Book Review: Greener Solvents In Conservation

"Greener Solvents in Conservation: An Introductory Guide"
Edited by Gwendoline R Fife
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"Green does not mean new". Did you know you may already have a greener solution in your cupboard? SiC's Greener Solvents handbook provides step-by-step instructions for adopting greener solvents in your practice, and it's easier than you might imagine.

Sustainability in Conservation's (SiC) Greener Solvents research project provides accessible resources to disseminate greener solvent use solutions. The research is summarized in a handbook that is available to our community, free of charge, on the SiC website. At the same time, the authors provide an open discussion around the needs of our profession and make suggestions for further research. Sustainability in Conservation is a non-profit organization founded to bring environmental awareness to our profession.

The book consists of three sections, each written by different experts and edited by Gwendoline R. Fife. In chapter 1, considerations regarding greener solvents and the term itself, are explained. The term "green" is relatively new in the field of conservation, and it can be quite subjective and confusing to define. In this chapter the authors point out what the field can focus on and what tools can help make these solvents greener (e.g. green chemistry, Life Cycle Assessments, environmental and health safety).

Chapter 2 looks at the state of solvents in our industry. Aline Assumpção and Lucile Pourret provide information on how solvents came to be, what regulations exist, what knowledge has been gained and how they have been used in conservation and restoration. Throughout the chapter the authors compare studies on the toxicity of solvents and the regulations issued by governments over the years which have clearly been inadequate considering the severity of the problem. At the end of the chapter, the authors appeal for the proper use and disposal of personal protective equipment (PPE).

The premise of chapter 3 is a practical guide to finding better solutions in situations where the use of organic solvents is the best (or only) option. Gwendoline emphasizes that one of the most common mistakes is that we, as conservators, often associate solvents only with cleaning, while they are used in many other situations (e.g., varnishing). The guide in this chapter will help you identify alternatives (ideally already available in the studio) that are easy and timesaving. Questions like, “what do we really need to replace?”, “how do we find a greener replacement?” and “how do we apply it safely in our work?” are answered in a didactic and simple way.

Conservators can no longer ignore the fact that the environment and conservation are interdependent. In fact, according to UNESCO, cultural diversity is as necessary as biological diversity in the realm of life. However, a more sustainable practice can feel daunting, unattainable or at odds with current standard practices in the field. In the conservation of paintings, cleaning is one of the most toxic and harmful treatments to the environment and our health. The use of solvents in our daily practice without proper protection and disposal poses a problem not only for ourselves but also for our planet.

It is with this in mind that this manual was formulated. The goal was not to find an ideal solution to this problem (because one does not yet exist) nor was it to convince conservators to prioritize sustainability and less toxicity over the stability of the artwork. What the authors were trying to articulate in this handbook is that sometimes the solutions are right in front of us; we just need to rethink and reformulate our approaches before we arrive at a solution. It is important to be aware

of the materials, quantities, solutions and alternatives we use to quantify the impact on our health and climate.

In fact, for a long time, our research in conservation and restoration science focused on finding the most compatible solutions for the artefact materials without considering the possible problems for the user let alone those for the environment. Today the negative health and safety effects of solvents are better known, and more precautions are being taken to mitigate this problem. As the authors explain, defining a better solution involves not only the properties of the solvent itself, but also the environmental friendliness of its production processes, the health effects of human exposure and its impact on the environment.

Analysing all these factors can be complicated and time-consuming. The means presented in this guide are a mixture of tools we already use (e.g: Tea's triangle, Hansen Solubility Parameters, emulsions, gels and different physical applications) and tools in use by the industry at large (LCA, CHEM21 guide). In other words, no new products or solutions are presented. Nonetheless, as described in the manual, it is important to point out that while these are not the ideal solutions, they are what we have to work with at the moment.

Lastly, I would like to highlight chapter 2 regarding the history of green solvents in conservation. The authors have made an interesting comparison between what has been learned over the years about the toxicity of solvents and the lack of government regulations. It is interesting to note that past scientists have explained the cumulative effects of solvents (e.g. Rachel Carson in her book Silent Spring, 1962), and yet regulations to protect health and the environment from the risks of these chemicals did not come into effect until 2007 (REACH directive).

We see a lot of activists in the world talking about climate change and how governments are not taking this crisis into account, or if they are, they are not taking action. There is COY after COY1 and COP after COP2… In 2021, the diminution of climate crises was clearly expressed by G20 leaders when they congregated in Rome to toss a coin into the Fontana di Trevi instead of taking decisive action. A famous analogy that Greta Thunberg used a few years ago illustrates this situation perfectly: "When your house is on fire, you don't wait another 10, 20 or 30 years before calling the fire department". Well, our house is on fire. The new film Don't Look Up is another haunting example of how we handle emergencies: we turn a blind eye to the more distant long-term problem and instead focus on what would bring more immediate jobs and money to the population.

The fact is, it has taken decades to get clear information on solvent use, and misinformation still exists (and is also often labelled "green") which further complicates the matter. As mentioned, many times throughout this book, green does not mean that the solvents we use are non-toxic. As long as the regulations are not set and clear, we art conservators can only work "greener" since we don't have the 100% green solution yet. This manual is undoubtedly important in promoting the development and use of green solvents in our profession as well as further research on the topic.

AUTHOR BIO

Bianca Gonçalves is a paintings conservator currently working as a freelancer in the Netherlands, Belgium and Brazil. She graduated from the Polytechnic Institute of Tomar and La Cambre (Brussels) in 2017. Her final thesis focused on researching less toxic approaches to cleaning acrylics, reinforcing her interest in sustainability and green chemistry.

(Read the review in the April-May 2022 "News in Conservation" Issue 89, p. 58-59)