



## 1. What can light cause to documents?

The exposure of documents to light, has a cumulative degradation mechanism, and can be measured in the total number of hours of exposure, which leads to the increasing of damage.

Light sources, whether natural or artificial, correspond in the electromagnetic spectrum, to 3 distinct types of ultraviolet radiation, visible light and infrared. The shorter the wavelength the more energetic is the radiation and vice versa.

A more energetic radiation does not imply an increase of degradation, since different types of radiation correspond to different types of damage.

## 2. Que danos provoca a luz?

The most characteristic damages, according to the type of radiation are:

- ✓ Ultraviolet (UV) radiation: yellowing, loss of physical resistance, material disintegration and colour fading.
- ✓ Visible spectrum: color fading which can occur within an interval of a few hours of direct sun exposure or in years of exposure to light.
- ✓ Infrared radiation: increase of the temperature and consequently of the hygroscopicity in objects surface; an increase in moisture absorption.

Note: The harmful radiation comes not only from the sun, but also from artificial light. It is recommended the use of halogen, tungsten and led light bulbs, in detriment of fluorescent and incandescent lamps.

### SOURCES:

- Alarcão, Catarina - To Prevent in order to preserve the museums heritage, p8 - Magazine of the Municipal Museum of Faro  
<http://www.museumachadocastro.pt/Data/Documents/Prevenir%20para%20preservar%20o%20patrimonio%20museol%C3%B3gico.pdf>
- [http://www.getty.edu/conservation/our\\_projects/science/lighting/case.html](http://www.getty.edu/conservation/our_projects/science/lighting/case.html)

## 3. How can I protect the documents?

- In order to promote thermal insulation, apply light filters in windows to filter UVs. These have an average duration of 10 years;
- Choose the illumination of spaces wisely, as the fluorescent and incandescent light bulbs emit UV and IV radiation;
- Attention: in the past light filter were used on light bulbs which, however, it presented a risk of self-combustion;
- If possible store the documents in the dark, exposing them to light only for a short period of time and at low light intensity.

## 4. Understanding reality

The action of light is "invisible", however, damages can increase and are irreversible. The best way to safeguard your documents is to look for a Conservation and Restoration professional to assess the conditions for storage and exposure, as well as preparing illumination of the areas.

These are the advices from the DRABM (Archive and Library of Madeira) Preservation, Conservation and Restoration team, which are merely indicative to minimize damage.

<http://abm.madeira.gov.pt>