

Introduction

Acrylic sheet, *i.e.* poly(methyl methacrylate) or PMMA, is a 20th century plastic that found worldwide applications including in art. Developed during the 1930s, it was commercialized primarily under the trade names *Plexiglas*[®], *Perspex*[®], and *Lucite*[®]. Its transparency, lightweight, strength, and ability to be moulded made it suitable for aircraft canopies during WWII but also attractive to artists, like Naum Gabo and other members of the Russian *avant-garde*. Besides its use by these artists, PMMA and plastics in general, were practically not seen in artworks until the 1960s, when synthetic materials became accessible to everyone. PMMA has also been used by Portuguese artists but, to our knowledge, no studies have been made about its introduction and relevance in Portuguese art, and its presence and condition in national collections. Aiming to fill this gap, the main Portuguese collections of modern and contemporary art have been surveyed regarding artworks present with elements in PMMA. The goals and preliminary results of this survey have been presented at the Plastics Heritage Conference 2014. We are now sharing the final results of the project.

Methodology

Collections surveyed

- Museu Nacional de Arte Contemporânea do Chiado
- Serralves Collection
- Berardo Collection Museum
- Caixa Geral de Depósitos Collection
- Centro de Arte Manuel de Brito: Coleção Manuel de Brito
- Museu de Arte Contemporânea de Elvas: Coleção António Cachola
- EDP Foundation's Art Collection

Number of objects considered: 137
Number of objects observed: 90
Number of PMMA elements observed: 246

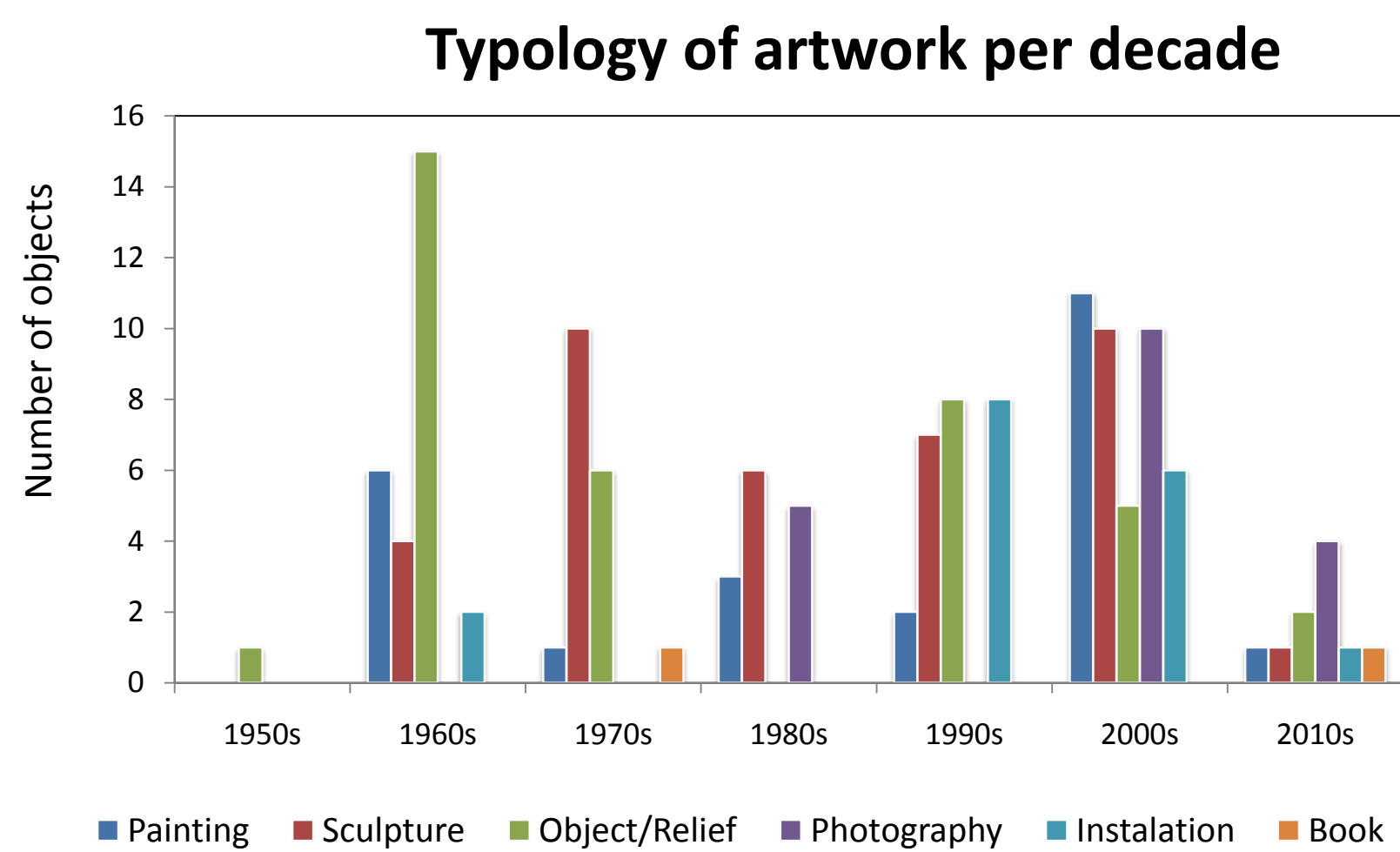
Information collected

The interface is divided into two main sections. The left section, titled 'Information collected', shows a form for object details including artist (Lourdes Castro), date (08-08-2014), location (Storage CAM-FCT), object name (Storage CAM-FCT), object date (1965), and dimensions (71 x 116,5 x 5 cm). It also includes a description of the object and a photo. The right section, titled 'Description of the PMMA elements (left) Evaluation of damage on the PMMA elements (right)', shows a form for PMMA identification (Type: Sheet, Thickness: 3 mm) and a detailed evaluation of damage (darkening, fading, yellowing, etc.) with a scale from 0 to 4.

- Information from each object and PMMA element observed was organized in a database created with *FileMaker Pro*.
- Types of damage, condition grades, and damage grades were based on the POPART project¹.
- Polymer identification is based on museum/artist information and was not confirmed by molecular analysis.

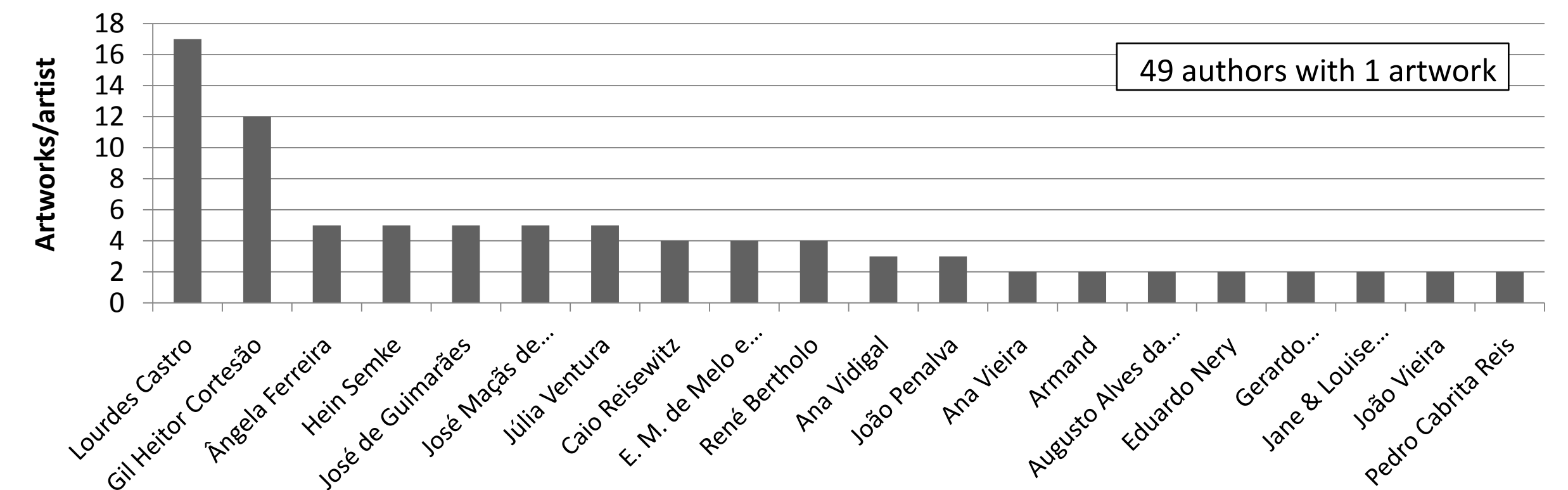
¹ <http://popart-highlights.mnhn.fr/>

What type of artworks have been made using PMMA?



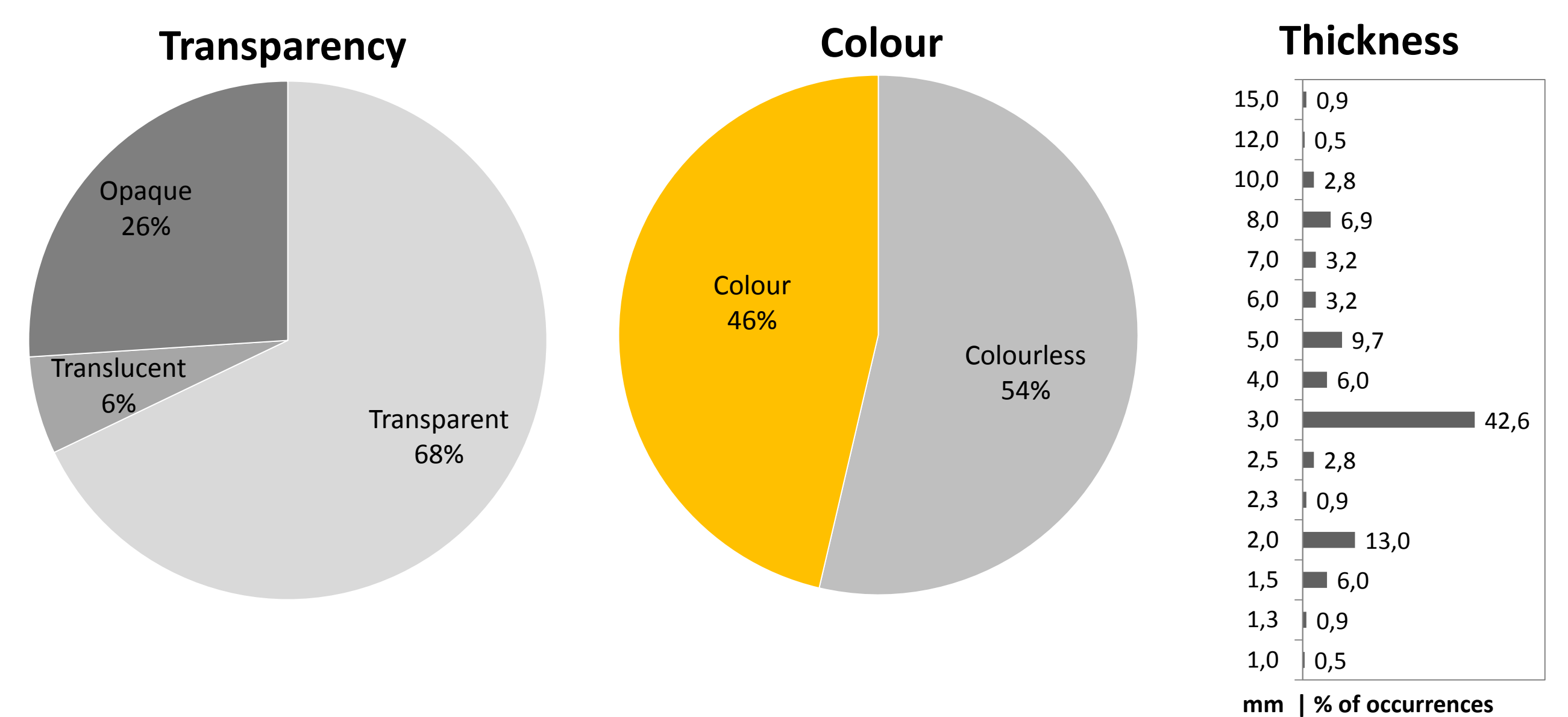
Left: number of surveyed artworks distributed by typology per each decade. Right: examples of artworks representing each typology: a) Painting by Gil Heitor Cortesão, untitled (*Manifestação*), 2004, Calouste Gulbenkian Museum - Modern Collection. b) Sculpture by René Bertholo, *Arco-íris*, 1971, Coleção Manuel de Brito. c) Object/relief by João Vieira, *Elo (Assemblage)*, 1971, Calouste Gulbenkian Museum - Modern Collection. d) Installation by Miguel Leal, *Atlas*, 2001, Museu Nacional de Arte Contemporânea do Chiado; e) Faced-mounted photographs by Augusto Alves da Silva, 3.16, 2003, Museu de Arte Contemporânea de Elvas - Coleção António Cachola. f) Book by Lourdes Castro, *Os Lusíadas*, 1971, Serralves Collection.

Which authors have worked with PMMA?

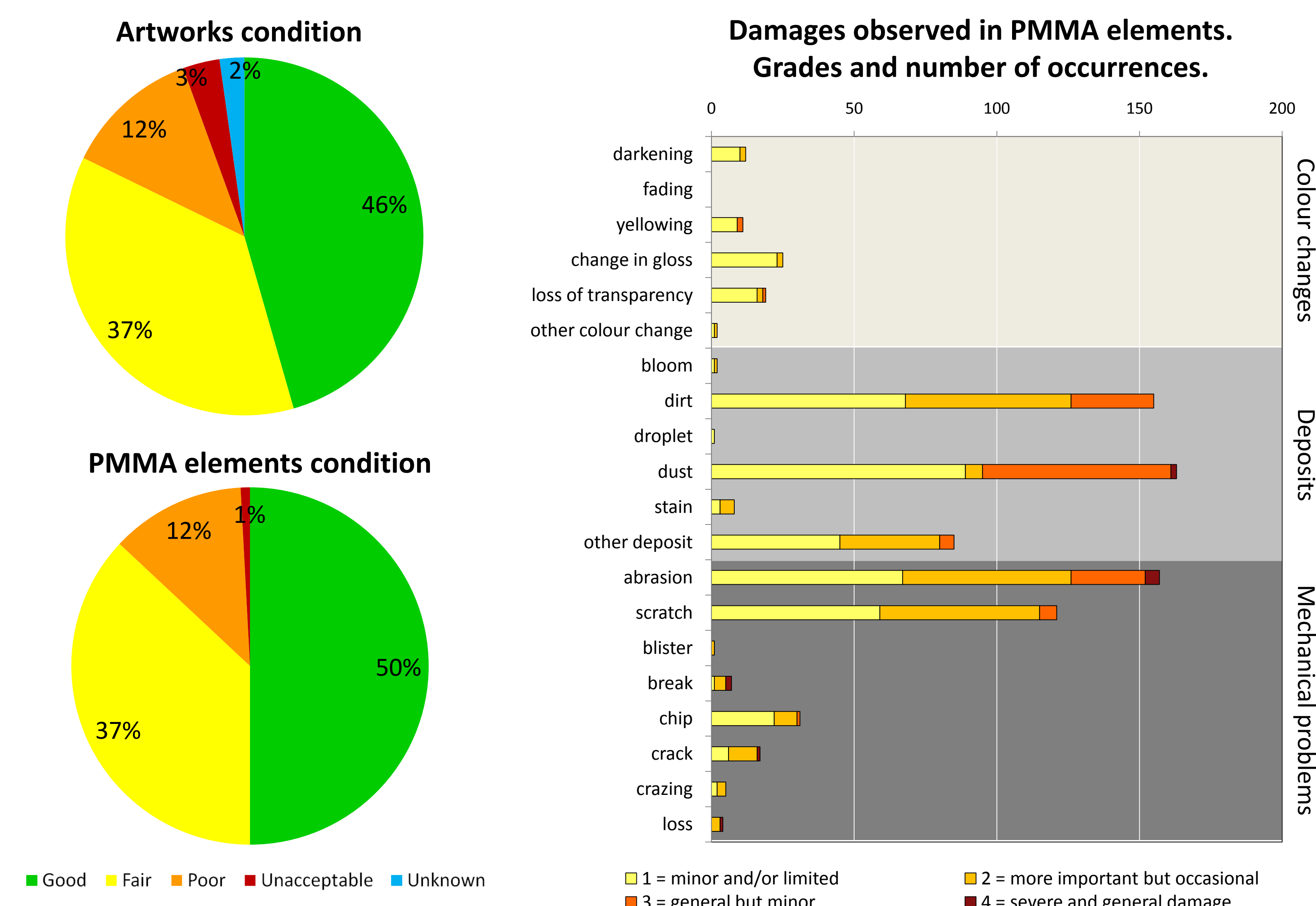


Most of the artworks surveyed are by Portuguese artists, but the three oldest ones belong to English artists: Mary Martin (1959), Peter Blake (1961), and Anthony Hill (1963). The fourth is by Lourdes Castro (1964); she is also the most represented artist in this survey.

What type of PMMA was used?



What is the condition of the artworks and PMMA elements? What are the main problems observed in PMMA?



Conclusions

- This survey shows the diversity of artworks in which PMMA may be present, including not so obvious ones such as faced-mounted photographs.
- The use of PMMA by artists is consistent with its availability for the rest of the society. It started to be explored during the 1960s and remains in use until today.
- Lourdes Castro is a key reference. She was probably the first Portuguese artist to explore this material and her artworks are the most represented in collections.
- The majority of artworks and PMMA elements is in good condition.
- Main problems observed result from external factors (dust, inappropriate handling, inappropriate cleaning, accidents).
- Given the extreme sensitivity of acrylic to abrasion and scratch, conservation research should focus on the development of safer cleaning methodologies.

Acknowledgments

The authors thank the financial support of Fundação para a Ciência e Tecnologia, Ministério da Educação e da Ciência (FCT/MEC), Portugal, through doctoral programme CORES_PD/00253/2012, doctoral grant SFRH/BD/52318/2013 and projects IF/00653/201/CP1284/CT0004 and PTDC/IVC-HFC/5174/2014. This work was supported by the Associate Laboratory for Green Chemistry LAQV, financed by national funds from FCT/MEC (UID/QUI/50006/2013) and co-financed by the ERDF under the PT2020 Partnership Agreement (POCI-01-0145-FEDER-007265).