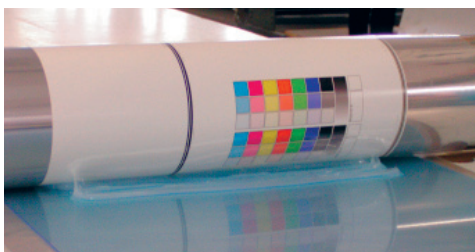
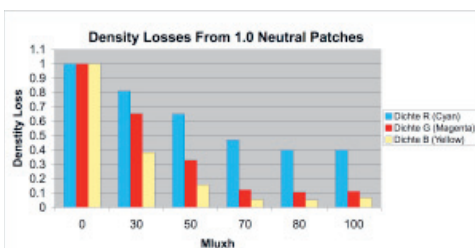


„Diasec“- and other Finishing Techniques - Investigation of Light induced Aging

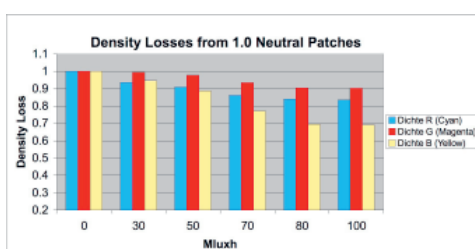
Abstract The research on light induced aging of finishing techniques such as face mounted colour photographs aims at the question whether yellow and magenta dyes fade more rapidly within face mounted colour photographs. Furthermore an investigation into the chemical mechanisms of the degradation processes should provide insight into the potential problems associated with the face-mounting of print.



Face mounting technique with silicone rubber



IlfoflexTM Digital (RA4), face-mounted, white-pigmented polyester base (Melinex by Dupont)



Ilfochrome Classic (P3X), face-mounted, Melinex base

References

1 Norm ISO 10977: 1993(E) Photography - Processed photographic colour films and paper prints- Methods for measuring image stability. Genf: ISO

2 WILHELM, Henry: The Permanence and Care of Color Photographs: Traditional and Digital Color Prints, Color Negatives, Slides, and Motion Pictures. Grinnell, Iowa: Preservation Publishing Company, 1993

Project Objectives There have been wide reaching developments in the field of art photography since the mid 1980ies. Contemporary artwork, be it photography or digital graphic design, are increasingly produced in large formats. The presentation of oversize prints often no longer involves classic framing but rather the so-called finishing techniques, whereby the print is being fused with the back support and/or with the front covering. This includes laminating, varnishing and face-mounting techniques.

Besides the purpose of mechanically protecting the image, the different processes were also intended to have a positive effect on the longterm stability of printed artwork. However, according to first results on the research of the lightfastness regarding „Diasec“, a face-mounting technique, light induced degradation of some materials is rather enhanced than slowed down.

Project Overview Samples of both unmounted and face-mounted chromogenically (Ilfoflex™) and chromolytically (Ilfochrome Classic) processed photographs were examined. For the mounting on an acrylic sheet silicone rubber and primer as well as double-sided adhesive film (PSA) was used.

They were then subjected to accelerated light ageing tests following procedures described in ISO10977:1993 (E). The Experiments were carried out at ILFORD Imaging Switzerland, Marly in collaboration with the Berne University of the Arts.

Results After a total amount of 100 Megaluxhours exposure to light, all Ilfoflex™ samples displayed strong dye fading (almost 100% loss of yellow and magenta dye) whereas Ilfochrome Classic samples suffered only very little from exposure to light (less than 30% loss of yellow and magenta dye). In general, the face-mounted Ilfoflex™ photographs exhibited stronger fading than the unmounted samples, whereas the face-mounted Ilfochrome Classic photographs displayed weaker fading than the unmounted samples. Furthermore, all Ilfoflex™ photographs showed significant changes such as bluish appearance [1], caused by strong yellow dye fading especially in high- and maximum-density areas, which Wilhelm [2] described as indicators for the “Picture Frame Effect” or “Enclosure Effect”.

Conclusions Framing or enclosing chromogenic print materials has been observed to have a detrimental effect on colour fastness and staining when exposed to typical indoor illumination levels.

It appears that there is a clear correlation between enhanced fading of yellow and the white-pigmented polyester base (Ilfoflex™). Other sources of deterioration may be linked to the behaviour of chromogenic photographs in an enclosed volume.

Preliminary results applying chemiluminescence (CL) analysis do suggest a possible correlation between the peroxide content in chromogenic colour materials and the degradation of yellow dye. Further research is yet required to prove this observation.

Project Management:
Prof. Sebastian Dobrusskin

Project Team:
Sabine Zorn
Prof. Dr. Stefan Wülfert

Project Partner:

ILFORD
Ilford Imaging Switzerland GmbH

Research Funding:
Swiss National Science Foundation SNSF (DORE)

Project Duration:
11/2007-10/2008

Contact
Bern University of the Arts Berne
FSP MA
Fellerstrasse 11
3027 Bern

