



Ministero per i beni e le attività culturali e per il turismo

ISTITUTO CENTRALE PER IL RESTAURO

Istituto Centrale per il Restauro - ICR

Containment measures for Coronavirus - Ensuring compatibility with the protection and preservation of cultural heritage

This document provides general information, preliminary indications and recommendations for the sanitization of environments containing cultural heritage, in keeping with Memorandum no. 5178 (16 April 2020) of the Secretary General of the Ministry for Cultural Heritage and Activities and Tourism (MiBACT), on “*Containment measures for Coronavirus - Ensuring compatibility with the protection and preservation of cultural heritage*”. The document, under the specific request of the Secretary General and the Directorate General of Education, Research and Cultural Institutions, is issued by the Istituto Centrale per il Restauro (ICR), following consultation with ICR technical and scientific experts of the relevant disciplines.

Currently, there is no evidence that Covid-19 is transmitted through deposition on objects and subsequent shared use. However, it has been shown that viruses responsible for acute respiratory disease (coronavirus, SARS, MERS) can survive on inanimate surfaces for up to 9 days, depending on the type of surface material, the initial amount of biological fluid and viral concentration, the air temperature and relative humidity.

Given the evidence, and following consultation with the Social Partners, the President of the Council of Ministers issued the “*Shared protocol on regulatory measures for the control and prevention of Covid-19 transmission in workplaces*”, 14 March 2020. The latter were supplemented by recommendations of the Ministry of Health of 24 April, updated 19 May 2020. The protocol and recommendations regulate actions for daily cleaning of rooms, spaces, workstations and common areas, as well as periodic sanitization using appropriate detergents.

Article 21 of Italian Legislative Decree 42/2004, amended and supplemented, provides that all ordinary and extraordinary restoration and/or maintenance operations on cultural heritage must be carried out by qualified conservator-restorers, in accordance with specific procedures. Notwithstanding, it must be recognised that the sanitization operations for spaces, objects and surfaces of shared use (i.e. cleaning, washing and disinfection operations for the destruction of pathogens) are typically carried out by companies and personnel with the relevant qualifications in the field.

It should also be borne in mind that not all common disinfectants or sanitization methods are suitable for cleaning the spaces used for the storage, conservation and display of cultural properties. The procedures used for sanitization cannot therefore be considered univocal, or applicable in the same way to all environments.

Among the products that can be used for sanitization procedures on hard surfaces, the Istituto Superiore di Sanità (ISS, Report no. 5, 21 April 2020 Rev., and 25/2020, 15 May 2020) identifies neutral soap, sodium hypochlorite (0.1 - 0.5%), ethanol (62 - 71%), and hydrogen peroxide (0.5%). All of these are to be used in consideration of their compatibility with the material to be cleaned, the contact times and the label indications. In addition to these disinfectants, ISS Report no. 19, 25 April 2020 also authorises the use of quaternary ammonium salts (didecyl dimethyl ammonium chloride, alkyl dimethyl benzyl ammonium chloride, etc.), as contained in commercially



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available Medical Protective Products (*Presidi Medico Chirurgici*, PMCs, defined in Decree of the President of the Republic no. 392, 1998). The ISS stressed the importance of the labelling of these products, with indications on antiviral action, concentration and contact time.

The ISS Memorandum on "*Disinfection of outdoor environments and use of disinfectants (sodium hypochlorite) on street and road pavements for the prevention of SARS-CoV-2 transmission*", circulated by the Ministry of Health (no. 9361, 18 March 2020) provides further relevant indications. This document confirms the suitability of ordinary street cleaning using conventional soaps/detergents, provided that care is taken to avoid the dispersion of dust and aerosols. However, it also concludes that there is no indication of any effectiveness in sanitizing external environments and floors with chemical products, since there is no base evidence that pavements or floor surfaces are involved in the transmission of Covid-19.

The Decree of the President of the Council of Ministers of 26 April 2020 reaffirms the measures on sanitization indicated by the ISS, and provides further regulatory measures against transmission of Covid-19 in the workplace, among these concerning the use of hand cleaning products and respiratory protection devices, and the obligation to inform anyone entering the workplace of the regulatory provisions, by issuing written indications directly to the person and/or posting them at the entrance and in the most visible places.

In this regard, *Confcultura* (the Italian association of private managers of museum services) has recognised the importance of reorganising visits to museums, archaeological sites and parks in a safe manner, and for this reason, together with the experts of the *Fondazione in Salute*, has developed specific guidelines for the control and prevention of Covid-19 in heritage places. These guidelines are aimed both at the staff responsible for providing public services and at the visitors and service users. Furthermore, the "*Declaration concerning the reopening of Institutes and places of culture*", recently signed (13 May), includes additional specific measures and procedures to be followed.

In addition, the ICR has taken into account the results from the National Institute for Workplace Insurance (INAIL) *Risk assessment table*, which indicates the risk for places of cultural heritage as "Low", and has considered the guidelines produced by other national and international research centres and institutes for the conservation of cultural heritage.

On the basis of all the above, the ICR provided general information, preliminary recommendations and instructions for the purpose of guaranteeing the conservation of cultural heritage properties owned or held by all persons or bodies, and acting in any role.

The general information, preliminary recommendations and instructions are contained in the Annex, which is an integral part of this document.



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ANNEX

I. CLEANING AND SANITIZATION

The term **cleaning** refers to the processes of detaching unwanted deposits from the surface or the interior of a substrate and removing them in solution or dispersion. The term sanitization, defined by the Istituto Superiore di Sanità (ISS), refers to the complex of cleaning and disinfection procedures and operations aiming at **destruction or inactivation of pathogenic microorganisms and the maintenance of good air quality**.

It should be borne in mind that sanitization procedures are aimed exclusively at objects, surfaces and portions of buildings intended for **shared and common use and/or traffic areas**, and **these procedures should never be used to sanitize properties of cultural interest**. For this reason, ICR recommends that, where possible, the **means and frequency of sanitization operations need to be agreed** or supervised by the conservator-restorers. The ICR also recommends that every cultural heritage place and institute request and retain the technical and safety data sheets of the products used for cleaning and sanitizing procedures.

In the case that a cultural heritage site or institution does not have adequate technical personnel, or if **sanitization** operations are more complex or extensive, the ICR is available, under specific request, to assess the compatibility of the applicable procedures and products on a case-by-case basis. ICR ensures maximum collaboration and immediate feedback by sending an email to icr.sanificazione@beniculturali.it.

1. Unless otherwise specified by the competent authorities, **there is no need to carry out a sanitization at the reopening of heritage sites and institutions**, particularly if regular cleaning of shared use and/or passages areas and spaces have been regularly cleaned during closure, and in any case in view of the spontaneous inactivation of the virus after 9 days.
2. **There is no need to sanitize courtyards, porticos, cloisters, archaeological sites, streets, outdoor pavement and in general pedestrian surfaces** using chemical products, given the low probability of coronavirus transmission, as well as the sensitivity of the virus to UV radiation.
3. **Clean common used and shared environments and/or traffic areas daily**, including objects such as door handles, handrails, tables, working surfaces, light switches, kneelers, benches, confessionals, tablets and individual audio guides, etc. Use water and neutral detergent. **Avoid spraying or splashing the cleaning liquids**.
4. **Periodically sanitize common use and/or traffic areas**, including objects such as door handles, handrails, display cases, tablets, individual audio guides, etc., using **paper or microfiber wipers with a mixture of about 70% ethyl alcohol and water** (400 ml of 90° denatured ethyl alcohol and 100 ml of water). The sanitization procedure should be carried out **after regular cleaning** with water and neutral detergent. **Avoid spraying or splashing the sanitizing liquids**.



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5. Alcohol-sensitive hard surfaces, such as Plexiglas or painted or lacquered furniture, may be sanitized using the commercially-available **non-perfumed disinfectant products based on quaternary ammonium salts** commonly known as Medical Protective Products (*Presidi Medico Chirurgici*, PMCs). These must contain less than 20% alcohol. The operators must **read the label, wear all PPE required, and respect contact times**.
6. **Sanitization and disinfection operations for archive and library spaces** should be conducted in accordance with the **guidelines** issued by the Central Institute for the Pathology of Archives and Book (*Istituto Centrale per la Patologia degli Archivi e del Libro*, ICPAL). The guidelines are available on the ICPAL website.
7. **Soft surfaces** subject to shared use (carpets, sofas, etc.) should be cleaned by regular vacuum cleaning. They may be protected by **single-use coverings**, or coverings that can be washed using water and neutral soap, or cleaned using steam cleaners. Any washing or steam-cleaning operation must be done in a separate space, **never** near cultural heritage properties.
8. In the case of soft-surface furnishings or decorations of heritage value in churches, museums, residences or historic villas open to the public, **evaluate the use of dust coverings** (e.g. non-woven fabric TNT, "Tyvek") and the implementation of **regular and ordinary maintenance plans**, projected and executed by qualified conservator-restorers.
9. In the case that **sanitization operations are carried out at distances of less than 1 metre** from any artworks, historical furnishings or any other **cultural properties**, these must be suitably **protected with polyethylene sheets or moved to a suitable environment** for the duration of the operations. Such operations must be conducted and/or supervised by **restorers** in collaboration with trained internal staff, or be subject to advice from qualified restorers in any case.
10. **Apply measures for the provision of adequate air exchange**, taking into account the specific conservation requirements of the constituent materials of artworks of the cultural property. Such provisions must respect the thermo-hygrometric standards indicated in the section "Environmental parameters" of the "Guidelines for technical-scientific criteria, operational and development standards in museums" (Legislative Decree no. 112/1998 Article 150, paragraph 6, Area VI, sub-area 1).

II. PRODUCTS, SUBSTANCES AND PROCEDURES TO BE AVOIDED IN CULTURAL HERITAGE CONTEXTS

1. **Avoid the use of chlorine-based products (bleach)** for cleaning or sanitizing interiors and any other contexts with the presence of cultural heritage properties. Such products, **even in low concentrations**, give rise to chlorine gas which is a catalyst of degradation processes and is extremely harmful to materials such as metals, organic substances and pigments (e.g. blackening of cinnabar, corrosion on metal and stone artefacts).
2. **Avoid the use of products based on hydrogen peroxide** for cleaning or sanitizing interiors and any other contexts with the presence of cultural heritage properties. These products can cause corrosion and degradation phenomena.



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3. **Avoid the use of ozone.** Although ozone has proven antiviral properties, it is a strong oxidising agent and can therefore cause severe damage to many types of artefacts materials (e.g. corrosion of metals; alteration of organic macromolecules including amino acids and lipids, found in paper, leather, parchment, egg-based paint films, casein, oil and synthetic polymers, other organic materials). In addition, the gaseous form of ozone makes the procedure difficult to contain, even though not used at a proper distance from cultural heritage materials or in nearest areas .
4. **Avoid the use of sanitization procedures involving UV rays.** Although Coronaviruses are observed to be sensitive to such radiation, there are many difficulties and limitations in their use due to the danger to human health. UV rays also induce photo-oxidation mechanisms, making them potentially harmful to the organic materials composing some cultural heritage properties.
5. **Avoid sanitization procedures that cause dispersion of droplets or nebulisation** of any product/substance in interiors or contexts with cultural heritage properties, including when using solutions with alcohol in water.

III. GOOD PRACTICES

1. The handling of cultural heritage properties should be avoided. This includes religious furnishings and objects such as pews, kneelers, confessionals, historic organs, wine flagons, chalices, etc. **If heritage objects are used in liturgical functions, it is preferable to substitute them with modern ones.** Where possible, **block access to historic architectural elements** (holy water fonts, chancel barriers, balusters, etc.), or **create protective areas** around cultural properties in common use spaces, in order to avoid the need for periodic sanitisation.
2. In cases where works of art and/or heritage objects need to be handled, exhibited or carried in procession for monstration, worship or ritual activities, **the ICR recommends that PPE be worn.** Once the activity is over, **the objects should be placed in a confined and protected environment** and not used or touched **for the next 10 days.**
3. In the case of **valuable heritage flooring** subject to traffic and sensitive to frequent washing (e.g. mosaics, *opus sectile*, carved stone, wood intarsia), **evaluate the use of protective measures** such as disposable shoe covers, **and the implementation of compulsory pathways.**



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IV. RECOMMENDATIONS

Sanitization procedures must never be applied to cultural heritage properties, whether movable or immovable. However, in the case that any cleaning or sanitizing operations are carried out at less than 1 metre from artworks, historical furnishings or any other heritage properties, these one should be suitably protected with polyethylene sheeting or removed to a suitable environment for the duration of the operations. Such operations should be conducted by conservator-restorers and/or trained internal staff.

In the case that these precautionary measures are impossible, please refer to the following table:

Table: Compatible products for sanitization of surfaces at distances of less than 1 metre from cultural heritage properties in different materials.

MATERIAL	COMPATIBLE PRODUCTS
Painted and/or varnished wood	Quaternary ammonium salts
Metal, metal alloys	Alcohols (ethanol, isopropanol)
Stone, plasters	Quaternary ammonium salts Alcohols (ethanol, isopropanol)
Ceramic, earthenware	Quaternary ammonium salts Alcohols (ethanol, isopropanol)
Glass	Quaternary ammonium salts Alcohols (ethanol, isopropanol)
Leather, leather coverings	Quaternary ammonium salts (Ventilate rooms to avoid excessive increase in RH)
Synthetic materials, plastics	Quaternary ammonium salts
Textile and related fibres	Alcohols (ethanol, isopropanol)
Composite materials	Quaternary ammonium salts (Ventilate rooms to avoid excessive increase in RH)
Scientific and musical instruments	Quaternary ammonium salts



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USEFUL REFERENCES

Memorandum of the Ministry of Health no. 9361 of 18 March 2020 on "Disinfection of outdoor environments and use of disinfectants (sodium hypochlorite) on street and road pavements for the prevention of SARS-CoV-2 transmission", [*Disinfezione degli ambienti esterni e utilizzo di disinfettanti (ipoclorito di sodio) su superfici stradali e pavimentazione urbana per la prevenzione della trasmissione dell'infezione da SARS-CoV-2*].

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<https://www.canada.ca/en/conservation-institute/services/conservation-preservation-publications/canadian-conservation-institute-notes/caring-heritage-collections-covid19.html>

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These preliminary indications have been drawn up by the following working group, after consultation with internal colleagues specialised in the individual disciplines.

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