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ETICAL

Study, identification and classification of corrosion forms of aluminium artefacts

OBJECTIVES

Inventory of the main aluminium alloys found on objects from a selection of Swiss public collections (Swiss National Museum, Museum of History of Lausanne) and non-invasive examination of representative artefacts (identification and characterization of their corrosion forms).

PROGRAM

Aluminium alloys were first used in the middle of the 19th century to produce luxury artefacts. Later, these light materials were employed to fabricate artefacts that became icons of our modern societies before becoming the favourite materials of newly emerging industries (aeronautics, packaging) at the beginning of the 20th century. Today, they are considered essential witnesses of the second industrial revolution and of advanced technologies that marked the end of the 19th century.

Thanks to their oxide layer, aluminium alloys are resistant to any form of corrosion in normal conditions of use. Unfortunately, their reputed corrosion resistance often lead to limited controlled storage with the loss of surface-polish and sometimes unexpected corrosion phenomena on the artefacts being a consequence.

Due to the recent interest of conservation professionals in industrial heritage, the cultural values of aluminium based objects have been highlighted, as well as the need to monitor them more thoroughly. However, conservators have only recently been discovering the different corrosion forms present on these artefacts. The difficulty in diagnosing their alteration is further emphasized by the large variability of the alloys used since the middle of the 19th century, the complexity of the history of their use and the variety of environments to which they have successively been exposed to.

With this project, we aim to produce a catalogue of aluminium alloys found in Swiss public collections with their typical corrosion forms. Conservators should use it as a diagnosis tool to apprehend the possible risks of evolution of the corrosion developed on aluminium based objects. It is also expected that it will contribute to a better recognition of aluminium objects in public collections and hopefully their improved visibility among the general public.

TEAM

HES-SO
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PARTNERS

The Collection Centre of the Swiss National Museum, Zurich; Historical Museum, Lausanne; Laboratoire de caractérisation et assurance qualité du Centre suisse d'électronique et de microtechnique, Neuchâtel; Haute Ecole Arc Ingénierie and Ecole des Hautes Etudes en Sciences Sociales, Paris

DURATION

18 months
1.1.2016 – 6.6.2017