculation system but does not have High-Efficiency Particulate Air (HEPA) filters installed, refer to OEM documents or contact the OEM to determine the recirculation system setting.
(c) It is recommended that fresh air and recirculation systems be operated to exchange the volume of cabin air before cleaning crew enter the aircraft for cleaning purposes.
    1. For those aircraft with air conditioning, run the air conditioning packs (with bleed air provided by the APU or engines) or supply air via an external PCA source for at least 10 minutes prior to the boarding process, throughout boarding and during disembarkation.
    2. For aircraft with HEPA filters, run the recirculation system to maximize flow through the filters.
    3. For those aircraft without an air conditioning system, keep the aircraft doors open during the turnaround to facilitate cabin air exchange (passenger doors, service door and cargo door) as much as practical.


Danger:
Ensure access doors are only in the open position if there is an appropriate boarding device or other equipment positioned at the door to mitigate danger of personnel injury.

Note: Ensure cleaning equipment and tools (e.g., vacuum cleaners brushes, brooms) are clean and hygienic prior entering the aircraft cabin and between use.

△ 7.2 Actions during cleaning

(a) Once on board, ventilation systems should be kept running while cleaning takes place.
Note: In some cases, depending on the technique used for disinfection, regulators may recommend that the air conditioner be turned off during the disinfection operation, and the passenger cabin fully ventilated after disinfection.
(b) To avoid contamination on board, cleaning crew shall:
    1. Be assigned specific tasks as much as possible.
    2. Use different cleaning materials in each task area (e.g. cloths, buckets, brushes, mops), potentially using color coded items.

(c) Use disinfection product as per the recommendation in the section on Cleaning and disinfection products.
(d) Clean and disinfect all defined areas in 7.3 by using approved disinfection products as per Cleaning and disinfection products section and appropriate cleaning materials/tools such as mopping, wiping, or any other approved techniques and procedures.

△ 7.3 Cleaning and disinfection tasks

The cleaning and disinfection tasks serve as a guideline on how to provide a safe and sanitary operating environment for passengers, crew, and cleaning personnel. For further guidance on aircraft cleaning refer to IGOM 3.7 Aircraft Cleaning and Disinfection.

The tasks, as defined in the subsequent tables, provide a framework for airlines. It is of each airline, as per their specific assessments and needs to:

(a) Establish which tasks they deem necessary to be completed during an aircraft cleaning interval.
(b) Adhere to airline specifications regarding cleaning and disinfection tasks.
(c) During a pandemic, it is essential that airlines perform a risk assessment based on the regulatory requirements, airport cleaning plan, and OEM recommendations to develop mitigation plans, including amending their existing cleaning and disinfection procedures.
(d) Review and update their cleaning matrices based on specific configurations of their aircraft types.
(e) Clean and disinfect cabin, seating, and crew rest areas in the same way as in sections 7.3.5 and 7.3.6 for cargo aircraft.
(f) Monitor high-contact surface areas in aircraft as much as possible, include such areas in their cleaning checklists.
(g) Ensure the cleaning and disinfection products are used in correct mixing ratio according to the application instructions and/or product safety data sheet (SDS).
(h) Ensure that the correct mixing ratio is used for relevant area as per SDS. There might be a different mixing ratio for the same product for different areas (e.g. 1:10 for cleaning in cabin surroundings and 1:5 for lavatories and galleys).
(i) Ensure the correct application method is used according to the application instructions and/or product SDS (e.g. apply with pre-moistened wipes or single use wetted cloth).
(j) To avoid contamination on board, cleaning staff shall carry their own cleaning equipment to avoid unnecessary exchanges of cleaning items between different teams or persons.

⚠ **Caution:**
(a) If spraying techniques are used, do not spray directly into power supply panels, lighting, vents, interphone, coffee makers or other electrical systems. Disinfectant should only be applied using a cloth in these areas.
(b) Immediately inform an airline representative if any of these areas are accidentally sprayed.
(c) Ensure cleaning and disinfection products are wiped off after application using a slightly moist towel, if required by the SDS. Residues of cleaning and disinfection products left on surfaces (e.g., tables) may lead to severe discoloration and permanent damage of the cabin interior.
(d) Ensure a suitable cloth is used for aircraft cabin cleaning.

△7.3.1 Flight deck

Tasks	Turn around	Layover
Clean and disinfect pilot and co-pilot seats, including armrests, table and seat controls.	☐	☐
Clean and disinfect seatbelt buckles.	☐	☐
Clean and disinfect flight controls (e.g. control column). *	☐	☐
Clean and disinfect the sidewall lining and associated controls (e.g. nose wheel steering tiller, display controls, electronic flight bag). *	☐	☐
Clean and disinfect instrument panel and associated controls (e.g. gear lever). *	☐	☐
Clean and disinfect the glareshield and associated controls (e.g., autopilot, warning/caution buttons). *	☐	☐
Clean and disinfect sun visors and surrounding area. *	☐	☐
Clean and disinfect overhead panel, including grips and handles. *	☐	☐
Clean and disinfect central the central console, including engine controls, flaps, communication units etc.*	☐	☐
Clean and disinfect pilot and copilot headsets. *	☐	☐
Clean the inside of the windshield with the designated product. *	☐	☐
Clean and disinfect cabin access door (both sides), handle and lock.	☐	☐
Extend, clean and disinfect the folding seats/jump seats and any associated equipment.	☐	☐
Wipe down pedals. *	☐	☐
Clean floor, vacuum carpet, empty waste boxes and wipe shelves.	☐	☐

⚠ **Caution:**

(a) Frequency of cleaning of the flight deck should account for both separation of the flight deck from the passenger compartment and frequency of crew transitions (CART).
(b) Adhere to airline specific procedures regarding cleaning the flight deck (e.g., the cleaning crew may only be permitted to enter flight deck when flight crew or maintenance personnel is present).
(c) Cleaning and disinfection products fluids for the flight deck can be different from fluids used for the cabin.
(d) Do not spray disinfectant directly on panels and screens, it should be applied with cloth.
(e) Ensure liquid does not seep into controls.
(f) Any accidental adjustment of important instruments during the cleaning process must be reported to the flight crew or maintenance personnel.
(g) Buckets shall not be brought into the cockpit.

Note: Cleaning and disinfecting of areas designated with an asterisk (*) above shall be done by personnel specifically trained for flight deck cleaning.

△ 7.3.2 Galleys

Tasks	Turn around	Layover
Clean and disinfect worktops, countertops and serviceable table.	☐	☐
Clean ovens.	☐	☐
Clean coffee makers.	☐	☐
Clean water boilers.	☐	☐
Clean and disinfect panels and doors.	☐	☐
Clean and disinfect switcher panels and handles.	☐	☐
Empty and clean waste compactors; add waste sac/box, if needed.	☐	☐
Clean and disinfect lockers/drawers.	☐	☐
Clean and disinfect trolley containers and storage.	☐	☐
Clean and disinfect collapsible trolleys.	☐	☐
Drain and disinfect sinks, including taps and drain plug .	☐	☐
Remove trash from bin compartments and clean/disinfect bin area, including flap.	☐	☐
Sweep, mop and disinfect floor.	☐	☐
⚠ **Caution:** Clean ovens and aluminum surfaces with detergents as per recommended standards.		

△ 7.3.3 Cabin crew seats and service/entry door lining panels

Tasks	Turn around	Layover
Clean and disinfect each attendant seat, seatbelts and surrounding location.	☐	☐
Clean and disinfect cabin crew intercom.	☐	☐
Empty and clean seat pockets.	☐	☐
Inspect emergency leaflets for damage and clean, disinfect or replace.	☐	☐
Arrange or remove and replace literature and amenities.	☐	☐
Clean and disinfect seat upholstery and remove any evident stains.	☐	☐
Clean and disinfect door frame, including door panels, sills, exit doors and emergency slide cover.	☐	☐

△ 7.3.4 Lavatories

Tasks	Turn around	Layover
Clean mirrors and windows if applicable, using authorized glass cleaners.	☐	☐
Ensure all soap dispensers are functional and refilled with liquid soap.	☐	☐
Clean and disinfect soap dispenser.	☐	☐
Clean and disinfect hand basin, handles and steel fittings.	☐	☐
Clean and disinfect sidewall panels and ceiling.	☐	☐
Clean and disinfect shelves.	☐	☐
Clean and disinfect diaper changing table if available.	☐	☐
Clean and disinfect toilet bowl, shroud, seat and flushing mechanism (lever or button).	☐	☐
Empty the waste bin(s) and replace waste sac, if applicable. Clean and disinfect compartment, including flap before reinstalling bin(s).	☐	☐
Clean and disinfect the floor.	☐	☐
Ensure toilet compartment is dressed and stocked with amenities required for flight.	☐	☐
Clean and disinfect lavatory door (both sides) including door lock, knobs/lever, grip, door grilles and coat hook(s) if applicable.	☐	☐

⚠ **Caution:**

(a) Immediately wipe off any cleaning/disinfectant liquid spills on the surfaces to prevent damage or deterioration.

(b) Toilet cleaning shall be performed from top to bottom for hygienic reasons.

(c) Use only towels identified specifically for toilet cleaning. (Do not reuse the mops and towels used for toilet cleaning outside of lavatories.

△ 7.3.5 Passenger seating area

Note: The passenger seating area includes its surroundings.

Tasks	Turn around	Layover
Use a vacuum cleaner to remove loose particles from seats, floors, carpets and curtains after cleaning and disinfecting.	☐	☐
Remove headcovers and pillow covers from seats, if applicable.	☐	☐
Clean and disinfect cabin windows, window shades, dimmable window controls if applicable, sidewall lining and ceiling, including air nozzles.	☐	☐
Clean and disinfect magazine racks.	☐	☐
Clean and disinfect interior and exterior of overhead bins, including handles.	☐	☐
Remove all waste from seat pockets, arm rests, back rest pockets, shoe bins and seat lockers, then clean and disinfect.	☐	☐
Remove and replace literature and amenities as needed and arrange according to airline standards.	☐	☐
Clean and disinfect or replace emergency leaflets.	☐	☐
Clean, disinfect and dry both sides of tray tables (including cocktail table if applicable) including locking mechanism.	☐	☐
For fabric seat covers, use vacuum cleaner to remove loose particles. For leather seat covers, wipe and ensure seats are dry.	☐	☐
Remove any visible stains on seats or request change in fabric.	☐	☐
Clean and disinfect seat belts and buckles.	☐	☐
Clean and disinfect arm rests In-flight Entertainment (IFE) screens and passenger control units (e.g., reading lights, air nozzles, IFE remote control, seat controls).	☐	☐
Clean and disinfect infant bassinets, extra seat belts and other amenities, if applicable.	☐	☐
Dress the passenger seat to signify clean as per airline standards.	☐	☐
Clean ventilation grids/grilles.	☐	☐

⚠ **Caution:**

(a) Be careful while handling disposable bags to avoid sharp objects that may have been disposed of by passengers.
(b) If there is a chewing gum stain on the floor or seats, use gum remover to remove the stain rather than sharp objects.
(c) For some parts of the aircraft (e.g., closets and doghouse), assistance from Engineering may be requested to remove emergency equipment to enable cleaning and disinfection.

△ 7.3.6 Crew rest compartments

Tasks	Turn around	Layover
Dispose of waste from closets and waste boxes.	☐	☐
Clean and disinfect intercom and control consoles (e.g. reading lights and air nozzles).	☐	☐
Clean and disinfect ceiling and the light switches	☐	☐
Clean and disinfect beds and belts. Replace blankets and pillow covers, if applicable. Ensure enough bedding is provided for the number of crew operating.	☐	☐
Clean floor and cabin stairs, if applicable and vacuum carpet.	☐	☐

7.3.7 Cargo hold

Tasks	Turn around	Layover
Clean and disinfect cargo door surroundings and door handles for all lower deck cargo holds (FWD, AFT and Bulk), in addition to main deck cargo door for cargo aircraft.	☐	☐
Clean and disinfect cargo loading control (CLS) panels, including cargo joystick in ceiling and latches, if applicable.	☐	☐
Clean and disinfect all access panels and service access points, including cargo door control panels,	☐	☐
Clean and disinfect door net stanchions, net attachment fittings and tie down points, if applicable in bulk compartment.	☐	☐
Clean and disinfect light switches.	☐	☐
Clean and disinfect high touch point areas in upper deck if applicable (e.g. B747 cargo aircraft) and main deck (all cargo aircraft).	☐	☐

⚠ **Caution:**

(a) When cleaning and disinfecting of the complete cargo hold, please refer to OEM guidance for further clarification of appropriate techniques to be used.

(b) Any aircraft where personnel have to work inside the compartment to manually load/unload, cleaning of floor areas should be considered (e.g., bulk loaded cargo holds).

7.3.8 Unit Load Device (ULD) cleaning

(a) After unloading, all unit load devices must be cleaned from dirt and other possible contaminations.
(b) ULDs which have been used for the transport of commodities such as live animals, edible or inedible animal and vegetable products, or ULDs that have been exposed to leakage from dangerous or non-dangerous goods must be cleaned in line with national and international health, safety and quarantine requirements.
(c) After the ULD has been cleaned and disinfected properly, it can be used again for the dispatch of cargo.

Please refer to ICHM 13.1.2 for further details.

7.3.9 Temperature/Thermal Controlled Container (TCC)

(a) The container's inside shall be checked entirely for cleanliness, including all recesses, prior to build-up.
(b) It is recommended thorough washing be performed, e.g. with a stream of water under pressure (see ULDR SS 50/4) before each use.
(c) If there is any doubt of possible biological contamination or if required as a sanitary precaution by the shipper when intended contents are destined for human consumption, the inside must be thoroughly disinfected, e.g. with steam up to 110°C (230°F), or a product containing e.g. chlorine.
(d) Any chemicals used in the cleaning and disinfection process must be compatible with the container materials (see manufacturer's instructions) and accepted by the sanitary Authorities (see ULDR 1.5.17 in Section 1).

Note: Cleaning and/or disinfection may also be necessary after the container arrival and its break-down.

Refer to ICHM Chapter 9 for further details.

7.4 Electrostatic spraying and fogging

7.4.1 General

Although electrostatic spraying and fogging is not currently recognized and endorsed by OEMs as industry standards as it is not fully tested for long term effect on the avionics and aircraft interior, following general /principles have been developed as it is becoming more widespread use.

Decision on use of such method is always airline responsibility. Airlines should always consult with OEMs and perform Risk Assessment before deploying this method.

This is NOT a comprehensive list therefore please refer to equipment manuals for more details and specific instructions on equipment use.

7.4.2 Procedures and recommendations

(a) Follow the equipment and chemical manufacturers instructions related to use of equipment and application of chemicals.
(b) Use designated PPE (gloves, eye goggles, face shield, long sleeve clothing etc.).
(c) Prepare cabin following airline instructions (e.g. close all overhead bins, pull down all window shades) and notify (e.g. some type of visual indication) that spraying is occurring or eminent.
(d) Follow sequence of spraying – (e.g. back to front and spray galleys, lavatories, crew rests, FA closets, overhead bins, aisles, and seat rows. End spraying at the forward part of the aircraft}.
(e) Spray away from the direction of the body.
(f) When spraying keep slow/steady pace.
(g) Apply a uniform coating over the surface being disinfect.

(h) Ensure the sprayer does not apply chemicals in a manner that oversaturates equipment or allows the chemical to pool or run (drip) on the surfaces, particularly electronic hardware.
(i) Avoid any control panels, displays or sensitive equipment (other disinfection techniques to be used).
(j) Surfaces need to be sprayed/fogged for the specific contact time recommended by the chemical manufacturer.
(k) After spray application, wipe damp surfaces with rag if required.

Danger:

Electrostatic sprayers may interfere with sensitive medical devices such as pacemakers, defibrillators, or similar devices. DO NOT operate this machine or stand within 10 feet if you use such medical device.

Caution:

(a) Do not point nozzle gun at any person.
(b) Ensure cabin aisles are clear to prevent a slip, trip or fall hazard.
(c) Ensure flight deck door is closed – DO NOT perform spraying/fogging in Flight deck.
(d) Ensure the aircraft has not yet been catered – NEVER spray/fog a galley that has been already catered for its departing flight.
(e) Ensure to communicate to the employees on or near the aircraft that spraying/fogging will be soon underway except for those operating the spraying/fogging machinery. No unauthorized personnel shall be on board or enter the aircraft until permitted to do so.
(f) DO NOT spray at flight deck (please see xxx Flight Deck checklist) control panels, displays or sensitive equipment as per airline instructions.
(g) DO NOT overspray any area. This will lead to oversaturation and lingering mist in the air.
(h) DO NOT shake the nozzle when spraying.
(i) DO NOT spray any galley area in front of an open aircraft door to the outside to avoid lingering mist in the air.
(j) To avoid electrical shock, do no touch or insert anything in nozzle of the sprayer/fogger

△ 7.5 Actions after cleaning

After cleaning and disinfection, ensure cleaning crew disembark with all items for cleaning including all garbage and that the following provisions are followed:

(a) Disposal of waste must be done in accordance with local airport authority regulations, refer to section on Waste management during a pandemic in this document.
(b) Staff disembarking the aircraft with waste materials shall wear gloves to protect themselves and dispose of gloves after the disposal process.
(c) Do not obstruct the passenger boarding bridge or steps with waste bags.
(d) Do not throw waste bags onto the ramp from the aircraft or from steps.
(e) If any amenities are to be loaded prior to departure, ensure this is done and indicated in the handover documentation.

△7.5.1 Handover procedures

When required a handover protocol should be established, including a record to indicate that the aircraft has been cleaned and disinfected according to the ICAO Aircraft cleaning and disinfection sheet provided by CART or airline procedures .

Note: For lost, found, damaged or suspicious items:

- *Do not check/open any items found as the nature of the contents is unknown and has the potential of being harmful/dangerous.*

- *Any lost property found must be handed in according to local procedures.*
- *Any seat or cabin interior/area found damaged must be reported, as appropriate.*
- *Any suspicious item found must be immediately reported as per local procedures.*

Caution:

Limit the number of personnel moving into/out of a cleaned aircraft to maintain the sterile environment prior to boarding.

△ 8 Cleaning and disinfection during an event

8.1 Suspected or confirmed COVID case onboard

For procedures for cabin crew and cleaning crew, in case of this event, please refer to IATA Suspected Communicable Disease Guidelines for cleaning crew, as well as EASA - Interim guidance on Aircraft Cleaning and Disinfection and CDC Updated Interim Guidance for Airlines and Airline Crew: Coronavirus Disease 2019 (COVID-19). For details on any more specific cabin cleaning measures during the flight, please refer to Guidance for Cabin Operations During and Post Pandemic.

△ 8.2 Aircraft contaminated with body fluids

When contaminated with blood, respiratory secretions, vomit, excretions and other liquid (contaminants), the aircraft cabin should be disinfected by ground cleaning crew or specially qualified personnel after disembarkation.

Air Conditioning Unit (ACU) should be adjusted to ensure full ventilation is completed and then turned off. Once the air ventilation is finished:

(a) Wear disposable gloves and other PPE according to local instructions.
(b) Prepare disinfectant Absorb the contaminant(s) into a towel or apply absorbent powder and disinfectant to the contaminants evenly.
Note: Absorbent and disinfectant used must have been tested and approved for the interior material being cleaned.
(c) Place the used towel and gloves I a biohazard or other waste bag.
(d) When using absorbent powder, remove the coagulated contaminants with portable pickup shovels and place into biohazard waste bags.
(e) Clean and disinfect the contaminated area wearing new gloves. It is important to follow the application method and effective contact time as per the SDS.
(f) Remove gloves and clean/disinfect hands before removing other PPE in the following order:
    1. Take off protective suits (aprons) and gloves.
    2. For visibly soiled hands, wash with soap and water thoroughly.
    3. Take off goggles and facial mask/shield.
    4. Apply skin disinfection/hand sanitizer to clean hands and other parts of the body that may have been exposed to contaminants.
    5. Place all used PPE and contaminated items in a biohazard waste bag and seal the bag.
    6. Dispose of the biohazard as per local regulations.

Note: When cleaning and disinfection was initially performed by cabin crew during flight, they should inform ground departments at destination to prepare for additional cleaning and/or disinfection, if need be, and disposal of biohazard.

8.3 Communication between flight crew and ground crew

In case of an event as described in Sections 8.1 and 8.2, flight crew should communicate with the appropriate ground operations handling teams regarding event details to ensure that cleaning crew are prepared to meet the aircraft with the appropriate PPE and equipment. There should be a process in place where cleaning crew are informed of an event and therefore follow designated cleaning and disinfection procedures.

9 Cleaning of cargo hold while handling of dangerous goods and special cargo

9.1 Identification of possible dangerous goods spill

(a) Before loading on an aircraft, ULDs must be inspected and found free from any evidence of leakage from or damage to any dangerous goods contained therein.
(b) Any package, which appears to be damaged or leaking, must be removed from the aircraft and safe disposal arranged. Packages or overpacks containing dangerous goods must be inspected for signs of damage or leakage upon unloading from the aircraft or ULD.
(c) If evidence of damage or leakage is found, the position where the dangerous goods or ULD was stowed on the aircraft must be inspected for damage or contamination and any hazardous contamination removed.

Refer to IATA Dangerous Goods Regulations (DGR) for further details.

9.2 Infectious substances

If any person responsible for the carriage of packages containing infectious substances becomes aware of damage to or leakage from such a package, that person must:

(a) Avoid handling the package or keep handling to a minimum.
(b) Inspect adjacent packages for contamination and put aside any that may have been contaminated.
(c) Inform the appropriate public health authority or veterinary authority and provide information on any other countries of transit where persons may have been exposed to danger.
(d) Notify the shipper and/or the consignee.

9.3 Radioactive materials

(a) If it is evident that a package or overpack of radioactive material or a freight container for radioactive material is damaged or leaking, or if it is suspected that the package or overpack or freight container may have leaked or been damaged, access to the package or overpack or freight container must be restricted and a qualified person must, as soon as possible, assess the extent of contamination and the resultant radiation level of the package or overpack or freight container.
(b) The scope of the survey must also include the aircraft, aircraft equipment, the adjacent loading and unloading areas and if necessary, all other material which has been carried on the aircraft.
(c) When necessary, additional steps for the protection of human health, in accordance with provisions established by the relevant competent authority, must be taken to overcome and minimize the consequences of such leakage or damage.

9.4 Cleaning of aircraft cargo compartments (after animal transportation)

(a) If there is any spillage, carrier maintenance personnel must be alerted.
(b) Wear impervious, washable or disposable, gloves and boots which must be washed, then disinfected or destroyed after each use.
(c) The interior of cargo compartment must be thoroughly cleaned of all foreign matter and then disinfected using methods acceptable to aircraft management before being loaded with livestock.
(d) All affected holds, floors and shelves must be thoroughly washed or swabbed with a solution of approved solvent or detergent followed by the use of a suitable disinfectant. It is recommended that a solution with 4% sodium carbonate mixed with 0.1% sodium silicate or a solution with 0.2% citric acid

be used for aircraft disinfection purposes. It is not necessary to flood the surfaces to effectively deodorize and disinfect the area.

(e) Spray the hold with an approved deodorant, closing all doors immediately after spraying to obtain maximum benefit.

(f) All removable equipment, penning and containers, including loading ramps, must be thoroughly cleaned and disinfected in accordance with the requirements of both the exporting and importing countries.

(g) It is advised that no equipment with which animals will come into direct contact be replaced in the aircraft until it has been washed with clean water after disinfection to remove any traces of disinfectant which might cause damage to the aircraft structures.

Refer to IATA Live Animals Regulations (LAR) for further details.

9.5 Transport of perishable products spill

As perishable shipments are handed over to the airline fully packaged, the airline will assess the condition of the outer packages for its ability to withstand regular handling during air transportation and search for obvious signs of damage such as crushed boxes, smells and odors, leakages, spills, etc.

If spillage or leakage of liquid takes place, contaminating the aircraft interior, the aircraft captain and/or the airline's airport or engineering representative must be notified as soon as possible so that appropriate follow- up action can be taken.

This written procedure should be well documented and appropriately reported since spills can cause serious damages to aircraft systems or structures (refer to the in-house company procedures manual). Do not try to clean the spill without prior consultation to that effect.

Refer to IATA Perishable Cargo Regulations (PCR) for further details.

△ 10 Waste management during pandemic

The COVID-19 pandemic has significantly increased the volumes of healthcare wastes from hospitals and clinics requiring specialized handling and treatment. There is an obligation on the sector and its regulators to not only ensure the health of its passengers and staff but to also confirm that uncontaminated cabin and cleaning wastes are not contributing to this growing disposal problem. IATA encourages airlines to meet with airport and local health authorities and their service providers (catering and cleaning companies) to determine appropriate COVID-19 waste management procedures.

This section combines publicly available best practices, but it is recognized that research on COVID-19 transmission and mitigation measures is advancing rapidly and so the information in this document will be regularly updated.

10.1 Changes during flight resumption

As flights resume, cabin waste volumes are expected to be lower than normal due to restricted inflight service offerings, but the following waste components are likely to increase:

(a) Discarded personal protective equipment (PPE) from masks and gloves worn by crew, passengers and cleaners,
(b) Empty plastic hand sanitizer bottles,
(c) Discarded sanitizer wipes and their packaging,
(d) Plastic packaging from sealed food and drink,
(e) Cleaning wastes including used paper towels, disposable cloths, empty plastic disinfectant bottles and mop heads,

10.2 Cabin waste regulations

Cabin waste is already subject to legislation that ensures it is handled, stored and disposed of appropriately to minimize pollution and disease risk. In fact, many countries including Australia, Brazil, Canada, Members States of the European Union, New Zealand and USA already require cabin waste from international flights to be subject to specialized handling, treatment and disposal.

According to the International Health Regulations (2005), States (competent authorities) must ensure, to the extent practicable, that passenger facilities at international airports and on aircraft are kept free of sources of infection and contamination. Competent authorities may impose additional restrictions on cabin waste during the COVID-19 pandemic including the need to disinfect waste bags; bans on reuse/recycling; need for double bagging; sealing; labelling and specialist handling and treatment including steam sterilization, incineration and chemical treatment.

The waste restrictions imposed by national health authorities during the pandemic should be respected, at all times. However, in the absence of such measures or whilst agreeing cabin waste procedures during the pandemic with the authorities and service providers, this may prove useful.

10.3 Cabin waste risk

The primary mechanism of the COVID-19 virus spread is respiratory droplets and, although there is the possibility of surface contamination on cabin interiors, inflight products and waste, this can be minimized by regular cabin interior cleaning and hand hygiene. Research indicates that the virus is more stable on plastic and stainless-steel surfaces than copper and cardboard and that viable virus was detected up to 72 hours after application to these surfaces[1]. A UK regulator highlights that this "research involved exposing the surfaces to high viral loadings in a laboratory environment and is, therefore, likely to represent a "worst case" scenario[2].

[1] **https://www.nejm.org/doi/full/10.1056/NEJMc2004973**

[2] **https://www.letsrecycle.com/news/latest-news/uk-wish-coronavirus-covid19-waste/**

10.4 Cabin waste classification

Normal: cabin wastes generated during flight operations and cleaning waste generated after a flight where **no passenger or crew member exhibits COVID-19 symptoms** should be handled as **normal** waste, as recommended by WHO[3].

Biohazardous: If a **passenger or crew member does exhibit COVID-19 symptoms,** all waste materials including part-consumed meals, beverages and disposable items including used paper towels, tissues and PPE generated whilst treating or supporting the passenger or crew member should be treated as potentially **biohazardous waste**. The cleaning operatives should informed that a suspected COVID-19 case was present on the flight and that the cleaning wastes should also be placed in a biohazard waste disposal bag or double bagged in standard plastic waste bag (if a biohazard bag is not available). The bags should be labelled and sealed for specialist handling, storage and treatment. The airport authority and aircraft service providers must be informed of the presence of potentially biohazardous waste.

10.5 Cabin waste treatment and disposal

Normal: cabin wastes should be handled and stored using normal waste procedures and disposed using the municipal landfill or incinerator. The reuse and recycling of waste from these flights should continue but recyclable items should be segregated on-board and should not contain any discarded PPE. For those countries that classify cabin waste from international flights as biohazardous for agricultural health reasons (International Catering Waste – ICW), airports or local waste management contractors already subject the waste to special handling and thermal treatment (incineration or steam sterilization).

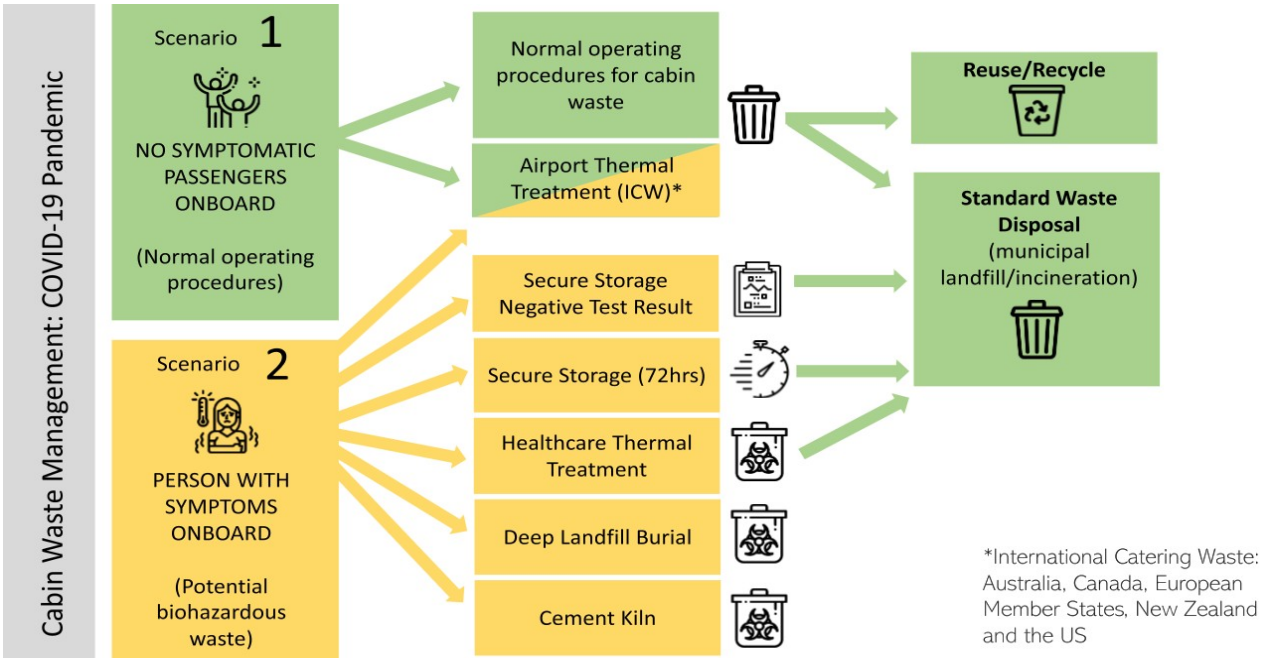
Biohazardous: there are 6 potential options for the treatment and disposal of potentially biohazardous cabin waste resulting from the pandemic.

These include the following:

(a) Airport Thermal Treatment at the airport or local waste management contractor's facility with no additional requirements deemed necessary for potentially biohazardous waste
(b) Secure Storage at the airport or local waste management contractor's facility until the test results indicate that the passenger or staff member did not have COVID-19. The waste can then be treated as "normal".
(c) Secure Storage for 72 hours at the airport or local waste management contractor's facility. The waste can then be treated as "normal".
(d) Healthcare Waste Thermal Treatment – the wastes can be deemed biohazardous and sent directly for thermal treatment at a local healthcare waste facility.
(e) Deep Landfill Burial: Many developing countries lack the infrastructure to treat healthcare waste and the International Solid Waste Association (ISWA) recommends, that in such circumstances, COVID contaminated wastes are either securely stored for over 72 hours and/or sent for disposal in a landfill under closely controlled conditions[4].
(f) Cement Kilns – In the absence of other alternatives, the high temperatures, long residence times and alkaline environment of cement kilns are considered suitable for treating biohazardous waste. This option has already been used in China[5] and Spain[6], in response to the COVID-19 pandemic.

[3] **https://apps.who.int/iris/bitstream/handle/10665/331488/WHO-2019-nCoV-Aviation-2020.1-eng.pdf**
[4] **https://www.iswa.org/fileadmin/galleries/0001_COVID/ISWA_Waste_Management_During_COVID-19.pdf**
[5] **http://www.ecns.cn/news/2020-02-25/detail-ifztvsqr0580848.shtml**
[6] https://www.efe.com/efe/english/destacada/covid-waste-burn-it-or-dump/50000261-4239489

The flowchart below summarizes the pandemic cabin waste treatment and disposal options:



10.6 Pandemic waste minimization

IATA recommends that passengers wear reusable face coverings and crew wear surgical-type masks. Airlines may wish to procure surgical masks fitted with replaceable filters. If a passenger chooses to wear their own surgical-type masks they should be encouraged to only dispose of this mask after they have left the aircraft, in a closed waste bin. For crew or passengers that wish to replace their surgical-type mask or gloves during the flight, the discarded items should be placed in the lavatory waste bins. In addition, airlines should consider. working with airports to provide hand sanitizer dispensing units in the terminal that could be used to refill personal sanitizer bottles.

10.7 Single use plastic (SUP) ban suspensions

Based on the UN Environment report, there has been a surge in SUP bans with over 127 countries regulating the consumption of plastic bags, and 27 more extending these bans to other SUP products, including plates, cups, straws and materials such as polystyrene[7]. Airports and civil aviation authorities have added an extra layer of complexity by applying their own SUP restrictions. Unfortunately, these SUP bans are not compatible with medical restrictions being imposed on flights during the pandemic. Airports and civil aviation authorities should allow the use of SUP for medical, hygiene and safety purposes during the pandemic including biohazardous waste bags; discarded PPE; empty sanitizer bottles, sanitizer wipes and their packaging and packaging from sealed food and drink.

10.8 Engagement plan & training

Airlines should prepare a written plan to share with stakeholders including cleaning companies regarding their COVID-19 waste management procedures and to communicate the information accordingly. In addition, we would also recommend training for crew in the handling of potentially biohazardous waste.

[7] https://www.unenvironment.org/resources/report/legal-limits-single-use-plastics-and-microplastics

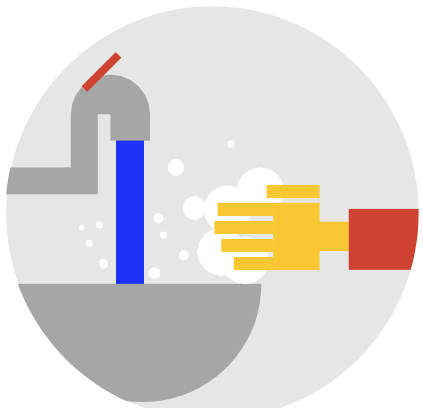
△ 11 Inquiries and feedback

This document is a living document and is updated based on the industry needs. It includes procedures of IGOM chapter 3.7, various regulatory and industry guidance as listed in section 4 of this document as well includes the Best Practices from our stakeholders within IATA governance.

Please send any further questions, recommendations, or inquiries to groundops@iata.org

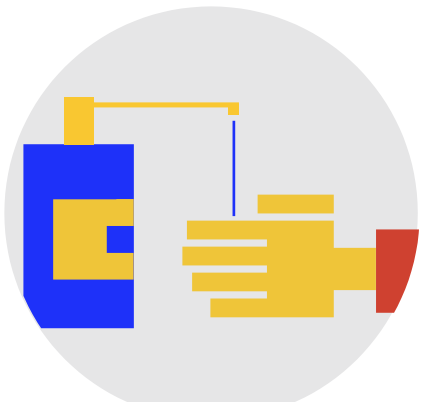
Attachment 1: Poster in staff area

Instructions for aircraft cleaning staff biosafety during COVID-19



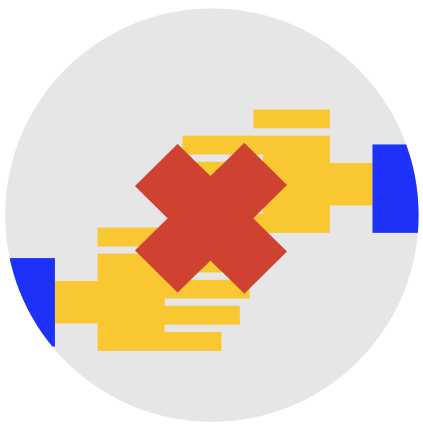
Regularly wash your hands

Use liquid soap and water to wash your hands for at least 20 seconds every time you enter the building.



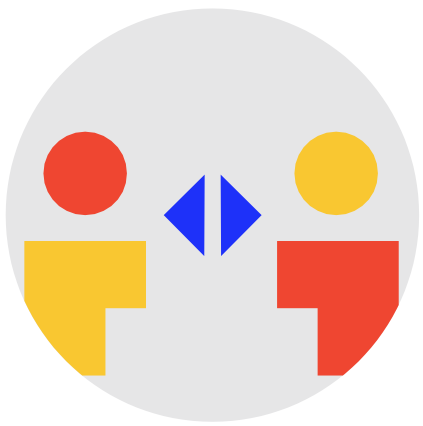
Disinfect

When handwashing is not possible, disinfect your hands with an alcohol-based hand rub.



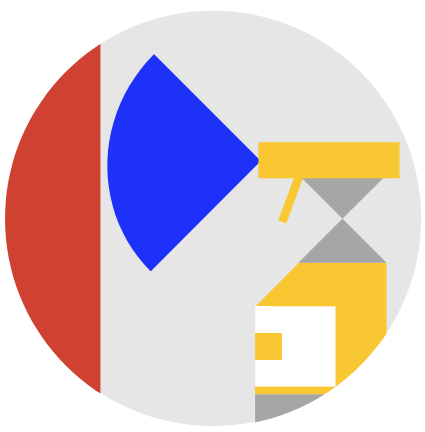
Avoid shaking hands

Remember that the virus spreads through coughing and sneezing via airborne droplets, as well as through direct contact.



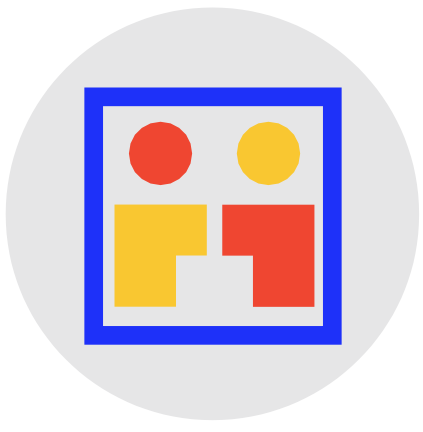
Respect physical distancing

Maintain a safe distance from others by following floor markings or other indicators. Drivers to stay in their vehicles until instructed and follow local procedures.



Clean regularly

Disinfect all frequently touched surfaces and all the equipment between uses.

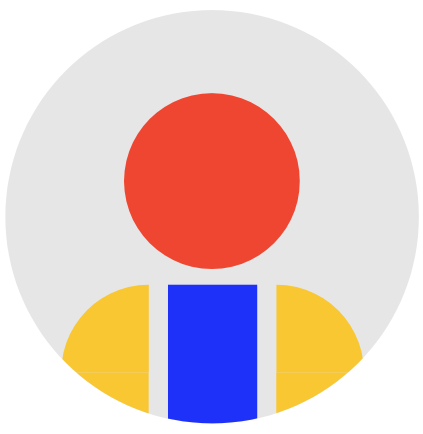


Maintain the distance

Avoid entering enclosed rooms with other people present or wear appropriate personal protective equipment.

Use your own cleaning equipment

Ensure you don't touch other people's equipment.



Follow any company, local or national guidance and regulations, especially if you show potential symptoms.

BE RESPONSIBLE.

STAY SAFE.

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