

Graphic Documents Working Group Newsletter 3 November 2022

ICOM-CC Graphic Documents Interim Meeting Postprints

PART 1

Virtual Event, 10-11 February 2022

Abstracts and Extended Abstracts.

Foreword

The postprints reproduced here are abstracts or extended abstracts of oral presentations given at the ICOM-CC Graphic Documents Interim Meeting 10-11 February 2022. We are grateful to all speakers and participants, who joined from across the globe, for sharing their work and for engaging during lively discussions.

The silver lining of having held a virtual meeting because of the uncertainties brought upon us by the COVID-19 pandemic - and despite our disappointment at not being able to exchange in person – was that we had more countries represented and participants who may not have otherwise travelled. This was a positive turn on sombre circumstances, as we want our working group to be global and to learn from colleagues far and wide.

In addition to the presentations below, both days of the interim meeting were concluded by our keynote speakers, with longer sessions on topics the working group is placing particular emphasis on for the 2021-2023 term – sustainability, inclusion and education. Caitlin Southwick, Founder and Executive Director of Ki Culture and Sustainability in Conservation (SiC), presented on the future of sustainability in the cultural heritage sector. Tanushree Gupta, ICOM-CC *Education and Training in Conservation Working Group* Coordinator, spoke about current issues in conservation education, the international cooperative projects she is involved with (namely a ground-breaking agreement between the governments of Austria and India), and a new joint Master's programme between the University of Applied Arts Vienna and the Silpakorn University International College in Bangkok.

We also heard from four emerging conservators from Kairouan, Tunisia. More information on their work at the National Laboratory for the Preservation and Conservation of Parchment and Manuscripts in Raqqada as well as from some further colleagues will feature in the next Graphic Documents Working Group newsletter 4, 2023.

And last but not least, the working group would like to thank the opening addressers, Stephanie de Roemer, ICOM-CC board member, and Prof. Dr. Klaus Becker, vice president of TH Köln – University of Applied Sciences, for opening the Interim Meeting!

Chair: Andrea Renate Pataki-Hundt

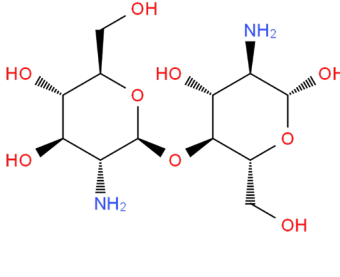
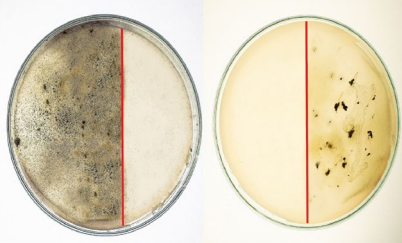
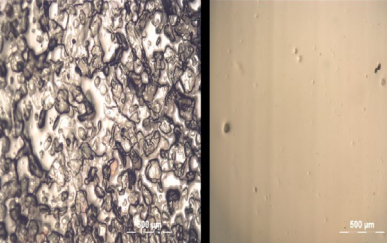
Compiler: Emilie Cloos

Assistant Coordinators: Marlen Börngen, Emilie Cloos, Valentine Dubard, Julio Hoyo-Melendez, Yuhui Liu (in alphabetical order).

Bio-renewable Fungal Chitosan – Characterisation, Properties and Applications in Paper Heritage Conservation

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<p>Fig 1: Molecular structure of fungal chitosan (Michel Ingoglia, 2019)</p>	<p>Fig 2: Anti-microbial properties of fungal chitosan - Agar diffusion. (L) <i>Rhizopus stolonifera</i> (R) <i>Cladosporium</i>. (Michel Ingoglia, 2019)</p>	<p>Fig 3: Visible light Microscopy: visualisation of (L) 2% fungal chitosan in 0.30% HOAc film and (R) 1% fungal chitosan in 0.30% HOAc film. 5x Objective (Michel Ingoglia, 2019)</p>

This initial research characterises the properties, chemical structure, anti-microbial and chelating/ metal complexing applications of fungal chitosan for potential use in paper heritage conservation. A suitable method for the solubilisation of fungal chitosan was established to form fungal chitosan adhesive solutions. The adhesive solutions were then investigated to ascertain if they can be used to adhere historical paper. Fungal chitosan adhesive films were investigated, and the morphological structures imaged using microscopy. The adhesive films were analysed using Fourier transform infrared to establish the molecular components and to verify the presence or absence of the acetic acid used to solubilise the fungal chitosan in the dried films. Fungal chitosan coated papers were produced and subsequently subjected to dynamic heat-moist stress testing and investigated using spectrophotometry. The resulting spectra were evaluated using the CIE L*, a*, b* colour space system.

Introduction

Paper heritage conservators encounter objects that require interventions utilising an array of adhesives. In the interest of expanding the repertoire of polysaccharide polymers available to paper heritage conservators, this preliminary investigation of fungal chitosan was undertaken. The hypothesis being that fungal chitosan may provide a bio-renewable adhesive / consolidant, which mimics cellulose (Fig. 1), is non-toxic, requires no organic solvents, has chelating properties, and natural anti-microbial properties (Fig. 2).

Evaluation methods

While chitosan and chitosan composite materials and adhesives are being investigated in the bio-medical field there are no investigations of fungal chitosan adhesive in paper heritage conservation. This research has demonstrated that fungal chitosan has an effective adhesion at between 1-2% solubilised in acetic (HOAc) acid. The best results were achieved with 1% fungal chitosan in 0.30% acetic acid which formed a clear adhesive which neither altered the colour of the paper nor increased the rigidity of the paper (Fig. 3). This was further confirmed when examined using microscopy. Fourier transform infrared analysis of the 2% fungal chitosan in 0.30% acetic acid film and 1% fungal chitosan in 0.30% acetic acid film was performed. The resulting evaluation of the FT-IR spectra confirmed the molecular components of the fungal chitosan adhesive films. The evaluation of the spectra has further established that the acetic acid used to solubilise the dry particulate does not remain present in the dried film. Fungal chitosan adhesive coated papers were produced and subjected to dynamic heat-moist ageing. The samples were analysed using a spectrophotometer both prior and post-stress testing. The spectrophotometry data derived from the generated spectra were evaluated using CIE L*, a*, b* colour space data.

Interpretation

The microscopy analysis of the fungal chitosan adhesive films clearly illustrates the structural formation of the fungal chitosan film and the relationship between the semi-crystal-line fungal chitosan particulate solubilisation and acetic acid concentrations. The spectrophotometry analysis established that while all the samples underwent slight colour changes, due to the stress testing conditions, with the fungal chitosan-coated samples showing a reduction of the a* and b* values, the ΔE values have confirmed that the untreated control sample underwent the greatest increase in L*, a*, and b* values. The fungal chitosan appears to partially retard and reduce the colour change of the coated paper samples. Fungal chitosan has demonstrated that it does have potential applications in the field of paper heritage conservation as an adhesive; as a consolidant for friable media; as an anti-microbial agent and as a metal complexing agent for use in the treatment of iron gall ink and copper ion induced degradation.

10 Years of *East Meets West* in Munich – an inspiring encounter

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From 2009 to 2019, a course on Japanese conservation techniques, materials, and philosophy, *East Meets West*, was held each year at the Institute for Conservation of the Bayerische Staatsbibliothek (Bavarian State Library) in Munich. The course was created in collaboration with Kazunori Oryu, who, like Katsuhiko Masuda, was a pioneer in teaching Japanese techniques to Western conservators. Oryu passed the baton in 2015 to Keisuke Sugiyama, who teaches conservation of Eastern art on paper and silk at Tohoku University of Art & Design in Yamagata. Together with Mr. Sugiyama, an advanced program was developed on the basis of a questionnaire to meet the desire of many participants to learn even more about Japanese conservation and Western practice. The advanced course was successfully conducted in 2019 with a small group of experienced conservators. As of 2019, a total of 80 conservators and 31 students from home and abroad have participated in this exclusive three- and five-day training.

The lecture will provide an overview of the two programs and share our experiences over the past ten years. The basic program addresses the fundamental principles of Japanese conservation methods and understanding the specific properties of tools and materials, but the class goes well beyond traditional Japanese mounting techniques. Participants also gain insight into the application of Japanese techniques, materials, and tools to Western objects by contributing their individual professional experiences.

The advanced program is designed to provide an even broader and deeper insight into the methods and materials of traditional Japanese conservation techniques and their adaptation. Emphasis is placed on the properties of the materials and their controlled application. For example, it is very important to know the different properties of Western and Japanese paper in order to find the right application, such as for humidifying, flattening, lining or drying methods. Therefore, we conduct experiments to observe and compare paper properties. Lining exercises with European objects are used to gain more experience and become more confident in treatment decisions. Conversely, Western techniques such as capillary washing of a scroll painting are integrated into the Eastern approach. One of the most important points to understanding Japanese conservation is the focus on a unique level of skill. Japanese paper conservators emphasize that a high level of skill can only be achieved through an intensive training and practice. Each day of the course begins with lining exercises (Warming up) to build confidence and experience in working with Japanese materials and techniques.

The East Meets West workshop has been organised in the collaboration of the Western conservators and Japanese conservators, considering the best approach to share the Japanese conservation techniques in the Western practice.

East Meets West has been improved by the understanding of each other's background through the long-term workshop experience and is a unique platform for an inspiring exchange of ideas. All in all an excellent partnership has been established with promising perspectives for the coming years.

After a hiatus of three years, the next course is scheduled for August 2023 (depending on the Covid-19 situation). The lecture will be held jointly.

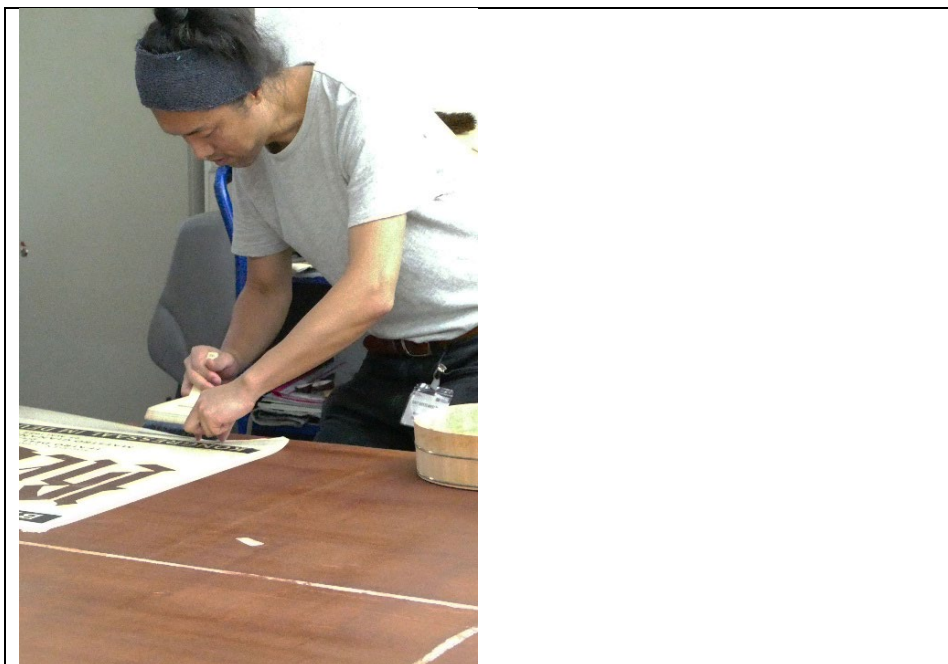


Fig. 1: Adaption of Karibari technique for European objects



Fig. 2: Checking the humidity: a crucial point

Sustainability in Conservation: How Inclusive is it?

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Fig. 1: Tim Mosslander on Unsplash

Sustainability in Conservation: How Inclusive is it? was presented online at the ICOM-CC Working Group Graphic Documents, Interim Meeting in February 2022. It asked the question 'How inclusive is sustainability in conservation?' with the objectives of providing an answer to this question, prompting reflection and causing a change to the current situation.

To answer this question, the presentation examined three areas to show how inequalities and inequities in inclusivity in sustainability in conservation exist. It examined:

1. The focus of sustainability resources
2. Decision making
3. Accessibility of information

The presentation asked what can be done to improve representation, how to create more diversity in decision making and how to make sustainability information more accessible. The presentation concluded that sustainability in conservation is not inclusive. It finished with an overview of the terminology used in sustainability illustrating how it can be a barrier to conservators to taking sustainability actions.

Background

What is inclusive and sustainability?

When considering how inclusive sustainability in conservation is, we must first define the terms inclusive and sustainability.

Inclusive?

There are many ways to look at inclusivity. Inclusive could be cultural, location and background. Inclusive could include gender identity, ethnicity, age and employment status, whether that's employed, a student, an emerging professional, self-employed or unemployed. In the presentation 'inclusive sustainability in conservation' referred to culture, location and employment status. We must acknowledge that when we are discussing inclusivity we all come to it with our own biases. We all have our own unique experience which has shaped our opinions and attitude. Our journey through life means that we have been exposed to experiences that others haven't and vice versa. Others have had experiences we haven't. This extended abstract puts forward my reflections and opinions. You may agree or you may disagree. It may strike a chord with you or it may not. That's all fine. All opinions are equally valid. No-one is right and no-one is wrong. This is a discussion – and an important one. We will only succeed in addressing the climate and environmental crisis if we are inclusive.

Sustainability?

There are many definitions of sustainability. Wiki was right when it stated that sustainability is 'broad and difficult to define precisely'. Here sustainability refers to the capacity for the biosphere and humans to co-exist. It refers to both the climate and the environment.

It is important to remember that there are three pillars to sustainability. These are social, environmental and economic or People, Planet and Prosperity. A fourth has been added, which is Peace. Splitting sustainability into three pillars does make the topic easier to understand but it has the unfortunate consequence of making it appear as if the three elements are stand alone. They are not. They are interlinked. In other words you can't have social sustainability without environmental sustainability or economic sustainability without environmental sustainability. What affects one will affect others. A good way to understand it is to think of it as a stool with three legs – take one of the legs away and the it falls over.

Why Sustainability in conservation is not inclusive

The focus is on conservators who work in large institutions.

The resources such as toolkits, training and information are generally written for conservators who work in large institutions. The toolkits, training and information make assumptions regarding what conservators will have access to, e.g. funding, time, institutional support and organisational networks and information.

Making this assumption ignores the fact that many conservators work on their own in an institution or work on their own as a freelancer. In these situations, they do not have access to the resources that the toolkits, training and information assume they will.

Decision making and resources are made by large/national institutions.

In the UK, climate and environment initiatives in cultural heritage are resourced and led by the national institutions. Reading through the list of contributors to initiatives and resources will reveal that small institutions and freelancers were not included in the creation process. In light of this is it any wonder that the resources available are biased towards large institutions? They are the ones creating them. The resources are being created in an echo-chamber. They reflect their creators and their needs. There is a lack of diversity in the groups leading these initiatives.

Another reason why in the UK sustainability is not inclusive is the fact that the national institutions leading the creation of resources and feeding into them are usually museums. This leads to little guidance, information, toolkits and other resources for archives and others in the cultural sector.

What can we do to get better representation and more diverse voices into these initiatives?

There needs to be an open call out to all those in the sector to ask professionals and institutions if they would like to participate thereby replacing the current approach of 'the tap on the shoulder'. This is asking those they already know. The current approach means that most in the sector don't know that these initiatives are taking place until the resources are published.

Another simple way to get better representation and more diversity into these initiatives is to pay those taking part for their time and expertise. This will allow all to participate.

Accessibility of information

It can be difficult to find the information needed to work sustainably. It is often scattered, at a high level with no practical application, behind a pay wall or it simply doesn't exist.

A block to taking sustainability actions was identified as 'having to research everything from scratch' continuing that 'lots of time is wasted'.

Where the information is available, it is frequently available only in one language. This excludes many.

How the sustainability terminology is not inclusive

The terms used in sustainability can exclude by causing misunderstanding and by being misleading, sometimes this is deliberate such as in the case of greenwashing and sometimes this is accidental. We must ask ourselves how accessible is the terminology? Does it confuse us or help us to understand the sustainability of the equipment, materials and services that we use in conservation? We must remember that the terms are not regulated.

The terms that the presentation considered were:

Sustainable	Recyclable
Compostable	Better for the environment
Environmentally friendly	Green
Biodegradable	

Conclusion

Sustainability in conservation is not inclusive. Individuals and institutions are excluded. There are many reasons for this, more than the three that the presentation discussed. To address the climate and environmental crises sustainability in conservation must be inclusive. The views, opinions and voices of all need to be heard and included. To tackle the climate and environmental crises we must work together and as one.

Quick-and-Dirty: Cyclomethicones and an application for soluble inks

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Research notes belonging to psychoanalyst, Theodor Reik (1888-1969), were handwritten on bond paper and ledger paper in various water-soluble fountain pen inks. The papers were attached into small groupings which were in turn adhered into large messy, disordered clumps with a thickly-applied dextrin-based adhesive. A cyclomethicone D5/D6 product was applied by brush or micropipette onto and under the inks to protect the legibility and integrity of the various inks before the introduction of damp heat packs. The flash presentation will show separation techniques and a synopsis of pros and cons for using cyclomethicones in conservation treatment.

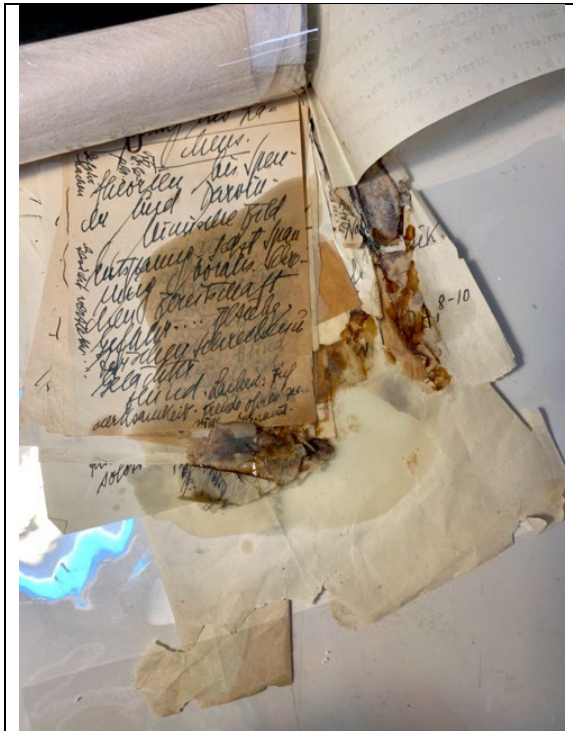


Fig. 1: Susan Peckham, Cyclomethicone D5
D6 - Treatment

Reflections on Girl by Roy Lichtenstein: Reattachment of a PET-foil on a print

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The focus was a print by Roy Lichtenstein with the title Reflections on Girl from the series Reflections created in 1990, a project conducted on inspiration and with co supervision of Martina Noehles, Atelier Carta, Mühlheim. In addition to the combination of various complicated printing and embossing techniques, the print featured two strips of metallized foil that were applied to the paper as collage elements. Both showed failed adhesion in several places, overall a highly conspicuous damage.

The project focused on developing an in-situ treatment. This involved extensive testing on metallized foil mockups adhered to paper. Adhesion strength was tested with the adhesives Lascaux 498 HV, Beva D8, methylcellulose, sturgeon glue, wheat starch paste; adhesive application technique on either foil or paper was tested with foam rubber pads, brushes, and through screen. Using the chosen adhesive Lascaux 498HV and application technique (brush) on the foil as the preferred of the two substrates, another test involved application setup and construction of a V shaped acrylic support, and development of process steps. All these steps were done to minimize risks in the following treatment of the original.

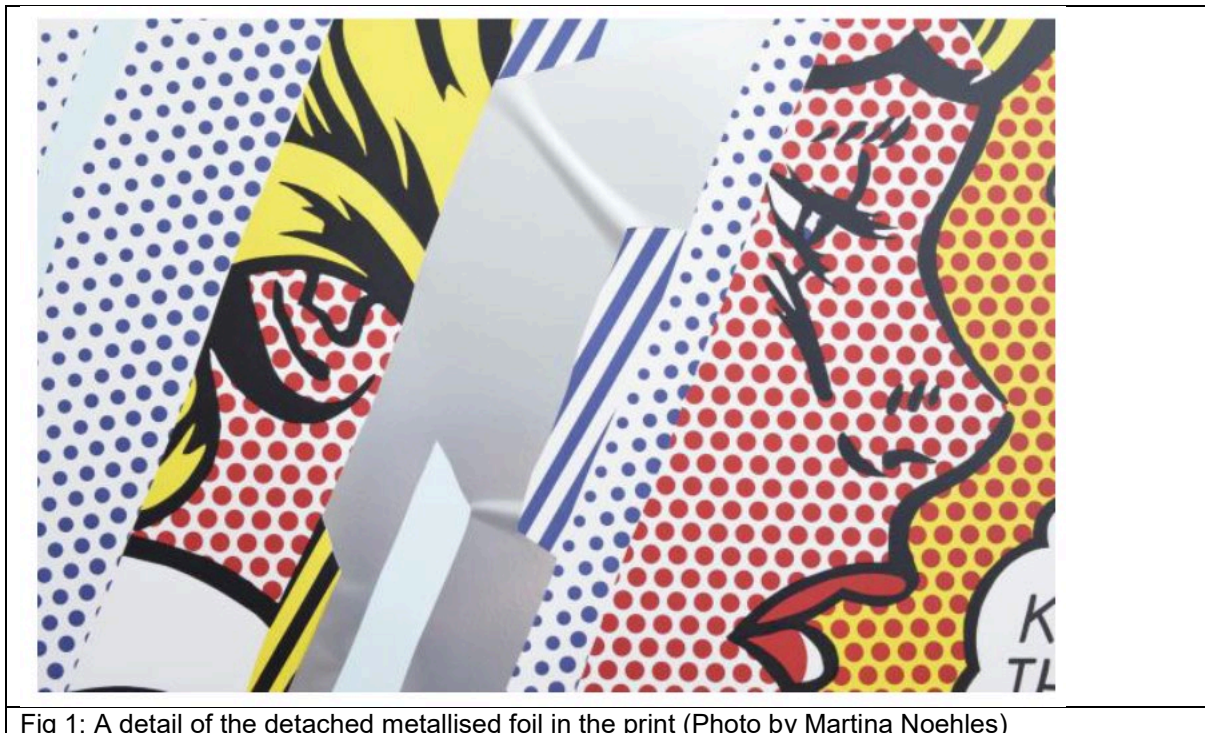


Fig 1: A detail of the detached metallised foil in the print (Photo by Martina Noehles)

Conservation and handling of library collections containing arsenic - Consolidation of underbound pigment on book edges

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When dealing with cultural assets, there often is the possibility of an object containing some form of hazardous material. In recent years there have been several discoveries of books containing arsenical pigments as part of the binding or on the edges. These findings have raised questions concerning the health and safety of workers handling these objects. Within the context of the research project “Enabling the use of arsenic bindings”, a collaboration between the University Library of Bonn and the CICS, this bachelor thesis looked into underbound pigment layers on book edges containing arsenic. Because loose pigments pose a higher health risk, possibilities of consolidation and their effectiveness were evaluated.

Arsenic pigments: Occurrence and toxicology

The most used arsenic pigments are the yellow Orpiment as well as Scheele Green and Schweinfurt Green (also Emerald Green). Orpiment was used as early as 1500 B.C., often in combination with blue pigments to make a dark green colour. The green pigments were first developed in the 19th century and were used in different areas. In 1887, their production was prohibited. The poisonous properties of arsenic were well known when the green pigments were first developed. Arsenic can affect the cardiovascular system, the gastro-intestinal-system, the metabolism as well as the nervous system. Typical symptoms would be headache, nausea and vomiting, diarrhoea as well as sleeplessness and shortness of breath. Chronic exposition increases the risk of cancer.

Consolidation of underbound pigment on book edges

While turning the pages of a book, handling of objects and in particular while cleaning with brushes or sponges, pigments can get loose and stick to surfaces or to hands. Therefore, different means of consolidation and their success in securing loose pigments were evaluated in a series of tests. Four common consolidants in varying concentrations were applied to samples, which consisted of book blocks with an underbound pigment layer. Three types of application of the consolidant were compared: with a brush, as an aerosol and with airbrush. The success of the consolidation was measured by pressing a “Tesa” self-adhesive strip onto the edges. After peeling off the strip, the amount of pigment that stuck onto the tape was measured and compared (Fig. 1). The most promising results were achieved when using Klucel G dissolved in ethanol (3% w/v) and was therefore applied to books from the university library Bonn.

Results and conclusion

The success of the treatment of arsenic pigments was measured again with adhesive strips, but in addition to that, a microchemical arsenic test was carried out (Fig. 4). The MQuantTM arsenic test kit can be used to analyse aqueous samples. Existing arsenic is indicated a by colour change, that ranges from yellow to brown. Using a dry cotton swab, wipe samples were collected before and after consolidation. The samples were added to water and the colour change was compared. This arsenic test was helpful to determine if the amount of arsenic in a wipe sample could be reduced by means of consolidation. The chosen application of three layers of Klucel G (3% w/v) to the edges containing arsenic was not as effective as anticipated. However, using Klucel E dissolved in ethanol (8% w/v) in a combination with the solution of Klucel G proved to be very effective. The consolidation of underbound pigment layers on edges should be tested and refined in the future. However, the work in this thesis could show that the risk for workers and readers handling books containing arsenic can be reduced significantly by means of consolidation.

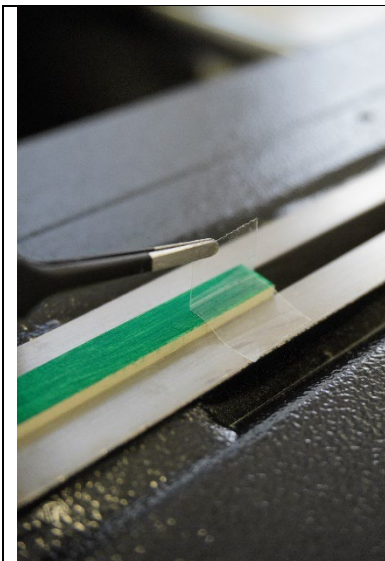


Fig 1: Success of the consolidation of a book edge containing arsenic. The amount of loose pigments on the adhesive strip as well as the amount of detected arsenic in the wipe sample was reduced significantly.
(figure by J. Wetten)