

# Solvent Gels for the Cleaning of Works of Art

*The Reversible Question*

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Research in conservation

# Solvent Gels For The Cleaning Of Works Of Art

**Clifford A. Price, Eric Doehne**



## **Solvent Gels For The Cleaning Of Works Of Art:**

**Solvent Gels for the Cleaning of Works of Art** Dusan Stulik, 2004 The cleaning of a work of art often involves removing not only dirt and grime but also unwanted layers of varnish gilding and paint from the work's surface The challenge for conservators lies in finding a cleaning agent that will act on one layer without affecting the layer being preserved and without leaving any harmful residues on the cleaned work This book which examines gel cleaning in the treatment of paintings and painted works of art presents the methodologies data and results of a collaborative project of the Getty Conservation Institute and Winterthur Museum Among the issues covered are the theory and application of gel cleaning systems the detection of residues left on the surfaces of objects cleaned with these systems research into solvent gel and solvent residues stability of surfactants during natural and artificial aging and recommendations for formulating gels for specific cleaning tasks *Solvent gels for the cleaning of works of art* Dusan Stulik, 2004 *The Conservator's Cookbook*

Laura Chaillie, 2024-12-30 The Conservator's Cookbook is a collection of practical step by step guides outlining how to prepare various solutions adhesives gels and other mixtures used in heritage conservation While most conservators learn the chemical rationale of solution making during their training the actual process of preparing these compounds can be neglected or eventually forgotten This cookbook provides a non exhaustive and adaptable resource compiling practical recipes from across heritage conservation literature into a single volume Drawing from techniques used in furniture paper paintings textiles and other conservation specialisms each recipe in the Cookbook begins with a short summary of key chemical ideas before relating step by step instructions The solutions range from simple dissolutions adhesive resins to more complex cleaning systems utilising surfactants chelation agents and enzymes and gelled carriers Each recipe is followed with collections of technical data which help to bridge the gap between chemical understanding and practical application The Cookbook also provides important notes on health and safety and laboratory best practice addressing some common misunderstandings and encouraging more sustainable approaches Intended for the experienced professional and conservation student alike The Conservator's Cookbook is a crucial reference work that provides a starting point for practical experimentation and interaction between different conservation specialisms *Stone Conservation* Clifford A. Price, Eric Doehne, 2011-02-15 First published in 1996 this volume has been substantially updated to reflect new research in the conservation of stone monuments sculpture and archaeological sites

**Nanoscience for the Conservation of Works of Art** Piero Baglioni, David Chelazzi, 2015-11-09 Understanding the chemistry behind works of art and heritage materials presents an opportunity to apply scientific techniques to their conservation and restoration Manipulation of materials at the nanoscale affords greater accuracy and minimal disturbance to the original work while efficiently combating the affects of time and environment This book meets the growing demand for an all encompassing handbook to instruct on the use of today's science on mankind's cultural heritage The editors have pioneered modern techniques in art conservation over the last four

decades and have brought together expertise from across the globe Each chapter presents the theoretical background to the topic in question followed by practical information on its application and relevant case studies Introductory chapters present the science behind the physical composition of art materials Four chapters explore various cleaning techniques now followed by four chapters describing the application of inorganic nanomaterials Each chapter is fully referenced to the primary literature and offers suggestions for further reading Professional conservators and scientists alike will find this essential reading as will postgraduate students in the fields of materials and colloid science art restoration and nanoscience

**Alkoxysilanes and the Consolidation of Stone** George Wheeler, 2005 Stone is one of the oldest building materials and its conservation ranks as one of the most challenging in the field The use of alkoxysilanes in the conservation of stone can be traced as far back as 1861 when A W von Hoffman suggested their use for the deteriorating limestone on the Houses of Parliament in London Alkoxysilane based formulations have since become the material of choice for the consolidation of stone outdoors | This volume the first to cover comprehensively alkoxysilanes in stone consolidation synthesizes the subject's vast and extensive literature which ranges from production of alkoxysilanes in the nineteenth century to the extensive contributions from sol gel science in the 1980s and 90s Included are a historical overview an annotated bibliography and discussions of the following topics the chemistry and physics of alkoxysilanes and their gels the influence of stone type commercial and noncommercial formulations practice lab and field evaluation of service life and recent developments This book is designed for conservators scientists and preservation architects in the field of stone conservation and will also serve as an indispensable introduction to the subject for students of art conservation and historic preservation [Comparative Examinations of Cleaned Paint Surfaces](#) Paul-Bernhard Eipper, 2018-01-23 This volume explains four different methods for examining paint surfaces It adopts several examination tools to compare untreated and treated surfaces of oil and acrylic paints such as scanning electron microscopy SEM computer aided laser profilometry environmental scanning electron microscopy ESEM and 3D measurement technology Samples of historic oil paints contemporary oil paints and modern acrylic paints are examined within using subjective and objective measurements to reveal ideal surface cleaning systems and methods for painting surfaces The book presents tests of several surface active materials on oil paints and acrylic paint surfaces including latex sponges and demineralized water saliva cellulose ethers anionic and nonionic detergents and microporous sponges **Materials for Conservation** C V Horie, 2013-05-13 Materials in Conservation is the definitive introduction to the properties of materials used in conservation The continual struggle of conservators to ameliorate the deterioration of objects has led to increasing use of synthetic polymers These materials are part of the sophisticated technology that has been developed to augment and often replace traditional materials and methods Conservators therefore have a wider range of techniques available However they must be able to appreciate the potentials and pitfalls of any proposed technique The first section explains physical and chemical properties which are important in the conservation

process i.e application ageing reversal The topics covered include molecular weight glass transition temperature solubility and solvents polymerisation and degradation reactions The second section provides a detailed consideration of the individual materials current and obsolete used in conservation drawing out the factors relevant to their effects on objects The conservation uses of each material are summarised and referenced to allow further study In five appendices the properties of the polymers solvents and their interactions are tabulated with a list of suppliers and conversion table of physical units IUPAC and SI nomenclature is used throughout the book In this second edition this classic text is revised and updated to include modern materials such as cyclododecane and current ideas on adhesion consolidation and reversibility making *Materials in Conservation* the definitive source of vital information in the field This handy reference book should be on the bench of every conservator and available wherever objects from steam engines to dried plants are preserved

**Investigation and Conservation of East Asian Cabinets in Imperial Residences (1700-1900)** Gabriela

Krist,Elfriede Iby,2015-05-20 FS 2015 Includes bibliographical references Molecular Gels Richard G. Weiss,Pierre Terech,2006-06-30 *Molecular Gels* Materials with Self Assembled Fibrillar Networks is a comprehensive treatise on gelators especially low molecular mass gelators and the properties of their gels The structures and modes of formation of the self assembled fibrillar networks SAFINs that immobilize the liquid components of the gels are discussed experimentally and theoretically The spectroscopic rheological and structural features of the different classes of low molecular mass gelators are also presented Many examples of the application of the principal analytical techniques for investigation of molecular gels including SANS SAXS WAXS UV vis absorption fluorescence and CD spectroscopies scanning electron transmission electron and optical microscopies and molecular modeling are presented didactically and in depth as are several of the theories of the stages of aggregation of individual low molecular mass gelator molecules leading to SAFINs Several actual and potential applications of molecular gels in disparate fields from silicate replication of nanostructures to art conservation are described Special emphasis is placed on perspectives for future developments This book is an invaluable resource for researchers and practitioners either already researching self assembly and soft matter or new to the area Those who will find the book useful include chemists engineers spectroscopists physicists biologists theoreticians and materials scientists *The Manual of Musical Instrument Conservation* Stewart Pollens,2015-07-09 This is the first book to combine museum based conservation techniques with practical instructions on the maintenance repair adjustment and tuning of virtually every type of historical musical instrument As one of the world s leading conservators of musical instruments Stewart Pollens gives practical advice on the handling storage display and use of historic musical instruments in museums and other settings and provides technical information on such wide ranging subjects as acoustics cleaning climate control corrosion disinfestation conservation ethics historic stringing practice measurement and historic metrology retouching tuning historic temperaments varnish and writing reports There are informative essays on the conservation of each of the major musical instrument groups

the treatment of paper textiles wood and metal as well as historic techniques of wood and metalworking as they apply to musical instrument making and repair This is a practical guide that includes equations formulas tables and step by step instructions

*Conservation of Easel Paintings* Joyce Hill Stoner, Rebecca Rushfield, 2020-11-30 *Conservation of Easel Paintings* Second Edition provides a much anticipated update to the previous edition which has come to be known internationally as an invaluable and comprehensive text on the history philosophy and methods of the treatment of easel paintings Including 49 chapters written by more than 90 respected authors from around the world this volume offers the necessary background knowledge in technical art history artists materials and scientific methods of examination and documentation Later sections of the book provide information about the varying approaches and methods for treatment and issues of preventive conservation as well as valuable reflections on storage shipping and exhibition Including exciting developments that have taken place since the last edition was published the book also covers new techniques of examination especially MacroXRF scanning and Reflectance Transmission Imagery Drawing on research presented at recent professional conferences information about innovative methods for cleaning modern and contemporary paintings and insights into modern oil paints is also included Incorporating the latest regulations and understanding of health and safety practices and integrating theory with practice throughout *Conservation of Easel Paintings* Second Edition will continue to be an indispensable reference for practicing conservators It will also be an essential resource for students taking conservation courses around the world

**The Conservation of Easel Paintings** Joyce Hill Stoner, Rebecca Anne Rushfield, 2012

*Conservation of Easel Paintings* is the first comprehensive text on the history philosophy and methods of treatment of easel paintings integrating theory with practice A guide to necessary background knowledge in technical art history artists materials interviews with artists scientific methods of examination and documentation precedes sections that present varying approaches and methods for treatment This book concludes with the history and treatment of frames and a section featuring issues of preventive conservation storage shipping exhibition display wall colours and lighting Extensive bibliographies at the end of each section point readers to additional resources *Conservation of Easel Paintings* will be of use in the training of conservation students and will provide generations of practicing paintings conservators and interested art historians curators directors collectors dealers artists and students of art and art history with valuable information

**Microbial**

**Biotechnology Approaches to Monuments of Cultural Heritage** Ajar Nath Yadav, Ali Asghar Rastegari, Vijai Kumar Gupta, Neelam Yadav, 2020-06-24 Our country's cultural legacy is one of the world's most diverse drawing millions of visitors every year to our convents and monuments and to our museums libraries concert halls and festivals In addition it is a dynamic trigger of economic activity and jobs Among the various scientific branches microbial biotechnology offers an innovative and precise approach to the complexity of problems that restorers face in their daily work This book discusses a range of topics including the biodiversity of microbial communities from various cultural heritage monuments microbial

biotechnological cleaning techniques the role of bacterial fungal communities for the conservation of cultural heritage and microbial enzymes and their potential applications as bioremediation agents Written by internationally recognized experts and providing up to date and detailed insights into microbial biotechnology approaches to cultural heritage monuments the book is a valuable resource for biological scientists especially microbiologists microbial biotechnologists biochemists and microbial biotechnologists

*Plasma Technology in the Preservation and Cleaning of Cultural Heritage Objects* Radko Tiňo, Katarína Vizárová, František Krčma, Milena Reháková, Viera Jančovičová, Zdenka Kozáková, 2021-03-30 Scientists have long been looking for alternative methods for the cleaning of historical and cultural museum objects as conventional methods often fail to completely remove surface films leaving contamination and surface residues behind Low temperature plasmas have recently been found to provide a new efficient and durable approach that maintains the safety of both the materials and personnel This book is the first to introduce the emerging use of low temperature plasmas in the cleaning and decontamination of cultural heritage items It provides a comprehensive exploration of the new possibilities of cleaning objects with plasma before providing a practice guide to the individual cleaning methods and an overview of the technologies and conditions used in the different cleaning regimes It is an ideal reference for researchers in plasma physics in addition to professionals working in the field of historical and cultural conservation Features Provides a thorough overview of the cleaning potential of emerging plasma technologies in accessible language for professional restorers and conservators without a scientific background Includes the latest case studies from the field which have not been published elsewhere yet Authored by a team of experts in the field About the Authors Dr Radko Tiňo is an Associate Professor at the Slovak University of Technology in Bratislava Slovakia Dr Katarína Vizárová is an Associate Professor at the Slovak University of Technology in Bratislava Slovakia Dr František Krčma is an Associate Professor at Brno University of Technology Czech Republic Dr Milena Reháková is an Associate Professor at the Slovak University of Technology in Bratislava Slovakia Dr Viera Jančovičová is an Associate Professor at the Slovak University of Technology in Bratislava Slovakia Dr Zdenka Kozáková is an Associate Professor at Brno University of Technology Czech Republic

*Nanoscience and Nanomaterials for the Knowledge and Conservation of Cultural Heritage* Luca Tortora, Gabriella Di Carlo, Maria Jesus Mosquera, Gabriel Maria Ingo, 2020-12-30 This eBook is a collection of articles from a Frontiers Research Topic Frontiers Research Topics are very popular trademarks of the Frontiers Journals Series they are collections of at least ten articles all centered on a particular subject With their unique mix of varied contributions from Original Research to Review Articles Frontiers Research Topics unify the most influential researchers the latest key findings and historical advances in a hot research area Find out more on how to host your own Frontiers Research Topic or contribute to one as an author by contacting the Frontiers Editorial Office [frontiersin.org/about/contact](mailto:frontiersin.org/about/contact)

***Nanotechnologies in the Conservation of Cultural Heritage*** Piero Baglioni, David Chelazzi, Rodorico Giorgi, 2014-11-20 This book presents novel applications of nanotechnology for the preservation of artistic and historical

artifacts It explains the scientific principles behind numerous nanomaterials and discusses their applications to different types of common movable and fixed artistic substrates It starts with an overview of the nano tools developed over the last three decades such as dispersions of nanoparticles micellar solutions microemulsions and gels Compared to traditional methods these new tools have the benefit of considerably less impact on both the operators and the environment Each chapter is dedicated to a specific type of cultural heritage material wall and easel paintings stone paper canvas and wood starting with the main degradation paths and discussing protocols for the application of innovative nanomaterials based tools for cleaning consolidation or deacidification which represent the majority of the case studies encountered in restoration facilities workshops and ateliers The book provides step by step descriptions that are meant to support conservators in the application of these novel materials and methods The aim of the book is to equip end users and conservators with essential information and knowledge on the availability and applicability of different nano materials and dispersed systems While the book s focus is on the practical aspects interested readers will also find references to the relevant advanced colloid and material science literature Main audience Expert conservators restorers and technical staff at conservation institutes and museums students at conservation and restoration schools and scientists who are new to the field of conservation of artistic and historical artifacts

**The Restoration of the Nativity Church in Bethlehem** Claudio Alessandri, 2020-01-17 This book is a summary of the main restoration works carried out at the Church of the Nativity in Bethlehem that commenced in September 2013 Work on roof wooden structures wall and floor mosaics internal plasters wooden architraves and painted columns of the naves external wall surfaces and Narthex is all presented in a sequence of reports that accompany the reader up to the final interventions through accurate descriptions of historical and archaeological features initial state of conservation and appropriate techniques of conservation and restoration Topics are treated with the methodological and linguistic rigor specific to each disciplinary sector involved even if in the interest of making reading and comprehension easier it was sometimes preferred to present only significant case studies which are nevertheless representative of groups of wider and more complex problems Through the reading of this work the reader can simply fulfil his desire for knowledge and obtain answers to certain curiosities about the past history of the Church At the same time useful guidelines in dealing with conservation and restoration interventions at historic architectural sites of similar complexity can be found The book is therefore addressed to a generic reader interested in the history and conservation of one of the most representative examples of our heritage but also in light of its technical and scientific value to university students technicians restorers architects structural engineers archaeologists and historians

*Nanotechnologies and Nanomaterials for Diagnostic, Conservation and Restoration of Cultural Heritage* Giuseppe Lazzara, Rawil F. Fakhrullin, 2018-10-12 Nanotechnologies and Nanomaterials for Diagnostic Conservation and Restoration of Cultural Heritage explores how advanced nanoscale techniques can help preserve artworks The book covers lab scale available techniques as well as advanced methods from



neutron sources and X ray spectroscopy Other sections highlight a variety of nanomaterials with potential uses in treatments for restoration and conservation with conservation consolidation and long term protection protocols analyzed in each case The final chapter presents case studies demonstrates how nanoscale techniques are used to conserve art and shows what happens when misinterpretation of data sources leads to misdiagnosis The book is intended for scientists from academic and professional conservators restorers who are involved in the conservation of artistic and historical artifacts and those who want to learn how nanotechnology can increase the efficiency of conservation and protection techniques Cogently explains how nanotechnology is used in the preservation protection and restoration of artworks Explores the best nanomaterials for a variety of situations Shows how nanomaterials can be used in restoration for cleaning and in conservation treatments Includes guidelines to prevent the misinterpretation of diagnostic data to help avoid misdiagnosis

The Conservation of Medieval Polychrome Wood Sculpture Michele D. Marincola, Lucretia Kargère, 2020-08-18 The first English language book to comprehensively discuss the history and methodology of conserving medieval polychrome wood sculpture Medieval polychrome wood sculptures are highly complex objects bearers of histories that begin with their original carving and adornment and continue through long centuries of repainting deterioration restoration and conservation Abundantly illustrated this book is the first in English to offer a comprehensive overview of the conservation of medieval painted wood sculpture for conservators curators and others charged with their care Beginning with an illuminating discussion of the history techniques and meanings of these works it continues with their examination and documentation including chapters on the identification of both the wooden support and the polychromy itself the paint layers metal leaf and other materials used for these sculptures The volume also covers the many aspects of treatment the process of determining the best approach consolidation and adhesion of paint ground and support overpaint removal and surface cleaning and compensation Four case studies on artworks in the collection of The Cloisters in New York a comprehensive bibliography and a checklist to aid in documentation complement the text

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