

# A Comparative Study of Lightfastness in Oil-Based and Soy-Based Printmaking Inks in Works of Art on Paper

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## Abstract

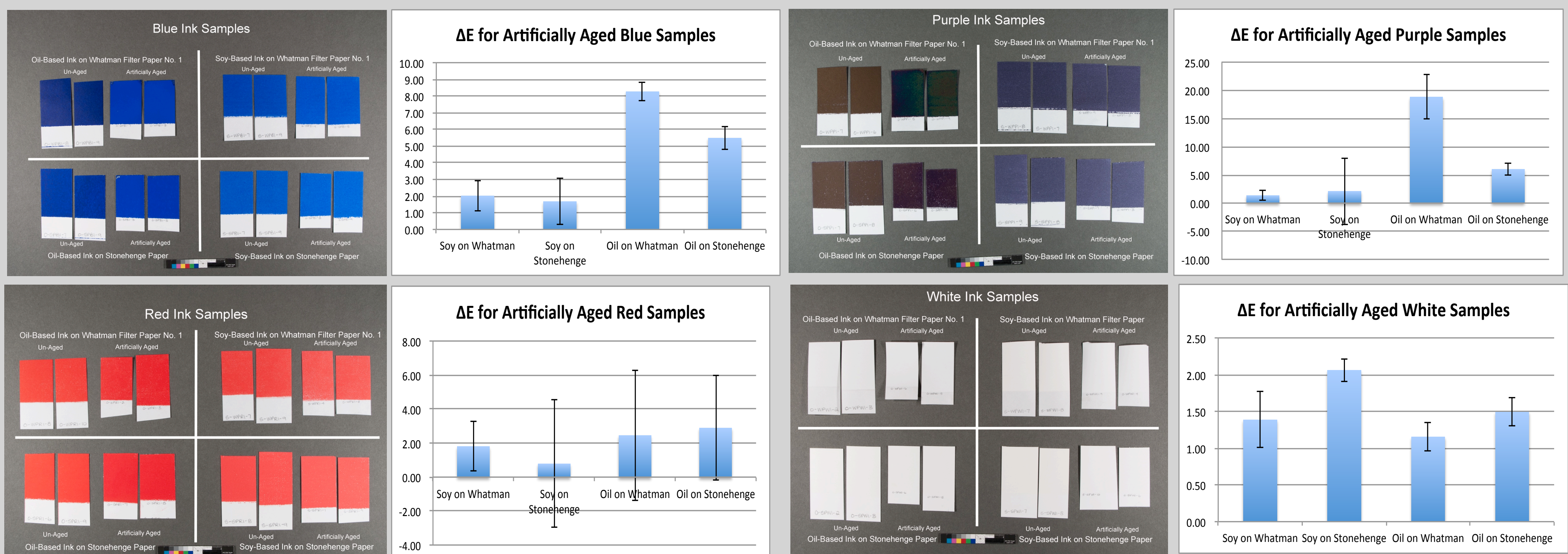
Soy-based printmaking inks are advertised as being able to produce brighter colours while maintaining the same quality as oil-based inks. Additionally, they are water-soluble and thus, easier and safer to dispose. The lightfast properties of soy-based ink by AKUA® (Intaglio) and traditional oil-based ink from Gamblin® were compared. This study is focused on the longevity and exhibition parameters necessary for conservators to accommodate such new works.

## Experimental

- Four colours were used and printed planographically on Whatman Filter Paper No. 1 and Stonehenge Printmaking Paper
- Monoprints were cut into 1" x 2" samples
- Two samples of each colour and paper combination was subjected to artificial light aging in accordance with ASTM Standard D4303
- One sample of each colour and paper combination was subjected to approximately 2 months of natural aging
- Colour changes were measured with a spectrophotometer

Brand	Colour Name	Colour Index Number	Pigment Name (Associated with CI No.)
AKUA Intaglio (Soy-Based)	Opaque White	PW6	Titanium White
	Ultramarine Blue	PB29	Ultramarine Blue
	Carbazole Violet	PV23	Dioxazine Violet
	Scarlet Red	PR112	Naphthol Red AS-D
Gamblin (Oil-Based)	Etching White	PW6, PW4	Zinc Oxide White
	Ultramarine Blue	PB29	Ultramarine Blue
	Dioxazine Purple	PV23	Dioxazine Violet
	Naphthol Red	PR112	Naphthol Red AS-D

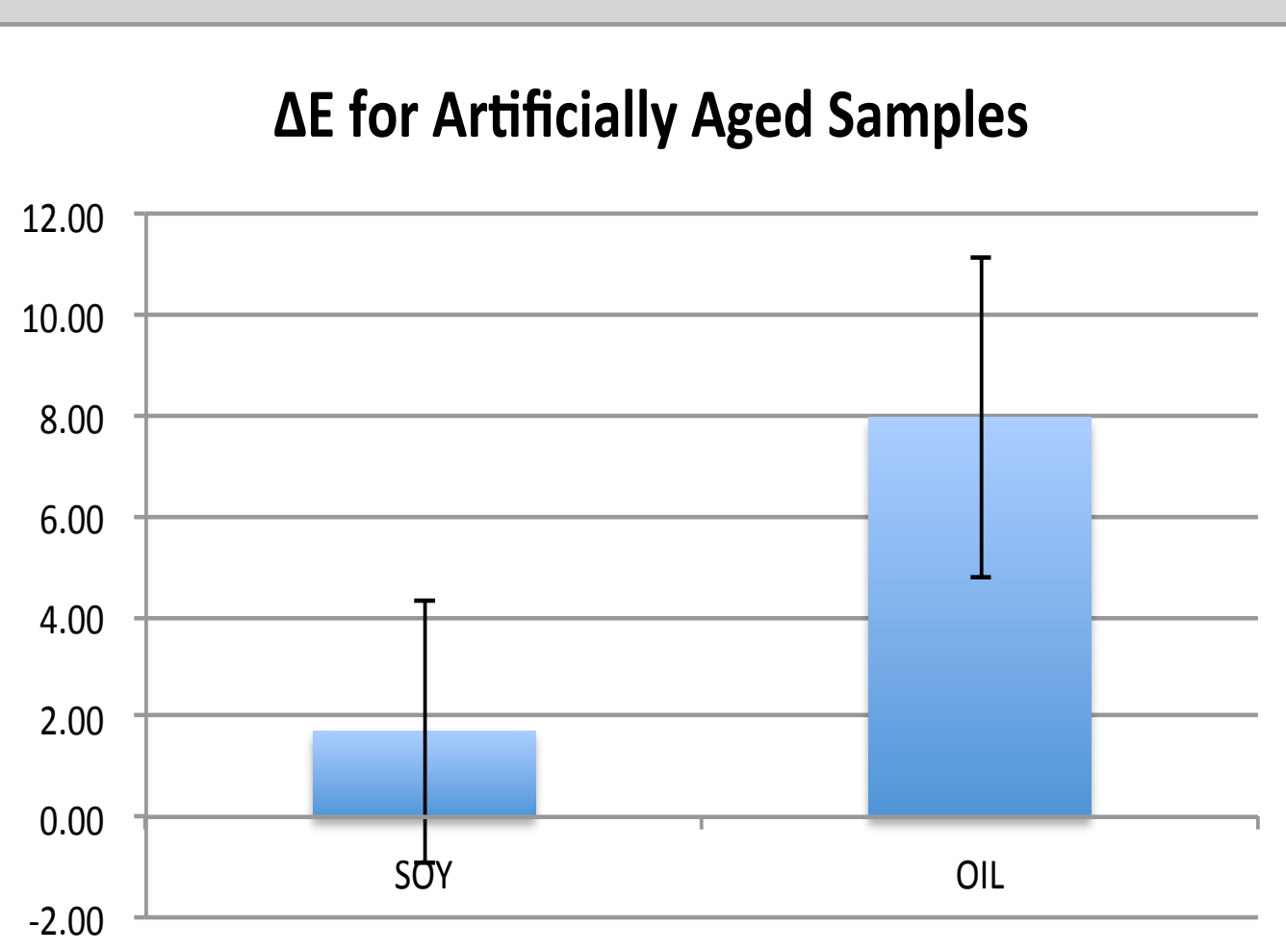
## Results and Discussion



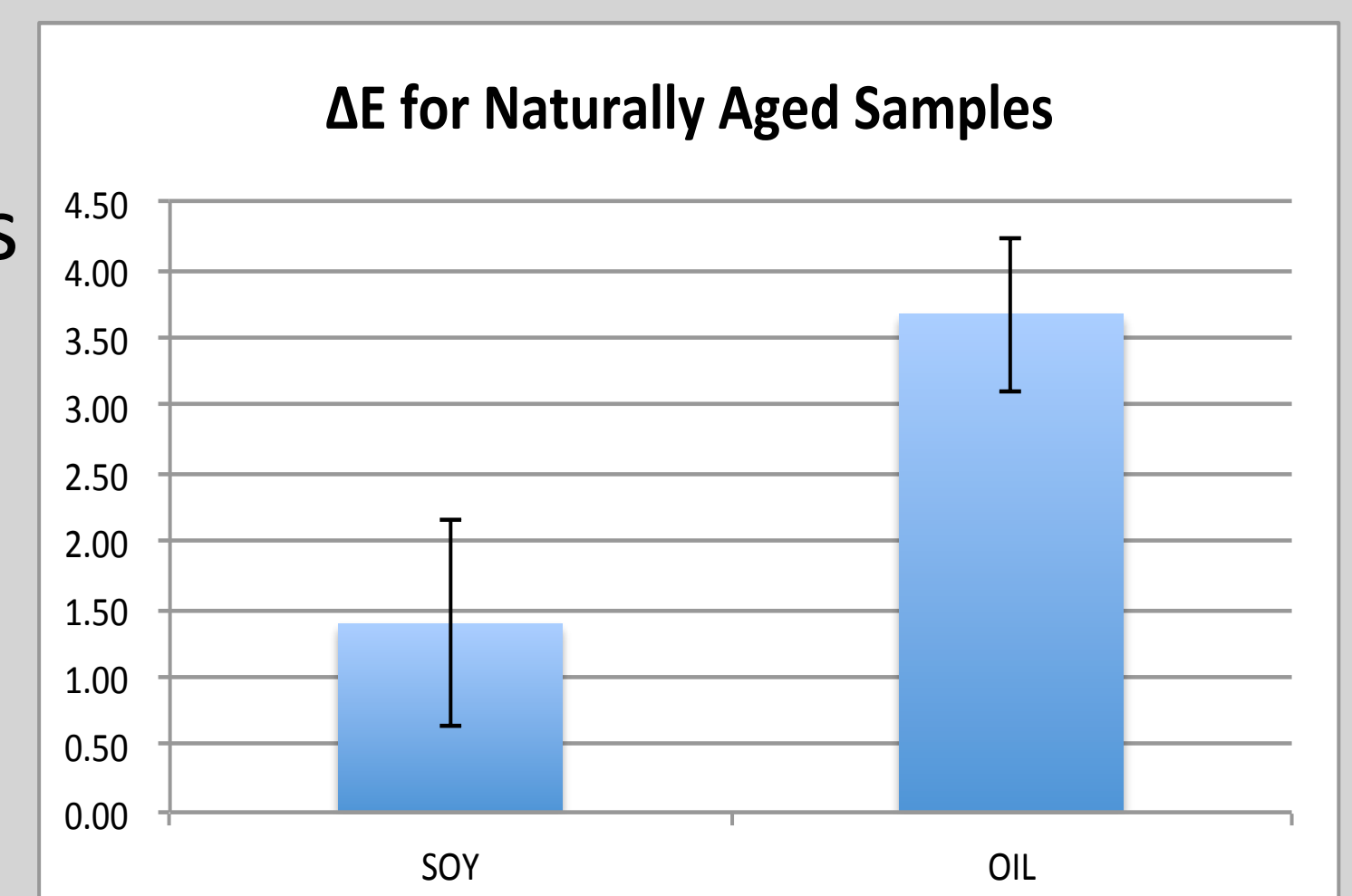
- Aged soy samples seem visually indistinguishable from control samples
  - Purple oil samples experienced some unexpected changes and appear metallic on the surface
  - Spectrophotometric data proves that the overall colour shift is greater in oil-based ink samples than in soy-based ink samples in most cases; The white samples proved to be the only exception (both for artificially aged and naturally aged samples)
- (Error bars show maximum possible variance in sample data)



## Conclusions



Overall, the soy-based printmaking inks experienced less of a shift in colour than oil-based printmaking inks used in this study. This was true for both natural and artificial aging.



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