

## LYSON IN-HOUSE PERMANENCY RESULTS

We have written this web page in response to our customers, many of whom have requested that we publish our own internal test results on different media/ink combinations. At Lyson, we are continuously testing our own products and our competitors for permanence, and our findings are published below.

Lyson has a number of methods for observing pictorial image fading of which Blue Wool and simple window placement are still carried out. However, the test that we believe gives the most accurate prediction of actual indoor display life is the method used by Wilhelm Imaging Research, Inc ([www.wilhelm-research.com](http://www.wilhelm-research.com)). The Wilhelm test criteria has, in the main, been adopted into the 1996 ANSI (American National Standards Institute) document 'Stability of Colour Pictorial Images', which itself is in the process of being furthered into an ISO standard. By definition, this will become the International test that our industry should orientate itself to. The test results below follow the ANSI recommendations in all but humidity where we have taken the 60% level favoured by Henry Wilhelm. This is higher than the ANSI recommended 50% level and normally increases the fading rate. The results are our own findings and may or may not be similar to predictions made by other bodies. Lyson has endeavoured to follow the test methods, measuring procedures and definitions of fade as outlined in the ANSI standard. It is our intention to continue posting new findings as our tests progress and to test new ink/media combinations as they appear on the market.

### MEDIA FADE TEST RESULTS

Ink	Printer	Media	Hours Exposed	Equivalent to Years Exposed	Predicted Display Life	Key*
HP™ Ink	HP™ 970 CXI	HP™ Premium Photo+Gloss	299	9	End Point Reached	M/C
Epson™ Archival Ink	Epson™ Photo 1270	Epson™ Archival Gloss	482	14.5	15	M
		Epson™ Archival Matt	482	14.5	16	M
		Lyson Standard Fine Art (Current Version)	482	14.5	19	M
Lysonic™ Ink	Epson™ 1200	Lyson Standard Fine Art (Current Version)	408	12	16-17	C/Y
		Epson™ Archival Gloss	408	12	22	M/C
		Epson™ Archival Matt	408	12	66	Y
Fotonic™ Ink	Epson™ Stylus 3000	Lyson Standard Fine Art Paper (Current Version)	435	13	26	C/Y
		Lyson Rough Fine Art Paper (Current Version)	435	13	20	C/Y
		Lyson 300g 100% Rag Paper	435	13	29	C/Y
		Lyson 180g Gloss Paper	435	13	16	M/C
		Lyson 170g Matt Paper	435	13	15-16	C/Y
		Lyson 265g Professional Photo Gloss Paper	435	13	End Point Reached	M
		Lyson 265g Professional Photo Satin Paper	435	13	14	M/C

		Arches™ Cold Press Pure Cotton Paper	435	13	42-43	M
		Epson™ Archival Matt Paper	435	13	33	M
		Epson™ Archival Gloss Paper	435	13	24	
		Ferrania™ Special Paper HR	435	13	28	C/Y
		Ferrania™ 230g Photo Premium White Paper	435	13	69	C/Y
		Ferrania™ Adhesive Photo Paper	435	13	15	C/Y
		Ferrania™ Ink Jet Canvas	435	13	37	C/Y
		Ferrania™ Ultra Glossy White Film	435	13	54	M
		Kentmere™ K Classic Paper	435	13	31	M
		Kodak™ Piezo Gloss Paper	435	13	26-27	M
		Polaroid™ Matt Paper	435	13	28	M
		Polaroid™ 238g Glossy Paper	435	13	61	M
		Polaroid™ Water Colour Paper	435	13	32	M
		TAL™ Ink Jet Canvas	435	13	42	C/Y
		TAL™ Photo Matt Paper	435	13	15	M
		TAL™ 210g Photo Glossy Paper	435	13	17-18	M
		Tetenal™ 130g Duo Print Paper	435	13	21	M
		Tetenal™ 150g High Glossy Special DC	435	13	20	C/Y
		Tetenal™ 120g Perfect Print Paper	435	13	20	M
Lysonic™ Ink	Epson™ Stylus 3000	Lyson Standard Fine Art Paper (Current Version)	503	15	39	C/Y
		Lyson Rough Fine Art Paper (Current Version)	503	15	39	C/Y
		Lyson 300g 100% Rag Paper (Current Version)	503	15	54	C/Y
		Lyson 265g Professional Photo Gloss Paper	481	14-15	25-26	C/Y
		Lyson 265g Professional Photo Satin Paper	481	14-15	17	C/Y
		Arches™ Cold Press Pure Cotton Paper	481	14-15	54	C/Y
		Epson™ Archival Gloss Paper	481	14-15	59	M/Y
		Ferrania™ Special Paper HR	481	14-15	35	C/Y

		Ferrania™ 230g Photo Premium White Paper	481	14-15	42	M/Y
		Ferrania™ Adhesive Photo Paper	481	14-15	31	C/Y
		Ferrania™ Ink Jet Canvas	481	14-15	56	M/Y
		Ferrania™ Ultra Glossy White Film	481	14-15	55	C/Y
		Kentmere™ Classic K (New Coating)	481	14-15	55	M
		Kodak™ Piezo Gloss Paper	481	14-15	25	M/Y
		Polaroid™ Matt Paper	481	14-15	124	C/Y
		Polaroid™ Gloss Paper	481	14-15	88	Y
		Polaroid™ Water Colour Paper	481	14-15	49-50	C/M
		TAL™ 210g Photo Matt Paper	481	14-15	43-44	Y
		TAL™ Photo Gloss Paper	481	14-15	47	Y
Vanson UV Resistant Inks	Epson™ Stylus 750	Arches™ Cold Press Pure Cotton Paper	114	3-4	13	Y
		Epson™ Archival Gloss Paper	114	3-4	8	Y
		Epson™ Archival Matt Paper	114	3-4	6	Y
		Lyson Standard Fine Art Paper (Current Version)	114	3-4	4-5	M/C

There are 18 calculations made per media/ink combination. These are for absolute dye loss and compound black imbalances at optical densities of 0.6 and 1.0. The thresholds for determining a noticeable fade ( end point ) are outlined in the ANSI publication. Only one threshold needs to be passed for fading to have occurred.

**\*KEY:** This column gives the calculation that has met, or is most likely to meet, the definitions of fading given above.

**C:** Cyan loss at optical density of 0.6 or 1.0.

**M:** Magenta loss at optical density of 0.6 or 1.0.

**Y:** Yellow loss at optical density of 0.6 or 1.0

**C/M:** Compound black imbalance of cyan over yellow at an optical density of 0.6 or 1.0

**M/C:** Compound black imbalance of magenta over cyan at an optical density of 0.6 or 1.0

**C/Y:** Compound black imbalance of cyan over yellow at an optical density of 0.6 or 1.0

**Y/C:** Compound black imbalance of yellow over cyan at an optical density of 0.6 or 1.0

**Y/M:** Compound black imbalance of yellow over magenta at an optical density of 0.6 or 1.0

**M/Y:** Compound black imbalance of magenta over yellow at an optical density of 0.6 or 1.0

Projected life figures are derived from the particular calculation that is approaching its threshold fastest, the estimated hours of exposure extrapolated and a corresponding figure in years being calculated

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