

[SUMMARY]

Identification of Plastics used for Costume Collections and Improvement of their Storage

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There are around 13,000 Western and Japanese costumes, including accessories and undergarments in the Kyoto Costume Institute. Among them, plastics are currently some of the most vulnerable and problematic objects. Many of these pieces are made of ephemeral components riddled with inherent vice, which were never intended for long-term use. It is widely accepted in the field of textile and costume conservation that cellulose nitrate, cellulose acetate, polyvinyl chloride, polyurethane, elastic and fully vulcanized hard rubber (ebonite and vulcanite) are malignant plastics. This paper reports on the identification of malignant plastics by using FTIR analysis as well Cresol red indicator strips, Congo red strips and Acid-Detecting strips to determine if objects are actively degrading. Air quality monitoring using the GASTEC Passive Dosimeters and the KITAGAWA Gas Detector Tube are effective at determining hazardous nitrogen oxide gas that degraded cellulose nitrate produces. To improve the current storage condition of plastics, objects such as European-style fans and a handbag made of cellulose nitrate were covered with gas adsorption sheets and individually stored in acid free archival boxes. Additionally, Vivienne Westwood's dress painted with polyvinyl chloride was wrapped with silicone sheeting instead of acid free tissue paper in order to avoid adhesion of the painted surface.