SITTING PRETTY: COLLABORATIVE TREATMENT OF AN EARLY YAYOI KUSAMA SOFT-SCULPTURE CHAIR

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This article discusses the collaborative treatment undertaken on an early Yayoi Kusama (born 1929) soft-sculpture chair by both objects and paintings conservators at the Dallas Museum of Art. The chair is one part of Accumulation (1962–1964), a body of work characterized by accumulations of phallic-like fabric protuberances that would eventually evolve to full sensory environments. This body of work represents Kusama's early artistic career during the period when she first moved to New York City in 1958 and was developing in the avant-garde.

Accumulation, a co-owned work between the Rachofsky Collection and the Dallas Museum of Art, was requested for loan for a retrospective on Kusama; this article details a project during which its condition, treatment needs, and travel logistics were evaluated. The chair is encased in a network of soft, stuffed fabric bundles that are painted white with a thick, rigid paint. Safely packing the object was the primary concern owing to its complex surface—soft, yet brittle simultaneously. Structural treatment of the individual fabric bundles had to be addressed, as several had been crushed and damaged in the past. Networks of large unstable cracks had formed throughout the paint layer, which had also become embedded with grime and needed to be cleaned and consolidated. Owing to the complex nature of the object, both paintings and objects conservators collaborated to develop and enact a specialized treatment plan for this complicated and fantastic object.

1. INTRODUCTION

Treatment was undertaken during the fall of 2016 on a Yayoi Kusama (born 1929) Accumulation chair co-owned by the Dallas Museum of Art (DMA) and the Rachofsky Collection. Kusama's Accumulations are complex, multi-faceted environments that incorporate many “soft” objects, like the DMA/Rachofsky chair (fig. 1). This chair had originally been incorporated into one of these conceptual spaces and would once again join other soft sculpture objects as it was planned to travel with a retrospective of the artist's work.

In order to prepare the chair for travel for this loan, the piece required collaboration between both objects and paintings conservation specialties. The soft painted elements applied onto the underlying chair required cleaning and stabilization. The piece as a whole also had to fit within the broader context of other white monochrome Accumulations. The collaboration between objects and painting conservators resulted in the development of a cleaning system involving gels and emulsions—specifically for cleaning complex painted surfaces—and the creation of a specialty crating system for an unusual and fragile three-dimensional object.

The conservation of contemporary art can become a complex web. Essential is the delicate balance between any number of often competing influences that can affect treatment decisions. Included in this balance are factors such as materials and techniques, artist's intent, aesthetics, conservation ethics, urgency, technical limitations, and economic aspects. Decisions develop from collaborative discussion between conservators, curators, artists, and other colleagues from any number of specialized industries. This project allowed the team to work collaboratively toward stabilizing and preparing this object for travel and, importantly, showing it within its original context among a larger Accumulation.
Yayoi Kusama was born in 1929 in Matsumoto, Japan and grew up near her family’s plant nursery. She describes a rough childhood as dark and hopeless, leading her to create art. Polka dots and nets were early repetitive motifs evoked by the young Kusama at around age ten. By this age, she was already suffering from visual and aural hallucinations. Self-oblation, as she refers to it, became a coping mechanism for Kusama, a process in which her life and her art became one—in which she would lose herself in the imagery. This repetition would become a recurring theme throughout her life and artistic career (Turner 1999).

As a teenager during World War II, Kusama worked in a parachute factory. This familiarity with sewing factors into her later use of fabric in the development of what became known as her soft sculptures. At 19, following World War II, she went to Kyoto to study the traditional Japanese style of painting known
as *Nihonga*, an experience she has discussed as having hated (Kusama 2011). During this time, she began experimenting with abstraction. She contacted Georgia O’Keefe, whose address she had found in a book at the Embassy, to ask for advice (Kusama 2011). O’Keefe encouraged her to move from Japan to the United States in 1957, and Kusama’s career took off almost immediately after her arrival.

Living in New York from 1958 to 1973, Kusama moved in avant-garde circles with such figures as Andy Warhol, Claes Oldenburg, Donald Judd, and Eva Hesse. She began to refine her signature dot and net motifs while developing her soft sculpture installations. This was a time of experimentation, marked also by Kusama’s infamous naked polka-dot painting *Happenings* in the late 1960s. The soft sculpture installations began by taking furniture and other everyday objects and covering them with handmade fabric penises—covering and consuming well-known objects such as stepladders, chairs, and a rowboat, to name a few. She eventually created entire environments out of these formations, initially in all white. In many references, she mentions her motivation at the time as being reactionary to not only a sexist art environment and her womanizing philandering father but also her fear of sex (Kusama 2011).

The DMA/Rachofsky *Accumulation* was created between 1962 and 1964, most likely in a downtown loft located in the same building as the studio of her friend, the artist Claes Oldenburg. Other artists—such as Donald Judd, who lived in her building—helped in the preparation and stuffing of the protrusions (Takasugi 2017). Kusama comments on the creation of her soft sculptures as follows: “At that time, I was really poor. So, I took my sheets and sewed together numerous phalluses on a second-hand sewing machine, filled them with the stuffing from the armchair I found in the junkyard, and attached them to various things in my room—burying the room under those luxuriating protrusions.” (Matsui 1998).

After reviewing old interviews, diving into Kusama’s writings, contacting other custodians of white stuffed Kusama objects, and even receiving a few responses from Kusama herself (via her studio assistant Megumi Takasugi), three things emerged that drove the conservation treatment decisions:

1. Her use of white paint on the soft sculptures was short lived owing to issues of stability. In an interview in 1999 by Grady Turner in *Bomb* magazine Kusama stated, “Initially, I used white paint, but began to use silver and gold sprays around 1963 as I found them to be more durable.”

2. The surface of the white accumulation sculptures was meant to be regular, unified, and matte. This was directly communicated in an e-mail exchange with Kusama’s current studio assistant Megumi Takasugi (Takasugi 2016).

3. Visual evidence gathered from other similar soft sculptures from the Museum of Modern Art (MoMA) in New York, the Whitney Museum of American Art in New York, the Hood Museum in Hanover, New Hampshire, the Akron Art Museum in Akron, Ohio, and the Des Moines Art Center in Des Moines, Iowa provided a survey of current condition issues and general understanding of the intended original surfaces. This survey was essential in deconstructing the various layers of restoration piled on our chair. All of the original surfaces were matte and thin as opposed to the current surface of the DMA/Rachofsky chair, which was layered and stiff with a glossy finish.

Archival photographs helped to shed light on not only the original context of the *Accumulations* but also the original structure and tactile qualities of the soft sculptures. In several photographs, Kusama can be seen leaning and sitting on her white *Accumulation* furniture, giving insight into the likely original soft texture of the fabric phallic protrusions.
3. CONDITION AND TREATMENT HISTORY

The DMA/Rachofsky *Accumulation* is a stripped chair, with hundreds of stuffed fabric bundles (protrusions) hand sewn to a base layer of fabric. The network of soft, stuffed fabric bundles, bottom fringe, and legs are painted white with a thick, rigid paint (top layer). The fabric used to create the protrusions differs in texture and thickness, originating from different sources (including color and pattern). It was obvious both visually and when examined with UV radiation that there had been several campaigns of restoration, as evidenced by a variety of patchy layers of different tones and sheens of white-colored paint, each exhibiting a discrete induced fluorescence. In raking light, a rough and fragile underlayer was observed, lying fragmented beneath layers of overpaint and varnish/adhesive. The extensive flaking of this underlying paint layer visible in raking light was likely the reason for the multiple restoration campaigns (figs. 2, 3). All of this inconsistency and variance prompted a more in-depth investigation.

Structural treatment of the individual fabric bundles had to be addressed, as several had been crushed and deformed in the past. Networks of large unstable cracks had formed throughout the paint layers, which had also become embedded with grime and needed to be cleaned and consolidated. Additionally, this piece was quite dusty; the numerous protrusions created difficult areas to dust coupled with a lot of surface area to collect dust (fig. 4).

Provenance records show that *Accumulation* had been through at least five previous owners before it was acquired by the DMA and the Rachofsky Collection in 2008. The only conservation treatment record

![Fig. 2. This figure shows the differences in color and uneven applications of different restoration paints along the back of the chair. (Courtesy of Dallas Museum of Art, photograph by Brad Flowers)](image-url)
that exists for *Accumulation* is from 2006, and describes how Beva 371 was used to consolidate a few localized areas of loose paint.

Examining various white *Accumulations* in other collections, it became clear that the states of preservation varied greatly. MoMA's *Accumulation* No.1, a similar white chair, has the most direct lineage from artist to museum and became the benchmark for the intended original paint surface. The surface paint of the MoMA chair is relatively thin, and many of the protrusions remain relatively soft to the touch. The MoMA chair also has an overall cooler tonality than the overlying paint layer of the DMA/Rachofsky chair. Within crevices and underneath protrusions, there is visual evidence that the DMA/Rachofsky chair had, at one point, a similar appearance to the MoMA *Accumulation* (fig. 5). The MoMA chair also exhibits similar flaking to what is likely underlying the restoration layers on the DMA/Rachofsky chair.

4. ANALYSIS

FTIR analysis was undertaken by Dr. Corina Rogge, Andrew W. Mellon Research Scientist at the Museum of Fine Arts, Houston and the Menil Collection, to better understand the stratigraphy of the paint and restoration layers. There were three distinct layers, identifiable by slight shifts in color and sheen, throughout the chair's surface. The bottom-most more matte and thin (likely original) paint layer was characterized as likely a white oil paint. The secondary paint layer, seemingly applied throughout as an attempt to stabilize the flaky and insecure original layer, had a discolored peachy tone. Analysis suggested that this layer was an alkyd-based paint. Finally, analysis suggests that the upper clear but grayish shiny layer was acrylic based.
5. TREATMENT

In consultation with curatorial colleagues, the goal of treatment became twofold: to stabilize areas of flaking paint and to unify the uneven surface both in gloss and color, bringing the chair closer to Kusama’s desired intention. The latter goal was especially important, as the chair would sit alongside other white Accumulations. To complicate matters, there was a tight turnaround between the deinstallation from the DMA galleries and the packing/crating date for the outgoing loan, meaning the Conservation Department had only about two months to complete the entire project. This factor had an important influence on the treatment developed and undertaken.

Removing all of the previous restorations was out of the question for the time being. As described, there was a tight treatment period before exhibition, but visual evidence suggested that extensive loss of original paint was present underneath the layers of thick overpaint and likely the reason for them. However, time allowed for a deeper understanding of the DMA/Rachofsky chair and for a preliminary exhibition treatment compromise until the chair could undergo a more extensive treatment upon return. The decision was made to reduce the most discolored and glossy overlying layers, but to retain the bottom-most restoration layer that was serving a consolidating function and was more even than the overlying layers. Treatment started with vacuuming years of accumulated dust. The vast number of
protrusions created a difficult landscape to dust and a large amount of surface area. The chair also had been touched frequently, as evidenced by surface grime and damaged and indented areas from handling.

Localized cleaning tests were conducted to reduce the embedded grime. An unpacking approach was initially taken to understand each layer individually and better outline the complicated and uneven stratigraphy currently present on the chair. Testing using the Modular Cleaning System concluded that the embedded grime could be reduced with an aqueous preparation of 0.5% w/v citric acid solution in water at a pH of 7.5, adjusted with a 1 M NaOH solution and using boric acid to create a buffer at the desired pH between 7.5 and 8.0 (Stavroudis, Doherty, and Wolbers 2005). Due to the complicated

Fig. 5. Deep within the protrusions, where previous restoration attempts did not reach, a cool white paint layer still can be seen.
three-dimensional structure of the chair, gelling the cleaning solution was desirable to retain the solution on the surface and avoid dripping into crevices.

Various types of gels were made and trialed, including Xanthan gum, Pemulen TR2, and Agarose. Xanthan gum and Pemulen TR2 provide a liquid gelled solution with a texture similar to honey or hair gel, while agarose produces a stiff, gummy gel. It became clear that we would need to manipulate the gel with a brush to effectively reduce the thick layers of grime and overpaint. Therefore, we focused on testing with the liquid gels.

The citric acid solution found initially promising was then gelled in each xanthan gum and Pemulen TR2. Both successfully cleaned the grime off the surface, reducing years of fingerprints and grime, as seen in figures 6 and 7. The gels were made using the Modular Cleaning System and with information provided in various publications (Stavroudis 2010). As Xanthan gum remains structurally more stable as a gel over a broader range of pH and conductively parameters, it was therefore chosen over the use of

Fig. 6. The embedded grime could be reduced with an aqueous preparation of 0.5% w/v citric acid solution in water at a pH of 7.5, adjusted with a 1-M NaOH solution, and using boric acid to create a buffer at the desired pH between 7.5 and 8.0.
Fig. 7. Embedded grime before, during, and after treatment.
Pemulen TR2, as the surface of the chair varied greatly and the added stability was desired (Passeri, Finne, and Bezur 2017; Wolbers 2017).

However, in order to address the yellowed restoration layer, a solvent emulsion gel was necessary. Owing to the vast surface area, testing was also undertaken to see if a gel could be used to address both the surface grime and the yellowed restoration layer in a single step for areas where both layers were present. To that end, various gels were made using the Modular Cleaning System as a guide and experience from similar projects as a starting point (Wolbers 2000; Stavroudis, Doherty, and Wolbers 2005; Stavroudis 2012). Solvent emulsion gels were then tested using the same aqueous gels initially proven successful to produce an effective gel that would reduce the yellowed coating while retaining the underlying white, first restoration paint. The benzyl alcohol was added into each gel in increments and emulsified by shaking to effectively reduce the yellow restoration layer (figs. 8, 9). The benzyl alcohol proved effective as the solvent component in the gel. Benzyl alcohol was added up to 5% (v/v) into the gel and shaken vigorously to emulsify it within the gel structure. Adding more than 5% benzyl alcohol rendered the gel too strong for the underlying overpaint that needed to be preserved. For the thinnest areas, as low as 2% addition of benzyl alcohol proved effective. Multiple gels were used for each area, including a gel with no solvent for areas with just grime. The gel was first cleared with a dry swab and then with ShellSol D38.

The uneven, gray, shiny coating had to be addressed first where it was present, as it created a shield for the underlying yellowed layer. Fortunately, this layer was very uneven and only present in some areas of the chair. This layer easily swelled in the aqueous gel preparation and was easy to peel once swollen.

After the grime removal and reducing the yellowed overpaint and shiny surface coating, the surface was more unified and even. Areas of insecure paint were consolidated with BEVA 371 throughout. Small but
obvious losses were then filled with BEVA “cakes”—a meltable fill material made with varying proportions of BEVA 371, calcium carbonate, pigment, and kaolin.

The broken/cracked fringe along the bottom of the chair was backed with Japanese tissue coated with an equal mixture of Lascaux 360 HV and 498 HV (fig. 10).

Although the cleaning treatment produced a more even surface, there were still some discolored patches that had to be addressed. In order to render a more even, harmonious surface for exhibition, an ultrathin
layer of Gamblin Conservation colors in titanium white was airbrushed over any remaining discolored patchy areas. This restoration material is easily removable from the overpaint layer retained and still allows for a final presentation surface that is closer visually to the intended appearance (fig. 11).

6. CRATING SOLUTION

The chair was traveling to multiple venues coast to coast; thus, a crating system needed to be designed that was sturdy, durable, and easily repeatable. The crating system also needed to dampen any vibrations so as not to shake the already fragile protrusions. Complicating this was the fact that there were limited places to brace. A local fine art shipper developed a rather simple but effective solution utilizing the understructure frame.

As seen in figure 12, the strong, thick, wood framework on the underside proved to be an ideal location to attach three D-ring hangers (hidden from the casual viewer and not to be removed). These D-rings can be flipped up out of view when on exhibition (fig. 13). There is a corresponding D-ring underneath each of those D-rings on the transport tray and a D-ring placed in the center of the tray. Twill tape connecting the D-rings on the chair to those on the tray secures the chair in place and is ratcheted down, preventing the chair from moving at all without contacting the fragile protrusions. Soft Volara lining the transport tray created friction, which also kept the chair from shifting (figs. 14, 15). The crate was a “crate within a crate,” with thick 2-in. foam surrounding the inner crate.
Fig. 11. An ultrathin layer of Gamblin Conservation colors in titanium white was airbrushed over any remaining discolored patchy areas.
Fig. 12. Note, on the underside of the chair, the wooden framework along the edge—an ideal location for the D-rings used for the crating/shipping solution. (Courtesy of Dallas Museum of Art, photograph by Brad Flowers)

Fig. 13. One of three D-rings being installed to the wooden framework. The D-ring is used in transit and flipped up for exhibition.
Fig. 14. D-rings on chair and those attached to crating tray are secured together and ratcheted down. Also note the Volara lining underneath the chair, adding to reduction of shifting.

Fig. 15. The "crate within a crate" design, with ample foam surrounding the inner crate. The chair is ratched down with twill tape onto the Volara-lined tray that can be inserted/slid into the inner crate.
To date, this system has been successful: not one flake of paint has been dislodged nor have any particulates loosened after travel.

7. CONCLUSION

This project has allowed for communication between colleagues working on other similar soft sculptures. As work continues on each soft sculpture, future collaborations will lead to a larger body of knowledge concerning Kusama’s technique and the Accumulations’ individual histories. Connecting to a broader conversation about the treatment of this chair created the necessary mindfulness to maintain the object’s physical and aesthetic integrity and return the piece as close as possible to what the artist intended (fig. 16).

Fig. 16. Yayoi Kusama, Accumulation, 1962–1964. From left to right: front before treatment, front after treatment, back before treatment, back after treatment. (Courtesy of Dallas Museum of Art, photograph by Brad Flowers)
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NOTE

1. For a more in depth description and characterization of each type of gel, see Wolbers 2017.

REFERENCES


FURTHER READING

**SOURCES OF MATERIALS**

**BEVA 371**  
Conservator’s Products Company  
5 Corey Rd.  
Flanders, NJ 07836

Gamblin Conservation Colors  
2734 SE Raymond St.  
Portland, OR 97202

Lascaux Acrylic Adhesives, Volara Foam  
Talas  
330 Morgan Ave.  
Brooklyn, NY 11211

Pemulen TR2  
The Lubrizol Corporation  
29400 Lakeland Blvd.  
Wickliffe, OH 44092

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