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Gamma Disinfection of Lingo Cellulose Historical Collections

Abstract

One of the threats to our cellulose-based cultural heritage is destruction by mould. Besides the destruction of the materials there is also a risk for occupational health due to the formation of mycotoxins. Often used disinfection systems are ethylene oxide (EtO) and gamma radiation. Materials treated with gamma radiation appear to be non-toxic after treatment as no components are brought into the materials while it is suggested that EtO treated objects might be toxic. This paper summarised the obtained results of our research project aimed at finding the most suitable conditions, including logistics, for gamma disinfection. Based on our work we suggest that (8 ± 2) kGy would achieve a good disinfection while the found changes in material performance are acceptable. This, however, will be concluded once our work is fully finalized.

The case study carried out at the Dutch Peace Palace (The Hague) concludes the need of a total collection management in disinfection collections.