

臺灣傳統建築彩繪木構件修護材料
——填補材料耐候性研究初探

Conservation Material for Polychrome Wooden
Object of Traditional Architecture in Taiwan –
Study of Weatherability of Filling Materials

吳佩綺 | Pei-Chi Wu

朱銘美術館典藏維護部專員
Specialist, Collection and Conservation
Department, Juming Museum

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摘 要

本文主要探討對象為目前臺灣傳統建築彩繪木構件修護常用的兔皮膠填料、壓克力乳膠 (Plextol®D498) 填料。填料以不同的填充材，如香檳白堊土、波隆納土、高嶺土、玻璃微泡、麻纖維、纖維素粉等材料，分別與兔皮膠、Plextol®D498 混煉製成。在充分了解填充材、結合劑與填料之基本性質後，針對填料進行拉伸強度試驗、耐候性試驗與水分吸附等溫線試驗，透過破壞伸長率、拉伸強度、硬度、附著性、水分吸附等溫線等數值，評估填料的耐候性與適用性，以提供修護師選材時參考使用。

試驗結果顯示，兔皮膠填料對於濕度較為敏感，若長時間暴露在高相對濕度的環境下，除了附著度與硬度降低外，填料將受到微生物病蟲害侵擾；反觀 Plextol®D498 填料則較為穩定。本次試驗的十組填料中，以 Plextol®D498 混合玻璃微泡為最穩定之填料。

但 Plextol®D498 混合玻璃微泡並非所有修護案皆適用，修護前，仍需由修護師評估文物的基本性質、劣化狀況、保存環境條件，以及填料特質等實際狀況，進而調整甚至改變填料配方。

關鍵詞：彩繪木構件修護、填料、填充材、結合劑、耐候性

Abstract

This paper focuses on different kinds of filling materials, such as calcium carbonate, calcium sulfate, kaolin, glass bubbles, hemp, cellulose powder etc., which can be mixed with rabbit skin glue and acrylic dispersion (Plextol®D498). Those fillers are commonly used for polychrome wooden objects conservation of temples in Taiwan. After understanding the characteristics of filler and binding media and doing ageing test, tensile strength test, and moisture adsorption isotherms, the data could serve as a reference for choosing conservation materials.

The result shows that the effect caused by high relative humidity is stronger than high temperature, especially the filler mixed with rabbit skin glue. Exposed to high humidity environment for long term, the adhesion, its hardness would be decreased, and would attract insect and cause mildew growth. The filler mixed with Plextol®D498 is more stable after ageing test. Among ten fillers, Plextol®D498 mixed with glass bubbles is the most stable one.

However, Plextol®D498 mixed with glass bubbles does not suit each cases, it is not absolutely perfect. Choosing suitable filler for conservation, it still needs conservator to evaluate essential properties, degradation of objects, storage environment, and the filler's characteristics and other realistic conditions to make a suitable filler prescription.

Keywords: Conservation material for polychrome wooden object, Filler, Filling material, Binding media, Weatherability