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Anoxic Microclimates for Geosciences conservation

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ABSTRACT

Anoxic microclimate storage is used in the Museums Victoria geosciences collections to modify the environment of specimens unstable in general store conditions including fossils, meteorites and minerals. Microclimates are used in these collections for arresting active pyrite decay and corrosion, particularly in chloride contaminated iron-nickel meteorites. From 2008 - 2014 microclimates were constructed from a variety of barrier films and oxygen scavengers. Many were expected to be exhausted and require replacing. A survey was proposed to collect data about the current state of the microclimates, and to replace those which had failed. A literature review was performed to gather information from other museums and scope new products for microclimate construction. The future of this project aims to expand this storage technique with a variety of customisable microclimates to arrest and prevent chemical deterioration of vulnerable specimens and to develop a sustainable maintenance program.

Oxygen levels of all existing microclimates were surveyed with an Oxybaby M+ Gas Analyser (generously loaned by the Australian War Memorial) and data was gathered on the condition of barrier film, seals and specimens. The results showed well-constructed microclimates will remain oxygen-free past their expected life spans. Microclimates which were no longer oxygen free often had scratches in the barrier film, or flaws in their construction. These observations proved valuable for increasing the quality of the microclimates made in the future.

This project was communicated by internal workshops and the production of an episode of Museum Victoria's *Discover* documentary series. It involves a successful collaboration between Geosciences collections staff and conservation and utilised volunteers from both departments.

BIOGRAPHY

Danielle Measday trained as an objects conservator at the University of Melbourne's Masters of Cultural Material Conservation program. As conservator of Natural Sciences for Museums Victoria she works closely with collection managers, curators and researchers across the zoology, palaeontology and geology fields to facilitate access to the collections, and preserve them for the future.