UNDER THE WEATHER – FINDING CLEANING METHODS FOR HISTORIC OUTDOORS SITUATED PMMA

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So far, there is no conservation guideline for performing cleaning on historical acrylic objects which are permanently stored or situated outdoors. Due to continuous weathering these surfaces – compared to properly indoor stored museum objects – often present different and more pronounced soiling (soot, moss, graffiti) as well as advanced aging phenomena, and require cleaning in more regular intervals. Especially in the field of cultural heritage, cleaning methods also need to be large-scale adaptable and applicable on vertical or rather hardly reachable surfaces such as roofs and windows of buildings.
This study`s objective is to find a suitable, gentle yet effective cleaning method for outdoors situated and naturally aged transparent poly (methyl methacrylate) (PMMA). Test series were performed on a particular case study, the Olympic Sports Facilities in Munich, which present soiling caused by its location in a park and an additional impact of urban pollution. While testing and evaluating cleaning methods on these surfaces the project also aims to present a first step towards an overdue cleaning guideline for outdoors situated art and historical monuments made of PMMA.
Based on the conservation literature for cleaning indoors stored PMMA objects as well as experiences and knowledge of built heritage conservation, industrial cleaning and the care instructions of material manufacturer of PMMA components, potentially suitable cleaning methods were selected.
Two hands-on test series where then performed on originally aged roof parts of the Olympic stadium in Munich from 1998 made of PMMA. To evaluate the damage potential, the cleaning methods where applied to unsoiled PMMA surfaces (stored exchange material). Their success and applicability was tested on naturally aged and soiled samples (removed roof parts). The evaluation of the cleaning methods was carried out by optical examination (macroscopic and microscopic) and analytical methods such as profilometry, change in contact angle and changes in color and gloss.
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