

GUIDE TO HYGIENE AND SANITATION IN AVIATION

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Galleys are extremely difficult to clean satisfactorily at times other than during maintenance checks, since they have many almost inaccessible areas in which foods and beverages—particularly the latter—can penetrate. The introduction of modules in wide-bodied aircraft is an improvement, but much more could be done to design a galley that would be easier to clean than the present type.

Problem areas

Aircraft cleaners need to pay particular attention to the following dirt traps and make sure that they are thoroughly cleaned out:

- Catering equipment runners.
- Bar box recesses.
- Floor of catering container compartments.
- Sink drain pipes (frequently blocked).
- Drinking-fountain wastes and bottle top remover recesses.
- Toilet compartment cupboards.
- First-aid stowage holds.

8.2 Air-sickness containers

Used containers should be stored during flight in the toilet compartment. They should not be put down the toilet, and a notice to this effect should be placed in the toilet compartment. They should be removed from the aircraft by the toilet servicing team and disposed of along with the aircraft toilet wastes. If any receptacle is used on the aircraft for storage of used sickness containers, it should be thoroughly cleaned, washed and disinfected after each use, and treated in the same manner as portable toilet containers.

8.3 Disinfection of aircraft

The airport health authorities should be consulted when a case of infectious disease has been carried aboard an aircraft. On the rare occasions when this occurs, the notification may arrive several days after the infected person has travelled—by which time the aircraft will probably have departed and carried several hundreds of passengers on a number of flights. Under these circumstances disinfection may not be practicable or useful.

It is because of this eventuality that the regular use of an efficient bactericide (as already mentioned) in the daily cleaning routine of aircraft interiors and the incorporation of a bactericide in the chemicals added to aircraft toilets are important procedures, ensuring that the aircraft has at least received some form of disinfection. Should an infectious disease be diagnosed either during the flight or immediately on arrival, and before the aircraft departs again, disinfection may be of value.

The method and materials used will depend on the nature of the infectious disease, as well as on the recommendations of the health authority that is responsible for requesting the disinfection. The disinfectants most commonly employed are sodium hypochlorite diluted to a strength of 100 mg/l and a 5% solution of formalin, which itself is a 40% solution of formaldehyde gas in water.

Sodium hypochlorite is often used when disinfecting aircraft after the carriage of a person infected with a food- or waterborne disease such as cholera. Personnel (wearing waterproof gloves) should swab the following areas with the sodium hypochlorite solution, which should remain in contact with these surfaces for 30 minutes before they are rinsed with warm water and dried to remove any residual chlorine:

- (1) All surfaces in the toilet compartment.
- (2) All surfaces and food containers in the galley.
- (3) All meal tables, seat armrests and ashtrays in the cabin.

The aircraft water system should be completely drained into a specially allocated toilet cart and discharged into the sewerage system. The aircraft water system should then be treated with hypochlorite as described in chapter 5 (page 70).

The toilet system should be drained and flushed in the normal way, but before servicing in the usual manner, chemical fluid containing a bactericide should be allowed to stand in the toilet system for at least 2 hours.

The fabric covers of the seat in which the infected person sat, and those of the seats in the row in front and the row behind should be removed, soaked in the disinfectant solution for 1 hour and, after air drying, sent for dry cleaning, suitably marked. As this situation occurs so rarely, and the resulting cost is insignificant, it would be a sensible alternative simply to destroy the covers by incineration. The remaining seats and carpets should be vacuum-cleaned and the dust incinerated.

All hard surfaces, including those mentioned above (already treated with sodium hypochlorite), should be swabbed with the formalin solution, which, after 30 minutes' contact, should then be rinsed away with warm water. (The personnel engaged in this work should wear not only waterproof gloves but face masks in addition.)

NOTE: Where corrosion of the contaminated surface by disinfectants is a significant consideration, reference should be made to the list of Accepted and Non-Accepted Chemicals appearing in the *IATA Medical Manual* (40).

8.4 Special needs

There are occasions when special action is needed during flight—for example, when seats or carpets are soiled by a sick passenger. This sickness might be the result of an infection, and—apart from the nuisance caused to other passengers—there might be a health

hazard. Since a major cleaning, involving the replacement of soiled seat covers, cannot be undertaken until arrival at the next airport, the cabin crew should be supplied with material for use in such an emergency. Aerosol dispensers containing a detergent/bactericide/odour-counteragent will satisfactorily deal with the problem until more effective action can be taken on the ground. In cases where a special cleaning will be needed on arrival, a radio message should be sent so that arrangements can be made beforehand and delays prevented.

The methods used by some airlines to decontaminate surfaces in the case of a spill or leakage of etiological agents (infectious substances) include the following:

(1) The use of carboxide (a mixture of 10% ethylene oxide and 90% carbon dioxide), which needs to be applied at the rate of 136 kg for every 28 m³ of space (300 lb/1000 ft³). The temperature in the aircraft must be more than 21 °C (70 °F) and the relative humidity 30%. The aircraft is sealed and the gas admitted through plastic or copper tubing with perforated holes along its length, until a cabin pressure of 48 kPa (7 lbf/in²) is obtained. This pressure should be maintained for 6-12 hours.

(2) A mixture of ethylene oxide and Freon II can also be used at the rate of 68 kg for every 28 m³ of space (150 lb/1000 ft³).

(3) A third method is the introduction of betapropiolactone in vapour form at the rate of 4.5 l for every 700 m³ of space (1.2 gal (US), 1 gal (UK)/25 000 ft³). For this, relative humidity must be over 70% and temperature 21 °C (70 °F). Exposure time is 2 hours, and the aircraft can return to service after a further 2 hours, since the vapour is rapidly dispersed. Betapropiolactone must be 98% pure, otherwise a polymer will form and settle on surfaces as a sticky coating that is difficult to remove.

When any of the above three ingredients is used, disinfecting should be carried out only by trained personnel.

8.5 Distribution of responsibilities and suggested areas of concern, by authority or agency

A. Distribution of responsibilities

<i>Authority or agency</i>	<i>Responsibility</i>
Health administration	Ensuring that airports within its territory have at their disposal the requisite organization and equipment for the application of disinfection procedures (Articles 15 and 19.2). ^a

^a The article numbers cited refer to the International Health Regulations.