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ART CONSERVATION DEPARTMENT
BUFFALO STATE • The State University of New York

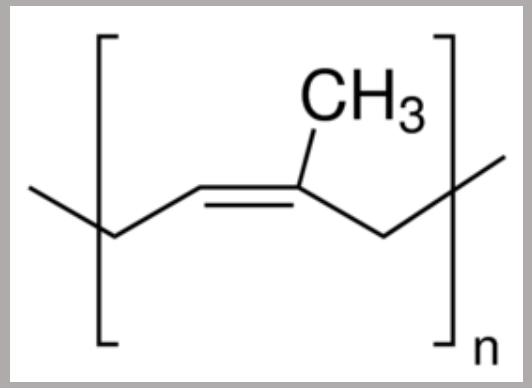
ANG A PIC 2019

The Characterization of an Artist's Masking Fluid & Their Effect on the Paper Substrate

By Perrine LeSaux

Advisors: Dr. Aaron Shugar, Dr. Rebecca Ploeger, Jiuan Jiuan Chen, Theresa J. Smith

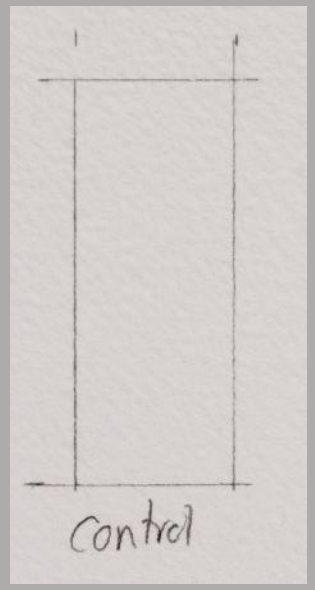
www.winsornewton.com



Natural rubber: *cis*-1,4-polyisoprene

https://www.craftster.org/forum/index.php?topic=301135.msg3437919#msg3437919

Naturally Aged Sample



Control
(no rubber)

Rubber removed
after week 1

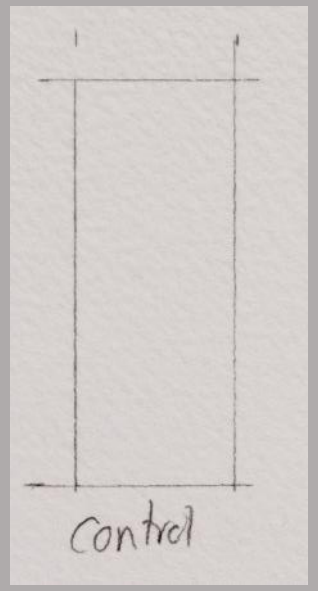
Rubber removed
after week 4

Masking fluid sample for natural aging, not to scale

Artificially Aged Sample

Samples not shown to scale

Photography



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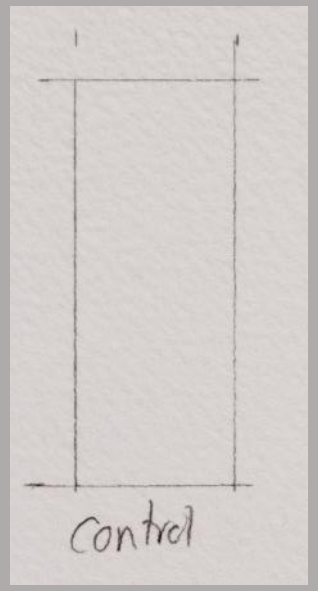
Masking fluid sample for natural aging, not to scale

Photography



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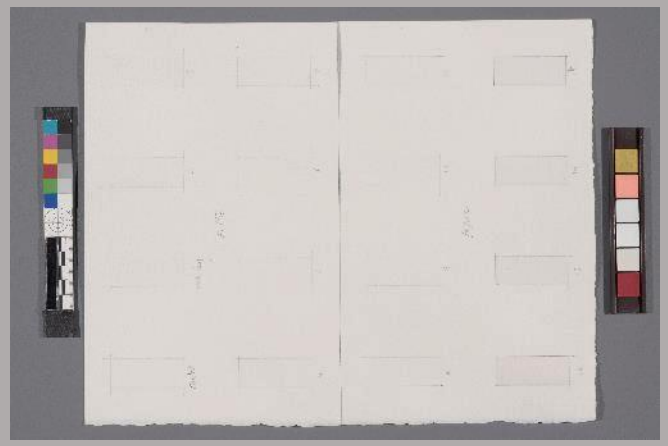
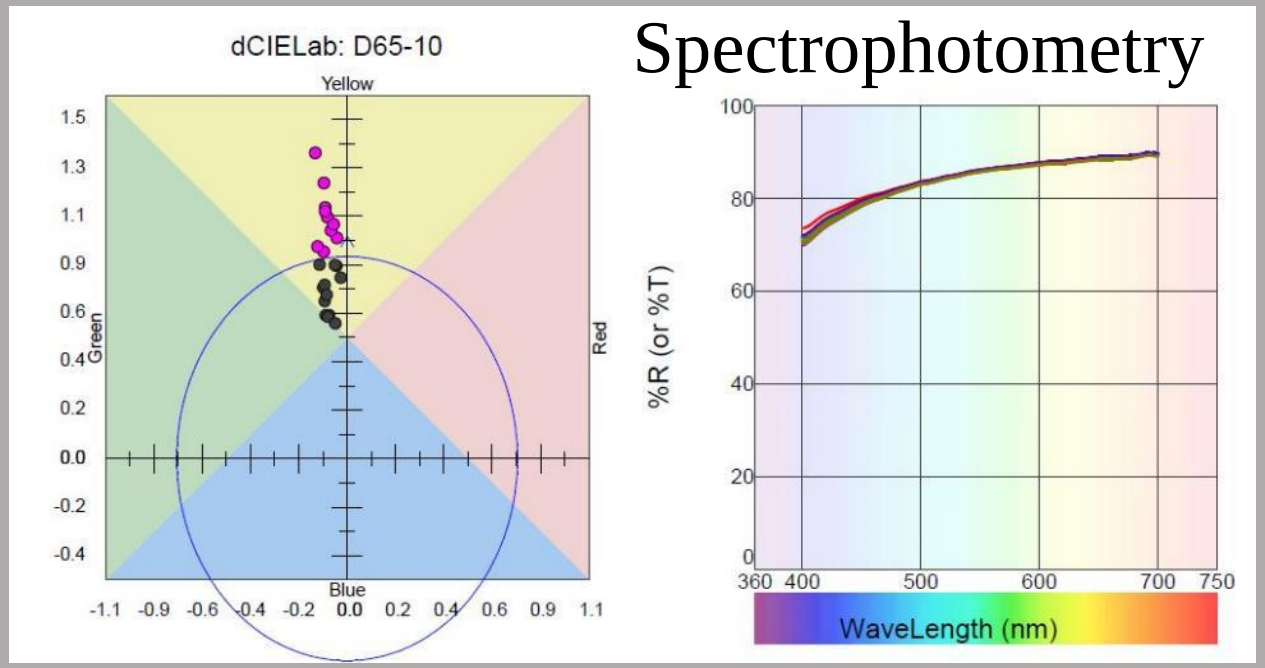


Masking fluid sample for natural aging, not to scale

Spectrophotometry



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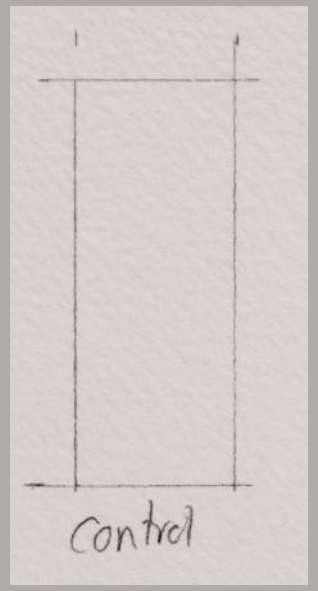

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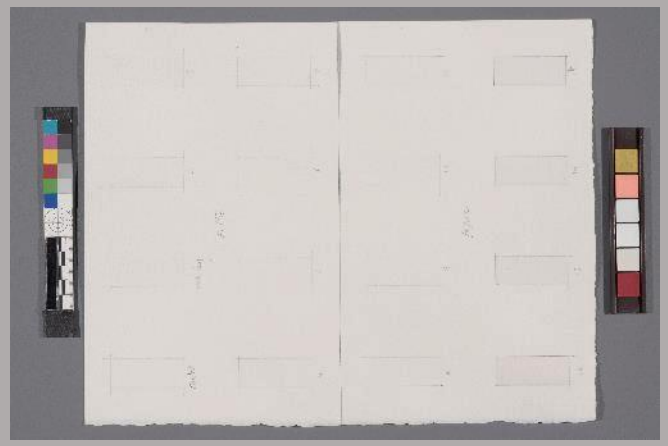

Masking fluid sample for natural aging, not to scale

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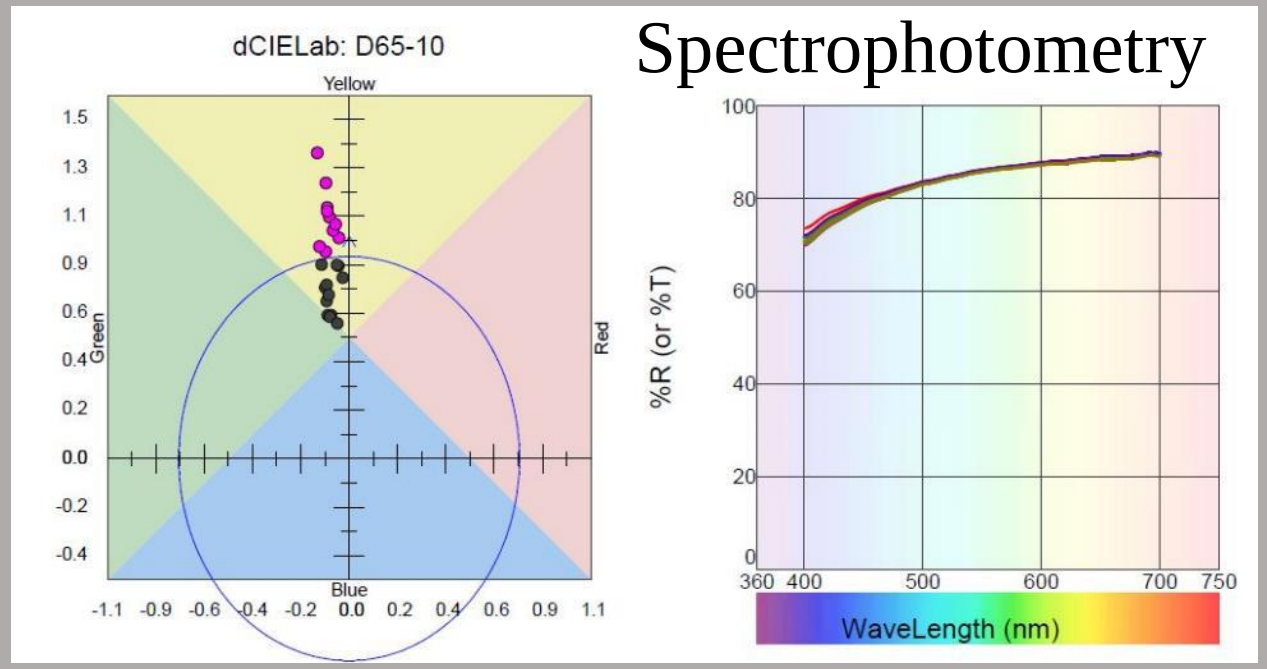
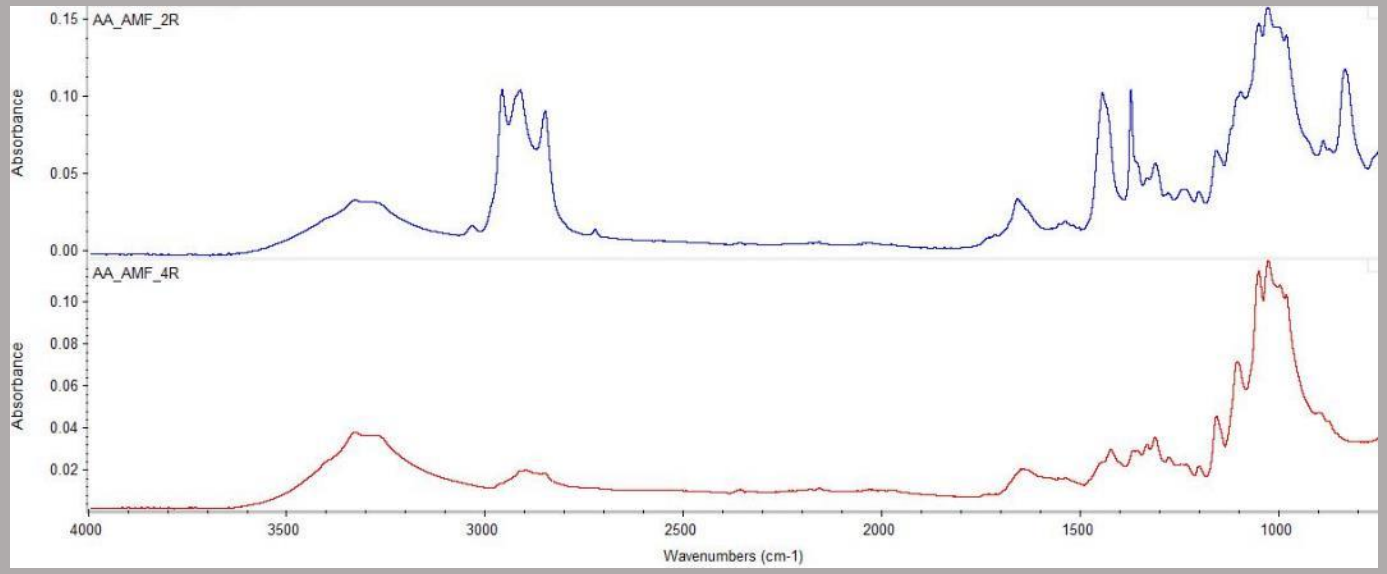
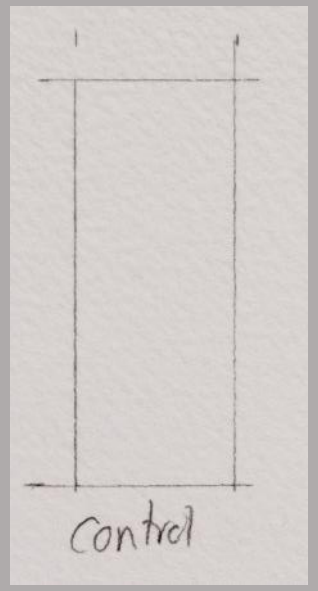


Fourier Transform Infrared Spectroscopy



Photography



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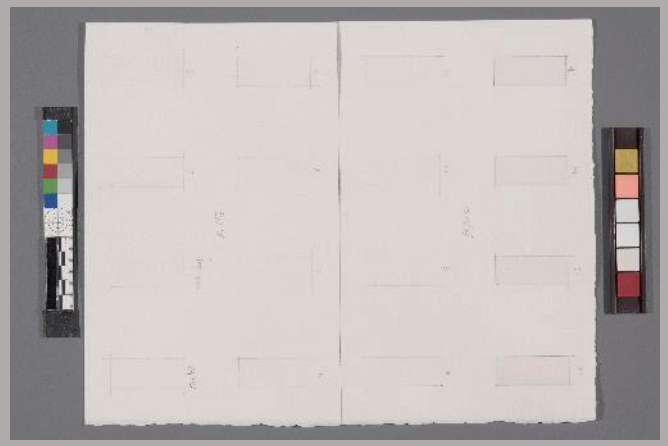
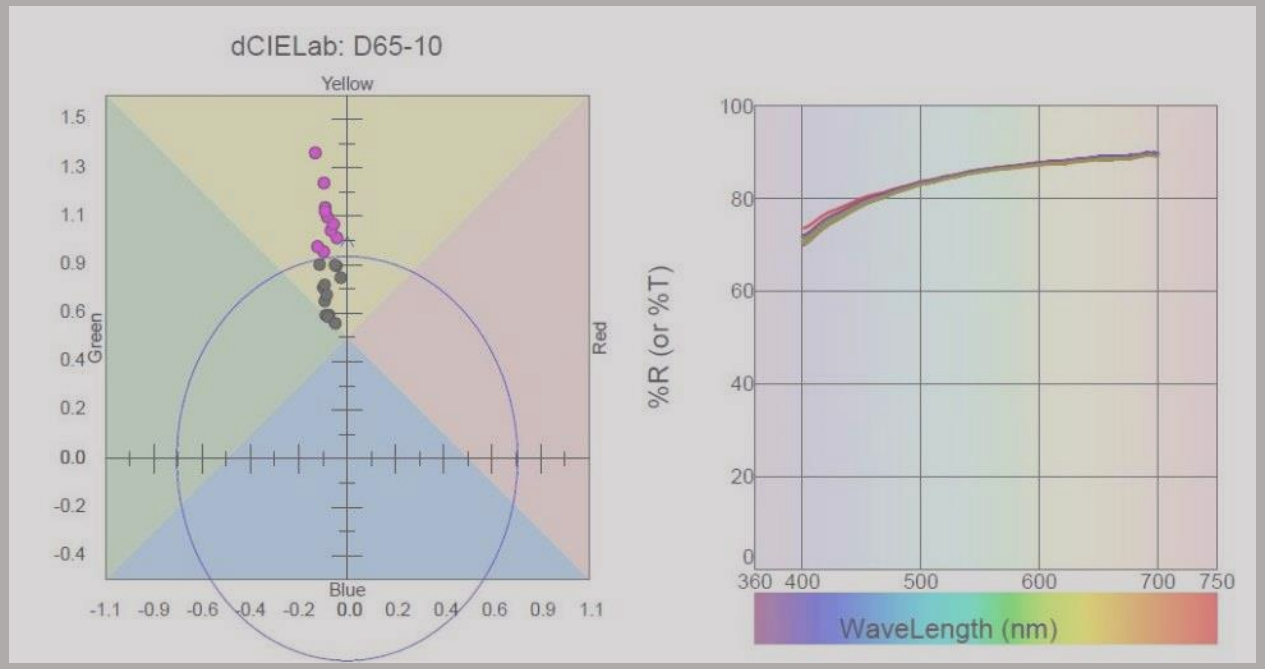
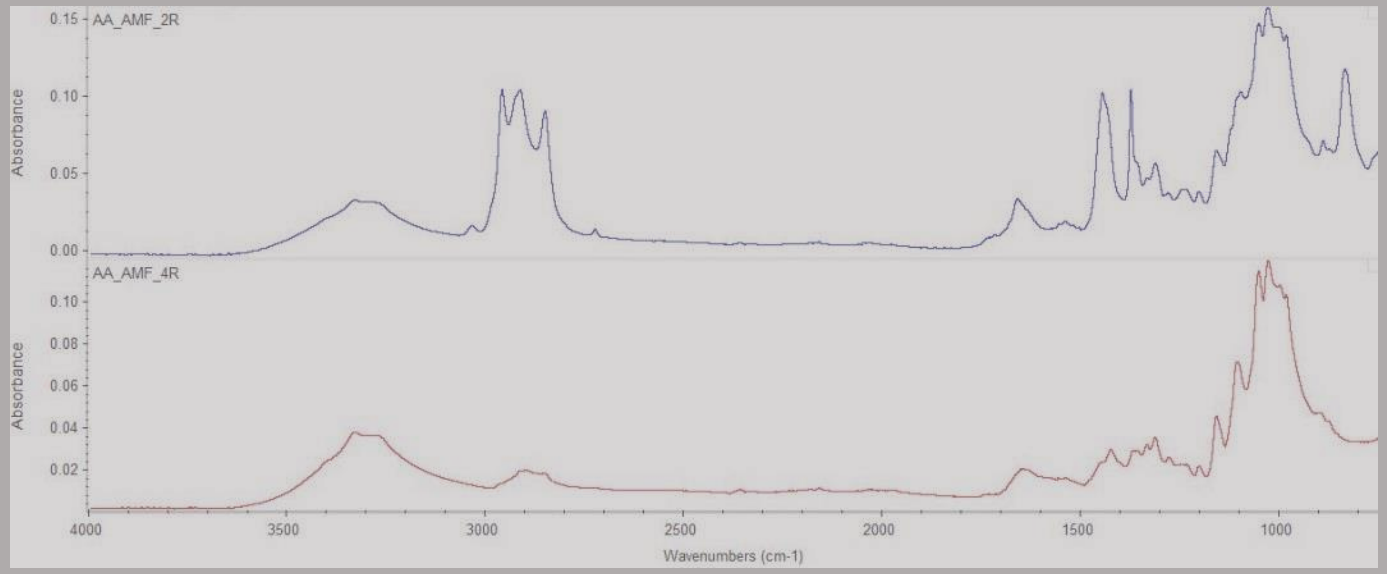
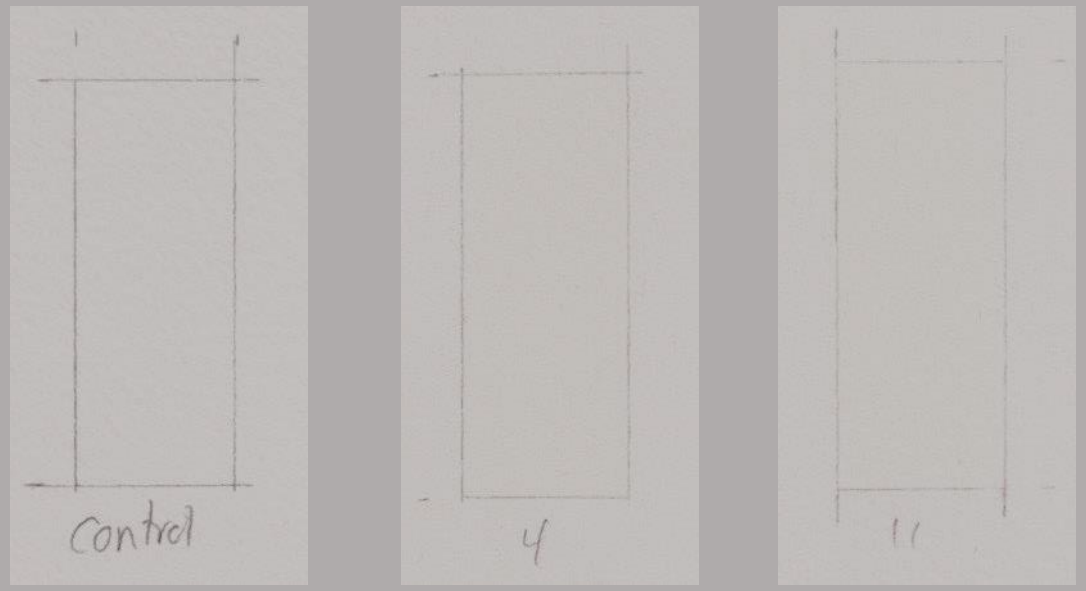
Rubber removed
after week 4



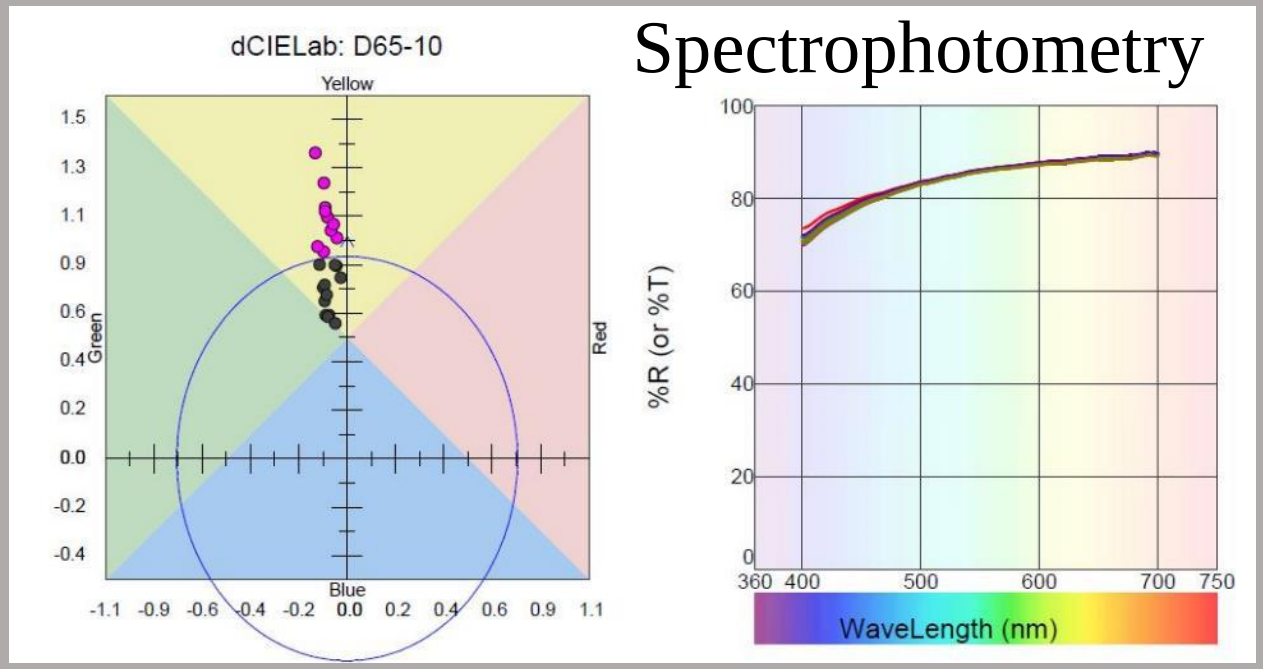
Masking fluid sample for natural aging, not to scale

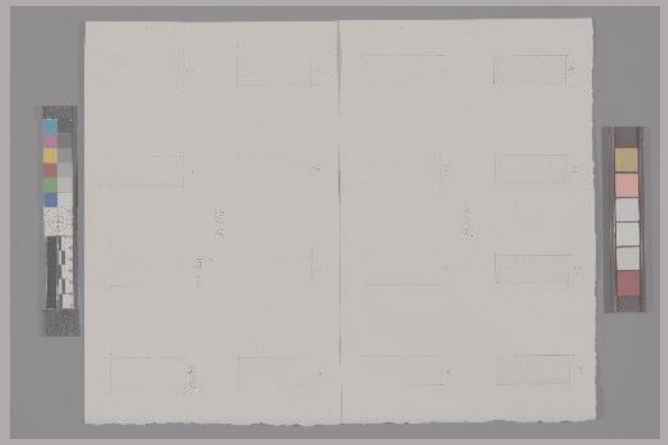


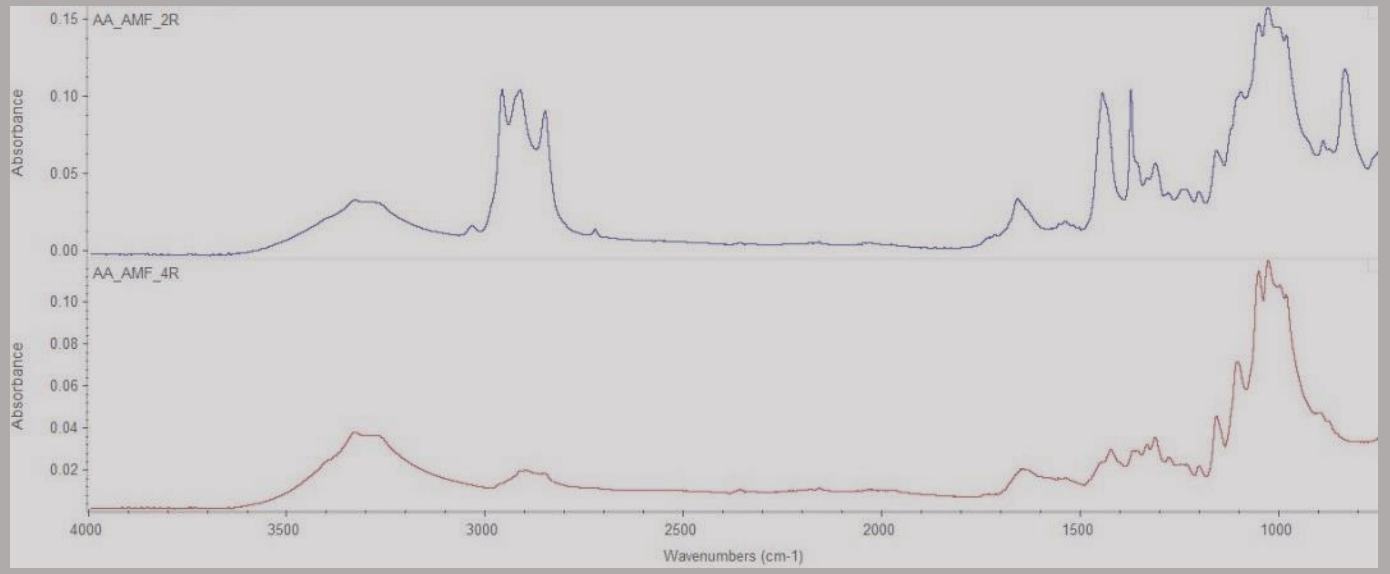


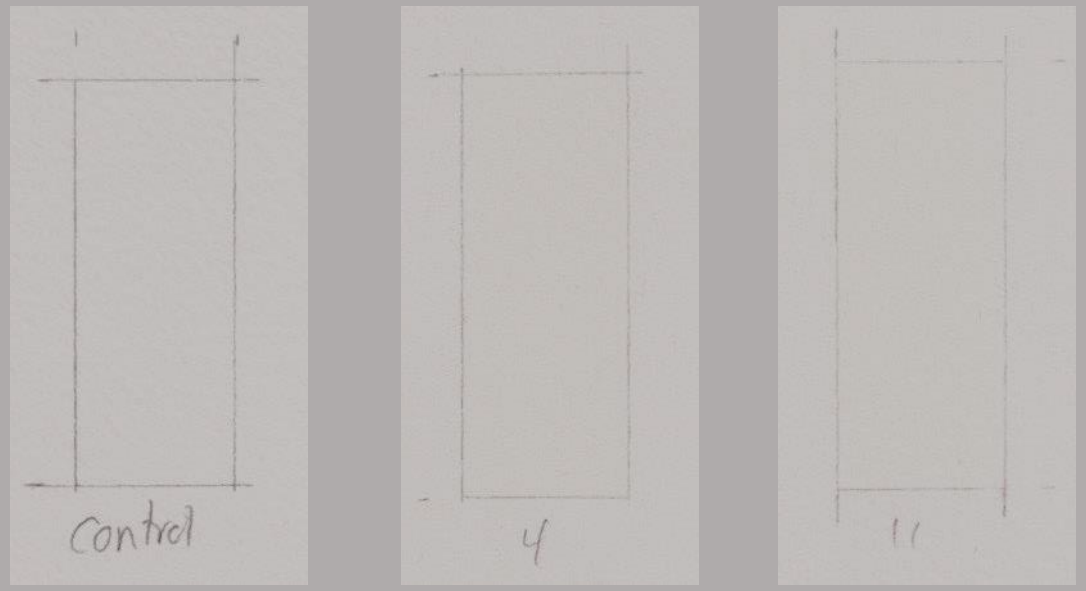


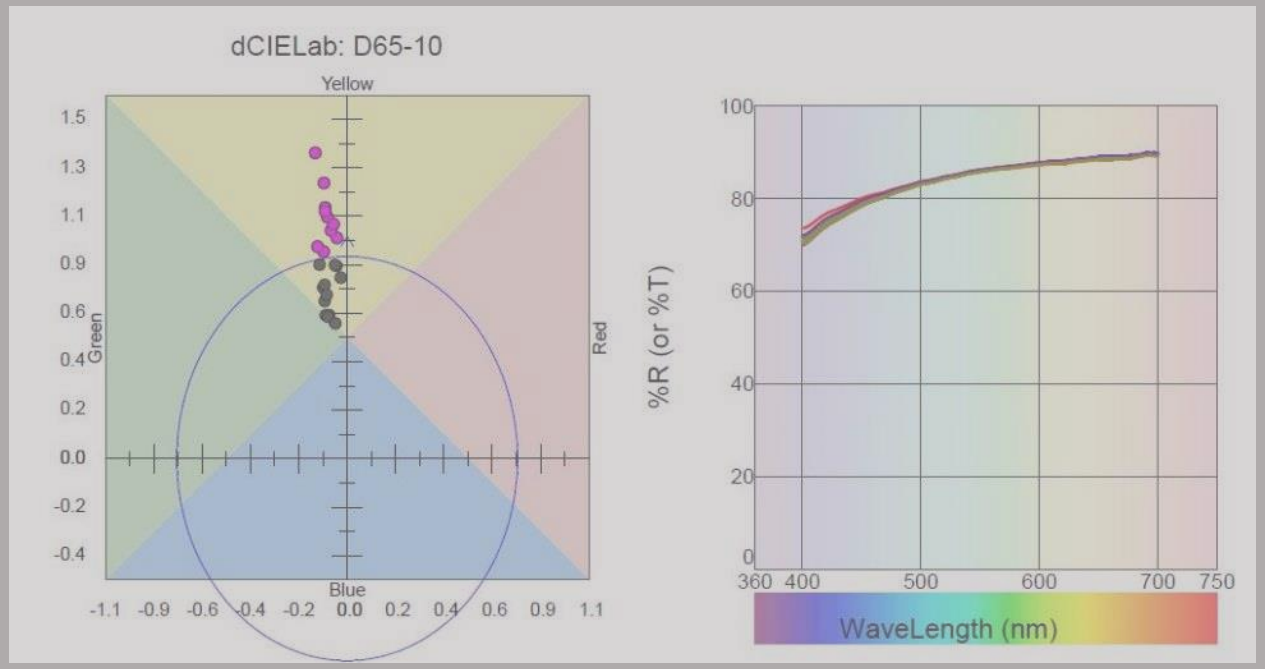
Spectrophotometry



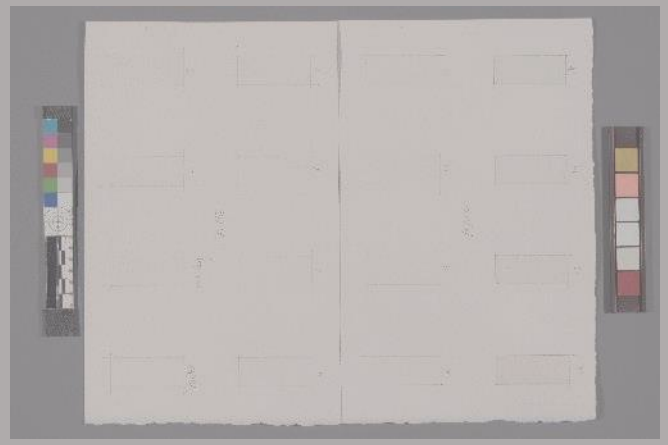


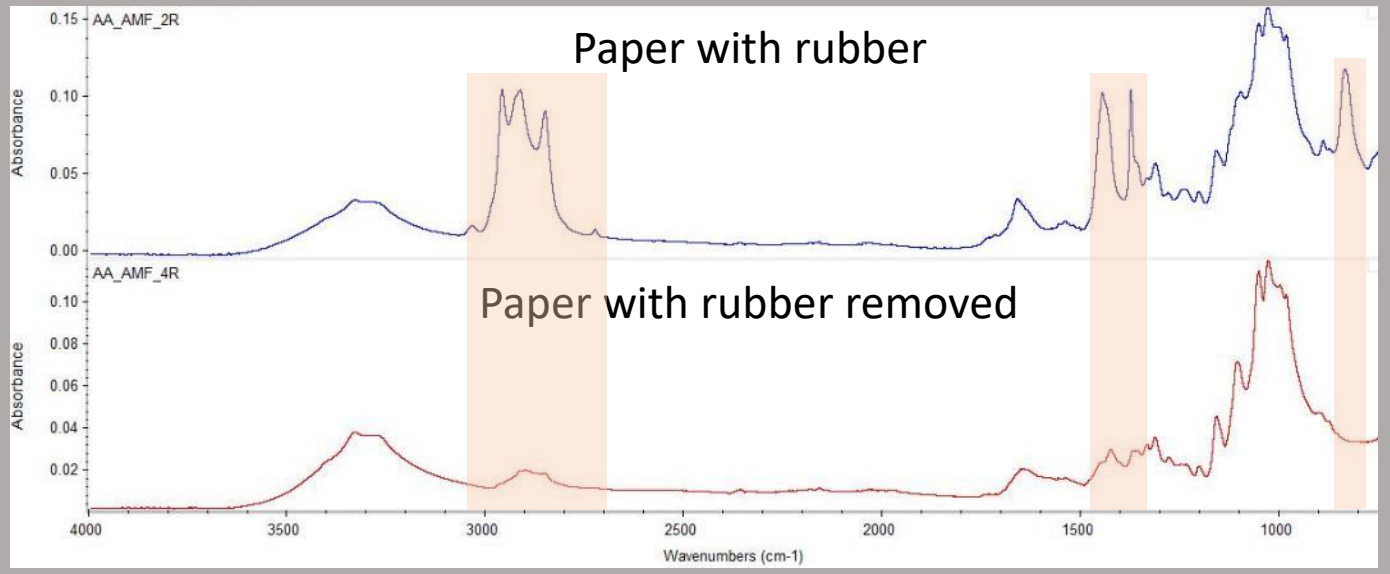


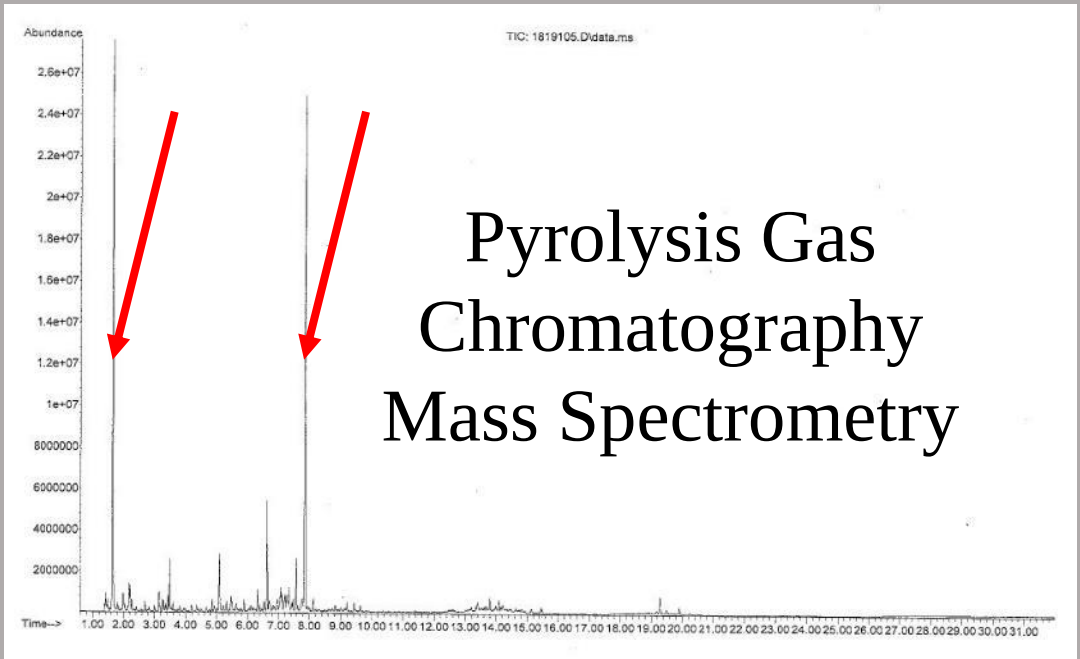




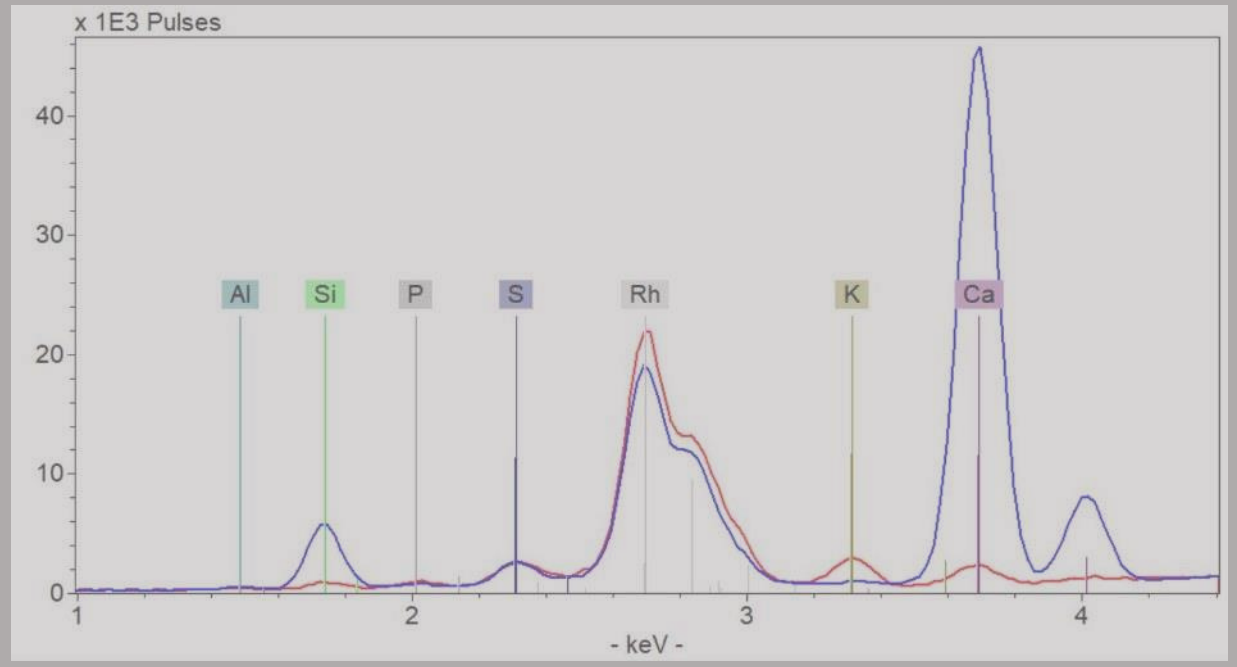
Fourier Transform Infrared Spectroscopy

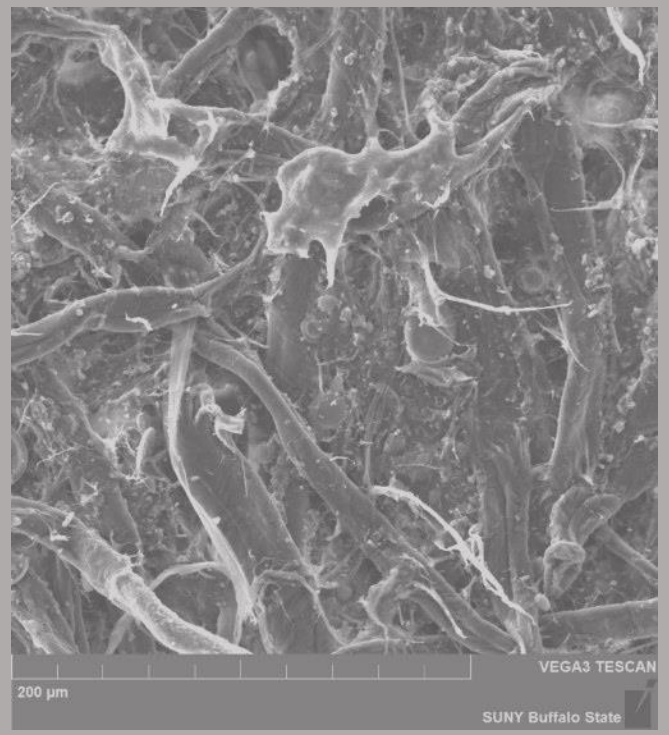


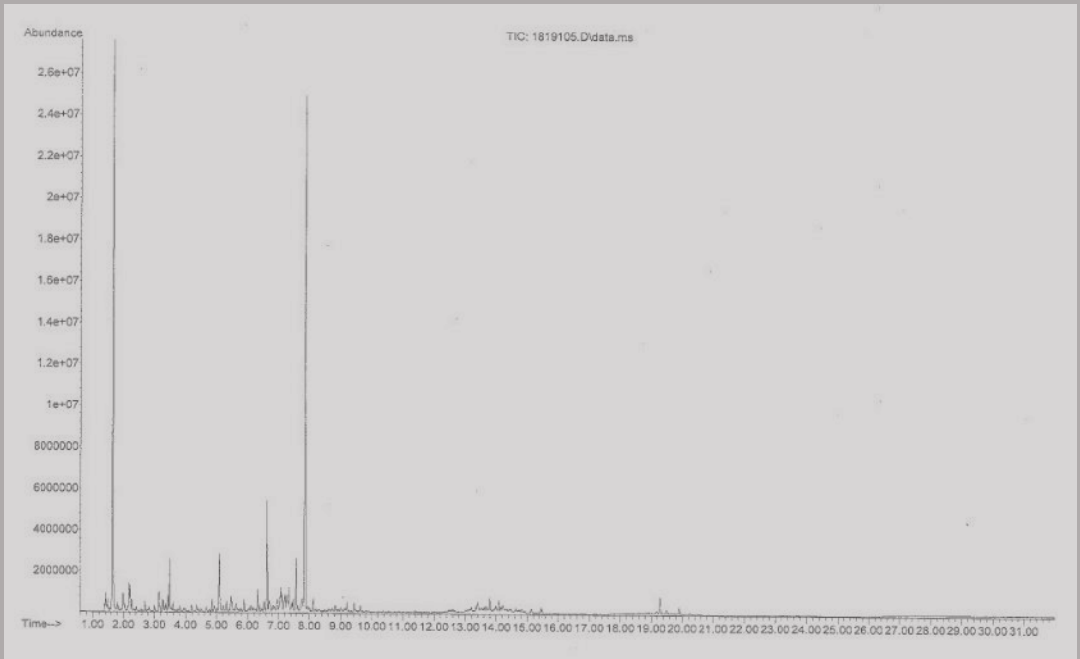


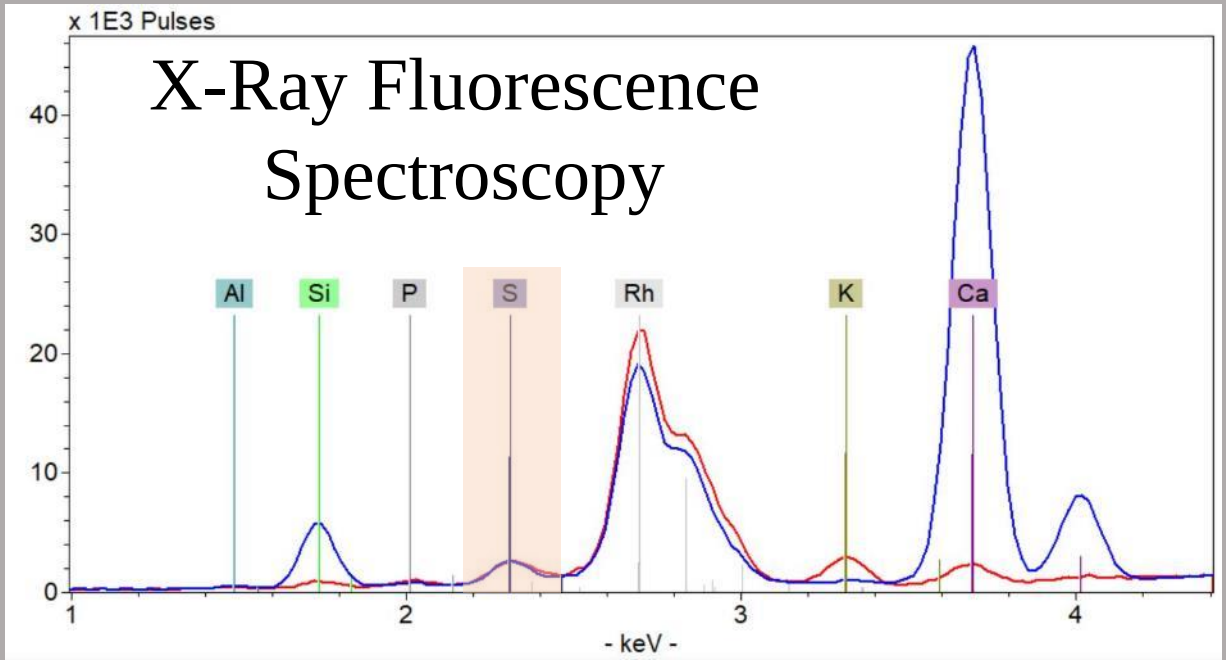


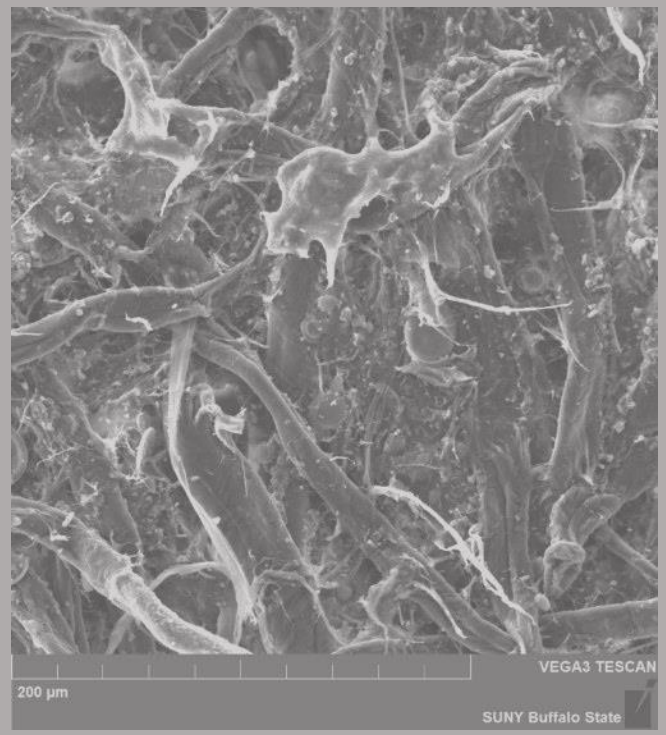
Peaks indicate natural latex

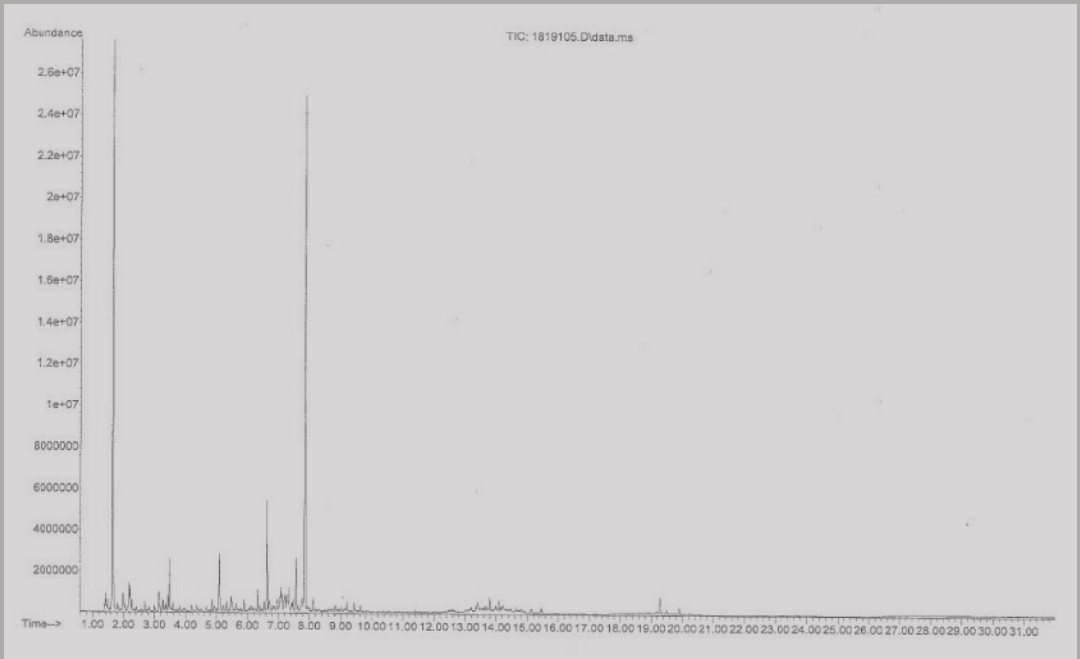


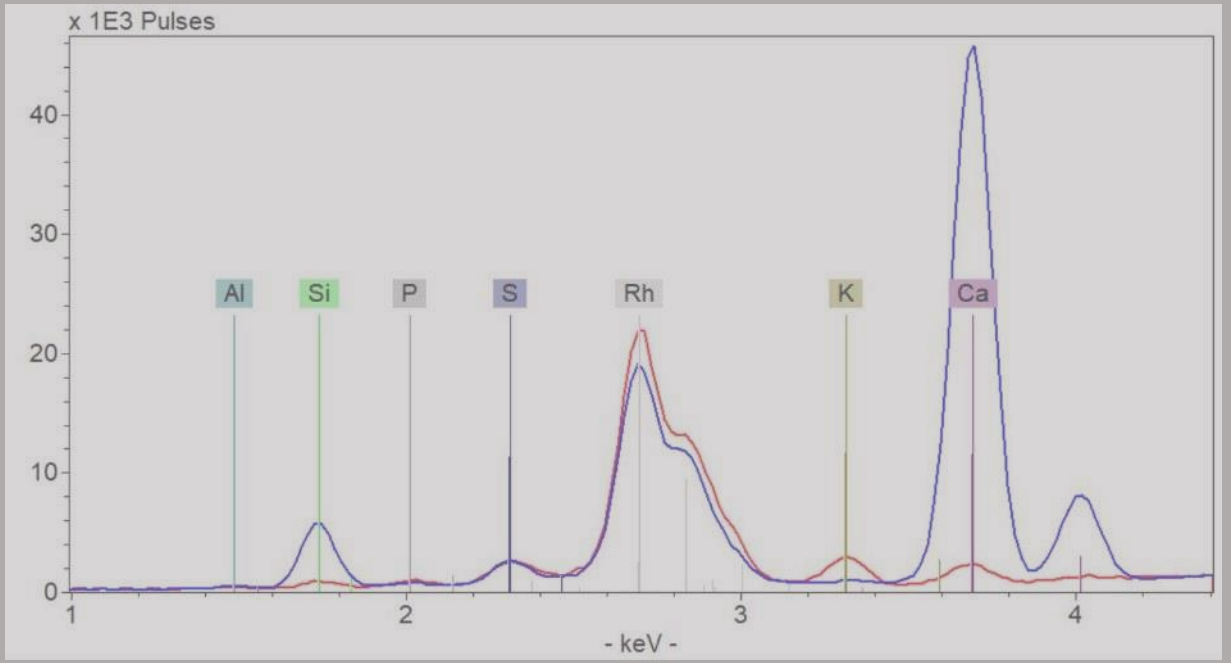



Abundance
TIC: 1819105.D\data.ms
Time-->


x 1E3 Pulses
X-Ray Fluorescence Spectroscopy
Al
Si
P
S
Rh
K
Ca
- keV -
Paper
Masking Fluid


VEGA3 TESCAN
200 µm
SUNY Buffalo State



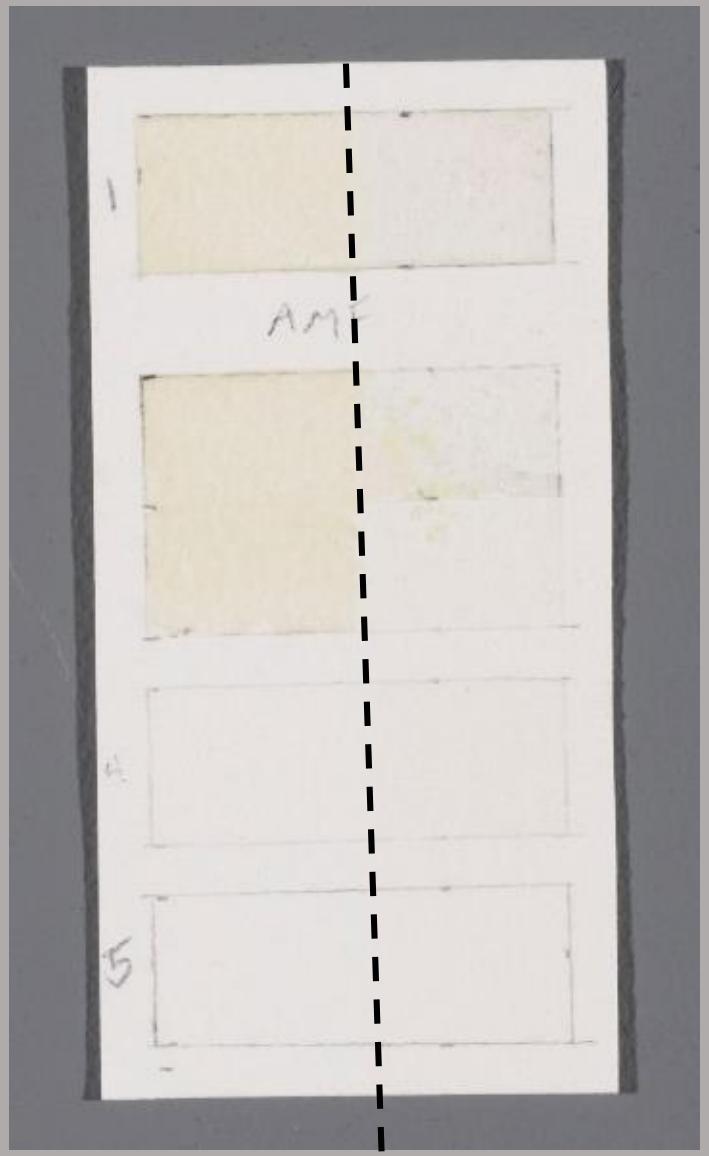


Scanning Electron Microscope

Secondary Electron Image

Rubber residue found on paper if rubber is not fully dry before it is removed

Artificially Aged Sample



After 3 weeks

After 2 weeks

After 1 week

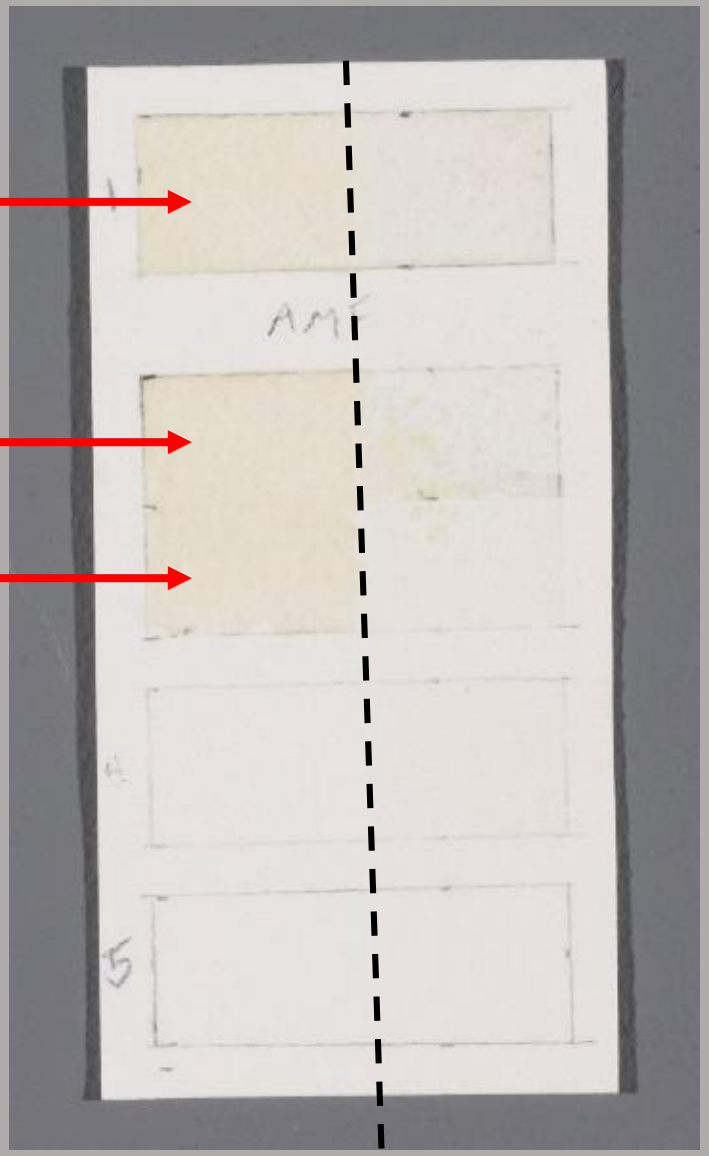
Rubber removed before aging

Control

Heat and light

Heat only

Artificially Aged Sample



After 3 weeks

After 2 weeks

After 1 week

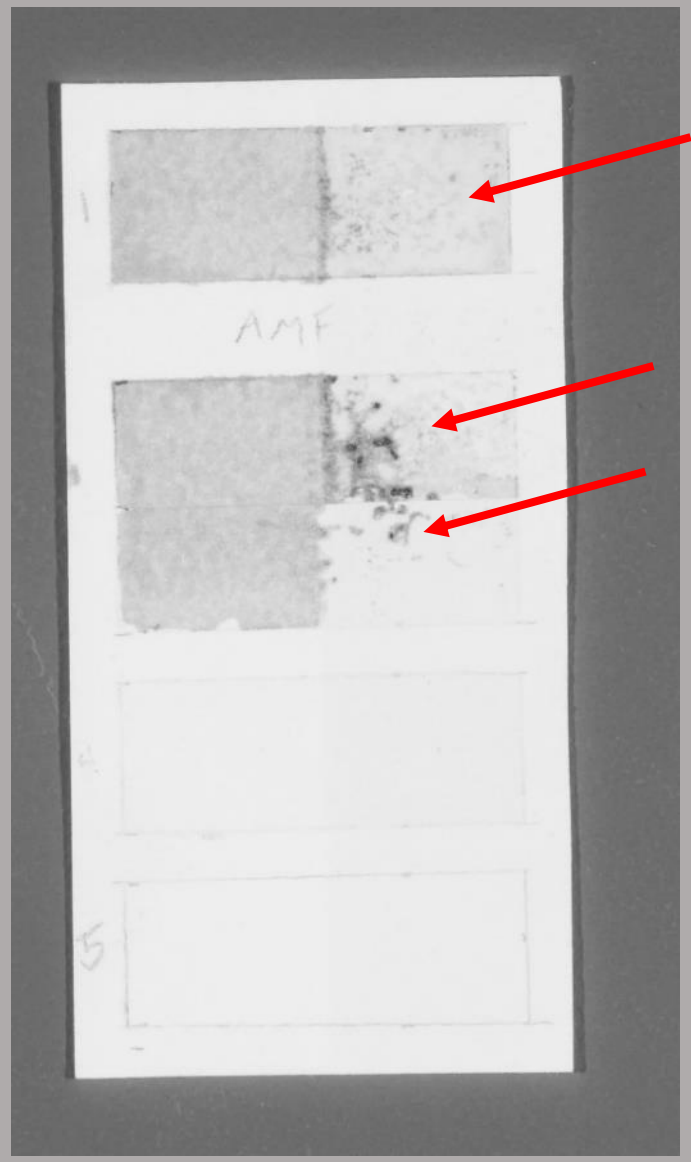
Rubber removed before aging

Control

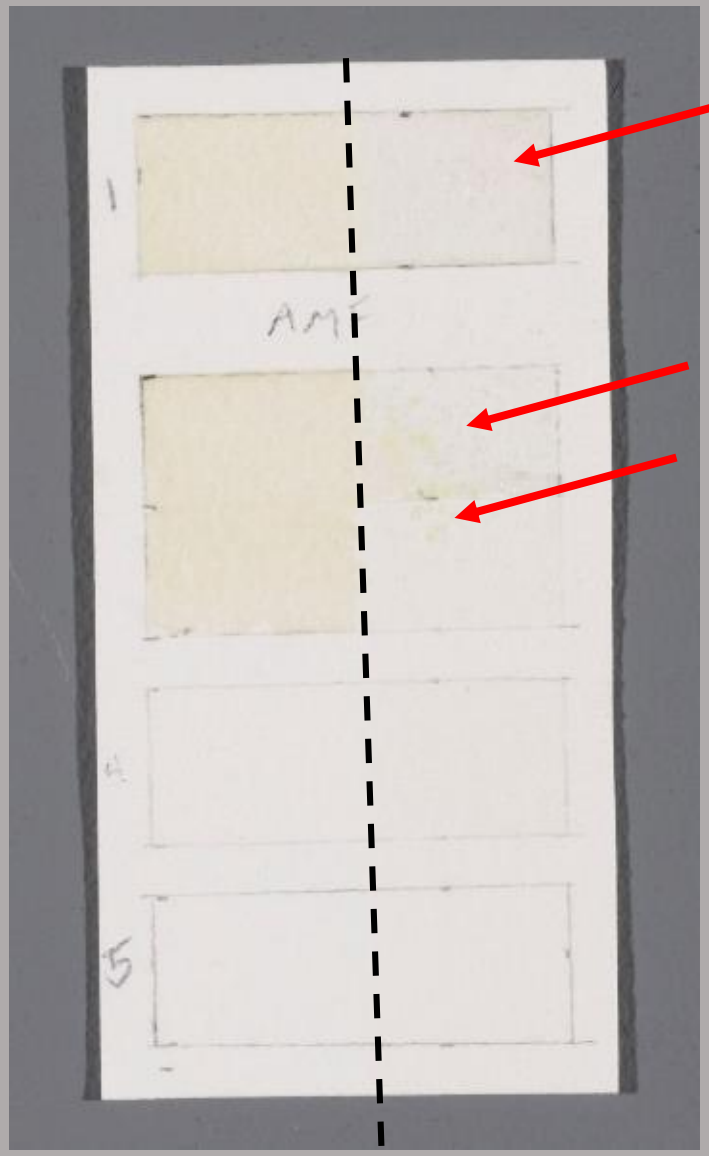
Heat and light

Heat only

Artificially Aged Sample



Reflected Ultraviolet Image



Heat and light

Heat only

After 3 weeks

After 2 weeks

After 1 week

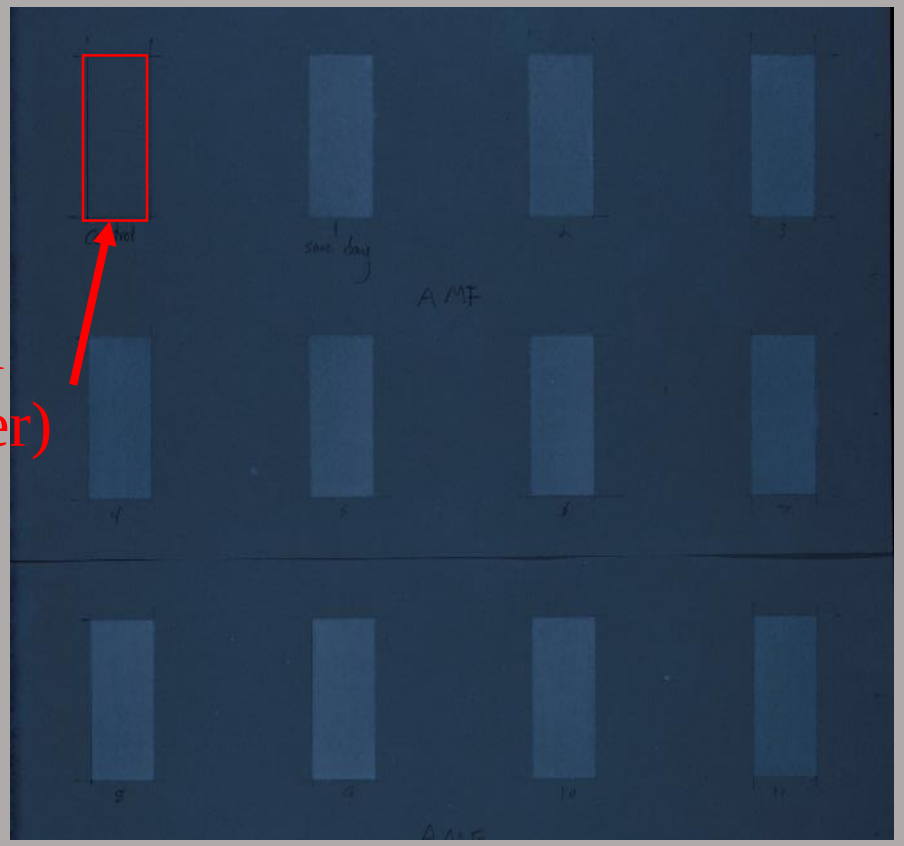
Rubber removed before aging

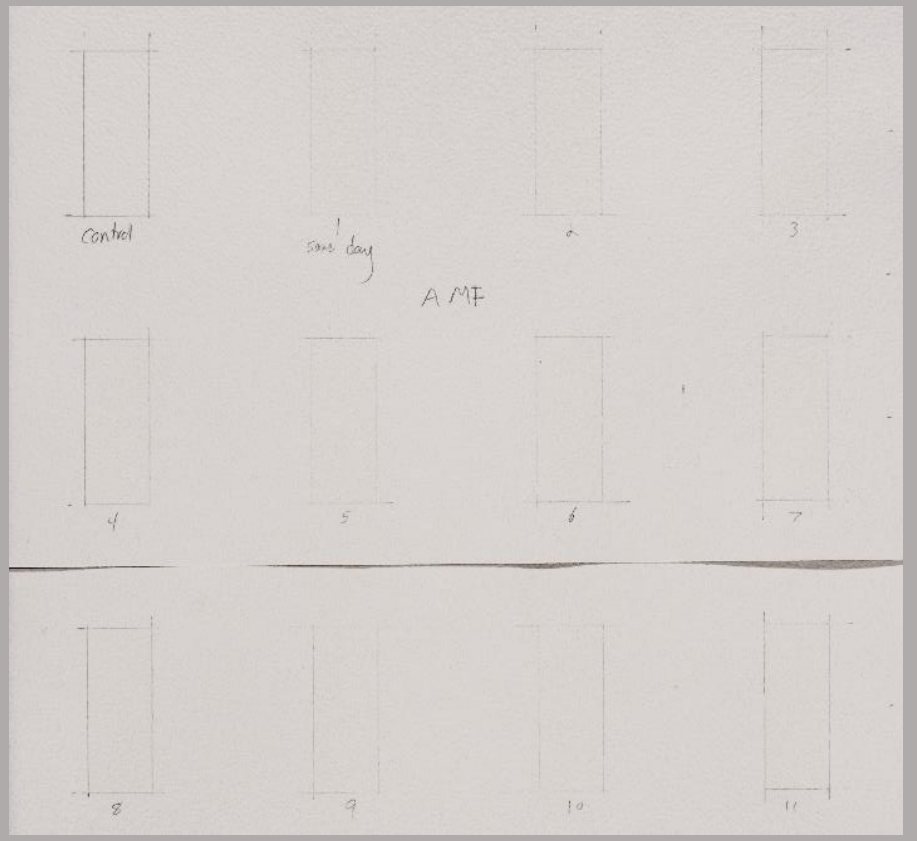
Control

Ultraviolet Induced Visible Fluorescence

Visible Light

Control
(no rubber)

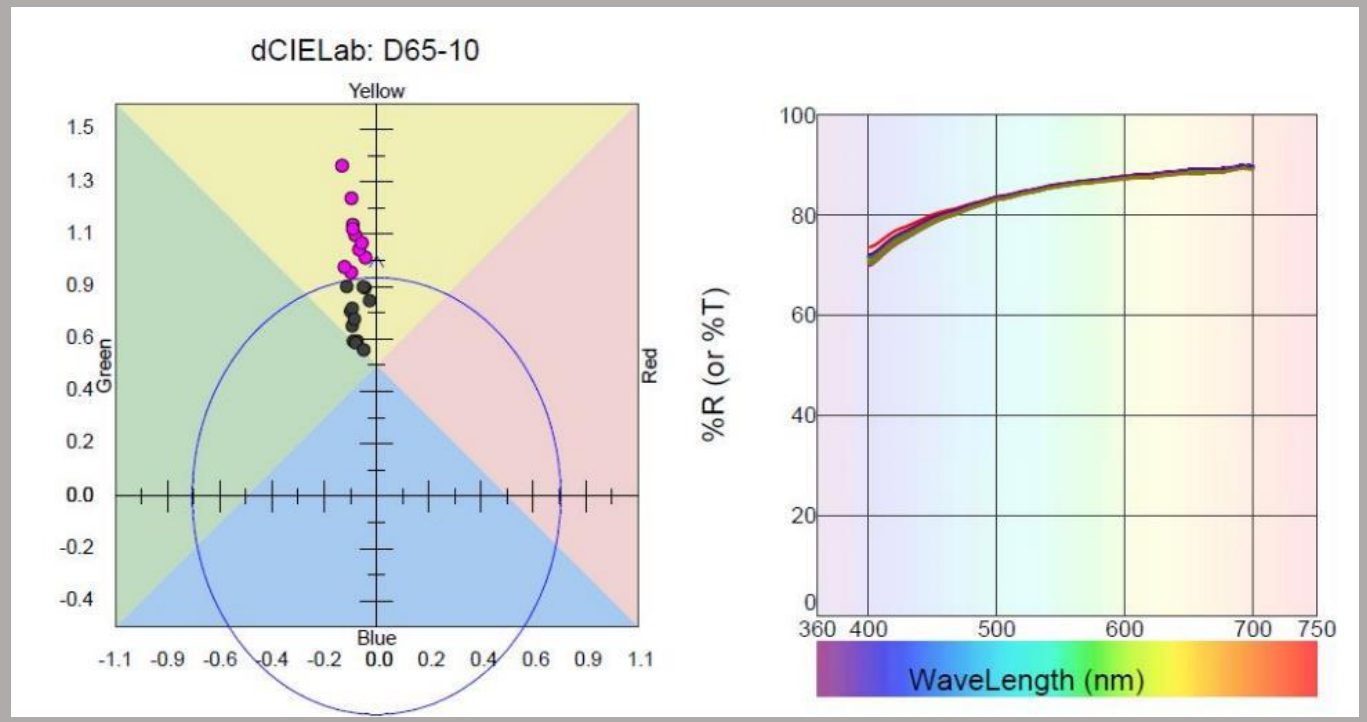




Rubber removed from each section

Conclusion

SEM SE image showing rubber residue



Example of spectrophotometry results

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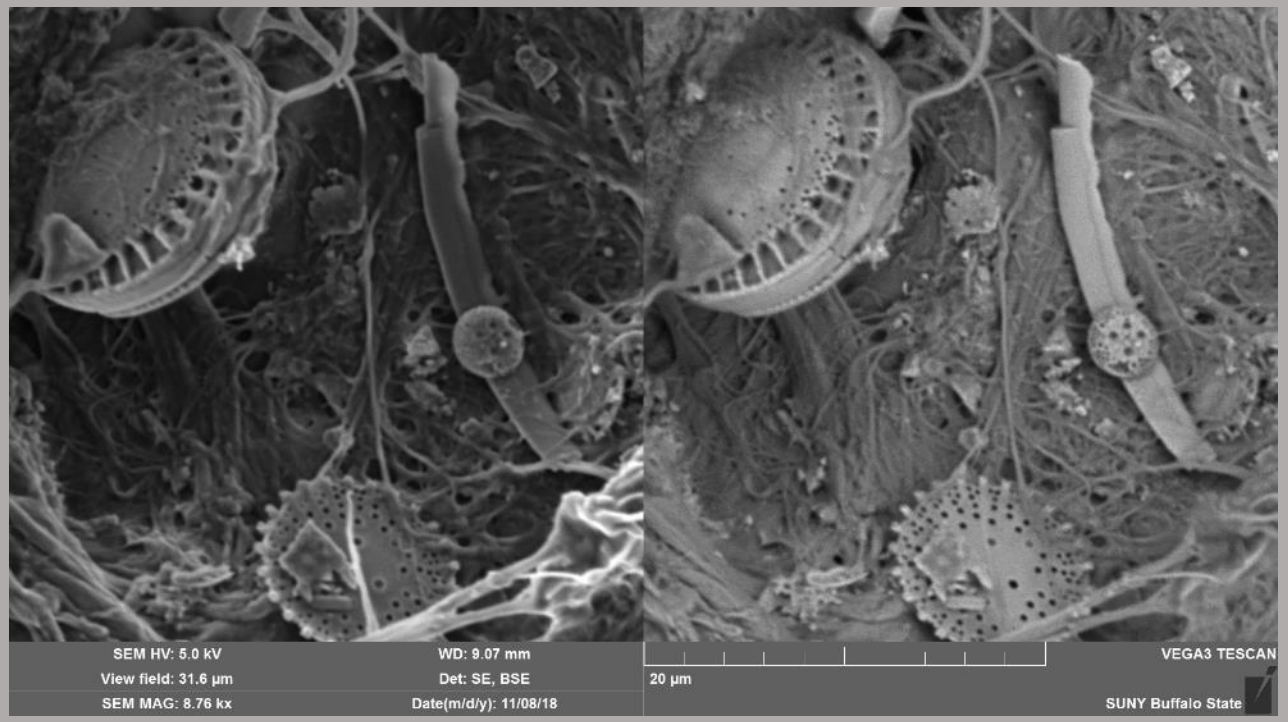
Further Research:
-Understand UV fluorescence
-Experiment with other masking fluids & papers
-Remove crosslinked rubber & observe color change to paper
-Experiment with use in treatment



Cool diatoms found on the Arches paper!

Thank you for your attention!

Special thanks to:
Dr. Aaron Shugar
Dr. Rebecca Ploeger
Jiuan Jiuan Chen
Theresa J. Smith
Class of 2020
Class of 2021
Class of 2019