

Plastics in heritage collections and their sensitivity to visible light

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Introduction

Despite their relatively short history synthetic and semi-synthetic materials have very quickly penetrated every facet of modern society. The incredible versatility of plastics has enabled artists and designers to express their creativity like never before. Even everyday objects are fast becoming heritage due to the way they completely transformed how we live our lives. Plastics have become ubiquitous, however our knowledge of their longevity is still lacking. This especially applies to their relationship with visible light.

One of the reasons for that is the very thing that contributed to the popularity of plastics today – the large variety of different types and the ability to improve their properties with additives. This complexity means that a lot of research is still needed, particularly with regards to the stability of plastic objects in museums. This project will seek to establish the effect of visible light on plastic artefacts in the context of a heritage environment.

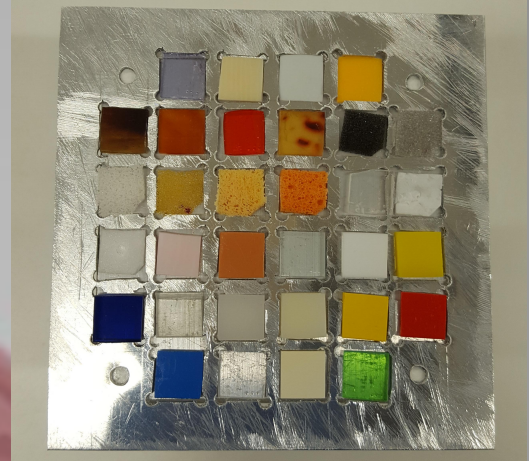
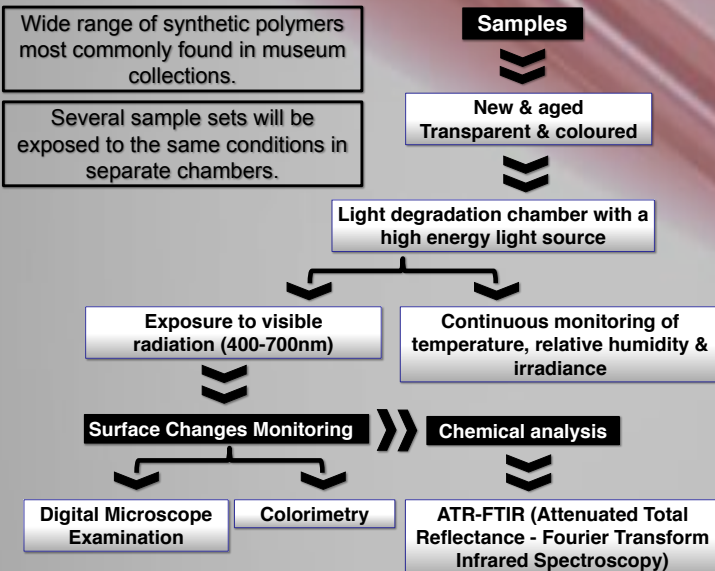


Fig 1. Plastic samples ready for the ageing experiment.

PROJECT OUTLINE



Intended Outcomes

As well as forming the base for further and more detailed research the results of this project will contribute towards:

- Improved and targeted lighting recommendations for plastics in heritage collections
- Revision of light sensitivity assessment categories in museum guidelines
- Dedicated lighting products for the heritage sector
- Improved visual visitor experience

Research Questions

- How are plastics sensitive to visible light?
- How can we best quantify that sensitivity?
- How do coloured plastics behave compared to transparent ones on light exposure?
- How do the visible appearance changes relate to alterations on a molecular level?



Fig 2. Using infrared spectroscopy to identify plastics in the Museum of Childhood.

Acknowledgments

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