

**DRAFT**  
**Background document**

**Swan Labelling of  
Writing Instruments  
Version 3.0**

*May 2008*



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## 1. Introduction

This background document primarily explains the changes that have been made to the criteria for writing instruments during the revision from version 2.5 to version 3.0. This document provides a background to the general issues regarding the ecolabelling of writing instruments. The justification for the requirements and also requirements that are not set for Swan-labelled writing instruments are discussed.

An evaluation performed during 2007 provides the basis for the revision and increases the possibility to Swan label ballpoint pens. The evaluation also sets the goal that ecolabelled ballpoint pens should be available on the market soon after the adoption of the criteria.

## 2. General facts regarding the criteria

The criteria document covers criteria for the ecolabelling of writing instruments. The product group covers ballpoint pens, pencils, mechanical pencils, overhead pens, whiteboard markers, permanent markers, felt-tip pens and crayons. Nordic Ecolabelling is willing to extend the product group if desired by an applicant and following the environmental assessment of the product in question. These requirements apply to the product, refill and packaging.

During the revision, the project group considered a change to the scope of the product group to increase clarity. The industry and consumers use a variety of different names for different products, and we have therefore opened the possibility to extend the product group following approval by Nordic Ecolabelling.

### Reason for Swan labelling

The environmental impact of writing instruments is primarily linked to products containing heavy metals and organic solvents. To be ecolabelled, the environmental and health aspects of the product, including its packaging, must fulfil certain requirements. Further, it is important that there is a difference between products on the market to ensure that the best products from an environmental viewpoint can be ecolabelled. This also means that there is room for improvement by the majority of manufacturers. The parameters that are subject to requirements in the criteria document are identified as having the most significant environmental effects and potential for improvement.

- Primary production: The majority of constituent substances are synthetic. It is difficult to calculate the resource consumption of the extraction and refinement of raw materials. It is also difficult to gain information regarding the source and production methods when there are several stages in the supply chain between raw material extraction and the final product. Renewable raw materials, such as for wooden pencils, must not originate from environments meriting protection due to their high biological and/or social value.
- Production: Requirements on emissions to air, water and land are set by the authorities in connection with a production permit. Further, requirements regarding the working environment and use of harmful substances are regulated by the authorities in the country of manufacture. Swan Ecolabelling does however require that the licensee ensures that fundamental principles and rights regarding working conditions must be fulfilled during the production of the Swan-labelled writing instrument. The licensee must ensure that the production of the writing instrument adheres to the ILO conventions regarding child labour, forced labour, health and safety, freedom of association and collective bargaining, discrimination, discipline, hours of work and wages. Swan Ecolabelling also sets requirements of the selection of materials in order to minimise the use of heavy metals, organic solvents and chlorinated plastics.
- Use: Health, child safety and the dispersion of environmentally dangerous chemicals into the environment are parameters that determine the environmental impact of the product. Writing

instruments that are thrown away after only one use cycle are a waste of resources. Organic solvents may contribute to the formation of photochemical oxidants. The use of organic solvents may also be unsuitable for the user from a health perspective.

- **Product packaging and waste:** Environmentally harmful substances in writing instruments and ink may be released into the environment as a result of combustion or disposal. The use of packaging increases the consumption of natural resources. Packaging is a resource problem (material and energy) during production of the packaging, emissions during production and transportation. Packaging is also a waste problem. From the point of view of resources, it is important that as little packaging as possible is used. The use of a refill system should therefore also be promoted since this, among other things, reduces the total amount of packaging required. As waste, environmentally harmful substances in writing instruments and packaging may be released into the environment as a result of combustion or disposal. The licensee must fulfil national regulations, legislation and/or industry specific agreements regarding take-back systems for the packaging in the Nordic countries in which the Swan-labelled writing instrument is marketed.

### **Influence of the product group on the climate and greenhouse effect**

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Refills are more transport efficient? Recycled plastic reduces the use of virgin resources. Jeppes LCA report from Nordic staff meeting?

### **Criteria revision and validity period**

Following the presentation of the SFS investigation "General investigation of the quantity and quality of office supplies and their relation to the Nordic ecolabel" for the Nordic Ecolabelling Board in December 1994, it was decided to initiate the development of criteria for the ecolabelling of writing instruments. The first generation criteria were developed during 1995-1996 under Norwegian leadership without the use of an expert group.

The criteria were first evaluated in 1997. The first revision started in spring 2000 following the presentation of a new investigation for the Nordic Ecolabelling Board in April 1999. The validity of original criteria document was extended 2.5 years to 18 March 2002.

Version 2.0 was adopted by the Nordic Ecolabelling Board on 27 September 2001 and was valid until 18 September 2005.

On 17 December 2002, the Nordic Ecolabelling Board approved an amendment to Item 4.1, following a decision by SLM. The amendment permitted the use of ink/pigment classified as highly flammable (risk phrase R11) in overhead pens, whiteboard pens and permanent markers. The criteria were published as version 2.1.

On 15 December 2004, the Nordic Ecolabelling Board approved an amendment to Item 4.4. The refill requirement was extended to cover ink pens, ballpoint pens and mechanical pencils. The validity of the document was also extended two years until 18 December 2007. The criteria were published as version 2.2.

At the Secretariat meeting of 9 November 2006, it was decided to extend the validity of the criteria one year until 31 December 2008. The new version was named 2.3.

At the Secretariat meeting of 15 June 2007, it was decided to amend Item 4.2 Chemical requirements, to enable the inclusion of denaturants in alcohol and organic pigments, even if they contain aromatic hydrocarbons. The new version was named 2.4.

At the meeting of the Nordic Ecolabelling Board of 19 October 2007, it was decided to extend the validity of the criteria one year until 31 December 2009. The new version was named 2.5.

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An investigation was performed in September 2007 that was the basis for the revision during 2008.

The revision was started in spring 2008 with the goal that the new, revised criteria should be adopted by the Nordic Ecolabelling Board in November 2008. The revision was primarily performed by the Swedish ecolabelling body with some support from Norway and Denmark. The Finnish and Icelandic secretariats did not participate in the revision.

The revision was performed by:

Sweden: Ove Jansson, SIS Ecolabelling

Norway: Arne Godahl, Ecolabelling Norway

Denmark: Thomas Christensen, Ecolabelling Denmark

### **The Nordic market**

- In Sweden, roughly 60 million ballpoint pens are sold each year. The sales are proportionally similar in the other Nordic countries.

The largest actors are Ballograf, BIC and Pilot. Other brands include Staedtler, Sanford (with Parker, Waterman and Paper Mate), Uni, Faber Castell and a large group of no-name and own-brand pens, primarily from China and India.

Almost all manufacturing takes place outside the Nordic region. The Swan-labelled products are all designed for offices and professionals. There are currently no Swan-labelled products for the consumer market.

The project group will, in collaboration with the Swedish trade organisation KEPA ([www.kepa.nu](http://www.kepa.nu)), update the market information regarding the Nordic market.

#### *The Nordic market*

The interest for environmental issues, in particular the climate, is growing rapidly throughout the world. Ecolabelling is a tool for producers to market their green products. An increase in interest for ecolabelling from producers is expected since the demand of environmental suitable products will increase.

### **Other labelling schemes**

Eco Mark, <a href="http://www.ecomark.jp/english/">www.ecomark.jp/english/</a>	The Japanese ecolabel has criteria for office supplies, including writing instruments.
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## **3. Criteria development/revision**

### **Purpose of the revision**

This product group has attracted little interest from the market for a long time. There has been little current environmental debate focused on the product group. This has meant that the product group has been given low priority by Nordic Ecolabelling. General debate about chemicals in society and child safety has however existed. These issues justify continuing with this product group.

The focus of the revision should be on updating the chemical, refill and documentation requirements as well as the general structure of the document. The Japanese ecolabel has criteria for office supplies, including writing instruments. This is one of their most successful product groups with many major licences. The review shall investigate whether there is a possibility of harmonization.

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With marketing activities focused on the purchasers of office supplies, the demand for these products should increase. Nordic Ecolabelling's new criteria for toys may also increase the appeal of the ecolabelling of children's pens and crayons.

### *Goal*

The criteria for writing instruments shall be revised and a criteria document, with associated documents, that is attractive from both an environmental and business viewpoint, shall be drawn up. Anticipating suitable national marketing activities, at least two significant players shall apply for a licence within 6 months of the adoption of the criteria.

### About this revision

This revision was primarily carried out by the Swedish secretariat with some support from the Norwegian and Danish bodies. Iceland and Finland have not participated actively in the revision.

The participants from Nordic Ecolabelling were:

Ove Jansson	Project leader, SIS Ecolabelling, Sweden
Thomas Christensen	Ecolabelling Denmark
Arne Godal	Ecolabelling Norway

Jeppe Frydendal (DK) and Björn-Erik Lönn (NO) have been area coordinators.

## **4. Background to the requirements and requirement levels**

The criteria are designed to eliminate the use of undesirable chemicals based on their properties (e.g. toxicity or biodegradability). This section provides a background to the requirements. The text will be updated following the review and comments from the review bodies.

### **R1 Description of the product**

A description of the product must be submitted to ensure that the product is within the scope of the criteria. The type designation of refills must also be specified to ensure that the licensee offers these for the product, if required. The type designation of the refills must be specified on the licence to draw further attention to the use of these.

### **R2 Refill**

The applicant must offer refills for Swan-labelled ballpoint pens, overhead pens, whiteboard markers and permanent markers. It must be possible to change the refill without the use of special tools and the refills must hold at least as much ink as the original cartridge. This requirement reduces the consumption of materials.

### **R3 Child safety**

Products that are designed and intended for use by children must fulfil the requirements for CE-labelling. Swan-labelled writing instruments must fulfil the highest possible quality standards and not entail any risks for children. Standard EN-71 is an established standard for toys, and the applicant must ensure that their products fulfil the relevant parts of this standard. Depending on the product, it may be necessary to fulfil different parts of the standard.

### **R4-R7 Requirements on ink, pigments, pencil leads and constituent substances**

The requirements are organised by writing instrument for added clarity. The requirements apply to all constituent substances. The requirements allow impurities at levels below 0.01%. Substances that are added intentionally to a raw material are not considered as impurities irrespective of the concentration.

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Ink and constituent substances must not be classified according to Table 1 and 2. These tables are found in Appendix 3 of the criteria. Classification according to EU Dangerous Substance Directive 67/548/EEC and EU Dangerous Preparation Directive 1999/45/EC with amendments. Note that the producer of ink and constituent substances is responsible for classification.

**Table 1. Classification of ink, pigment, pencil leads and crayons.**

<b>Classification</b>	<b>Danger class</b>
Dangerous for the environment	N with R50, R50/53, R51/53, R52 or R53 N without R52/53
Very toxic	T+
Toxic	T
Harmful*	Xn
Irritant**	Xi
Corrosive	C with R34 or R35
Allergenic	Xn with R42 or Xi with R43 – applies only to products intended for children
Carcinogenic	Canc1, Canc2 or Canc3 with R40, R45 and/or R49
Mutagenic	Mut1, Mut2 or Mut3 with R46 and/or R68
Reproduction toxic	Repr1, Repr2 or Repr3 with R60, R61, R62, R63 and/or R64
Explosive	E
Extremely flammable:	F+

\* Exception: Archive grade ink classified as R22.

\*\* Exception: Products classified as R36, R37 and/or R38

**Table 2. Classification of constituent substances of ink, pigment, pencil leads and crayons.**

<b>Classification</b>	<b>Danger class</b>
Dangerous for the environment	N with R50, R50/53, R51/53, R52 or R53 N without R52/53
Very toxic	T+
Toxic	T
Harmful*	Xn
Allergenic	Xn with R42 or Xi with R43 – applies only to products intended for children
Carcinogenic	Canc1, Canc2 or Canc3 with R40, R45 and/or R49
Mutagenic	Mut1, Mut2 or Mut3 with R46 and/or R68
Reproduction toxic	Repr1, Repr2 or Repr3 with R60, R61, R62, R63 and/or R64

\* Exception: Constituent substances of archive grade ink that are classified as R22.

*Justification for exceptions:*

Archive grade ink classified as R22 Harmful if swallowed: Purchasers often demand that ballpoint pens are of archive grade. There is currently no ink on the market that is of archive grade but not classed as harmful with risk phrase R22. The primary focus of this revision is to enable the licensing of ballpoint pens and we therefore consider the exception viable.

Products classified as irritants with R36, R37 and/or R38: The quantity of ink in a Swan-labelled writing instrument is small and thus the risk to the user is minimal.

Products classified as allergenic with risk phrases Xn with R42 or Xi with R43 are prohibited in products intended for children since children use the products in a different way than adults and are thus more prone to a risk of allergy.

**Substances linked to serious environmental and health risks**

The following substances are linked to serious environmental and health risks: antimony, arsenic, barium, cadmium, mercury, selenium, lead and/or hexavalent chrome. These substances must therefore not be a component of inks or pigments.

**Organic solvents**

Volatile organic solvents (vapour pressure >0.01kPa at 20°C) must not be a constituent of the ink. Organic solvents in ink/pigment in some writing instruments such as overhead pens, whiteboard markers and permanent markers where it is necessary for the ink/pigment to dry quickly. Organic solvents may be harmful to the user of the writing instrument. Alternatives to organic solvents include water, but this also requires preservatives.

**Ethanol (CAS 64-17-5)**, 1-propanol (CAS 71-23-8), Isopropyl alcohol (CAS 67-63-0), and 1-methoxy-2-propanol (CAS 107-98-2) are therefore permitted in ink/pigment in overhead pens, whiteboard markers and permanent markers. These substances have a lower potential for creating photochemical oxidants than other organic solvents.

In the draft to the first generation criteria, a limit of 20% ethanol in ink/pigments was proposed. This requirement was criticised since there are no products that contain organic solvents a levels below 70-80%. In this draft, ethanol is therefore permitted in overhead pens, whiteboard markers and permanent markers without a limit to its content.

The ink must not contain aromatic or halogenated hydrocarbons. An exception is made for aromatic hydrocarbons that are used as a denaturant in alcohol and organic pigments.

The ink must not contain preservatives that are bioaccumulating. A preservative is not considered bioaccumulation if  $BCF < 100$  or  $\log K_{ow} < 3$ .

**R8 Recycling**

Products must not complicate recycling. The product must therefore be made of materials that are simple to recycle. Material recycling is the preferred method but energy recovery is permitted.

**R9 Paper**

Paper used for the pen body or cartridges must comprise at least 50% recycled paper.

**R10 Plastic**

Plastic used for the pen body or cartridges must comprise at least 50% recycled or renewable material. The draft requires that plastics are recovered post consumer. Renewable materials are therefore promoted by this requirement. The plastic must not be chlorine based.

Pigments for dying plastics must not contain antimony, arsenic, barium, cadmium, mercury, selenium, lead and/or hexavalent chrome.

### **R11 Proportion of certified wood raw material**

Writing instruments where the body is made of wood must comprise a minimum of 50% wood raw material from certified forests. This requirement agrees with the other Swan criteria that place requirements on wood raw materials.

### **R12 Origin of renewable materials**

This requirement agrees with the other Swan criteria that place requirements on wood raw materials. Unique for this requirement is that it also covers the origin of renewable plastics. The applicant must document the origin of the raw material and the type of raw material as well as ensure that the raw material does not originate from environments of high biological and/or social value. Nordic ecolabelling may request further documentation to ensure that the requirement is fulfilled.

### **R13/R15 Metals**

The Swedish environmental goal "Toxic-free environment" is one justification for placing requirements on known environmental toxins. For example, the pen body and cartridges of Swan-labelled writing instruments must not contain lead, mercury or cadmium. The environmental goal "Toxic-free environment" aims to free the environment from substances and metals that are created or extracted industrially and that may pose a threat to human health. We therefore consider that chrome and nickel should also be prohibited.

Nickel, for example, is a common cause of contact allergies and contact eczema. In a Swedish national health survey (NMHE99) it was found that almost 800,000 Swedes of the age 19-81 are sensitive, hypersensitive or allergic to nickel. In an equivalent health survey aimed at families (BMHE03) it was found that among 12-year olds, 9% of girls (approx. 5,400) and 2% of boys (approx. 1,400) were allergic to nickel. Even though the environmental goal has proved difficult to achieve, a reduction of the amount of nickel in products is one step in the right direction.

### **R14 Plastic**

Products must not complicate recycling. The product must therefore be made of materials that are simple to recycle.

### **R16 Customer information**

The applicant must recommend the use of refills. This information must be provided on the packaging and in a product data sheet. The requirement is set to increase the use of refills. The packaging must display the Swan label, applicable licence number and appropriate subtext.

### **R17 Chlorinated plastic materials**

The packaging must not contain chlorinated plastic materials. This requirement agrees with the other Swan criteria that place requirements on plastic in packaging.

### **R18 Paper**

Paper must comprise a minimum of 70% recycled paper. 70% has been judged a suitable level for paper in packaging.

### **R19 Take-back system**

Relevant national regulations, legislation and/or agreements within the sector regarding the recycling systems for the packaging shall be met in the Nordic countries in which the Swan-labelled writing instrument is marketed.

This requirement agrees with the other Swan criteria that place similar requirements.

**R20 Quality of writing instrument**

The Swan-labelled writing instrument must be of the same standard or better than equivalent products on the market. The licensee must guarantee that the quality on delivery from manufacture of the Swan-labelled writing instrument is maintained throughout the validity period of the licence. The quality must not vary within the period during which the writing instrument is manufactured.

**R21 Writing length of ballpoint pens**

Ball-point pens must have a minimum writing length of 4000 metres. This requirement also applies to refill cartridges. This requirement is considered feasible by manufacturers. The test method must be described if no established international standard exists.

**R22 Lifetime function guarantee for ballpoint pens**

The applicant must provide a lifetime function guarantee for Swan-labelled ballpoint pens. It is the manufacturer who decides what the lifetime of the product in question is and shall describe this in the appended terms of warranty. This requirement also promotes the use of refills while also ensuring the high quality of the product. There are several manufacturers that issue such guarantees already today.

**R23 Laws and regulations**

This requirement agrees with the other Swan criteria that place similar requirements.

**R24 Environmental policy**

This requirement promotes a comprehensive view of environmental efforts within the applicant company. This can lead to other environmental gains than simply those achieved through the Swan-labelling of writing instruments.

**R25 – R30 Other quality requirements**

These requirements agree with the other Swan criteria that place similar requirements.

**5. New requirements in future criteria**

Extending the product group with further products within the area of office supplies is one possible path. This idea agrees well with the Japanese EcoMark criteria for office supplies.