



The Potential Problems of AESUB Sublimating Scanning Sprays for 3D Scanning in Conservation

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The Presence of Residue

Challenges and Questions

There are limitations in 3D scanning. One limitation is that surfaces that are shiny, transparent or dark can be difficult to scan. Fur and feathers may also be challenging, and based on the authors' experiences, the same is true for bones and teeth. These challenges can be overcome in different ways, such as with the help of scanning sprays that makes the surfaces of objects more matte. The AESUB company produces sublimating scanning sprays, such as AESUB Blue, AESUB Transparent and AESUB Yellow, which were examined in this study. AESUB (the company) claims that these sprays sublimate on their own, and that cleaning won't be necessary. Do the sprays sublimate as suggested? And what are the potential consequences if not?

Results and Potential Consequences

This study examined the three AESUB sublimating scanning sprays, and their possible residues. It was found that all three sprays left a residue after sublimation, and preliminary tests suggests the residue will persist after several months. Fourier Transform Infrared Spectroscopic (FTIR) studies indicated that the residues generally contain hydrocarbons, possibly alcohol and, in the residue of AESUB Yellow, carboxylic acid. The possible presence of alcohol and carboxylic acid can have a degrading effect on different materials, such as metals, glass and organic materials.

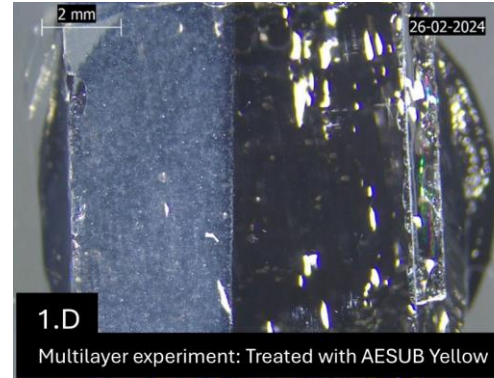


Fig. 1.D Glass sample, partially treated with AESUB Yellow, shown after the spray have sublimated. There is a clear divide between the treated (left) and the untreated (right) areas.

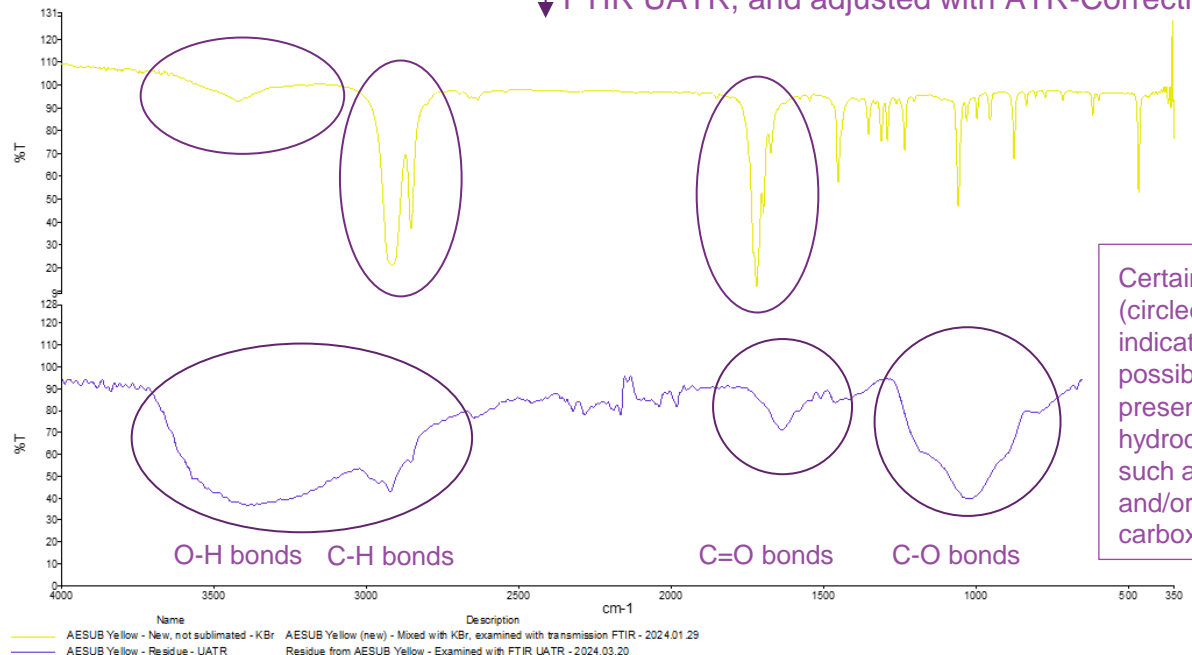


Fig. 2 FTIR spectrum of residue from AESUB Yellow Top spectrum: "New" AESUB Yellow, analyzed by FTIR transmission. Bottom spectrum: AESUB Yellow residue, analyzed with FTIR UATR, and adjusted with ATR-Correction.

Certain peaks (circled) indicates the possible presence of hydrocarbon, such as alcohol and/or carboxylic acid.