

Test Results for the Phycocyanin Fountain Pen Ink

To preface these test results, I would recommend that you do your own research as to the sustainability of the paper you wish to write on, and favor more sustainable papers that have Forest Stewardship Council (FSC) certification.

The ink was used on a selection of ordinary papers and some ruled paper to evaluate its performance. Please note that the bleeding is slightly more pronounced than what is pictured here, but both the 28 lb paper from www.perforatedpaper.com and the Muji notebooks gave hardly any bleeding. Should you like to print your own notebooks at home using PrintABook, check out my github repository: <https://github.com/LPBeaulieu/Notebook-Maker-PrintABook>.

After these performance tests, the stability results of the phycocyanin ink with 16 weight percent glycerine are included. These show that at 16% of glycerine, the ink gradually fades and its color shifts towards green with time. However, the final image illustrates how at the 6 month timestamp, the ink having 32% glycerine displays a much more pronounced color stability, when compared to the 16% and 8% glycerine inks.

Also, due to the high concentration of glycerine in the ink formulation, this ink is only appropriate for writing on regular paper, and not on specially treated fountain pen paper. For example, the ink takes over a minute to dry on Tomoe River 52 gsm paper!

As a final note, the ink is by no means water resistant nor of archival quality, but it certainly holds up nicely on sheets of paper that I have written on several months ago and that are exposed to ambient indoor lighting.

Test on Paperworks 20 lb printer paper:

Phycocyanin 4g Glycerine 32% (6 months old)

Paper: Paperworks 20 lb printer paper

Pen used: Muji fountain pen

Sample text: Art is but imitation of nature

- L.A. Seneca

Drying time	3	5	10	15	20
(seconds)	▷	▷	▷	▷	▷

Test on Paperworks 20 lb printer paper (reverse):

Phycocyanin 4g Glycerine 32% (6 months old)

Paper: Paperworks 20 lb printer paper

Pen used: Muji fountain pen

Sample text: Art is but imitation of nature

- L.A. Seneca

Drying time	3	5	10	15	20
(seconds)	▷	▷	▷	▷	▷

Test on Paperworks 24 lbs printer paper:

Phycocyanin 4 g Glycerine 32%. (6 months old)

Paper: Paperworks 24 lb printer paper

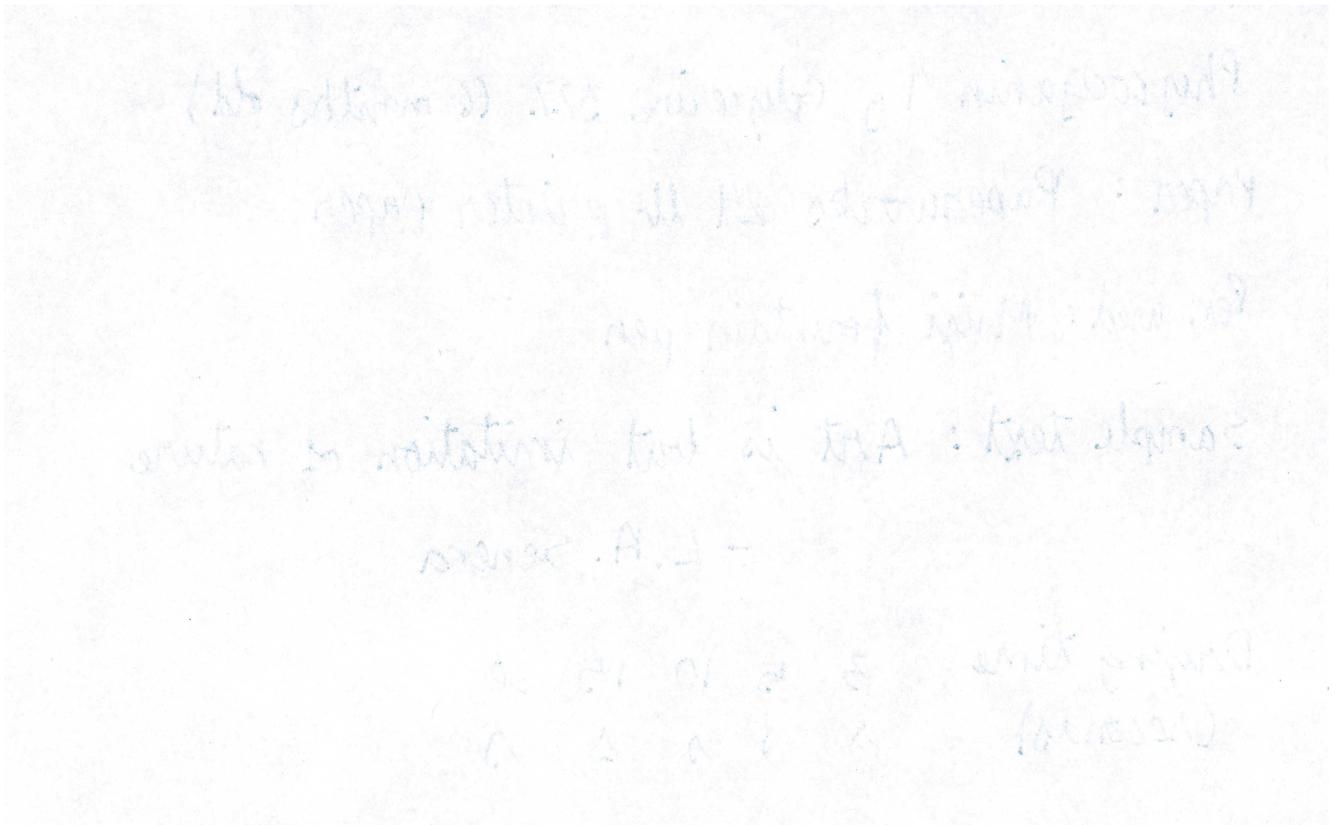
Pen used: Muji fountain pen

Sample text: Art is but imitation of nature

- L.A. Seneca

Drying time	3	5	10	15	20
(seconds)	Δ	Δ	Δ	Δ	Δ

Test on Paperworks 24 lbs printer paper (reverse):



Test on www.perforatedpaper.com 28 lb printer paper:

Phycocyanin 4g Glycerine 32%. (6 months old)

Paper: www.perforatedpaper.com 28 lb paper

Pen used: Muji fountain pen

Sample text: Art is but imitation of nature

- L. A. Seneca

Drying time	3	5	10	15	20	25
(seconds)	△	△	△	△	△	△

Test on www.perforatedpaper.com 28 lb printer paper (reverse):

Test on Five Star 24 lb heavyweight refill paper:

Phycocyanin 4g Glycerine 32% (6 months old)

Paper: Five Star Heavyweight refill paper (24 lb)

Pen used: Muji fountain pen

Sample text: Art is but imitation of Nature

- L. A. Seneca

Drying time	3	5	10	15	20	25	30
(seconds)	Δ	Δ	Δ				

Test on Five Star 24 lb heavyweight refill paper (reverse):

Phycocyanin 4g Glycerine 32% (6 months old)

Paper: Five Star Heavyweight refill paper (24 lb)

Pen used: Muji fountain pen

Sample text: Art is but imitation of Nature

- L. A. Seneca

Drying time	3	5	10	15	20	25	30
(seconds)	Δ	Δ	Δ				

Test on Muji notebook B5 6 mm:

Phycocyanin 4g Glycerin 32% (6 months old)

Paper: Muji Notebook B5 6mm

Pen used: Muji Fountain pen

Sample text: Art is but imitation

of nature - L.A. Seneca

Drying time	3	5	10	15	20	25	30
(seconds)	⊗	⊗	⊗	⊗	⊗	⊗	⊗

35	40	45	50	55	60
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Test on Muji notebook B5 6 mm (reverse):

Faint, mirrored handwriting is visible on the reverse side of the page, appearing as bleed-through from the text written on the front side.

Stability test of the ink prepared with 4 g of phycocyanin and 16 wt% of glycerine:

Ink stability log (Freshly prepared with 4.0 g of phycocyanin and 16 wt% of glycerin. on January 1st 2023, written with a glass dip pen.)

January 1st 2023: The quick brown fox jumps over a lazy dog.

February 1st 2023: The quick brown fox jumps over a lazy dog.

March 9th 2023: The quick brown fox jumps over a lazy dog.

April 28th 2023: The quick brown fox jumps over a lazy dog.

June 2nd 2023: The quick brown fox jumps over a lazy dog.

↑
some solid residue observed at the bottom of the ink well.

July 2nd 2023: The quick brown fox jumps over a lazy dog.

Ink color comparison at the 6 month mark, depending on glycerine content:

8% glycerin

July 2nd 2023: The quick brown fox jumps
over a lazy dog.

16% glycerin

July 2nd 2023: The quick brown fox jumps
over a lazy dog.

32% glycerin:

July 2nd 2023: The quick brown fox jumps
over a lazy dog.

These three ink samples show how increasing concentrations of glycerin stabilizes the coloration of the ink, with the 32 wt% glycerin looking very similar in color to the freshly prepared 16% glycerin ink (both with 4.0 g of phycocyanin and both prepared on January 1st 2023.)