



# SLOVENSKI STANDARD SIST EN 16790:2016

01-september-2016

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## Ohranjanje kulturne dediščine - Integrirano zatiranje škodljivcev (IPM) za zaščito kulturne dediščine

Conservation of cultural heritage - Integrated pest management (IPM) for protection of cultural heritage

Erhaltung des kulturellen Erbes - Integrierte Schädlingsbekämpfung zum Schutz des kulturellen Erbes

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Conservation du patrimoine culturel - Gestion de lutte intégrée contre les nuisibles (IPM) pour la protection du patrimoine culturel

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### **ICS:**

97.195	Umetniški in obrtniški izdelki. Kulturne dobrine in kulturna dediščina	Items of art and handicrafts. Cultural property and heritage
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**SIST EN 16790:2016**

**en,fr,de**

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EUROPEAN STANDARD

EN 16790

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2016

ICS 97.195

English Version

## Conservation of cultural heritage - Integrated pest management (IPM) for protection of cultural heritage

Conservation du patrimoine culturel - Gestion intégrée  
des nuisibles (IPM) pour la protection du patrimoine  
culturel

Erhaltung des kulturellen Erbes - Integrierte  
Schädlingsbekämpfung (IPM) zum Schutz des  
kulturellen Erbes

This European Standard was approved by CEN on 5 May 2016.

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EN 16790:2016 (E)

## European foreword

This document (EN 16790:2016) has been prepared by Technical Committee CEN/TC 346 “Conservation of Cultural Heritage”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2016, and conflicting national standards shall be withdrawn at the latest by December 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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## Introduction

Protecting cultural heritage from pests including insects and rodents, and microorganisms such as fungi, is a serious concern for many cultural heritage institutions. This is part of preventive conservation. The challenge of controlling these pests is increasing as several effective biocidal products have been banned by European legislation because of risks to health and environment. International trade, tourism, and global climate changes, with a rising mean temperature, may cause increased activity of microorganisms and an influx of insect pests not formerly known in many European countries. In addition, loans between museums or other cultural heritage institutions are increasing, thereby raising the risk of spreading pests. Previously, there has not been consensus in regard to quarantine and other preventive measures to tackle these problems. For this reason, there is a need for integrated pest management (IPM), a long-term, ongoing and holistic strategy, minimizing risks of damage to cultural heritage and its environment and reducing use of biocidal products. The aim of this standard is to be a management tool, describing IPM policies and procedures.

IPM for cultural heritage follows clear principles including:

- an organization defining roles and responsibilities of staff at all levels;
- comprehensive risk assessment;
- continuous inspection and monitoring;
- preventive measures that aim to physically block pest presence and development;
- remedial measures, prioritising non-toxic methods.

As part of a preventive conservation programme, IPM is as an effective way to reduce damage and cost and to minimize intervention.

In all pest management operations, European regulations and national legislation with regard to protected species and movable/immovable cultural heritage is applicable.

In all pest management operations, European regulations and national legislation on health and safety regarding treatments apply.

If biocidal products are considered for pest control, use should comply with European regulations and national legislation on health and safety regulations.

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## 1 Scope

This European Standard defines Integrated Pest Management (IPM) and describes a comprehensive methodology for managing pest problems for protection of cultural heritage.

This European Standard applies to objects and buildings, housing collections, such as museums, archives, libraries, historic houses and buildings, places of worship, art dealers and auction rooms, art transport and storage companies.

This European Standard does not apply to caves, gardens, and parks.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 15898, *Conservation of cultural property - Main general terms and definitions*

## 3 Terms and definitions

For the purposes of this document, the terms contamination and infestation are defined in separate terms to distinguish between different pests. In addition to general terms and definitions given in EN 15898, the following apply.

### 3.1 contamination

presence of fungi, photosynthetic organisms and bacteria on/in materials posing risk to cultural heritage

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### 3.2 eradication

action to eliminate pests

### 3.3 frass

waste and excrements from insects

### 3.4 housekeeping

general procedures to reduce the accumulation of dust, dead insects and other organic and inorganic materials

EXAMPLE      Cleaning.

### 3.5 infestation

presence of animal pest organisms on/in materials posing risk to cultural heritage

### 3.6 integrated pest management IPM

holistic strategy combining various approaches to reduce and deal with pest problems

Note 1 to entry: The building, the climate in the building, collection management, cleaning, monitoring, documentation, training, and education are all included in the concept.

**3.7****isolation**

action of keeping cultural heritage items apart in order to prevent the spread of a possible infestation or contamination

Note 1 to entry: If the object is regularly checked for a set period of time, this action is referred to as quarantine, see quarantine.

**3.8****monitoring**

process of measuring, surveying and assessing the material properties of an object or collection and/or factors of the environment over time

[SOURCE: EN 15898, definition 3.4.4, modified – “or collection” has been added]

**3.9****pest**

living organism that is able to disfigure, damage, and destroy cultural heritage

EXAMPLE Insects, rodents, fungi, bacteria.

**3.10****pheromone**

chemical compound that attracts insects

**3.11****plotting chart**

template to plot the activity and location of pests found by observation or monitoring

**3.12****quarantine**

period during which isolated objects are monitored for signs of infestation or contamination

Note 1 to entry: Quarantine is also used as a noun, referring to a specific area as quarantine.

**3.13****risk zones**

classification of areas based on assessing the potential of pest infestation/contamination for prioritising preventive or remedial actions

**3.14****staff**

persons working on the premises such as employees within the organisation/company, external company employees or volunteers

**3.15****trap**

catching device for rodents and insects

Note 1 to entry: Can be used in combination with attractants, for example pheromone, light and baits.

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**EN 16790:2016 (E)****3.16****treatment**

remedial action carried out on an object or an area in order to respond to an infestation/contamination of one or different pests

[SOURCE: EN 15898, definition 3.5.1, modified – “or an area to respond to an infestation/contamination of one or different pests” has been added]

**4 Symbols and abbreviated terms**

CFU	colony forming unit
EMC	equilibrium moisture content
IPM	integrated pest management
HVAC	heating, ventilation and air conditioning
HEPA	high efficiency particulate air

**5 Integrated pest management strategy and policy****5.1 Introduction to IPM**

IPM is an integral part of risk management within an organization as defined in ISO 31000.

When all risk factors for pest presence have been identified, analysed and evaluated, the appropriate action plans shall be prepared. They are aimed at preventing, monitoring, and, if required, treating the infestation/contamination.

IPM strategy is relevant to the needs of the institution, building, collections or environment and should use as much local information and expertise as possible. It should also be achievable in terms of human, financial, and logistic resources.

In order to develop an IPM strategy, the following key components shall be part of successful pest control:

- understanding material vulnerability;
- recognizing pests (the main species and the damage they cause);
- assessing the situation, inspection and monitoring;
- reducing risks;
- solving pest problems;
- post-treatment monitoring.

Continuous communication and consultation, as well as reviewing the action plan shall be integral parts of each step or the IPM strategy.

**5.2 IPM policy**

The IPM policy shall be authorized by management and included in the institution's policy documents. IPM shall be a standing item on the agenda at both senior management level and in the conservation department, where one exists. IPM shall be incorporated into job tasks of staff, endorsed by policy and supported as a core activity.

If renovating or designing a building, storage or an exhibition, as well as moving or introducing collections or objects, IPM shall be part of the process from the start.

The IPM policy is built on a framework, which defines all roles and responsibilities. It includes various tools, techniques, strategies, and actions and promotes coherence, communication and diffusion of information. The overall responsibility for IPM shall rest with the senior level management of the organization, which:

- defines the objectives to be accomplished;
- supports roles and responsibilities, including contracts with external pest control companies with clearly stated responsibilities;
- establishes communication procedures and use of hierarchical levels;
- provides the necessary human and financial resources;
- provides opportunities for training and development (information and communication).

All of the following aspects of IPM are of equal importance. See Annex A for an example of an IPM policy for a cultural heritage institution.

### 5.3 IPM coordinator

#### 5.3.1 Position

One staff position shall be appointed as coordinator of the IPM programme, henceforth called IPM coordinator. The IPM coordinator shall be responsible for developing and implementing an IPM strategy. He/she shall act as a project manager, able to collect and communicate information effectively to senior level management and other relevant positions.

The IPM coordinator shall be knowledgeable and experienced in IPM, including identification of cultural heritage pests, pest biology, and treatment methods used for cultural heritage. If needed, special training shall be provided to increase competence.

#### 5.3.2 Function of the IPM coordinator

The IPM coordinator shall have the day-to-day responsibility for the IPM programme, and shall regularly report to management. The IPM coordinator shall be given sufficient time (depending on the size of the collection and specific risks) and an adequate budget to be able to perform the given tasks. Financial resources for IPM shall not be project based but be seen as a continuous part of delivering IPM. Additional funding approval may be required when significant actions are necessary (e.g. during a pest outbreak).

The IPM function shall include:

- analysing risks from biological factors;
- prioritizing preventive actions and/or treatments;
- establishing appropriate policies and procedures for IPM;
- implementation of sustainable and appropriate technical solutions;
- identifying roles and responsibilities of different staff members;
- managing regular monitoring and data collection;

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- training staff members and volunteers and presenting relevant information to the public;
- advising subcontractors and external companies on special conditions for cultural heritage (vulnerability, etc.) and overseeing their work within the institution;
- analysing, evaluating and periodically reviewing procedures to improve the strategy.

**5.4 Training and education****5.4.1 Information and training**

General information on IPM and the purpose and implementation of the policy programme shall be given to all staff. Specialist training on IPM preventive procedures shall be given to all staff responsible for IPM implementation with oral presentations and/or hand-outs, for example explanatory posters with images of pests. A follow-up to the initial training shall be carried out at regular intervals. This includes information about the most common pests that might be a threat to cultural heritage.

IPM literature and help with recognition of pests shall be provided and easily accessible on the institution's intranet or similar. In addition, help with identification can usually be obtained from scientists (biologists, entomologists) in natural history museums, universities, or from private and public consultants.

**5.4.2 Health and safety**

As part of information and training all relevant staff shall recurrently be made aware of health hazards regarding pests, for example, allergies and infections. Training shall be given on safe application of treatments. Awareness of former treatments such as lindane, naphthalene, DDT, and derivatives of arsenic and mercury, possibly applied to collections in the past and still hazardous, shall be part of the training. Information shall be given on potential health hazards of treatments. EU and national legislation regarding hazardous substances applies and shall be taken into account in information and training.

**6 IPM procedures****6.1 Developing preventive measures**

Prevention shall be based on an evaluation of the environment, material composition and condition of objects, taking into account organisational aspects of the institution's activities.

Evaluation shows what type of biogenous risks the objects are likely to be vulnerable to and defines the priorities of preventive and/or remedial actions to be set up. Monitoring data and mapping, in combination with assessment of the vulnerability of the objects (see 6.2), allows definition of risk zones (very high; high; low; very low/no). For information on risk zones, see Annex B.

**6.2 Assessing material vulnerability**

Almost any collection and building may contain materials that can be damaged by pests. The inherent vulnerability of objects depends on material, fabrication, historical context or conservation conditions. The vulnerability of the objects shall contribute to the risk assessment.

Materials and individual objects that are at high risk and/or have been infested recurrently shall be identified and given heightened priority in IPM measures. Data collected from monitoring can help to map the scale, type, location and seasonal cycles of a pest problem.