About Nordic Ecolabelled

Digital photographic development services

Revision of version 3

Background to Nordic Ecolabelling

15 November 2012

Nordic Ecolabelling

Digital photographic development services – Background to Nordic Ecolabelling

081/Background document, draft of version 3, 15 November 2012

1 Summary 1
2 Basic facts about the criteria 2
3 About the revision 7
4 Justification of the requirements 8
5 Changes compared to previous version 24
6 New criteria 27
7 References 27

1 Summary

The purpose of this document is to present the background to the criteria for digital photographic development services.

The document explains why Nordic Ecolabelling has chosen to ecolabel digital photographic development services and gives the background to the individual requirements as they relate to the environmental goals of Nordic Ecolabelling. The aim of the criteria for ecolabelling digital photographic development services is to help reduce:

- substances with ecotoxicological effects
- substances that affect human health
- energy consumption
- waste production
- consumption of water and chemicals
- working environment problems

The requirements are also justified based on the potential environmental gains that ecolabelling digital photographic development services may bring, and the scope for controllability and documentation of the requirements.

The overall environmental impact of photographic development services has fallen due to the shift away from film development towards development techniques that require fewer chemicals. Photographic development using inkjet technology (dry lab) is expected to replace traditional wet development techniques, but currently constitutes a small part of the market.

Photography of school children, nursery children and sports teams is a growing market. Photographers who carry out commissions for schools and nurseries use both ordinary printing methods and traditional wet lab technology, in part due to the greater capacity (photos per hour) that this method offers, compared with the newer inkjet techniques. Nordic Ecolabelling therefore wishes to still enable photographic development services to be ecolabelled in the context of school photo companies that use wet lab technology.

The plan is to present the revised criteria for digital photographic development services, version 3, to the Nordic Ecolabelling Board in March 2013.

2 Basic facts about the criteria

Products eligible for ecolabelling

Digital photographic development services (technology that does not use film or printing formes) with inkjet technology (dry lab technology) or equivalent technology on photographic paper may be ecolabelled. Other photographic development techniques used on other materials than photographic paper (such as textiles (clothing), mugs and mouse mats) cannot be ecolabelled.

If a photography company, a photographic shop or similar that seeks a licence also develops photos using a different type of technology not covered by the criteria, it must be made absolutely clear to the licensee's customers which photographic development service is ecolabelled.

Companies that offer school photo production, nursery photo production and similar services may have their digital wet lab technology Nordic Ecolabelled if the proportion of school photos or the equivalent stands at more than 85% of the photo production.

Companies that do not develop their own photos, but use third-party Nordic Ecolabelled digital photographic development services, cannot themselves be ecolabelled, but they can promote the fact that they use Nordic Ecolabelled digital photographic development services to develop photos for their customers, if such marketing makes clear reference to the Nordic Ecolabel licence number and which products are ecolabelled.

Image production using digital printing techniques can be Nordic Ecolabelled under the criteria for "Nordic Ecolabelling of Printing companies, printed matter, envelopes and other converted paper products", version 5.

The basis for having 85% of the total sales to be from school photos or similar when using wet-lab techniques, is that Nordic Ecolabelling first and foremost wants to influence the industry to use the more environmentally friendly inkjet (dry lab) technology. As there is not this kind of equipment available for producing pictures at a sufficiently high rate to meet the school photography industry demands, exceptions are made for companies that have this high percentage of their business based on school photos and similar services.

By choosing to have this high share, 85% of the sales or square metres used of photographic paper, businesses that still use wet-lab techniques but does not need this high photo development rate, like photo shops, will not meet this criteria. The reason that the threshold is not set at 100% is that photo development companies also develop photos not directly related to school photos. In requirement R9 School photo production we therefore have the requirement that only the school photo production of the approved processing lines may be marketed as ecolabelled.

About photographic development

General

Traditionally, photographic development has been an extensive process involving mixing up process chemicals, preparing the film, developing the images in processing machines and then finishing them. Images from a photographic film would be exposed on and transferred to photographic paper containing silver, with the help of a number of chemicals such as developer and fixer.

Digital photographic development has largely replaced this analogue process (which today makes up around 5% of the market). 10-15 years ago, it became clear that the technology was moving more and more towards digital photographic development. However, the industry remained convinced that the traditional, silver-based development process would remain the dominant technology into the future. We are now seeing new techniques being developed, so-called dry-lab techniques (inkjet-techniques) that do not use photographic paper containing silver.

Digital photographic development services versus printing companies

The review of digital photographic developments services, version 2, December 2011, considered the possibility of merging the criteria of Digital photographic development services and Printing companies. The project team did not recommend that the criteria should be merged at that time, but that it should be considered in more detail next time the criteria for printing companies were re-examined. The project team's findings are included as Appendix 1 in the evaluation report for digital photographic development services, version 2, December 2011.

The study concluded that the main challenge of the merger is how the requirements regarding printing materials are to be formulated, since photographic paper is not included in the Basic module for paper. The criteria for printing companies place heavy emphasis on requirements regarding paper, while the criteria for digital photographic development services do not set any requirements regarding the photographic paper, apart from the PVC requirement. The chemical requirements in the criteria for printing companies are also more extensive than the criteria for digital photographic development services. The investigation thus concluded that future requirements for photographic services should place more emphasis on requirements regarding printing materials (photographic paper) and chemicals.

New techniques

Inkjet technology (dry lab) is among the new photographic development techniques that have been developed but it is not yet available for machines with high development speeds/capacity. This development technique requires less use of chemicals and silver-free paper is used in the production. The capacity of the most efficient wet lab machines stands at over 2000 photos per hour, while the capacity for the most common dry lab machines comes in at around 250 to 650 photos per hour. This means that certain segments/products, such as school photos, are unlikely to meet the new criteria in the future, unless there are advances in the technology that is currently in use. The school photo segment is highly seasonal, which means that the segment produces large volumes over short periods of time (particularly autumn and the season before Christmas), while during some periods of the year there is hardly any production of school photos or similar activities. Photographic shops, on the other hand, have a more even production flow spread throughout the year.

The dominant technology at the moment for all photographic development, the wet lab technique, develops the images by exposing the paper to light, for example from a laser. In response to the laser beam, the tiny silver particles (silver salt crystals) in the photographic paper release the relevant particles of colour that are bound to them. Developing chemicals are used to stop the process, so that the silver salt crystals do not end up completely black. Fixer is then added to rinse away the silver, leaving behind only the particles of colour.

Technical advances have brought several different types of dry techniques (dry lab) that do not use silver or developing chemicals. These techniques can roughly be divided into inkjet technology and sublimation technology.

The inkjet print technology also comes in different variations, but is primarily based on electricity or heat being used to force the ink from a print head onto the photographic paper.

Sublimation technology, on the other hand, is based on dyes in a ribbon being transferred to the paper with the help of heat which causes the dyes to release, turn into a gas and absorb into the photographic paper.

Justification for Nordic Ecolabelling

The purpose of ecolabelling digital photographic development services is to promote the development of services that:

- minimise consumption of photographic chemicals and other chemicals and use products that have as little impact on the environment as possible
- minimise energy consumption
- ensure good working conditions for staff
- minimise the environmental impact from photographic paper

It is important in this revision to develop criteria that take account of technological advances, i.e. technology such as dry lab or its equivalent that involves lower energy consumption and chemical usage and uses photographic paper that is silver-free. Over time, we believe that this type of photographic development technology will replace the wet lab technique that is widely used today. In summary, the new techniques have lower chemical and energy consumption, and they use silver-free photographic paper.

The dry lab technology is relatively new and its development capacity is not as high as wet development. Due to the lower development capacity, coupled with the high investment cost, wet lab technique is the main technique used by many companies, particularly those that offer school photo production (which also includes photo production for nurseries, sports teams and so on).

For companies that offer school photos, it has been common practice for all the photos taken of the customer to be developed and sent to the customer for their consideration, before an order is placed. The consequence of this is that many photos are returned and destroyed. The proportion of returned photos tends to stand at around 28%[1]. Many customers (parents of school children

[1] Thomas Nilsson, Local Business Manager, FujiFilm Sverige, September 2012

and children at nursery) have expressed dissatisfaction with this system, where it is up to the customer to return the photos that they do not want. The result is that many parents make do with photos they would rather not have. From an environmental perspective, this is a waste of resources, since an unnecessarily high number of photos are developed and then subsequently discarded. Nordic Ecolabelling wishes to help reduce material consumption by encouraging consumers and school photo companies to request and offer browsing of the photos electronically, without the photos being developed in advance.

This trend is gradually changing, but there are still many photographic companies that only allow customers to see the photos after they have been developed and dispatched home. Nordic Ecolabelling wishes to compel companies to offer customers the option of browsing through the photos electronically rather than having them sent in physical form to their home.

Criteria version and validity

The first version of the criteria document for digital photographic development services was adopted by the Nordic Ecolabelling Board (NMN) in 2002. The criteria focused primarily on the development process. The criteria have since been revised once.

Version 1, adopted on 3 October 2002

In the first version, environmental requirements focused on the development process. In addition to this, there were requirements on the disposal of waste, requirements regarding the choice of chemicals and requirements concerning photographic paper, film (only film that was supplied in conjunction with ecolabelled photographic development) and packaging.

Version 2, adopted on 19 October 2007

In the second version, the requirements are tailored towards processes that are more energy efficient and require lower consumption of chemicals and water.

Version 3, scheduled for adoption in March 2013

The revision of version 2 is expected to be adopted by NMN in March 2013 as version 3. The focus of the revision has been on adapting the requirements to new technologies that require less consumption of chemicals and energy.

The Nordic market

The photographic industry has seen major technological advances over the past decade, with a shift from traditional analogue film development to more efficient techniques that require fewer chemicals and less energy. In addition, fewer photos are developed nowadays. The quantity of photos developed in Sweden has gone from 6.7 million m^2 (in 2000) to around 2.4 million m^2, which has considerably reduced the economic foundations of the business[2].

[2] Thomas Nilsson, Local Business Manager, Fujifilm Sverige AB

As a consequence of this trend, the number of large-scale photo production facilities has gradually fallen across the Nordic region. Production has been shifted to other countries, primarily Germany. As of today, there are two central laboratories, one in Norway and one in Finland. In Norway, Foto Knudsen is the largest photographic development laboratory. They use both old and new technologies, in addition to ordinary printers that are also used by printing companies for their business. The industry is becoming more and more part of the graphics industry. The term central laboratory may be misleading, as it gives no indication of which technique is used. "Central laboratories" and photographic shops may use the same technology to development photos. In Sweden, around 50% of all photos purchased are developed abroad, which entails more transport than if the photos had been developed in the Nordic region. Nordic Ecolabelling has previously considered introducing energy requirements relating to transport, but has reached the conclusion that it is difficult to set such requirements due to low steerability.

In addition to their shops, the biggest players in the market also have websites where customers can order photos, photo albums, calendars and other products. Some companies only have online stores. Certain players have professional photographers and have specialised in school photos, nursery photos and events such as weddings and confirmations. Photo albums and calendars, which count as printed material, are the major products on the market. These types of products can be ecolabelled under the criteria for "Printing companies, printed matter, envelopes and other converted paper products".

The traditional wet lab system is much more dominant than the newer dry lab technology. The wet lab technique offers considerably better capacity (number of photos developed per hour). Some question the quality and durability of photos developed using dry lab technology, and this view has an impact on the willingness to invest in new technology[3]. In Denmark, the industry regards energy consumption during photographic development as having the greatest environmental impact. Some, however, believe that the photographic paper is the factor of most environmental concern.

Nordic Ecolabel licences

There are a total of 25 licences for digital photographic development services in the Nordic region (October 2012). All the licences are for operations in Sweden and have links with Fuji. 18 of the licences have been awarded to photographic shops, and six of the licences have been given to school photo companies. School photos are a growing segment.

Other labels

Nordic Ecolabelling is unaware of any other ecolabelling systems in this field. There are numerous criteria for photocopiers, printers, toner cartridges, PCs and so on. Such systems include:

- Blaue Engel – RAL-UZ 122 (Office Equipment with printing function)
- EcoLogo (CCD-141 Digital Printing Services)
- Energy Star (Program Requirements Product Specification for Imaging Equipment)

[3] Evaluation of Nordic Ecolabelled digital photographic development services, version 2.0, 21 December 2011

3 About the revision

Goals of the criteria review/revision

The main objective of the revision is to present a proposal for revised criteria for digital photographic development services, version 3.0, in March 2013.

The evaluation of the criteria document for digital photographic element services, version 2, which was put before NMN in December 2011, highlighted a number of points that should be examined in the next revision of the criteria. These points were:

- Update the RPS in the background document. The aim of the RPS is to provide an overall assessment of and guidance on which areas should have requirements applied to them.
- Develop requirements for energy consumption on a par with the dry lab technology.
- Update the chemical requirements to bring them in line with dry lab systems.
- Develop requirements that take account of chemicals, energy and silver content in paper with regard to photographic development with high capacity needs, e.g. school photos. The aim is for the requirements to highlight best practice in this area.
- The quality requirements should be adapted to the photographic development industry.

The evaluation also considered the possibility of merging the criteria for digital photographic development services and the criteria for printing companies. It was concluded that the main challenge of such a merger would be how requirements for printing materials can be formulated as photographic paper (both silver containing and silver-free) is not included in the Basic module for paper. The criteria for printing companies place heavy emphasis on requirements regarding paper, while the criteria for digital photographic development services, version 2, do not set any requirements regarding the manufacture of the photographic paper. The chemical requirements in the criteria for printing companies are also more extensive than the criteria for digital photographic development services. It is therefore desirable to place more emphasis on materials (photographic paper) and chemicals in the new criteria.

About this revision

The project team comprised Anne Kristine Feltman (project manager) and Per Sandell (project adviser). Anders Moberg and Lena Axelsson were area coordinators for the project.

Under the current schedule, the proposed new criteria will be sent out for consultation during the period October–December 2012 and will be presented to the Nordic Ecolabelling Board (NMN) in March 2013.

4 Justification of the requirements

Justification for ecolabelling digital photographic development services

The aim of Nordic Ecolabelling is to reduce the use of ecotoxicological substances, substances that adversely affect the environment and human health, and to reduce energy consumption, amounts of waste and use of resources.

Photographic development has seen major technological advances. Nevertheless, developing photos requires large quantities of chemicals, photographic paper and energy, and it generates silver residues from the use of paper that contains silver particles.

The key areas of interest in the life cycle of photographic development are:

- material consumption (photographic paper)
- photographic chemicals
- energy consumption
- working environment
- waste
- aquatic environment

Photographic paper

Traditionally, silver-based photographic paper has been used to develop photos, but newer techniques (dry lab and its equivalent) make use of silver-free paper. Although the use of silver-based photographic paper is declining, the product continues to contribute large quantities of silver to the waste cycle. Silver is toxic to aquatic organisms, and is therefore best avoided.

Photographic paper differs from ordinary printing paper in that it comprises several layers of different materials. The top layer is made of a water-permeable plastic, followed by a layer of light-sensitive photo emulsion (paper), and finally a non-permeable plastic coating. The plastic layers are believed to be a form of polyester or PVC. One example of the composition of photographic paper for wet lab (silver-based paper) is[4]:

- 65-75% paper
- 20-30% polyethylene
- 1-5% photographic gelatin
- < 1% silver halides and additives

An example of the composition of a photographic paper for dry-lab (silver-free paper) is:

- 50-70 % paper
- 10-30 % polyethylene
- 5-15 % inorganic pigments
- 1-7 % polyvinyl alcohol
- 1-7 % other substances

[4] Article Information Sheet 09/04/2012 Kodak Resin-coated colour papers

The light-sensitive photo emulsion comprises suspended micro crystals of silver particles (primarily silver bromide), with the silver particles accounting for around 42% of the emulsion. The materials used to develop colour photographs are either covered with two polyethylene layers on each side of the paper, or are pure polyethylene. The silver content of photographic paper varies depending on the quality of the paper. Generally, photographic paper of higher quality has a higher silver content than lower grades.

Dry lab and equivalent techniques use inkjet technology, which does not require the use of silver-based photographic paper.

In addition to producing silver waste, the photographic paper also impacts on the environment through its paper element and the production of that paper. Nordic Ecolabelling has extensive experience of setting requirements for paper production, including forestry requirements.

Nordic Ecolabelling's forestry requirements have been developed in part to prevent the loss of biodiversity and the felling of rainforest. The requirements are based on forestry standards and certification systems that have been assessed by Nordic Ecolabelling. The work of Nordic Ecolabelling is based on consideration of the environmental impact throughout the life cycle of the product, and the production of timber used in the paper contributes to the overall environmental impact of the ecolabelled product. Nordic Ecolabelling believes it is important to have traceability requirements, which ensure that the timber is not sourced from illegal logging activities or from conservation/protected areas, alongside forest certification requirements that ensure environmentally aware forest management.

Photographic chemicals

Traditionally, large quantities of chemicals have been used to develop analogue film. The most common chemicals are developers, fixers, bleaches and cleaning agents, which may be harmful to both health and the environment.

Allergic reactions have been a common working environment problem in the photographic industry, but have become less prevalent as the technology has advanced. It remains important, however, to set requirements concerning the chemicals used, for the benefit of the environment and employee health.

The transition to digital photographic development has seen a major reduction in the total quantity of chemicals used, and a change in the types of chemicals. The newer techniques use ink, printing ink and toner to develop photos.

However, there are a number of products on the market that pose a hazard to health and the environment and that Nordic Ecolabelling thus wishes to avoid. In line with the criteria for printing companies, a range of requirements have been introduced concerning the classification of products and substances of very high concern that cannot be present.

Energy consumption

Traditional minilabs consume almost 10 000 kWh per year[5] (Lars Ericsson, Product Manager Fujifilm Sverige AB), while the newer techniques (e.g. inkjet) use much less energy. The lower energy consumption is due to the chemical liquids not having to be heated and kept warm during production. This type of machine is also better able to be put into standby mode.

[5] Lars Ericsson, Product Specialist Photofinishing, Fujifilm Sverige AB

Nordic Ecolabelling has previously concluded that transport to and from central laboratories in conjunction with photographic development creates considerable energy consumption. The market has undergone major changes in recent times, with orders for photos largely being placed electronically, which removes the need for transport as part of the ordering process. On consideration, Nordic Ecolabelling previously decided not to set requirements concerning energy consumption for transport, in part on the grounds of low steerability.

4.1 Environmental requirements

The organisation

Everything from small photographic shops/retailers with their own photographic development service to large central laboratories and other such operations can develop and deliver film prints, slides and/or digital photos for private customers. The equipment/development machines, chemicals, types of paper, waste management and operational procedures vary from place to place, which makes it important to gain an overview of how each organisation works. Which machines are used for developing photos, who is responsible for purchasing the chemicals and paper? Are the operational procedures controlled centrally? Are subcontractors used?

A license can be awarded to individual production sites or to several entities of a company. Each entity must fulfil the requirements for every production line to be included in the license.

Proposed requirement

R1 Description of the organisation

The company seeking to ecolabel its digital photographic development services must describe and report the following:

- *Is the company part of a chain with its own photographic shops?*
- *Does the company have multiple production locations?*
- *Which photographic development techniques does the company use, and which of these are included in the application (and which photographic development machines)?*
- *Who is the Purchasing Manager for chemicals, development equipment and photographic paper*
- *Does the company offer school photo services or similar?*
- *Total sales, including sales that are attributable to school photos, nursery photos or similar, to allow this share to be determined*

✉ *Duly completed description of the company/organisation, see Appendix 3.*

Chemicals

Some of the chemicals that occur or have occurred in photographic chemicals are classified as environmentally harmful and/or extremely harmful to health. According to the Swedish Chemicals Agency, some chemicals are particularly hazardous: formaldehyde, chromates, methyl glycol and its acetates, ethyl glycol and its acetates and thiourea. Chemicals for cleaning photo-

graphic development machines must therefore not be used in conjunction with the Nordic Ecolabelled digital photographic development services if they contain the above substances.

Consumption of printing inks/toner/ink accounts for the greatest consumption of chemicals during photographic development.

Nordic Ecolabelling's requirement regarding classification closely follows the official classify-cation rules, in a move to exclude the worst chemicals from the photographic development process. In this context, chemicals are defined as products used for photographic development (ink, toner or printing ink), and not constituent substances in the products.

The proposed criteria for digital photographic development services, version 3, will include more extensive requirements regarding ink, toner and printing ink than previous versions. The criteria for "Nordic Ecolabelling of Printing companies, printed matter, envelopes and other converted paper products", version 5, which was adopted in 2011, examined which requirements should be set for this type of product, so the requirements in this version are taken from those criteria.

Technological advances have led to a fall in the amount of chemicals used per developed photo. The new machines are designed such that the users (photographic development companies) do not have the facility to correct chemical consumption. There is thus so little steerability that there is no point in setting such a requirement. Version 3 of the criteria for digital photographic development services will therefore not contain requirements regarding chemical consumption per m^2 of photographic paper.

It is not uncommon for people who work in photographic development to have allergic reactions to the chemicals used. Gases and fumes from photographic chemicals can create a poor working environment. Organic solvents can be problematic when heated. Emissions from chemicals in the development process may also be a potential environmental problem. Most service providers collect the chemicals and send them off destruction. The newer techniques largely avoid this problem, since chemical consumption is much less and emissions are kept to a minimum.

Proposed requirement

R2 Overview of chemicals for photographic production

A declaration of all chemicals (printing inks, toners, inks and other chemicals used in the process of photographic development) is to be submitted, stating the product name, the name of the manufacturer, the area of application and the quantities used.

- ✉ *A list of all the chemicals (printing inks, toners, inks and others) and cleaning agents for cleaning machines (product name, name of chemical supplier and function).*
- ✉ *Safety data sheet/product data sheet in line with prevailing legislation in the country of application, e.g. Annex II to REACH (Regulation 1907/2006/EC) for each product.*
- ✉ *Duly completed declaration, see Appendix 4.*

R3 Chemicals for cleaning machines

Chemicals and cleaning agents used to clean out chemical tanks and so on in photographic development machines must not contain:

- *Chromates (for example sodium dichromate, CAS 10588-01-9, and potassium dichromate, CAS 7778-50-9)*
- *Methyl glycol and its acetates*
- *Ethyl glycol and its acetates*
- *Thiourea*

Formaldehyde (CAS 50-00-0) may make up no more than 0.1% by weight of the working solution.

✉ *Declaration from the chemical supplier that the cleaning agents used to clean the photographic development machines do not contain any of the substances above. Appendix 5 can be used.*

R4 Classification of chemicals

Chemicals (printing inks, toner, ink and other chemicals used in the process of photographic development) must not be classified as shown in table R4 under the EU's Dangerous Substances Directive 67/548/EEC, Directive 1999/45/EC as amended and the CLP Regulation (EC) No 1272/2008 as amended.

See table R4 – Classification of chemicals – in the criteria document for Nordic Ecolabelling of digital photographic development services, draft version 3.

Printing inks, toners and inks that are hardened by irradiation (e.g. UV printing inks, UV toner and UV ink) are exempted from the requirement regarding environmental hazard classification and the requirement regarding allergenic properties (R42/H334 and R43/H317).

✉ *Duly completed Appendix 6 declaration from the manufacturer or supplier plus safety data sheets/product sheets in line with the prevailing European legislation.*

R5 Substances of very high concern

Chemicals (printing inks, toner, ink and other chemicals used in the process of photographic development) must not contain the following substances:

- *EDTA and its salts*
- *Sodium or calcium hypochlorite*
- *PFAS – poly and perfluorinated alkylated substances*
- *Alkylphenols, alkylphenolethoxylates and derivatives thereof*
- *Substances categorised in REACH Article 57, XIV as Substances of Very High Concern (SVHC) (http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp)*
- *Substances that meet the criteria for PBT (persistent, bioaccumulative and toxic substances) and vPvB substances (very persistent and very bioaccumulative) in accordance with the criteria in Annex XIII of REACH*
  (in accordance with the criteria in Annex XIII of the REACH Regulation)
- *Substances that are carcinogenic, mutagenic and toxic to reproduction (categories 1 and 2/1A and 1B in CLP)*

- *Substances considered to be a potential endocrine disrupting chemical (EDC), category I or II, in accordance with the European Union's reports concerning endocrine disruptors (http://ec.europa.eu/environment/endocrine/strategy/substances_en.htm)*
- *The heavy metals lead, tin, cadmium, chromium VI, mercury and their compounds must not exceed a total of 100 ppm (milligrams per kilo) in printing inks, toner, ink and foils for foil printing and stamping.*
- *The content of unsulphonated primary aromatic amines soluble in 1M hydrochloric acid and expressed as aniline must not exceed 500 mg/kg and there must be no more than 10 mg/kg benzidine, ß-naphthylamine and 4-aminobiphenyl in total in printing inks, toner and ink, and in foils for foil printing and foil stamping.*

✉ *Duly completed declaration from the raw material manufacturer or supplier, see Appendix 7.*

Energy

In photographic development, the greatest energy consumption derives from the development processes. The measurement of energy consumption is dependent on many factors, including the room temperature where the measurement is conducted, the length of the measurement period, how many photos are developed and so on. There are no standardised tests for measuring energy consumption in relation to m^2 of photographic paper, and there is little available data for assessing energy consumption.

Experience tells us that minilabs (wet lab) use 80-230 Wh/m^2 of developed photographic paper, while the newer techniques have lower energy consumption. In order to promote the new techniques and the best in wet lab technology, Nordic Ecolabelling has chosen to make the requirement regarding electricity consumption in photographic development more demanding, at 100 Wh/m^2. The requirement is no longer points-based, but a compulsory requirement that everyone must fulfil, whichever technique they use.

When measuring energy consumption, all the relevant apparatus is to be included in the measurement, since energy consumption is measured for the whole photo production process, not just the actual unit that produces the physical photo. The energy consumption measurement also covers other equipment that is required in order for the production process to function successfully.

The measurement thus relates to all the apparatus that has to be in operation to make the photo production possible. In addition to the unit that produces the physical photo, this may include a computer and monitor used to control the production system, for example.

If a company applies for a licence for several units that produce photos, and the units are connected to the same computer and monitor, the energy consumption of the computer and monitor should only be counted once.

Computers or other machines/equipment that are necessary in order to produce photos, and that are also used for other purposes, are to be included when calculating energy consumption.

Proposed requirement

R6 Electricity consumption in photographic development

The standardised electricity consumption for photographic development, expressed in Watt-hours (Wh) per square metre (m^2) of paper, must not exceed 100 Wh/m2 for each photographic development machine.

✉ *Report on measurement of electricity consumption (see Appendix 8) covering the following parameters:*

- *Room temperature at time of measurement*
- *How long (number of minutes or hours) electricity consumption is measured for Must be at least 30 minutes during photo development*
- *Electricity consumption during the given measurement period*
- *Number of photos developed during the measurement period*
- *Size of the photos in cm*
- *Results of the measurement in Watt-hours (Wh) per square metre (m^2) of photos*

Photographic paper

When it comes to Nordic Ecolabelled digital photographic development services, it is desirable for the photographic paper not to contain either PVC or silver.

The requirement to avoid PVC (polyvinyl chloride) in photographic paper derives from Nordic Ecolabelling's goal of minimising the issues arising from problematic waste. The key problem areas for PVC are waste management, use of additives and dioxin emissions, particularly in the production of PVC. In its preliminary study of photographic services, the project team concluded that some photographic papers might contain PVC, and a requirement was therefore introduced stating that photographic paper must not contain PVC.

Silver is toxic to aquatic organisms, and is therefore best avoided. The new dry techniques do not use silver-based paper, while wet lab techniques continue to favour photographic paper that contains silver. An exception has thus been made that photographic paper used in a wet lab context for the production of school photos may contain silver.

During the revision of version 3, the project team considered adding a requirement regarding how much silver the photographic paper may contain. However, the conclusion was that such a requirement would do very little to reduce the environmental impact, because:

- There is a close link between photo quality and silver content in the paper, with higher silver levels bringing higher photo quality.
- The possibility of influencing the producers of the photographic paper was judged to be small, since the few manufacturers responsible for its production operate in a global market.
- The silver is released from the photographic paper during the development process and is rinsed away and collected with other chemicals.
- Requirement R14 in version 3 states that waste containing silver (paper and chemicals) must be sent for recovery and not to landfill.

- Silver-containing paper is only used in wet lab processes, not dry lab processes, which means that the amount of silver used in photo production is generally falling with the adoption of new technology.

The requirement to demonstrate traceability and control of the fibre raw material in the photographic paper is new for this version of the criteria for digital photographic development services. The reason for the absence of any previous requirement regarding the photographic paper is primarily the historical difficulty in sourcing information about the paper and its manufacture. Once again, while working on version 3 of the criteria, it has been difficult to find enough relevant information about the paper and its manufacture.

Despite this lack of information, the project team has deemed it appropriate to set certain fundamental requirements concerning the photographic paper over and above the requirement regarding PVC and silver (in R7). The traceability requirement is taken from Nordic Ecolabelling's Basic module for paper products, and constitutes a minimum level that is relevant when introducing environmental requirements for paper.

In the future it is only natural for Nordic Ecolabelling to examine the possibility of incorporating the criteria for digital photographic development services into the criteria for "Nordic Ecolabelling of Printing companies, printed matter, envelopes and other converted paper products", which contains further requirements concerning paper, traceability and fibre raw material.

Paper and photo paper are usually made of pulp derived from wood. Paper pulp produced through a sulphite- or sulphate process, known as chemical pulp, undergo a bleaching process where the remaining lignin is removed. Earlier, chlorine was used as a bleaching agent, but due to the many negative effects both on the environment and for those who worked with the chlorine gas, it was replaced by ECF (Elementary Chlorine Free) and TCF (Totally Chlorine Free). Paper masses for photo paper in ecolabelled photo development cannot be bleached with chlorine gas.

In paper there is in addition to wood fibres, other non-fibres like starch, pigment, filler and coating. Coating is usually clay, chalk and binders. In the requirements for ecolabelled photo development all coatings used must be documented.

Proposed requirement

R7 Photographic paper

Photographic paper used for the ecolabelled photographic development must not contain silver (Ag) or be made from or contain chlorine-based plastic (PVC).

Photographic paper used in a wet lab context for the production of school photos may contain silver.

All types of photographic paper to be used in ecolabelled photographic development must be documented with product name, manufacturer/supplier and composition.

✉ *Duly completed declaration from manufacturers/suppliers of the photographic paper used for photographic development stating that the paper does not contain silver (Ag) or is made from or contain chlorine-based plastic (PVC), as well as product data sheets that states the product name, manufacturer/supplier and composition of the photographic paper.*

R8 Certified traceability and control of fibre raw material in photographic paper

The pulp and paper factory must have a traceability certification, a CoC (Chain of Custody) certification, in accordance with forest certification systems that complies with the policies in Appendix 9. This requirement also applies to integral pulp and paper factories.

This requirement applies both to certified and non-certified wood and fibre raw material.

The pulp and paper manufacturer must:

1. *State the name (in Latin and a Nordic language), quantity and geographic origin (country/state and region/province) of the wood and fibre raw material used. Appendix xx can be used*
2. *Have documented traceability for all wood and fibre raw material*
3. *Have a documented procedure for the sustainable supply of wood and fibre raw material*
4. *Ensure that all wood and fibre raw material comes from legal sources. Wood and fibre raw material must not come from:*
    - *Conservation/protected areas or areas that are engaged in an official process to obtain conservation/protected status*
    - *Areas with unresolved ownership or logging rights*
    - *Illegally felled/harvested timber*
    - *Genetically modified trees and plants.*

Management of the forests must also not damage or disrupt:

- *Natural forest, biodiversity, special ecosystems and important ecological functions*
- *Socially and culturally valuable assets*

✉ *The name of the tree species (in Latin and a Nordic language), quantity and geographic origin (country/state and region/province) for the raw materials used.*

✉ *Written procedures, ensuring traceability of the raw material's origin. The procedures must contain updated lists of all suppliers of wood raw materials that are contained in the photographic paper. An FSC or PEFC Chain of Custody (CoC) certificate can be used to document the type of timber. An FSC or PEFC Forest Management (FM) certificate can be used to document the origin of the timber.*

R9 Bleaching using chlorine gas

Pulp used for photographic paper in Ecolabelled photographic development cannot be bleached using chlorine gas. Residues made by manufacturing of chlorine dioxide from chlorate are not considered to be a component of bleaching with chlorine gas.

✉ *The manufacturer must declare that chlorine gas is not used for bleaching of the paper pulp.*

R10 Chemicals used for coatings

Chemicals for coating cover the chemicals applied to the base paper following the pressing stage in a papermaking machine.

All chemicals used for coating must be described with full name, safety data sheet, purpose, classification and the amount that will be present in the finished product of kilograms/tons photographic paper.

✉ *Declaration according to Appendix 10.*

✉ *Safety data sheets/Product data sheets for all chemicals used for coatings in accordance with the current legislation, for example Appendix II of REACH (Regulation 1907/2006/EC) for each product.*

School photo production

Nordic Ecolabelling wishes to encourage both consumers and the industry to embrace the new technologies in the production process. Since an exception has been made for companies that offer school photography services, we wish to avoid a situation where a company that uses the wet lab technique, but for whom school photo production is only a small part of production, markets itself as being Nordic Ecolabelled. A company that offers Nordic Ecolabelled school photo production is not permitted to market other products, such as private photography and wedding photography services, as being Nordic Ecolabelled.

For companies that offer school photos, it has been common practice for all the photos taken of the customer to be developed and sent to the customer for their consideration, before an order is placed. According to information from the industry, as much as 28%[6] of the photos that are developed and sent home for consideration are then sent back to the school photo company. The return of the photos that the customer does not want means that a quarter of the production is discarded.

Although it is becoming more common for customers to be able to browse through the photos electronically before placing an order, there are companies that do not wish to give customers electronic access to the photos until the customer has agreed for the photos to be sent home for consideration. Some companies offer their customers only the choice of ordering complete photography packages, which can be up to 3-5 A4 sheets. From an environmental perspective, these systems lead to unnecessary development of photos that customers do not want, and are seen as a waste of resources. Nordic Ecolabelling wishes to help reduce material consumption by encouraging consumers and school photo companies to request and offer browsing of the photos electronically, without the photos being developed in advance. Nordic Ecolabelling also wants customers to be able to order parts of photography packages, not just a complete package.

In some school circles with a high proportion of immigrants, access to a PC and the internet is lower than across the Nordic population as a whole. In these circumstances, parents often ask for the photos to be sent home for consideration due to lack of internet access. The photographic companies therefore wish to have the option of offering some of their customers the service of developing the photos and sending them home for consideration before an order is placed.

Nordic Ecolabelling wants to influence the industry to use the more environmentally friendly inkjet (dry lab) technology. Companies offering photo production for schools, nursery schools or similar services are dependent on using a photo development method with a sufficiently high production rate, which is the wet-lab technique. Nordic Ecolabelling has therefore made an exception for companies that have a high percentage of their business based on school photos and similar services. By choosing to have this high share, businesses that still use wet-lab techniques but does not need this high this photo development rate will not meet the requirements.

The threshold is set to 85 %, measured from sales or square metres used of photographic paper, to rule companies where school photography represents a small share and the need for high production capacity is less. However, is still provides the opportunity to develop photos not directly related to school photography, though this production cannot be marketed as ecolabelled. To emphasize this Nordic ecolabelling have a requirement that only the school photo production of the approved processing lines may be marketed as ecolabelled.

[6] Thomas Nilsson, FujiFilm Sverige, 2012

Proposed requirement

R11 School photo production

For companies that offer school photo production, nursery photo production or similar services using wet-lab techniques, the school photo production or similar service must account for 85% of the wet lab production, measured in monetary terms or m^2 of photographic paper.

Production other than that on the approved process lines cannot be marketed as Nordic Ecolabelled.

✉ *Declaration that the requirement is fulfilled.*

R12 Electronic ordering of photos

The applicant must offer electronic browsing and ordering of photos with regard to school photos or the equivalent. Electronic ordering in photographic stores is not covered by the terms of the requirement.

Customers must have the opportunity to order photos on the internet without having them sent by mail for reviewing. This includes ordering of photos related to school photography and similar services. Online ordering in photo shops is not covered by this requirement.

When a photo package consists of several photos or sheets the customer must have only the option of ordering a maximum of one sheet.

At least 90% of the orders, measured in number of delivery addresses, monetary sales or m^2 of photos, must be made electronically.

✉ *Detailed description/report of the ordering procedures for customers, including online ordering.*

✉ *Procedures enabling the company to constantly monitor that it does not offer less than 90% electronic ordering.*

Waste

Like all production, photographic development produces waste. Numerous complex processes are required to produce the electronic parts for photographic development machines. Large volumes of chemicals are used and the amount of waste from the production process often exceeds the volume of the finished electronic components. Discarded electronic equipment causes a major waste problem due to constituent substances that are harmful to health and the environment, such as flame retardants and lead. Recovery and reuse of electronic components and materials helps to conserve natural resources and reduce the amount of waste sent to landfill.

The wet lab development process uses photographic paper that contains silver. After development, the silver is transferred to the wash water, ensuring that the finished product does not contain silver. It is therefore important that all waste chemicals, including wash water, are dealt with by a waste management company. This requirement applies to all production lines in the production site, also those not covered by the license.

Incorrectly developed photographic paper and unexposed photographic paper contain silver and must therefore be sorted out and sent for waste processing, even if the quantities are small. Estimates of how much silver-containing paper, i.e. paper that retains its silver content, is discar-

ded are difficult to obtain due to a lack of underlying data. Since unexposed paper contains silver, it is important that it is sorted out into a separate waste fraction and then sent for waste processing, even if the quantities are small.

Nordic Ecolabelling would prefer to see metals or materials, including silver, being recovered and reused rather than going to landfill. The main argument for encouraging recovery of silver is to reduce the need for mining operations.

Proposed requirement

R13 Waste

Hazardous waste and electronic waste is to be collected and sent for controlled disposal.

✉ *Describe the procedures for handling hazardous waste and electronic waste. Include a contract showing who handles the sorted waste, or an invoice showing the waste handler.*

R14Waste products with silver content and wash water

All waste chemicals (including wash water) deriving from the development processes must be collected and sent for controlled disposal.

Fractions containing silver are to be sent for silver recovery.

All photographic paper that contains silver must be sorted out and sent for controlled disposal.

✉ *Description of how waste chemicals and waste that contains silver are dealt with, plus a contract or invoice showing which company handles the waste fractions.*

Working environment

In traditional minilabs, it has been common to manually mix the photographic chemicals in 10 or 100 litre tanks before the mixture is pumped across to the machines. Mixing the chemicals and removing the residues by hand can cause exposure for employees. The newer techniques use cassette systems for dosing. Nordic Ecolabelling would thus like to ensure that Nordic Ecolabelled digital photographic development services handle chemical dosing in enclosed systems.

The quantity of photographic development chemicals used in the Swedish market is estimated at 612 m^3 per year. This estimate is based on annual sales on the Swedish market of around 2.4 million m^2 of photo paper and an average of 255 ml of chemicals per m^2 for the development process. The used chemicals are then collected in separate tanks before being taken away for destruction.

The chemicals used for developing photos using the wet lab process are harmful both to health and the environment, and therefore must be collected and destroyed.

R15 Working conditions

All chemicals for use in photo production must be added in closed systems.

✉ *Declaration of how the requirement is fulfilled.*

Environmental management and regulatory requirements

To ensure reasonable quality and an appropriate working environment beyond what is demanded in the requirements regarding chemicals, Nordic Ecolabelling normally also sets a number of general requirements in its criteria for products and services.

The criteria for Digital photographic development services can be regarded to be criteria for both a product and a service. Therefore, the project group decided to adapt the chapter on environmental management to take this into account. This means, for example, that there has been made some deviations from the normal template for environmental management but also that this chapter is adapted to the industry's external conditions.

Nordic Ecolabelling previously had a requirement that the quality of the development process should be checked using control strips. Nordic Ecolabelling has no experience suggesting that control strips are a true indicator of good quality. Experience from the industry is that errors in picture quality are corrected on an ongoing basis during production, and that this is a better way to quality assure the photos.

It is necessary for Nordic Ecolabelling to know, at all times, who the licensee's contact person is for the Nordic Ecolabel. The applicant shall therefore appoint an individual responsible for ensuring the fulfilment of the Nordic Ecolabel requirements, and a contact person for communications with Nordic Ecolabelling.

Changes to the ecolabelled production process may have repercussions for the Nordic Ecolabel licence. A written report of all changes that may relate to the requirements set for the ecolabelled service must therefore be submitted to Nordic Ecolabelling. This will enable Nordic Ecolabelling to provide information on what needs to be done to ensure that the change does not impact on the licence.

In the event of unforeseen non-conformities, Nordic Ecolabelling may assess the consequences of the non-conformity and provide advice on what action the licensee should take.

Proposed requirement

R16 Environmental policy

The company must draw up an environmental policy that sets out the company's level of ambition and the environmental goals that the company is committed to achieving. The environmental policy must be signed by the CEO/senior executive.

✉ *Copy of the procedure for environmental management.*

R17 Quality

The company must have procedures for maintaining high quality in its photo production and for handling complaints/claims from customers.

✉ *Copy of the procedure for environmental management.*

R18 Take-back system

Relevant national regulations, legislation and/or agreements within the sector regarding take-back systems for products and packaging shall be complied within all the Nordic countries where the Nordic Ecolabelled digital photographic development services are marketed.

✉ *Declaration from the applicant regarding affiliation to existing recycling/processing agreements.*

R19 Organisation and responsibility

The company's organisation must be described, and it must be made clear who is responsible for the following:

- *The Nordic Ecolabel licence (who is responsible for ensuring the fulfilment of Nordic Ecolabel requirements)*
- *Marketing (who is responsible for ensuring that the marketing of the Nordic Ecolabel complies with the "Regulations for the Nordic Ecolabelling of Products")*
- *Internal communication and education (who is responsible for ensuring that everyone in the company who has duties that affect compliance with the Nordic Ecolabelling requirements receives the right information)*
- *Purchasing (who is responsible for purchasing the following: chemicals, including inks, waste management services, photographic paper and photographic development equipment)*
- *Contact person for communications with Nordic Ecolabelling (who will Nordic Ecolabelling have primary contact with)*

✉ *Declaration that the requirement is fulfilled.*

R20 Changes and non-conformities

Nordic Ecolabelling must be notified of and approve any planned product and marketing changes that affect the Nordic Ecolabelling requirements, before such changes are made. Unforeseen non-conformities that affect the Nordic Ecolabelling requirements must be reported to Nordic Ecolabelling.

Planned changes include a change of focus for the business, purchasing/changing development machines or changing chemicals.

Non-conformities that must be reported include major chemical leaks, personal injuries or large-scale customer complaints.

✉ *Procedure detailing how planned changes to the business are dealt with. The procedure must state who will contact Nordic Ecolabelling and when.*

✉ *Procedures detailing who will contact Nordic Ecolabelling and when in the event of non-conformities that affect the the Nordic Ecolabel licence.*

R21 Traceability

The license holders must have traceability on the Ecolabelled photo production.

✉ *Description and procedure on how to ensure the requirement is met*

R22 Training

All employees who are involved in the everyday business must have the necessary knowledge to ensure that the Nordic Ecolabelling requirements are fulfilled.

✉ *Procedure detailing how the company ensures that employees have the necessary knowledge to maintain compliance with the Nordic Ecolabelling requirements.*

R23 Purchasing

The company must have procedures in place regarding purchasing of products and services that affect compliance with the Nordic Ecolabel licence in minimum the areas of chemicals, including inks, photographic paper, waste management services and photographic development equipment.

✉ *Procedures clearly detailing who is responsible for minimum the purchases of chemicals, including inks, photographic paper, waste management services and photographic development equipment, and for ensuring that the purchases comply with the requirements of the Nordic Ecolabel licence.*

R24 Technical servicing

There must be procedures in place for servicing and maintenance of the photographic development equipment. The internal procedures must include a description of how servicing is carried out, or a contract with an external company that carries out the servicing. Servicing must be carried out at least once a year. An environmental management system or service contract must show how checks are carried out.

✉ *Procedures for servicing or copy of contract with external company that carries out the servicing.*

R25 Customer information

Customers must be informed that they have dealt with a Nordic Ecolabelled company and what that entails. If the company has photographic development equipment that is not covered by the Nordic Ecolabel licence, the information must be clear enough that there can be no misunderstanding about which production system carries the Nordic Ecolabel.

If the company sells or market other products where photos are printed or applied on a material, the information for the customers must be clear in that only the photographic production is Ecolabelled.

✉ *Copy of customer information.*

R26 Application documentation

A copy of the application, including safety data sheets, calculation data and other supporting documentation for the Nordic Ecolabel application must be readily accessible.

✉ *Description of how the documentation will be archived.*

R27 Legislation

The company must guarantee that the relevant applicable legislation is adhered to at all the production sites where the Nordic Ecolabelled service is provided. This includes safety regulations, working environment legislation, environmental legislation and conditions/concessions specific to the sites.

Failure to comply with this requirement may result in Nordic Ecolabelling revoking the licence.

✉ *Signed and submitted application form.*

R28 Marketing

Marketing of Nordic Ecolabelled digital photographic development services must comply with the "Regulations for the Nordic Ecolabelling of Products" from June 2011 or later versions.

✉ *Duly completed Appendix 11.*

5 Changes compared to previous version

Comparison of requirements for digital photographic development services in criteria version 2 and draft version 3.

Version 3	V. 2	Same	Changed	Deleted	New req.	Draft for consultation
Product definition			x			The product group definition has been rewritten for greater clarity. It also contains more information about what cannot be ecolabelled.
R1 Description of the organisation	-				x	The requirement has been produced to gain a clear picture of the company applying for a licence.
R2 Overview of chemicals	O1		x			The requirement has been worded more clearly to gain an overview of the company's chemical consumption.
R3 Chemicals for cleaning machines	O1	x				
R4 Classification of chemicals					x	The classification requirement has been introduced to harmonise with the criteria for printing companies and reflects the content of the CLP Regulation.
R5 Substances of very high concern					x	The classification requirement has been introduced to harmonise with the criteria for printing companies and reflects the content of the CLP Regulation.
R6 Electricity consumption in photographic development	P2		x			The requirement has been changed from a points-based requirement to a compulsory requirement. The requirement regarding electricity consumption has also been tightened, moving from possible electricity consumption > 500 Wh/m^2 to an absolute maximum of 100 Wh/m^2.
R7 Photographic paper	O2		x		x	The PVC requirement now only relates to the photographic paper, not the film and packaging as in version 2. The requirement regarding silver-free photographic paper has been introduced for new technologies, and the use of silver-containing photographic paper has been restricted to companies that provide school photo services.
R8 Certified traceability and control of fibre raw material in photographic paper					x	The requirement regarding traceability and control of fibre raw material brings the criteria in line with the Nordic Ecolabelling guidelines for materials.
R9 Bleaching using chlorine gas					x	Requirement that paper pulp cannot have been bleached using chlorine gas

R10 Chemicals used for coating					x	Documentation of chemicals used for coating
R11 School photo production					x	New requirement to prevent companies to develop photos that customers do not want
R12 Electronic ordering of photos	P6		x			Due to recent technical advances, electronic ordering is now a compulsory requirement, and the requirement has also been made more demanding. Photos relating to school photography must not be produced simply for previewing before ordering.
R13 Waste	O3		x			Clear requirement regarding sorting of hazardous and electronic waste. The requirement for other sorting has been deleted since the quantities were judged to be extremely small.
R14 Waste products with silver content and wash water	O4		x		x	The requirement regarding waste with silver content (including unexposed silver-containing photographic paper) and chemicals from shops remains unchanged. The requirement now also includes water with silver content that is released into the drains, something that is not permitted.
R15 Working conditions	P3		x			Formerly a points-based requirement at various levels, it has now been changed to a compulsory requirement.
R16 Environmental policy					x	A new requirement that the company must have an environmental policy.
R17 Quality	M1				x	This requirement and the documentation requirement have been reworded and simplified.
R18 Take-back system	M3	x				
R19 Organisation and responsibility	M5				x	More areas of responsibility have been added to the requirement.
R20 Changes and responsibility					x	A new requirement that the company must have procedures to deal with changes and non-conformities. It also emphasises the fact that fulfilment of the requirements must be maintained over time.
R21 Traceability						
R22 Training	M6/ M7				x	The training requirement has been adjusted to take account of the fact that photographic development machines are largely automated, creating less of a need for training.
R23 Purchasing					x	A requirement concerning purchasing procedures has been introduced to ensure that the company lives up to the requirements at all times.

R24 Technical servicing	M6		x			The requirement that there must be a servicing agreement for the machine has been deleted. Instead, a requirement regarding maintenance procedures has been introduced, although this may still be fulfilled through a servicing agreement.
R25 Customer information			x			The requirement is partially new. It was previously part of the product group definition as a means to show clearly what was Nordic Ecolabelled. Now it is part of the customer information requirement to clearly inform the customer about which part of the service is Nordic Ecolabelled.
R26 Application documentation	M9	x				
R27 Legislation	M10	x				New documentation requirement
R28 Marketing	M8	x				The requirement has been updated in line with Nordic Ecolabelling's general marketing requirements.
Silver discharges, central laboratories	O5 \ P4			x		The limit value has been deleted due to the introduction of requirement R12 regarding how waste products with silver content and wash water must be dealt with and sent for controlled disposal.
Chemical and water consumption, print development	P1			x		The requirement has been deleted since technological advances mean that steerability of chemical consumption is extremely low once the photographic development machine has been purchased.
	P5			x		The requirement has been judged to be of little relevance, and has therefore been deleted.
Recording journals and annual reports	M4			x		The requirement has been deleted since it is covered through other requirements.
Requirement regarding written work instructions and information on chemicals	M7			x		Chemical consumption has reduced considerably and chemicals are handled in closed systems. The requirement is therefore less relevant and has been deleted.

6 New criteria

A future revision should examine the possibility of incorporating the criteria for digital photographic developments services into the criteria for Nordic Ecolabelling of printing companies, version 6. Points which must then be considered in regard of photographic development are:

- adapted requirements for photographic paper
- energy requirements

7 References

1) Thomas Nilsson, Local Business Manager, FujiFilm Sverige, September 2012
2) Evaluation of Nordic Ecolabelled digital photographic development services, version 2.0, 21 December 2011
3) Article Information Sheet 09/04/2012 Kodak Resin-coated colour papers
4) Lars Ericsson, Product Specialist Photofinishing, Fujifilm Sverige AB