



# Revision of EU Ecolabel criteria for Footwear

## Technical Report First Version

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## ACRONYMS

ABS	Acrylonitrile Butadiene Styrene
ADEME	French Environment and Energy Management Agency
AFIRM	Apparel & Footwear International RSL Management Group
AFNOR	French Association of Normalisation
BAT	Best Available Techniques
BCI	Better Cotton Initiative
BIIR/CIIR	Halogenated Isobutylene Isoprene Rubber/Chlorinated
BR	Butadiene Rubber
BREF	Best Available Techniques Reference Document
CB	Competent Body
CEN	European Committee for Standardization
CLP	Regulation No 1272/2008 on Classification, Labelling and Packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
COD	Chemical Oxygen Demand
COTANCE	Confederation of National Associations of Tanners and Dressers of the European Community
CSR	Corporate Social Responsibility
DEFRA	Department for Environment, Food and Rural Affairs
EC	European Commission
ECAT	EU Ecolabel Catalogue
ECHA	European Chemicals Agency
EEC	European Economic Community
EIA	Environmental Impact Assessment
ELCD	European reference Life Cycle Database
EPD	Environmental Product Declaration
EPDM	Ethylene Propylene Rubber
EU	European Union
EU27	27 Member States of the European Union, up to 2013
EU28	28 Member States of the European Union, from 2013
EUEB	European Union Ecolabelling Board
Eurostat	Statistical Office of the European Union Database
EVA	Ethylene Vinyl Acetate
GHS	Globally Harmonised System
GOTS	Global Organic Textile Standard
IED	Industrial Emissions Directive

ILCD	International Reference Life Cycle Data System
IPP	Integrated Product Policy
IPPC	European Integrated Pollution Prevention and Control
IPCC	Intergovernmental Panel on Climate Change
IPTS	Institute for Prospective Technological Studies
IR	Isoprene Rubber
ISO	International Organization for Standardization
IULTCS	International Union of Leather Technologists and Chemists Societies
JRC	Joint Research Centre
LCA	Life Cycle Analysis
LCI	Life Cycle Inventory
LCIA	Life Cycle Impact Assessment
LWG	Leather Working Group
PCR	Product Category Rules
PE	Polyethylene
PEF	Product Environmental Footprint
PEFCR	Product Environmental Footprint Category Rules
PFAS	Perfluorinated Alkylated Substances
PP	Polypropylene
PPE	Personal Protective Equipment
PTFE	Polytetrafluoroethylene
PU	Polyurethane
PVC	Polyvinyl chloride
REACH	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
RSL	Restricted Substance List
SBR	Styrene Butadiene Rubber
SBS	Styrene Butadiene Styrene
SCP	Sustainable Consumption and Production
SIP	Sustainable Industrial Policy
SVHC	Substances of Very High Concern
TC	Technical Committee
TPU	Thermoplastic Polyurethane
TR	Thermoplastic Rubber
VOC	Volatile Organic Compound

## 1 Introduction

The main objective of this project is to revise the EU Ecolabel criteria for Footwear with respect to the current definition set by the Commission Decision No 2009/563/EC. This document is intended to provide the background information for the revision of the EU Ecolabel criteria for Footwear. The related study has been carried out by the Joint Research Centre's Institute for Prospective Technological Studies (JRC-IPTS) with technical support from RDC Environment.

The EU Ecolabel criteria are designed to promote the use of the most environmentally friendly products. Thus, the need for revision is mainly supported by the revised Regulation on the EU Ecolabel (No 66/2010) and the Commission Statement of 19 March 2009 (ENV G2).

The main purpose of this Technical Report is to evaluate the current criteria and discuss if they are still relevant or should be revised, restructured or withdrawn to address the most important environmental impacts from the Life Cycle Assessment perspective. For this reason, the document is augmented by the information analysed in the Preliminary Background Report for the revision of Ecolabel for the product group "Footwear", which provides the legislative, market, best practices, and technical analysis information to support the criteria proposals and revision. The Technical Report summarizes the main findings from the Preliminary Report and discusses all current criteria and how the environmental issues identified can be addressed through criteria revisions. New criteria areas also have been proposed according to the analysis performed in the Preliminary Background Report.

For each criterion, a table indicating major changes proposed and direct comparison of the current and proposed criteria is provided (marked in blue colour). A discussion of the rationale for the proposed change (if applicable) to the criterion follows each table. Draft proposals for new criteria and the accompanying rationale are also presented. This Technical Report will be updated during the criteria development process based on new information, stakeholder input or input from the working group meetings. The final Technical Report will incorporate the scientific arguments for the revised new criteria document.

For each criterion, questions that require consultation with the stakeholders are listed. Input from stakeholders on these issues is of great importance in formulating the final proposal for a new and updated criteria document.

**Blue:** changes when comparing current with revised criteria

**Yellow:** Subject to consultation

## 2 Background information

### 2.1 General Remarks

The conclusions and recommendations included in the Preliminary Background Report establish the framework for the current revision process. The Preliminary Report first analysis all identified relevant sources of information, and then develops the main arguments to support the revised criteria proposal. Finally, it presents conclusions and preliminary recommendations. The Preliminary Report consists of four main chapters which indicate the procedure and methodology for the on-going revision of the EU Ecolabel criteria, including analysing the current legislative background, Commission Statement as to 2009, market situation, other European and non-European Ecolabels, identification of industry best-practices, the LCA analysis, and the feedback from questionnaires. More specifically, the Report is divided into following Tasks.

1. Task 1 provides a background for the revision process by:
  - Summarising the legal framework relevant to the product group under revision;
  - Addressing Commission Statements arising from the 2009 revision ;
  - Analysing product group definition and categorization;
  - Summarising other labels and initiatives from the scope extension perspective;
  - Analysing the scope of the criteria revision with the special focus on checking the feasibility of proposed product group extension to other leather products;
  - Summarising initial stakeholder questionnaire input regarding the scope revision;
2. Task 2 provides updated market analysis which includes:
  - Statistics describing the world and EU-27 market for footwear products;
  - Statistics describing the world and EU 27 market for leather and leather goods;
  - Product group market segmentation with analysis of the feasibility of product group extension;
  - Market status of the EU Ecolabel for footwear licenses;
  - Market status of other labels and initiatives;
  - Identification of key industry innovations categorized for each life cycle phase and brand;
3. Task 3 is a technical analysis that establishes the framework for the criteria proposal; it comprises the following elements:
  - Review of the LCA and LCA-related literature relevant to the product group under revision;
  - Performance of a specific LCA for footwear;
  - Analysis of possible use of harmful substances during the production process.
  - Analysis of possible presence of harmful substances in the final product;
4. Task 4 analyses the improvement potential based on Task 2 and Task 3 findings; it includes the following:

- Whenever feasible, qualitative analysis of the improvement potential for key environmental issues and industry best practices;
- Discussion of how these issues could be addressed by the criteria revision, including information on the possible environmental savings and market diffusion;
- Identification of possible barriers and opportunities to reach the proposed criteria.

## 2.2 Proposed framework for criteria revision

Based on findings presented in the Preliminary Report seven areas of relevance will be addressed by the current revision process:

1. Commission Statement of 19 March 2009 (ENV G2) arising from the last product group revision and providing Member States statements relating to issues that should be addressed/investigated further in the next revision;
2. Update of best available techniques (BAT) consumption and emission levels: based on review of the corresponding BATs and technical evidence;
3. Addressing the main environmental 'Hot spots' of the footwear supply chain: based on a product LCA literature review and a specific LCA case study;
4. Product best practices present on the market: based on identified eco-innovation informed by manufacturers, retailers and brands;
5. Harmonization with so called "horizontal approach" according to EU Ecolabel Regulation (EC) 66/2010
6. Harmonisation with other existing ecolabels and initiatives, such as NGO and private label scheme criteria;
7. Possible synergies with the on-going criteria revision for the EU Ecolabel for the textile product group will also be considered.

In general, it is advisable to keep the overall structure of the criteria document. However, some changes in criteria re-organization will be recommended and subjected to discussion with the stakeholders.

The main challenge is to improve the weight of the proposed criteria by ensuring that the environmental areas highlighted as 'hot spots'<sup>1</sup> receive sufficient analysis being compared with the industry best practices.

This effort has generated a number of criteria revisions and new criteria proposals. For other relevant issues not listed as 'hot spots', relevant criteria will be proposed based mainly on an industry averages and stakeholder input.

It is also important to consider harmonising the EU Ecolabel for footwear with other labels and schemes in order to reposition the EU Ecolabel within the market and to lower the administrative burden for both applicants and Competent Bodies, keeping in mind that harmonisation will have both pros and cons that must be addressed.

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<sup>1</sup> The life cycle phases where the biggest impacts of a product originate

To improve feasibility of the application process, the readability of the Technical Report should be improved and options to further streamline and focus the assessment and verification elements should be evaluated. The new criteria dealing with hazardous substances may also provide a new way of thinking about the structure of the criterion – for example, highlighting criteria that relate to processes versus criteria that relate to the finished product.

Input materials criteria are an important focus. Here, an in-depth revision is necessary, especially for criteria pertaining to textiles and synthetic materials.

Regarding the chemical substances used, the criteria revision effort will focus on updating the criteria in relation to the REACH Regulation (EC) No 1907/2006, the requirement of the EU Ecolabel Regulation (EC) No 66/2010 and BREF documents<sup>2</sup>, and to analyse the possibility of harmonising with other labels or schemes. Harmonisation is a significant consideration in relation to managing the administrative burden for Competent Bodies.

Several new areas for new criteria development have been proposed. They relate to environmental considerations or to market expectations and identified industry best practices. Some discussion has focussed on the possibility of developing straightforward criteria in these areas to promote improvement of the products and to ensure the ability of both applicants and Competent Bodies to verify compliance.

In order to vet these proposals, Questionnaire 1 presented in Annex V was sent to stakeholders to gather feedback on<sup>3</sup>:

- The possibility to extending the scope to non-footwear leather products;
- The need for criteria revision (to change or remove them, or to add new ones);
- National market figures for footwear and leather products;
- Other relevant information (e.g., identification of main constraints to apply for the EU Ecolabel for footwear, current license holders, environmental innovations, information on hazardous substances).

Among the stakeholders consulted, 26 stakeholders answered the first questionnaire, of which:

- 9 are representatives of enterprises;
- 6 are representatives of industry associations;
- 6 are representatives of research centres;
- 1 represents a Non-Governmental Organization;
- 4 represent Competent Bodies.

### **2.3 Commission Statement as to the next Revision**

In conjunction with adoption of the current criteria document on March 2009 (decision No 2009/563/EC), several statements were submitted by Member States relating to issues that should

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<sup>2</sup> For the Textiles Industry, for the Tanning of Hides and Skins, and for the Production of Polymers

<sup>3</sup> Questionnaire may be downloaded from the Product Bureau website: <http://susproc.jrc.ec.europa.eu/footwear/whatsnew.html>



be addressed/investigated further in the next revision. Thus, the revision of the EU Ecolabel for Footwear must also address the following concerns raised by the Commission Statement (19 March 2009/ ENV G2):

- the use and environmental impact of all fluorinated substances (e.g., including PFAS) which might be used for the footwear (e.g., for impregnation) must be assessed in the revision;
- stricter limits on emissions should be based on the best value in BAT/BREF;
- emissions related to synthetic materials, i.e., plastic/polymers, should be addressed;
- the waste phase of materials should be included in the evaluation;
- materials that are problematic in the waste phase should be regulated or excluded ;
- PFAs and the related environmental problems should be evaluated;
- PVC and the related environmental problems should be evaluated;
- formaldehyde in leather and the related environmental problems should be evaluated.

## 2.4 Key environmental issues identified

A number of key environmental issues have been identified through best-practices analysis and literature review. Quantitative assessment of footwear environmental impact from the life cycle perspective has been addressed and evaluated through a specific LCA case study followed by improvement potential analysis. The LCA was performed to a large extent based on stakeholder feedback received through a second questionnaire. The total number of replies was 13; 4 respondents did not provide any quantitative information on the production process, only a general indication on how the LCA should be performed. The questionnaire form could be accessed from the dedicated footwear Product Bureau website<sup>4</sup>: Table 1 below details answers received for each life cycle stage.

**Table 1: Questionnaire responses**

<b>Input materials</b>	<b>Manufacturing of footwear</b>	<b>Packaging and Distribution</b>	<b>End of life</b>	<b>Focus on leather production</b>
6	4	4	1	4

As indicated in Table 2, the impacts are mostly due to the production of input materials, mainly influenced by the mass of the footwear (i.e., the quantity of input materials required) and the wastage rate. The manufacturing of footwear accounts for a significant share of overall impact and is generated mainly by the energy consumption and the emissions of VOC. Distribution has a lower impact on the overall results, mainly due to air transport.

The most sensitive parameters are the following (the most important first):

- Energy consumption (for manufacturing of uppers, soles, linings and assembly of footwear);
- Electricity mix (for manufacturing of uppers, soles, linings and assembly of footwear);

<sup>4</sup> [http://susproc.jrc.ec.europa.eu/footwear/docs/Footwear\\_Questionnaire\\_II.xls](http://susproc.jrc.ec.europa.eu/footwear/docs/Footwear_Questionnaire_II.xls)

- Mass of footwear and choice of input materials;
- Wastage rate;
- Quantity of VOC emissions;
- Share of airplane for intercontinental transport;
- Incineration rate at end of life.

The impacts of agriculture, breeding and slaughtering may also be relevant for the life cycle of footwear, depending on the allocation rule chosen. Therefore, careful consideration should be given to whether leather is assumed to be considered as a co-product or by-product of meat and milk production.

**Table 2: Highlighted hot spots from additional LCA**

Life cycle stages	Environmental relevance <sup>5</sup>
Agriculture, breeding and slaughtering	- to +++
Production of input materials	+++
Manufacturing and assembling	Energy consumption VOC emissions
	++ +
Transport by plane	+
End of life of footwear	-

Durability of footwear is also a key parameter because of its ability to have a multiplier effect on the results.

Based on the results of the LCA analysis performed and on the outcomes from the current LCA review, the following criteria areas should be addressed in the EU Ecolabel revision:

- Footwear should achieve a certain durability with regard to its resistance to mechanical degradation;
- Input materials should be carefully chosen, with a focus on the use of sustainable materials (e.g., recycled materials);
- The footwear mass should be minimised<sup>6</sup>;
- For the leather production, hides and skins should come from the meat and milk industry in order to ensure that impacts of farming can be mostly attributed to meat and milk;
- The wastage should be minimised during material processing and footwear manufacturing;

<sup>5</sup> +++: highly significant on LCA results; ++: very significant on LCA results; +: quite significant on LCA results; -: not significant on LCA results.

<sup>6</sup> This criterion must not be reached at the expense of durability of footwear

- |   |
|---|
| <ul style="list-style-type: none"><li>- The energy consumption should be minimised for footwear manufacturing (including uppers, soles, and linings manufacturing, and footwear assembly);</li><li>- The VOC emissions should be minimised during footwear manufacturing.</li></ul> |
|---|

## 2.5 Current criteria

The framework of the EU Ecolabel document under revision presents the criteria objectives and defines the background for the assessment and verification requirements (e.g., functional unit, cut-off limit). The objectives of the criteria are described as being:

"limiting the levels of toxic residues, the emission of volatile organic compounds and promoting a more durable product."

The criteria document under revision consists of ten criterion designed to meet this stated purpose by addressing the following environmental issues:

1. Dangerous substances in the final product;
2. Reduction of water consumption;
3. Emission from the material's production (limitation of water pollution);
4. Exclusion of use hazardous substances (up until purchase);
5. Use of VOCs during final assembly of shoes;
6. Energy consumption;
7. Use of recycled material for packaging;
8. Information on the packaging;
9. Information appearing on the Ecolabel;
10. Parameters contributing to durability.

Annex II presents a comparative table summarizing the current and proposed set of criteria to be addressed through dialogue with the stakeholders..

### 3 Product Group Name, Scope and Definitions

The main discussion conducted through the Preliminary Report has considered the feasibility of the proposed product group extension **to other leather products**. In order to limit the number of different EU Ecolabel product groups, to ensure coherency, and to avoid redundancy, it is preferable to tend towards aggregating within the same product group category similar articles for which analogous criteria could apply. The definition given by the current EU Ecolabel for footwear is firmly based on very specific product functions being sought by the consumer (to protect and cover foot). This is a key approach to be considered, noting that the EU Ecolabel is designed to help consumers identify environmentally-friendly products and services among the group of articles with a similar functionality.

<b>Present criterion, Decision 2009/563/EC</b>
The product group 'footwear' shall comprise all articles of clothing designed to protect or cover the foot, with a <b>fixed</b> outer sole which comes into contact with the ground. Footwear shall not contain any electric or electronic components.
<b>Suggested criterion</b>
<u>Recommended scope</u> : The product group 'footwear' shall comprise all articles of clothing designed to protect or cover the foot, with <b>applied sole</b> which comes into contact with the ground. Footwear shall not contain any electric or electronic components.

#### Rationale and Discussion

##### Scope extension

The proposal to enlarge the product group scope to other leather goods has been analysed extensively as reflected in Task 1 of the Preliminary Report. It has then been preliminarily proposed that the possible product group extension could encompass articles of clothing or accessory:

- Either designed to protect or cover the foot with a sole which comes into contact with the ground,
- Or made principally of leather and designed as a decorative or functional accessory, such as belts, bags, gloves, and other articles normally carried in the pocket.

The general output of the thorough technical analysis indicates that the product group extension is not recommended. Considering that leather has been chosen as a common characteristic and basis for the proposed scope extension, it is then necessary that leather is the main material used for assembly of the products. After considering the market situation, the other European and non-European Ecolabels, the industry consultation, the existing LCA studies, and the feedback received from the EUEB and registered stakeholders, it could be concluded that scope expansion is not recommended, bearing in mind that:

1. The EU Ecolabel should define one product group that is clearly understood by the consumers. Leather-made products cover a broad range of different functions (from car upholstery, to fashion jackets and wallets), hindering the introduction of the comprehensive product group definition. As the EU Ecolabel Regulation No 66/2010 defines it, a product group means "a set of products that serve similar purposes and are similar in terms of use, or have similar functional properties, and are similar in terms of consumer perception";
2. More than half the stakeholders (~57 %) who responded to the question are clearly not in favour of the scope extension (Figure 1). In general terms, stakeholders who supported the scope extension expressed their interest to cover more leather products within the EU Ecolabel in order to promote a greener market. Simultaneously, they suggested the need for

fair requirements between all leather goods. Some stakeholders, because of several constraints, do not clearly express their interest in covering footwear and other leather products within one common scope. However, they would be interested in other leather products being covered by EU Ecolabel scheme. In practice, specific sets of criteria for other leather products (or leather) could be developed instead of including them in one unique product group 'Footwear and leather products';

3. Many of the so-called leather products are in fact composed of several materials, among which leather may be a minor component. Indeed, in certain product groups analysed, there is considerable increase in the use of leather/synthetic material combinations. It appears that, except for belts, leather is not the major constituent of the final product. Belts contain about 70 %<sup>7</sup> leather. Thus, there is a potential risk that if the wide range of articles apparently relevant to leather were covered by the scope, it would then include products that are not predominantly composed of leather (or only contain a minor quantity of it). Consequently, if all the leather products were to be considered within the scope, the majority would not meet the basic requirement: to be composed of leather. Thus, it would be necessary to introduce a restriction that imposes a minimum leather content requirement. However, in this case some products, including footwear, could be considered out of the scope because they are not mainly made of leather. In terms of volume and European apparent consumption, footwear with leather uppers accounted for 24 % of the footwear market (61% in terms of production volume) in 2011. This could mislead the consumer who looks for the most environmentally friendly choice within the same product group category.
4. When referring to the leather market share, preliminary assessment indicates that extending the scope to other leather goods would not necessarily mean considerable environmental savings, as footwear is the main leather-made product group. The leather-made goods that by way of similarities could be covered by the scope represent a small market share. Considering segmentation of all leather-made products (therefore, including upholstery leather for car and furniture), from the global perspective footwear represents 52 % of the intended leather destination; other leather products of possible interests (belts, bags) correspond to as little as 9.4% of global market share (13.8% if gloves are included)<sup>8</sup>. On the European level, footwear represents 41% of the main end use of leather produced. According to COTANCE, the broad category of leather goods represent up to 20% of Europe's leather production,<sup>9</sup> however, the high level of data aggregation precludes identifying the specificity of products included in this category.
5. The leather production-consumption chain consists of three main stages: hides and skins recovery as a by-product of meat industry; leather tanning and finishing; and final product assembly. The leather raw material is characterised by its heterogeneous nature, especially considering that hides and skins can be procured from a variety of animals which creates different types of raw material designated for production of a broad range of end-products. These differences are further amplified by the existence of numerous intermediate processing stages, thus, the type of leather produced will depend on the requirements of the ultimate user as well as the type of raw material utilized.<sup>10</sup> From a technological and

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<sup>7</sup> (CBI, 2010)

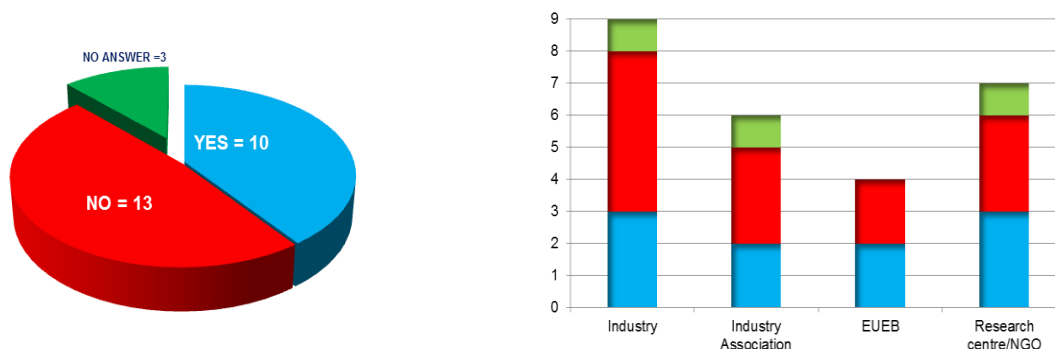
<sup>8</sup> (International Council of Tanners, 2008)

<sup>9</sup> (COTANCE, 2012)

<sup>10</sup> Salazar de Buckle, T. (2001) The Leather Global Value Chain - A Review - Report presented to UNIDO. Vienna

processing perspective, leather used in footwear is the most diversified. Nevertheless, even if environmental requirements that refer to the tanning process are quite similar amongst leather products, the technical and performance requirements are product specific, considering that the production process and the origin of the hides or skins will differ depending on the type of leather that the tanner is asked to make. Ensuring the product functional durability within the use phase is quite different from one product to another, hindering the possible introduction of a common set of criteria. It should be stressed that leather used in footwear manufacturing is the most diversified and fulfils the strictest and very product-specific technical requirements.

6. If the scope were extended, all the criteria that are product-specific would then have to be identified for each category of goods covered by the analysis. This especially pertains to criteria related to the durability, use-phase, packaging, and end-of-life, among others. Otherwise, the common fitness for use criteria could exclusively cover the general technical requirement of material durability, but not final product. The EU Ecolabel Regulation No 66/2010 requires that “the EU Ecolabel criteria shall include requirements intended to ensure that the products bearing the EU Ecolabel function adequately in accordance with their intended use”.
7. The ISO 14040:2006 and ISO 14044:2006 standard referred as LCA framework clearly state that environmental comparisons between systems shall be made on the basis of the same function(s), quantified by the same functional unit(s); therefore, it is not possible to compare articles of unrelated utility (e.g., a wallet versus a piece of furniture). The EU Ecolabel Regulation mentions that the criteria “should be market oriented and limited to the most significant environmental impacts of products during their whole life cycle.” In other words, scope definition should cover products of the same category and with the same identified environmental hot spots.
8. Other existing European and non-European ecolabels did not manage to develop a single common set of criteria pertaining to the product category that includes leather and non-leather footwear and leather products.



**Figure 1: Stakeholders' feedback on the scope extension**

### Footwear moulded in one piece

In the injection moulding technique, the sole is directly moulded adhesive-free onto the shoe upper part. The sole material is injected in a mould and forms a strong bond with the shoe upper while it

cools<sup>11</sup>. According to one stakeholder, the current definition of the scope recalling “a fixed outer sole” indicates that footwear moulded in one piece (such as Wellington boots) might not to be covered by the current scope because, technically, the sole has not been fixed to the upper. There is no rationale argument that could support such exclusion. It is more a misinterpretation of the definition. For the purposes of the Directive 94/11/EC, also called EU Footwear Labelling Directive, ‘footwear’ shall mean all articles with applied soles designed to protect or cover the foot. Therefore, it is proposed to delete the word “fixed” from the definition, introducing the word "applied".

### Safety Footwear

From the legal perspective, safety footwear are not covered by the EU footwear Labelling Directive No 94/11/EC, because they fall under the scope of Directive on **Personal Protective Equipment (PPE)** 89/686/EEC which harmonises products to ensure a high level of protection for citizens throughout Europe. Those products have to meet the following requirements: to ensure the user's safety and health in specific circumstances. The manufacturer must inform the user about the type of hazards against which his product protects and the product must have the EC mark of conformity (e.g., the outer-soles for footwear designed to prevent from slipping must be so designed, manufactured or equipped with added elements, to ensure satisfactory adhesion by grip and friction having regard to the nature or state of the surface).

By similarity to generic footwear, light industrial shoes are proposed to be included in the scope under revision.

In general terms, the recommendation is to include in the scope all kinds of footwear that fall under footwear Directive 94/11/EC, plus occupational footwear (light industrial shoes). However, whether footwear incorporating special protective elements, such as metal toe-caps, shall be included in the scope should be discussed.

#### **Consultation questions**

1. Should the scope of the product group remain as "Footwear"?
2. Should the product group definition be re-worded to reflect the possible use of injection moulding technique?
3. Should occupational footwear be included in the scope?
4. Should protective footwear of special destination (e.g., with integrated protective toe-cap) be outside the scope or covered by the product group scope?

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<sup>11</sup> Manufacture of shoe. SYNOPSIS Sheet. Prepared in the framework of EGTEI

#### 4 Assessment and verification

The main focus of the discussion relates to adapting the functional unit and the materials thresholds. The functional unit is proposed to be changed for men and a specific one has been created for women.

##### **Present requirement, Decision 2009/563/EC**

The specific assessment and verification requirements are indicated within each criterion.

Where appropriate, test methods other than those indicated for each criterion may be used if their equivalence is accepted by the competent body assessing the application.

The functional unit is one pair of shoes. Requirements are based on shoe size **40 Paris point**. For children's shoes the requirements apply for a size 32 Paris point (or the largest size in the case of maximum sizes smaller than 32 Paris point).

Any upper shoe components weighing less than 3 % of the whole upper part shall not be taken into account for the application of the criteria. Any sole shoe components weighing less than 3 % of the whole outer sole shall not be taken into account for the application of the criteria.

Where appropriate, competent bodies may require supporting documentation and may carry out independent verifications.

The competent bodies are recommended to take into account the implementation of recognised environmental management schemes, such as EMAS or ISO 14001, when assessing applications and monitoring compliance with the criteria (note: it is not required to implement such management schemes).

##### **Suggested requirement**

The specific assessment and verification requirements are indicated within each criterion.

Where appropriate, test methods other than those indicated for each criterion may be used if their equivalence is accepted by the competent body assessing the application.

The functional unit is one pair of shoes. Requirements are based on shoe size: **42 Paris point for men and 38 Paris point for women**. For children's shoes, the requirements apply to a size 32 Paris point (or the largest size, in the case of maximum sizes smaller than 32 Paris point).

Any upper shoe components weighing less than **3 %** of the whole upper part shall not be taken into account for the application of the criteria. Any shoe sole components weighing less than **3 %** of the whole outer sole shall not be taken into account for the application of the criteria. **In the case of a shoe made as one integral element, any components weighing less than 3 % of the whole product shall not be taken into account for the application of the criteria.**

Where appropriate, competent bodies may require supporting documentation and may carry out independent verifications.

Competent Bodies consider implementation of recognised environmental management schemes, such as EMAS or ISO 14001, **or equivalent**, when assessing applications and monitoring compliance with the criteria (note: implementation of such management schemes is not required).

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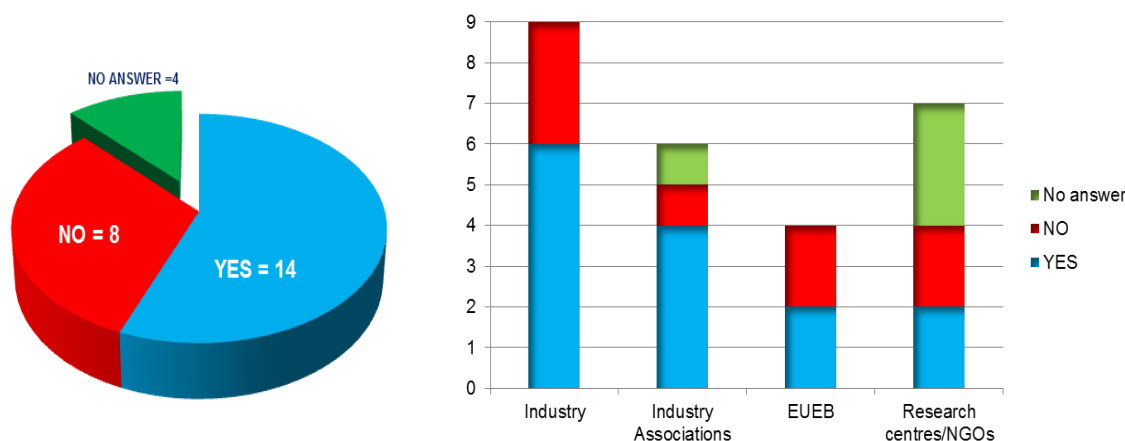


## Rationale and Discussion

### Functional unit

Sixty-four percent of the stakeholders who responded to this question found the current definition of functional unit precise and adequate, as shown in

Figure 2. The stakeholders who expressed a different view on the functional unit found proposed the proposed new sizes more appropriate, being more representative of the current foot sizes.



**Figure 2: Stakeholders' feedback for the functional unit definition**

The EU Ecolabel functional unit serves as the reference in order to fairly compare products of the same category, size being most logical reference unit. As highlighted by stakeholders, the proposal is to use the most common, differentiated by gender, European footwear sizes, as follows:

- Men: 42 Paris point (size 8 in UK system)
- Women: 38 Paris point (size 5 in UK system)
- Children: 32 Paris point (size 13-13.5 in UK system)

### Threshold

Because uppers and soles generally have distinct compositions, the proposal is to keep them separated. Because the threshold is the same for both parts, the requirement still applies for more complex (or simpler) footwear where the upper and the sole cannot easily be distinguished. Nevertheless, in the case of a shoe made as one integral element, the proposal is that the threshold of 3% is applied to the entire product. Most of the stakeholders (70%) are in favour of maintaining differentiation of the uppers and soles.

Sixty-six percent of stakeholders who answered this question are in favour of keeping the same threshold (3%). The opinion of the remaining stakeholders was split between increasing and decreasing the threshold, based on the following arguments:

- Lower limit (0-1%): some materials cause much higher negative environmental impacts than others relative to their mass. In addition, some substances can create problems independently from their quantity.

- Higher limit (5-10%): footwear may consist many different materials; therefore, applying for the EU Ecolabel may become very complex and time consuming. Increasing the threshold would limit the evaluation to the most representative materials.

Possible option to increase market penetration of the EU Ecolabel for footwear

According to the questionnaire, one of the main constraints that appears to hinder industry application for the EU Ecolabel for footwear is the quick and seasonal evolution of fashion industry. Therefore, the proposal is to initiate a discussion during the AdHoc Working Group Meeting to introduce a new approach that could potentially overcome this aspect of fashion industry, being inspired by the specification introduced in the EU Ecolabel Copying and graphic paper User's Manual.

The proposal is to provide the applicant with easy-to-use procedures in order to adapt or extend a range of licensed products, beyond the fashion cycle of targeted industry.

In case the application has been positively processed by the Competent Body and the contract holder wants to extend his range of products, the following conditions could apply:

- Extension with new identification/reference commercial names, which do not affect the criteria, can be achieved by sending specific information to the Competent Body. Extension should apply when materials specifications (type, suppliers, colour, production method) used for the new product assembly are similar to those contained in the licensed products, but used in different proportions. In this case, a letter of prolongation would be sent to the competent body with the new trademark and the name of the similar product certified previously. After validation of the new environmental labelling, a certificate with the new commercial reference could be sent.
- Extension with new technical characteristics (for example new materials, new chemicals, dyes, etc.) or for a new type of product, as far as these are affected by the criteria, must be approved by the Competent Body prior to use. This must be done by informing the Competent Body with an extension letter and the necessary documentation for these (including an updated 'List of Chemicals').

**Consultation questions**

1. Should the functional unit be differentiated by gender?
2. What sizes shall be considered?
3. Should the components material mass threshold be changed?
4. Is implementation of the proposed license extension approach feasible?

## 5 Criteria proposal

### 5.1 Adaptation of current criteria

#### 5.1.1 CRITERION 1: Dangerous substances in the final product

Fundamental change with respect to the Articles 6(6) and 6(7) of the EU Ecolabel Regulation 66/2010.

#### **Present criterion 1, Decision 2009/563/EC**

(a) For shoes made of leather, there shall be no Chromium VI in the final product.

Assessment and verification: the applicant and/or his supplier(s) shall provide a test report, using test method EN ISO 17075 (detection limit 3 ppm). The sample preparation must follow the indications of the EN ISO 4044.

(b) There shall be no Arsenic, Cadmium and Lead in the materials used for the product assembly or in the final product.

Assessment and verification: the applicant and/or his supplier(s) shall provide a test report using one of the following EN 14602 test methods: testing the materials or testing the final product. For leather products the sample preparation shall follow EN ISO 4044.

(c) The amount of free and hydrolysed formaldehyde of the components of the footwear shall not exceed the following

limits:

— textile: not detectable,

— leather: 150 ppm.

Assessment and verification: the applicant and/or his supplier(s) shall provide a test report, using the following test methods: Textiles: EN ISO 14184-1 (detection limit: 20 ppm); Leather: EN ISO 17226-1 or 2.

#### **Criteria proposal**

##### **(a) Hazardous substances and mixtures**

According to Article 6(6) of Regulation (EC) No 66/2010, the EU Ecolabel may not be awarded to any product, or any article of it as defined in Article 3(3) of Regulation (EC) No 1907/2006 or homogenous part of it that contains substances meeting the criteria for classification with the hazard statements or risk phrases as specified in

Table 3 in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council or Council Directive 67/548/EC, or substances referred to in Article 57 of Regulation (EC) No 1907/2006. In case the threshold for classification of a substance or mixture with a hazard class differs from the one of a risk phrase, then the former prevails. The risk phrases in

Table 3 generally refer to substances. However, if information on substances cannot be obtained, the classification rules for mixtures apply. Substances or mixtures which change their properties through processing and, thus, are no longer bioavailable, or undergo chemical modification in a way that removes the previously identified hazard are exempted from criterion 1 (a).

**Table 3: Hazard statements and risk phrases**

<b>Hazard statement according to CLP 1272/2008/EEC</b>	<b>Associated risk phrases according to Directive 67/548/EEC</b>
H300 Fatal if swallowed	R28
H301 Toxic if swallowed	R25
H304 May be fatal if swallowed and enters airways	R65
H310 Fatal in contact with skin	R65
H311 Toxic in contact with skin	R65
H330 Fatal if inhaled	R23; R26
H331 Toxic if inhaled	R23
H340 May cause genetic defects	R23
H341 Suspected of causing genetic defects	R68
H350 May cause cancer	R45
H350i May cause cancer by inhalation	R49
H351 Suspected of causing cancer	R40
H360F May damage fertility	R60
H360D May damage the unborn child	R61
H360FD May damage fertility. May damage the unborn child	R60-61
H360Fd May damage fertility. Suspected of damaging the unborn child	R60-63
H360Df May damage the unborn child. Suspected of damaging fertility	R61-62
H361f Suspected of damaging fertility	R62
H361d Suspected of damaging the unborn child	R63
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child	R62-63
H362 May cause harm to breast-fed children	R64
H370 Causes damage to organs	R39/23; R39/24; R39/25; R39/26; R39/27; R39/28
H371 May cause damage to organs	R68/20; R68/21; R68/22
H372 Causes damage to organs through prolonged or repeated exposure	R48/25; R48/24; R48/23
H373 May cause damage to organs through prolonged or repeated exposure	R48/20; R48/21; R48/22
H400 Very toxic to aquatic life	R50
H410 Very toxic to aquatic life with long-lasting effects	R50-53
H411 Toxic to aquatic life with long-lasting effects	R51-53
H412 Harmful to aquatic life with long-lasting effects	R52-53
H413 May cause long-lasting harmful effects to aquatic life	R53
EUH059 Hazardous to the ozone layer	R59
EUH029 Contact with water liberates toxic gas	R29
EUH031 Contact with acids liberates toxic gas	R31
EUH032 Contact with acids liberates very toxic gas	R32
EUH070 Toxic by eye contact	R39-41
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled	R42

Concentration limits for substances or mixtures which may be or have been assigned the hazard statements or risk phrase listed in

Table 3, meeting the criteria for classification in the hazard classes or categories, and for substances meeting the criteria set out in points (a), (b) or (c) of Article 57 of Regulation (EC) No 1907/2006, shall not exceed the generic or specific concentration limits determined in accordance with Article 10 of Regulation (EC) No 1272/2008. Where specific concentration limits are determined, they shall prevail over the generic ones.

Concentration limits for substances meeting the criteria set out in points (d), (e) or (f) of Article 57 of Regulation (EC) No 1907/2006 shall not exceed 0.1% weight by weight.

The final product shall not be labelled with a hazard statement.

Assessment and verification: for the product or any article or homogenous part of it, the applicant shall provide a declaration of compliance with criterion 1 (a), together with related documentation, such as declarations of compliance signed by their suppliers, on the non-classification of the substances or materials with any of the hazard classes associated to the hazard statements referred to in

Table 3 in accordance with Regulation (EC) No 1272/2008, as far as this can be determined, as a minimum, from the information meeting the requirements listed in Annex VII to Regulation (EC) No 1907/2006. This declaration shall be supported by summary information on the relevant characteristics associated to the hazard statements referred to in

Table 3, to the level of detail specified in Sections 10, 11 and 12 of Annex II to Regulation (EC) No 1907/2006.

Information on intrinsic properties of substances may be generated by means other than tests, for instance, through use of alternative methods such as in vitro methods, by quantitative structure activity models or by the use of grouping or read-across in accordance with Annex XI to Regulation (EC) No 1907/2006. Sharing of relevant data across the supply chain is strongly encouraged.

The information provided shall relate to the forms or physical states of the substance or mixtures as used in the final product.

For substances listed in Annexes IV and V to Regulation (EC) No 1907/2006, which are exempted from registration obligations under point (a) and (b) of Article 2(7) of that Regulation, a declaration by the applicant shall suffice to comply with criterion 1 (a).

**Possible derogation should be discussed with stakeholders.**

(b) Substances listed in accordance with Article 59(1) of Regulation (EC) No 1907/2006

No derogation from the exclusion in Article 6(6) of Regulation (EC) No 66/2010 shall be given concerning substances: identified as substances of very high concern and included in the list provided for in Article 59(1) of Regulation (EC) No 1907/2006, or present in mixtures, in an article or in any homogeneous part of a complex article in concentrations > 0.1%. Specific concentration limits determined in accordance with Article 10 of Regulation (EC) No 1272/2008 shall apply in cases where the concentration is lower than 0.1%.

Assessment and verification: reference to the list of substances identified as substances of very high concern shall be made on the date of application<sup>12</sup>. The applicant shall provide a declaration

<sup>12</sup> <http://echa.europa.eu/web/guest/candidate-list-table>

of compliance with criterion 3 (b), together with related documentation, including declarations of compliance signed by the material suppliers and copies of relevant Safety Data Sheets for substances or mixtures in accordance with Annex II to Regulation (EC) No 1907/2006 for substances or mixtures. Concentration limits shall be specified in the Safety Data Sheets in accordance with Article 31 of Regulation (EC) No 1907/2006 for substances and mixtures.

#### **(c) Manufacturing Restricted Substance List**

The final product and the production recipes used to manufacture the final product shall not contain the hazardous substances listed in the Manufacturing Restricted Substance List (MRSL) at or above the concentration limits specified. The MRSL can be found in Annex VI.

The MRSL shall be communicated to suppliers and agents responsible for the different stages of production. Verification and testing requirements are specified in the MRSL for the production stage and for the final product.

Assessment and verification: The applicant shall provide a declaration of compliance with the MRSL supported by evidence as applicable to the substances and production recipes used to manufacture the final product. The specific requirements are indicated in the MRSL and include declarations obtained from those responsible for related production stages, declarations from chemical suppliers and test results from laboratory analysis of samples of the final product.

Declarations obtained from production stages shall be supported by Safety Data Sheets (SDS) for production recipes and, where necessary, declarations from chemical suppliers. Safety Data Sheets shall be completed in accordance with the guidance in Section 10, 11 and 12 of Annex II of Regulation (EC) 1907/2006 (Requirements for the Compilation of Safety Data Sheets). Incomplete Safety Data Sheets (SDS) will require supplemental declarations from chemical suppliers.

Laboratory analysis of the final product shall be performed for specific product lines, where specified in the MRSL and according to the test methods listed. Testing, where required, shall be performed upon application and once a year thereafter on a random basis for each product line, with results then communicated to the relevant Competent Body. Test data obtained for the purposes of compliance with industry MRSLs and other footwear certification schemes shall be accepted where the test methods are equivalent and have been performed on a representative sample of the final product. A failing of a test result during a license period shall result in retesting for the specific product line. If the second test fails, then the license shall be suspended for the specific product line. Remedial action consisting of an evaluation report identifying the reasons for test failure followed by achievement of a compliant test result will be required in order to re-instate the license.

## **Rationale and Discussion**

### Background information

In order to address the chemicals in ecolabelled products, the EU Ecolabel Regulation sets requirements related to the presence of hazardous substances in the final product.

In accordance with Article 6(6) of the Regulation, it is required that the product or any component of it shall not contain substances that are:

1. Restricted or authorised by reference to them in Article 57 of Regulation (EC) 1907/2006 (REACH);
2. Identified as Substances of Very High Concern (SVHC) according to the procedure described in Article 59(1) of Regulation (EC) No 1907/2006 and included in ECHA's Candidate List;<sup>13</sup>
3. Classified as carcinogenic, mutagenic or toxic for reproduction (CMR), toxic and hazardous to the environment in accordance with Regulation (EC) No 1272/2008 or Directive 67/548/EC which are identified in the form of Hazard Statements.

In accordance with Article 6(7), no derogation shall be given concerning substances that meet the criteria of Article 57 of Regulation (EC) 1907/2006 and are identified according to the procedure described in Article 59(1) of that Regulation, and that present in mixtures, in an article or in any homogeneous part of a complex article in concentrations higher than 0.1 % (weight by weight).

Shoes are complex consumer products that encompass a broad variety of materials (with very specific characteristics) used in their production. Therefore, footwear may consist of one or a few components, or involve a complex construction, which in the case of an athletic shoe can comprise 65 (or more) distinct parts, often material blends, requiring more than 360 processing steps to finalize its assembly.<sup>14,15</sup> In the ongoing revision process, leather, textile, plastics, and synthetic rubber have been identified as the main material types used for footwear production, as specified in the Preliminary Report. Nearly 90%<sup>16</sup> of components/materials used along the footwear industry supply chain have chemical origin or chemical processes have been used for their treatment and/or modification. The chemical substances used in materials manufacturing, finishing, or footwear assembly may be present in the final product. Some of these substance are known to be classified as hazardous according to the CLP and REACH Regulation. Following the market analysis conducted under Task 2 of the Preliminary Report (Section 2), extra-European import is the dominant source of footwear consumed in Europe (89% in terms of volume and 67% in terms of value of the apparent consumption in 2011<sup>17</sup>). According to estimates reported by the Nordic Council of Ministers<sup>18</sup>, as much as 900 tonnes per annum of SVHC could theoretically be imported into the EU via the chemicals contained in shoes. Apart of that, the main findings of non-LCA impact analysis conducted confirm the possible risk from the presence of harmful substances in shoes on the European market, including in the children shoes.<sup>19,20,21,22</sup>

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<sup>13</sup> <http://echa.europa.eu/web/guest/candidate-list-table>

<sup>14</sup> Lee, J.L. and Rahimifard, S. (2012). An air-based automated material recycling system for post-consumer footwear products. *Resource, Conservation and recycling* 69, pp 90-99

<sup>15</sup> Cheah, L., Ciceri, N.D., Olivetti, E., Matsumara, S., Forterre, D., Roth, R., Kirchain, R. (2013), Manufacturing-focused emissions reductions in footwear production. *Journal of Cleaner Production* 44, pp 18-29

<sup>16</sup> Ministerstwo Gospodarki we współpracy z Instytutem Przemysłu Skórzanego w Krakowie. 2009. Przewodnik dla przemysłu skórzanego producentów i użytkowników wyrobów skórzanych i skóropodobnych. Warszawa

<sup>17</sup> Estimated based on data available in Eurostat

<sup>18</sup> Nordic Council of Ministers. 2010. Assessment of application of the 0.1% limit in REACH triggering information on substances of very high concern (SVHC) in articles. TermNord.

<sup>19</sup> The Swedish Society for Nature Conservation. 2009. Bad shoes stinks. Report from The Swedish Society for Nature Conservation

<sup>20</sup> Danish Ministry of the Environment EPA. 2011. Survey and health assessment (sensitisation only) of chromium in leather shoes

As specified in the Task 3 of the Preliminary Report, the footwear industry exhibits complex manufacturing chains. It is a fragmented and heterogeneous sector dominated by small and medium-sized enterprises. The global footwear production outsourcing to lower labour cost countries may hinder possible control of product safety<sup>23</sup>. Management of the materials supply chain has been identified<sup>24</sup> as one of the emerging strategies to master environmental performance of products and improve material traceability, mainly by introducing clear management rules such as specific guidelines for environmental product performance requirements. Globally, leading shoe and apparel manufactures (e.g., Adidas, Inditex Group, H&M, C&A, ESPRIT, PUMA, Nike, Hugo Boss, Timberland, Mark and Spencer, New Balance, or Legero, among others) have committed themselves to bring forward environmentally friendly actions into their product lines. Based on the information gathered as part of the on-going revision process, we have observed a similar tendency among footwear intermediate material producers to improve the environmental performance of production stage<sup>25,26,27,28,29</sup>.

Introduction of the Manufacturing Restricted Substance List (MRSL) would create a blacklist of substances that could potentially allow merging Criterion 1 (c) proposal (Dangerous substances in the final product-MRSL) and Criterion 4 (Use of hazardous substances – up until purchase), providing simultaneously comprehensive and systemized list of hazardous substances potentially present in the product or used during the manufacturing stages.

The proposal is to discuss the MRSL approach to see if it receives a positive feedback from stakeholders and if it should fall under the former Criterion 1. In this case, this companion proposal is to rename the criterion as "Excluded or limited substances and mixtures." The other option is to introduce it as a separate criterion, a new Criterion 2 that integrates the former Criterion 4.

For some other product groups<sup>30</sup> a thorough discussion has been conducted to determine the most comprehensive strategy for implementing the so-called "horizontal approach" for the criterion on hazardous substances potentially present in the final product—especially on how applicants can document and verify compliance with such a criterion. For footwear, this issue raises specific questions, such as:

- Which substances currently used by industry should be restricted?

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<sup>21</sup> Austrian Ministry for Labour, Social Affairs and Consumer Protection. 2011. Chemical requirements for consumer products.

<sup>22</sup> Der Laud der Dinge. 2013. TEST Kindersandalen.. ÖKO-TEST Kinder 6 | 2013

<sup>23</sup> Khans-I.E., Ruden, C., Breitholtz, M. 2010. Chemical risks and consumer products: The toxicity of shoe soles. *Ecotoxicology and Environmental safety* 73, pp. 1633-1640

<sup>24</sup> Task 2, Section 2 of the Preliminary Report

<sup>25</sup> Rydin, S. (2011) Risk Management of Chemicals in the Leather Sector: A Case Study from Sweden. In: B. Bilitewski et al. (eds.), *Global Risk-Based Management of Chemical Additives I: Production, Usage and Environmental Occurrence*, Hdb Env Chem, Springer-Verlag Berlin Heidelberg 2011

<sup>26</sup> BREF Tanning (2013)

<sup>27</sup> BREF Textile

<sup>28</sup> (COTANCE, 2012)

<sup>29</sup> BREF Polymers

<sup>30</sup> Textiles and flushing toilet and urinal equipment in particular



- What proportion of these substances may subsequently remain in the final product, either as residues or as functional components?
- What is the capacity of industry to respond to restriction of listed classifications?
- Are all the classifications relevant, considering the exposure paths associated with the footwear supply chain and the subsequent use and disposal phases?
- Manufacture of footwear component materials and footwear itself can be performed in different geographical locations. What is the level of industry capacity to control this very complex supply chain?

The textile working group has highlighted the need to refer to current industry practices in the use of Restricted Substance Lists (RSLs) which are communicated to suppliers.<sup>31</sup> The group's discussions also suggested that many of the current criteria could be brought together under the new hazardous substances criteria. Specifically for footwear, the existence of schemes such as the Blue Angel, Nordic Swan, ÖKO-TEST, SG, and Bluesign, and the RSLs of large footwear manufacturers means that final product testing is readily available.

The potential for granting derogations, in line with Article 6(7) of the EU Ecolabel Regulation (EC) 66/2010, needs to be carefully evaluated and adjusted to the actual state-of-the art and best practices application. This is also an area in which the cost and complexity of the verification process need to be carefully considered. Harmonisation with existing labels could be supportive in this regard. Blue Angel and Oeko-Tex, for example, are based on the testing of finished products and have an extensive global network of affiliated testing laboratories and Competent Bodies.

Harmonisation with RSLs from global brands is also desirable. The limit values in the lists refer to leather, textiles, plastics and other materials being used by these global brands. Many producers of materials supplying the global brands copy these lists and distribute them along the supply chain, for example, to their chemical product suppliers. In most cases, the global brands base their specification limit values on the regulations that exist. When a regulation does not exist, the brands establish their own limit values. The Apparel and Footwear International RSL Management (AFIRM) Group has created a Restricted Substance Guidance which is a summary of all AFIRM brand RSLs, and which reflects the most stringent substance limit and the corresponding test method.

#### Manufacturing Restricted Substances List (MRSL)

The existing Ecolabel criteria, other ecolabels schemes (such as the Nordic Swan, the Blue Angel, the Japanese Eco Mark), and existing RSLs (AFIRM, TFL, brand RSLs) were screened in order to identify existing substance restrictions. The RSL for the EU Ecolabel for textiles was also checked in order to ensure coherence.

The results were then compiled into a preliminary draft proposal for the Manufacturing Restricted Substance List (MRSL) set in the Annex VI of this Technical Report. These are intended to align the MRSL with other RSLs and labels, considering production stages, and to make the list clearer and easier to communicate to suppliers. Therefore, the proposed MRSL is designed to identify potential haz substances in specific types of materials and assess the risk of occurrence in the finished product.

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<sup>31</sup> (JRC-IPTS, 2013): Revision of the European Ecolabel and Green Public Procurement (GPP) Criteria for Textile Products - Technical Report and Criteria Proposals

The basic approach proposed requires manufacturers to screen the Hazard Statements of their production recipes based primarily on Safety Data Sheet information, but supplementing this as necessary with specific tests. These elements will be discussed with the stakeholders in order to understand their appropriateness and need within this specific product group. Therefore, two alternative methods of assessment and verification are proposed according to the probability that the substance might be present or used within footwear supply chain:

1. Declaration of no-use supported by the declarations from manufacturer and Safety Data Sheet (SDS);
2. Specific test report presenting the results obtained following a specified test procedure.

This approach could potentially simplify assessment and verification and increase the efficiency of footwear testing in relation to the broad range of materials that may require test. Based on the Textile Working Group Approach<sup>32</sup>, possible further improvement of final product testing could include the following:

1. Testing could be limited based on a screening of the product characteristics, e.g., specific material, colours, products intended for children;
2. In-house testing of intermediate products by manufacturers or suppliers could be accepted;
3. Mutual recognition with the EU Ecolabel for textile;
4. Equivalent testing carried out for other labels could be accepted (e.g., Oeko-Tex 100, Nordic Swan, Blue Angel, Schadstoffgeprüf –SG, or equivalent);
5. Mutual recognition of manufacturers RSLs and independent labels RSLs without the need to examine testing results.

The possibility to applying the proposed approach will be subject to the stakeholders' feedback; if successful, the proposal would be to compile a comprehensive list of restricted substances that will be verified based on the materials used. Therefore, the aim of the MRSL is to represent a consolidation of existing Ecolabel substance restrictions, substances restricted by REACH, substances on the ECHA Candidate List and proposals from stakeholders.

Moreover, given the potential complexity of applying this criterion to footwear products, it is important that the approach proposed is practical to implement and reflects industry best practices. The environmental improvement potential must also be balanced against the relative importance of the other EU Ecolabel criteria and the capacity of industry to respond.

#### *Derogation for hazardous substances*

Depending on the stakeholders' feedback and industry request, some derogations could be granted to certain substances in line with the Article 6(7) of the EU Ecolabel Regulation (EC) 66/2010, which states that "For specific categories of goods containing substances referred to in paragraph 6, and only in the event that it is not technically feasible to substitute them as such, or via the use of alternative materials or designs, or in the case of products which have a significantly higher overall environment performance compared with other goods of the same category, the Commission may

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<sup>32</sup>Dodd, N. 2012. Revision of the EU ecolabel for textile products Summary of proposed Hazardous Substances criteria. Draft version. <http://susproc.jrc.ec.europa.eu/textiles>, last check: August 2013

adopt measures to grant derogations from paragraph 6. No derogation shall be given concerning substances that meet the criteria of Article 57 of Regulation (EC) No 1907/2006 and that are identified according to the procedure described in Article 59(1) of that Regulation, present in mixtures, in an article or in any homogeneous part of a complex article in concentrations higher than 0,1 % (weight by weight). Those measures, designed to amend non-essential elements of this Regulation, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 16(2).”

Because of the number of possible combinations of substances in preparations and recipes and the complex nature of footwear manufacturing, no specific concentration thresholds could be proposed. Concentration limits should be taken from the generic concentrations in CLP guidance or the specific concentrations listed in Annex 1 of the Regulation (EC) No 790/2009.

The hazard statements would be differentiated by splitting them into two hazard categories: A (the most significant hazards according to CLP Guidance<sup>33</sup> and those corresponding to the criteria in Article 57 of Regulation (EC) No 1907/2006); and B (lower level hazards according to CLP guidance), as indicated in Table 4. Based on the classification of hazard statements (

Table 3), it should be discussed with stakeholders which classes of substances can be derogated and which cannot using the definitions of two hazard categories.

The proposal is that substances exhibiting Category A hazards shall not be used. Category B substances could be used as long as certain derogation conditions are met, but they must be substituted within two years of the new criterion commencing, meaning that a timescale would be given to find substitutes. The two-year timescale period is proposed.

A specific formula for the derogation request and the substitute information to be submitted is set in the Annex IV.

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<sup>33</sup> (ECHA, 2011) - Guidance on Labelling and Packaging in accordance with Regulation (EC) No 1272/2008

**Table 4: Categorisation of hazard statements**

<b>Category A</b>	<b>Category B</b>
H350i May cause cancer by inhalation (R49)	
	EUH070 Toxic by eye contact (R39/41)
H300 Fatal if swallowed (R28)	H301 Toxic if swallowed (R25)
H310 Fatal in contact with skin (R27)	H311 Toxic in contact with skin (R24)
H330 Fatal if inhaled (R23/26)	H331 Toxic if inhaled (R23)
H304 May be fatal if swallowed and enters airways (R65)	
H370 Causes damage to organs (R39/23/24/25/26/27/28)	H371 May cause damage to organs (R68/20/21/22)
H372 Causes damage to organs (R48/25/24/23)	H373 May cause damage to organs (R48/20/21/22)
	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled (R42)
	H317: May cause allergic skin reaction (R43)
H340 May cause genetic defects (R46)	H341 Suspected of causing genetic defects (R68)
H350 May cause cancer (R45)	H351 Suspected of causing cancer (R49)
H360F May damage fertility (R60)	H361f Suspected of damaging fertility (R62)
H360D May damage the unborn child (R61)	H361d Suspected of damaging the unborn child (R63)
H360FD May damage fertility. May damage the unborn child (R60/61/60-61)	H361fd Suspected of damaging fertility. Suspected of damaging the unborn child (R62/63)
H360Fd May damage fertility. Suspected of damaging the unborn child (R60/63)	H362 May cause harm to breast fed children (R64)
H360Df May damage the unborn child. Suspected of damaging fertility (R61/62)	
H400 Very toxic to aquatic life (R50)	H411 Toxic to aquatic life with long lasting effects (R51/53)
H410 Very toxic to aquatic life with long-lasting effects (R50/53)	H412 Harmful to aquatic life with long lasting effects (R52/53)
H413 May cause long-lasting effects to aquatic life (R53)	H413 May cause long-lasting effects to aquatic life (R53)
1	
EUH059 Hazardous to the ozone layer (R59)	
	EUH031 Contact with acids liberates toxic gas (R31)
	EUH032 Contact with acids liberates very toxic gas (R32)
	EUH070 Toxic by eye contact (R39-41)

## Formaldehyde

Specific focus on formaldehyde content in leather stems from the Commission Statement that supported the last product group revision 2009 (19 March 2009/ ENV G2).

Formaldehyde is a toxic, pungent, water-soluble gas used in the aqueous form as a disinfectant, fixative, anti-shrinking agent, and tissue preservative, making it versatile for a wide range of uses. Formaldehyde resins are used in wood products (e.g., particleboard, paper towels), plastics, paints, manmade fibres (e.g., carpets, polyester), cosmetics, and other consumer products<sup>34</sup>. Formaldehyde can be used in the tanning, re-tanning and finishing leather.

BLC Leather Technology centre guidelines state that leather should not contain more than 200 mg/kg of formaldehyde for articles in general use. If the item is in direct skin contact, this limit should be 75mg/kg, and 20mg/kg for items used by babies (<36 months). Lowering the current threshold from 150 ppm to 75 ppm has been discussed mainly with one stakeholder whose company established the thresholds of 75 ppm if there is a direct skin contact and 150 ppm if there is no skin contact. However, the stakeholders stated that the limit of 75 ppm for all products would be achievable, as recommended by different schemes (e.g., Blue Angel). Japanese Law 112 restricts formaldehyde content to 20 ppm for children products (<24 months). The AFIRM RSL specifies the threshold for formaldehyde content in leather as 20 ppm for babies and 50 for adults, if there is direct skin contact.

Therefore, the proposal is to revise the threshold for free and hydrolysed formaldehyde in footwear components as follows:

- textile: not detectable,
- leather: 75 ppm
- <20 ppm for products for children under 36 months

Simultaneously, the requirement will be included in the black list of substances (MRSL).

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<sup>34</sup> International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Vol. 88. 2006, Formaldehyde. Available: <http://monographs.iarc.fr/ENG/Monographs/vol88/volume88.pdf>.

### Consultation questions

- What is the most feasible way to apply the Art 6(6) and 6(7) to the revised criteria document for footwear
- What is the best approach to simplify assessment and verification procedure?
- Should other substances be added to the MRSL?
- Which substances may remain in the final product, either as residues or as functional components?
- Should the proposed MRSL remained under the "horizontal approach" criterion on hazardous substances, or should a separate Criterion be introduced?
- Should other substances be added to MRSL?
- Should derogations be granted for some substances?
- Which exposure pathways are more relevant along the supply chain and during the use phase?
- Should the formaldehyde content in leather be updated according to the proposal?

#### 5.1.2 CRITERION 2: Reduction of water consumption

Addressing the main groups of materials used (e.g., leather, textile) and alignment with the EU Ecolabel for textile.

#### **Present criterion, Decision 2009/563/EC**

The following limits to water consumption for the tanning of hide and skin shall not be exceeded:

- Hides: 35 m<sup>3</sup>/t,
- Skins: 55 m<sup>3</sup>/t,

Assessment and verification: the applicant and/or his supplier(s) shall provide appropriate documentation that the mentioned limits have not been exceeded.

#### **Suggested criterion**

Proposal 1 (a): The following limits to water consumption for the tanning of hide and skin shall not be exceeded:

- Hides: xx m<sup>3</sup>/t,
- Skins: xx m<sup>3</sup>/t,

Proposal: 2 (b) The limits to water consumption for the processing of textiles should fulfil the requirement of the EU Ecolabel for textile criteria:

- finishing of yarn: 70 l/kg
- finishing of knitted fabric: 70 l/kg
- finishing of woven fabric consisting mainly of cellulosic fibres: 200 l/kg
- finishing of woven fabric consisting mainly of wool: 250 l/kg

Assessment and verification: the applicant and/or his supplier(s) shall provide appropriate documentation that the referenced limits have not been exceeded.

## Rationale and Discussion

A range of studies, including the Intergovernmental Panel on Climate Change 2008 Climate Change and Water Report, have concluded that climate change is likely to further exacerbate water scarcity.<sup>35</sup> Many businesses fail to recognize water demands embedded across their supply chain. For example, water supply risks are often hidden in companies' raw material inputs or in the inputs of intermediate suppliers<sup>36</sup>. Following highlights of the specific LCA analysis conducted under Task 3 of the Preliminary Report, some parts of the footwear production value chain can be water-intensive, considering that the major water consumption hotspots were identified as the production of input materials, in particular textiles and leather, more specifically textile finishing and leather production.

For textiles processing, water consumption is particularly sensitive for the dyeing and printing processes and will depend on the character of fibre to be treated. Consumption is especially high in batch dyeing for rinsing batches (BREF Textiles Industry, 2003). Water is also consumed for cleaning the equipment in the printing processes.

For these two production stages, the BREFs "Textile industry" and "Tanning of hides and skins" describe detailed environmentally-friendly techniques which establish the best available techniques (BAT?) emissions levels for processing of textiles and leather, as outlined in the improvement potential analysis of the Preliminary background report.

Water consumption during tanning of hides and skins consists of two main components: process water and technical water needed for cleaning, energy generation, waste water treatment and sanitary purposes. The average water consumption in modern tanneries can be reduced from 40 - 50 m<sup>3</sup>/tonne raw hides/skins to 12 – 30 m<sup>3</sup>/tonne for bovine hides/skins, if the tannery has effective control of its processes. More water is required in the tanning of calfskin, approx. 34-40 m<sup>3</sup>/tonne. The BAT conclusion established the water consumption value for bovine hides/skins between 16-25, and 19-28 m<sup>3</sup>/tonnes raw hides for unsalted and salted hides, respectively, and between 110-180 litres/skin for sheepskins (BREF for the Tanning of Hides and Skins, 2013).

From the other side, according to information found in the COTANCE Sustainability Report (COTANCE, 2012), the average water consumption for the production of a leather unit in Europe was 0.13 m<sup>3</sup> per m<sup>2</sup> of leather between 2010 and 2011.

According to Nordic Eco labelling for textile, hides/skins and leather<sup>37</sup> background document there is a high level of data variability received in connection with licencing in relation to textile material. For example, water consumption during the treatment of cotton varies between 8 l/kg textile and 204 l/kg textile. Different levels of water consumption in relation to technology used within dyeing process were also observed, therefore without setting a specific limit, the water consumption (in litres) for textile wet treatment and finishing should be reported. The Blue Angel within footwear Ecolabel criteria does not set specific limits for water consumption in textiles manufacturing. Analysis of the feasibility of establishing such an approach, considering its possible alignment with EU Ecolabel for textile, will require further analysis and stakeholder dialogue.

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<sup>35</sup> Bates, B.C., Kundzewicz, Z.W., Wu, S., Palutikof, J.P. (Eds.). 2008. Climate Change and Water, Technical Paper VI of the Intergovernmental Panel on Climate Change, IPCC Secretariat, Geneva,

<sup>36</sup> Barton, B. 2010. CERES Report.. Murky Waters? Corporate Reporting on Water Risk. A Benchmarking Study of 100 Companies. <http://www.ceres.org/resources/reports/corporate-reporting-on-water-risk-2010>. Last check August 2013

<sup>37</sup> Nordic Ecolabelled textiles, hides/skins and leather - Background for ecolabelling. 2013.

The Leather Working Group classifies as good the range of water usage 19.4-36.1 m<sup>3</sup>/tonne of raw hide. Nordic Ecolabelling has chosen to set the requirement at 25m<sup>3</sup> water/tonne hides/skins and leather that is treated. The water consumption threshold is defined by the Blue Angel for leather manufacturing according to following categorization:

- 25 m<sup>3</sup>/t for raw skins of cattle,
- 45 m<sup>3</sup>/t for hides of calves, goats and kangaroos,
- 80 m<sup>3</sup>/t for skins of pigs and
- 120 m<sup>3</sup>/t for hides of sheep.

The majority of stakeholders (approx. 75%) indicated that it may be feasible to establish a limit for water consumption for materials or production stages other than leather. They also highlighted the importance of introducing a fair assessment approach among the different materials. However, it should be stated that the water consumption is not equally relevant among the main component materials identified for footwear manufacturing. Therefore, no water consumption limit values have been proposed for production of materials other than leather or textile (subject to stakeholder feedback) considering that:

- The relevance of water consumption during leather and textile processing has been highlighted through LCA;
- Other Ecolabels (Blue Angel, Nordic Swan, The New Zealand Ecolabelling Trust, and Japanese EcoMark) do not set such limits;
- The emissions levels in the BREF for polymers are way lower than the ones for textiles and leather. According to (BREF for Polymers, 2007), that water consumption is on average between 1 and 3 m<sup>3</sup>/tonne for many polymers.

For the EU Ecolabel Footwear, the proposal is to set limits on water consumptions based on BAT from the BREF documents (for Tanning and for Textiles), presented in Annex I. A minimum BAT value for water consumption in hides processing is proposed, but this will be discussed with stakeholders if an average or the maximum value is more appropriate to allow the targeted 10-20% of the market to comply with such a requirement.

Additionally, one stakeholder suggested using the tool provided by the Water Footprint Network<sup>38</sup> to calculate the water consumption. This tool is accurate and takes into account the geography and the scarcity of water.

The Water Footprint Assessment (WFA) Tool guides users through the four steps of Water Footprint Assessment: Goal and Scope, Accounting, Sustainability Assessment and Response Strategy Formulation. The scope of the WFA defines the spatial and temporal scale of the study; for example, will the focus of the assessment be global or for a single catchment; for one year or multiple years; include some or all of the value chain; address one product or a facility, or an entire company? The goal and scope step of the WFA indicates what data will be used, how each subsequent step of the WFA will be approached and the rigor needed in the assessment. With the goal and scope of the Water Footprint Assessment defined, the data are collected to calculate the footprint of the relevant processes for the study. These data may come from global databases. The sustainability step of Water Footprint Assessment asks two key questions: "Is the water footprint in a hotspot?" and "Could the water footprint be reduced or avoided all together for reasonable cost?" Using the

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<sup>38</sup> <http://www.waterfootprint.org/>



information gained in the accounting and sustainability assessment steps of Water Footprint Assessment, response strategies that reduce the water footprint and improve its sustainability can be prioritized for implementation. The feasibility to introduce such approach should be discussed with stakeholders.

#### Consultation questions

1. Should the requirement on water consumption be updated?
2. Should the consumption limit for leather be defined according to the specificity of material (animal origin)?
3. Should specific water consumption limits for textile processing be introduced?
4. Is it feasible for the footwear manufacturer to collect the information on water consumption

#### 5.1.3 CRITERION 3: Emissions from the production of material

##### Major proposed changed

Extend the list of materials production stages that should comply with the Criterion. Create alignment with EU Ecolabel for textiles and other ecolabels.

#### Present criterion, Decision 2009/563/EC

(a) If the waste waters from leather tanning sites and from the textile industries are released directly into fresh waters the content of COD shall not exceed 250 mg COD/l of water discharged.

If the waste waters from leather tanning sites are released into a municipal waste water treatment plant/facility, then this criterion shall not apply, as long as it can be demonstrated:

- that the discharge of waste water from the tanning site into the municipal waste water supply is authorised and,
- that the municipal waste water treatment facility is operational and that the subsequent discharge of treated water into the fresh water system is in line with minimum Community requirements according to Council Directive 91/271/EEC.

Assessment and verification: the applicant shall provide a test report and complementary data, using the following test method: COD: ISO 6060 — Water quality, determination of chemical oxygen demand.

Where the waste water is discharged into a municipal waste water treatment facility, documentation must be provided from the relevant authority showing that the discharge is authorised and that that municipal plant is operational and that it meets the minimum requirements of Directive 91/271/EEC.

(b) Tannery waste water after treatment shall contain less than 1 mg Chromium (III)/l.

Assessment and verification: the applicant shall provide a test report and complementary data, using the following test methods: ISO 9174 or EN 1233 or EN ISO 11885 for Cr

### **Suggested criterion**

(a) Waste water from leather tanning sites shall, when discharged to surface waters after treatment (whether on-site or off-site), have a COD content of less than **xx mg/l**, expressed as **an annual average**. Assessment and verification: The applicant shall provide detailed documentation and test reports, using **ISO 6060**, showing compliance with this criterion, together with a declaration of compliance.

Assessment and verification: the applicant shall provide a test report and complementary data, using the following test method: COD: ISO 6060 — Water quality, determination of chemical oxygen demand.

(b) Proposal 1: Wastewater discharge from textile processing shall comply with the criteria for the EU Ecolabel for textile.

*Wastewater discharges to the environment shall not exceed 20 g COD/kg textiles processing. This requirement shall apply to weaving, dyeing, printing and finishing processes used to manufacture the product(s). The requirement shall be measured downstream of on-site wastewater treatment plant and/or municipal wastewater treatment plant receiving wastewater from these processing sites.*

*If colour removal is required, then the following spectral absorption coefficients shall be met:*

*(i) 436 nm (yellow sector) 7 m<sup>-1</sup>*

*(ii) 525 nm (red sector) 5 m<sup>-1</sup>*

*(iii) 620 nm (blue sector) 3 m<sup>-1</sup>*

*Where used in dyeing processes, salt shall either be recycled or diluted so as to be less than xx mg/l in final discharges to the environment.*

*Assessment and verification: The applicant shall provide detailed documentation and test reports, using ISO 6060 and ISO 7887:2011 as relevant, and showing compliance with this criterion*

*If the effluent is treated on site and discharged directly to surface waters, it shall also meet the following requirements:*

*(i) pH between 6 and 9 (unless the pH of the receiving water is outside this range)*

*(ii) Temperature of less than 35°C (unless the temperature of the receiving water is above this value)*

*Assessment and verification: The applicant shall provide documentation and test reports showing compliance with this criterion, together with a declaration of compliance.*

(c) Proposal 2: Waste water from processing of natural rubber and/or manufacturing of synthetic rubber sites shall, when discharged to surface waters after treatment (whether on-site or off-site), have a COD content of less than **X g/kg**, expressed as an annual average.

Assessment and verification: the applicant shall provide a test report and complementary data, using the following test method: COD: ISO 6060 — Water quality, determination of chemical oxygen demand.

(d) Proposal 3: If the waste waters from activities covered by Criterion 3 (a), (b) and (c) are released into a municipal waste water treatment plant/facility, then this criterion shall not apply, as long as it can be demonstrated that:

- the discharge of waste water from the site into the municipal waste water supply is authorised and,
- the municipal waste water treatment facility is operational and that the subsequent discharge of treated water into the fresh water system is in line with minimum Community requirements according to Council Directive 91/271/EEC.

(e) Tannery waste water after treatment shall contain less than  $x$  mg total Chromium.

Assessment and verification: the applicant shall provide a test report and complementary data, using the following test methods: ISO 9174 or EN 1233 or EN ISO 11885 for Cr.

### Rationale and Discussion

One of the objectives of the EU Ecolabel revision is to address the main types of materials entering the production of footwear. Therefore, the current criterion has been expanded to include other materials. The five requirements of this criterion are explained below.

(a) For leather, the proposal is to use BAT values from the Commission Decision No 2013/84/EU on industrial emissions for the tanning of hides and skins, proposing as the starting point for the discussion the minimum value 200 mg/l COD based on the average of the 24-hour representative composite samples taken over a month (see Annex I).

(b) In order to search for synergy between different product groups, alignment with the EU Ecolabel for textiles is proposed. The latest version available and referenced here is the draft for consultation of the Commission Decision establishing the ecological criteria for award of the EU Ecolabel for textile products, published in May 2013.

It should be discussed with stakeholders whether other emissions than COD and chromium (in the case of leather) should also be considered and compared with with BAT emissions levels. Other schemes have been investigated and take into account different types of emissions, as indicated in Table 5.

**Table 5: Water emissions levels - tanning of hides and skins**

	BAT emissions levels <sup>39</sup>	Blue Angel	Nordic Swan	Leather Working Group <sup>40</sup>
COD	200-500 <sup>41</sup> mg/l	250 mg/l	10 kg/t of raw hide	100 ppm
BOD5	15-25 mg/l			60 ppm
Total chromium	<0.3-1 mg/l	1 mg/l	1 mg/l	0.4 ppm
Suspended solids	< 35 mg/l			
Ammoniacal nitrogen NH4-N (as N)	< 10 mg/l			
AOX		0.5 mg/l		
Ammonium nitrogen		10 mg/l		
Phosphorous		2 mg/l		
Sulfide	< 1 mg/l	2 mg/l		

(c) For production of polymers, the proposal is to refer to the related BREF document on the production of Polymers (2007). Considering that limit values depend strongly on the type of polymers, additional communication with stakeholders on this topic will be necessary to determine the most appropriate approach:

- One specific limit per polymer type;
- One average limit for all polymers.

Additionally, it should be noted that some synthetic materials commonly used in footwear are not specifically covered by the BREF, such as PU. It should be discussed with stakeholders whether the defined limit values can be applied to them. The BAT emission levels for polymer production are presented in Annex I.

The Blue Angle label for footwear established the following requirements for the wastewater characteristic during the Processing of Natural Rubber / Latex and the Manufacturing and Processing of Synthetic Rubber:

- 2 mg/l for zinc,
- 0.5 mg/l for lead,
- 1 mg/l for AOX,
- 0.1 mg/l for benzene and its derivatives,

<sup>39</sup> From BREF for the Tanning of Hides and Skins. The values are monthly averages based on the average of the 24-hour representative composite samples taken over a month.

<sup>40</sup> The values referenced in the table are the limit values to get the best score possible on the parameter. Values are expressed in annual average emission.

<sup>41</sup> The upper level is associated with COD inlet concentrations higher than 8,000 mg/l

- COD of 150 mg/l or at least 90% reduction compared with the inflow on a monthly average,
- 20 mg/l for total nitrogen (N<sub>total</sub>) and 2 mg/l for total phosphorous (P<sub>total</sub>)

(d) Common requirement for proposed Criterion 3(a), (b), and (c)

(e) Revision of the threshold for the chromium content is proposed to be adapted to BAT emissions levels from the Commission Decision No 2013/84/EU on industrial emissions for the Tanning of Hides and Skins (see Table 5), proposing a minimum value 0.3 mg/l as a starting point for discussion. Blue Angel established the limit value of 1 mg chromium /l expressed as total chromium.

#### Consultation questions

- What levels of COD should be set for natural rubber/synthetic rubber, if applicable?
- Shall the threshold value for total Cr content in the tannery waste water be updated?
- Shall assessment and verification test reports be updated?
- On what time basis should the average concentration value be reported: annual average, the six months preceding the application, 24-hour representative composite samples taken over a month?
- Should emissions to water other than COD be considered as well (e.g., BOD, suspended solids, sulphide)?
- Should material specific emissions be considered, e.g., zinc for rubber processing?
- Is it feasible for footwear manufacturers to collect/compile information related to emissions from materials production?

#### 5.1.4 CRITERION 4: Use of hazardous substances

##### Major proposed changes

New substances have been proposed for inclusion into the criterion to establish synergy with different Ecolabels, as specified under Art. 6.3. (f) of the EU Ecolabel Regulation 66/2010. The proposal is to integrate this criterion into proposed Criterion 1(c), i.e., including these substances in the Manufacturing Restricted Substances List (MRSL).

#### Present criterion 4, Decision 2009/563/EC

(a) Pentachlorophenol (PCP) and Tetrachlorophenol (TCP) and its salts and esters shall not be used. Assessment and verification: the applicant and/or his supplier(s) shall provide a declaration that the materials do not contain such chlorophenols along with a test report using the following test methods: Leather, EN ISO 17070 (limit of detection 0,1 ppm); Textile, XP G 08-015 (limit of detection 0,05 ppm)

(b) No azo dyes shall be used that may cleave to any of the following aromatic amines (...) Assessment and verification: the applicant and/or his supplier(s) shall provide a declaration that such azo dyes have not been used. Should a verification of this declaration be carried out, the following test methods shall be used: Leather — CEN ISO TS 17234; Textile — EN 14362 1 or 2.

Textiles limit 30 ppm (note:false positives are possible for 4-aminoazobenzene and confirmation is

therefore recommended);

Leather limit 30 ppm (note: false positives are possible for 4-aminoazobenzene, 4-aminodiphenyl and 2-naphthylamine and confirmation is therefore recommended).

(c) The following N-Nitrosamines shall not be detected in rubber

- N-nitrosodimethylamine (NDMA)
- N-nitrosodiethylamine (NDEA)
- N-nitrosodipropylamine (NDPA)
- N-nitrosodibutylamine (NDBA)
- N-nitrosopiperidine (NPIP)
- N-nitrosopyrrolidine (NPYR)
- N-nitrosomorpholine (NMOR)
- N-nitroso N-methyl N-phenylamine (NMPPhA)
- N-nitroso N-ethyl N-phenylamine (NEPhA)

Assessment and verification: the applicant shall provide a test report, using test method EN 12868 (1999-12) or EN 14602.

(d) C10-C13 chloralkanes shall not be used in leather, rubber or textile components.

Assessment and verification: the applicant and/or his supplier(s) shall provide a declaration that such chloralkanes have not been used.

(e) No dyes meeting the criteria for classification as carcinogenic, mutagenic toxic to reproduction, hazardous/dangerous to the environment with the following R-phrases: R40, R45, R49, R50, R51, R52, R53, R60, R61, R62, R63 or R68 (or any combination), shall be used. (Classification rules as according to Council Directive 67/548/EEC or Directive 1999/45/EC of the European Parliament and of the Council.

Alternatively, classification may be considered according to Regulation (EC) No 1272/2008 of the European Parliament and of the Council. In this case no substances or preparations may be added to the raw materials that are assigned, or may be assigned at the time of application, with the following hazard statements (or combinations thereof): H351, H350, H350i, H400, H410, H411, H412, H413, H360F, H360D, H361f, H361d, H360FD, H361fd, H360Fd, H360Df, H341.

Assessment and verification: the applicant shall provide a declaration of non-use of such dyes.

(f) Alkylphenol ethoxylate (APE), and Perfluorooctane sulfonate (PFOS) shall not be used.

Assessment and verification: the applicant shall provide a declaration of non-use of such substances.

(g) No dyes meeting the criteria for classification as sensitising to skin (R43) shall be used. (Classification rules as according to Directive 67/548/EEC or Directive 1999/45/EC). Alternatively, classification may be considered according to Regulation (EC) No 1272/2008. In this case no substances or preparations may be added to the raw materials that are assigned, or may be assigned at the time of application, with the following hazard statement: H317.

Assessment and verification: The applicant shall provide a declaration of non-use of these dyes.

(h) Phthalates: Only phthalates that at the time of application have been risk assessed and have not been classified with the phrases (or combinations thereof): R60, R61, R62, R50, R51, R52, R53, R50/53, R51/53, R52/53, in accordance with Directive 67/548/EEC, may be used in the product (if applicable). Additionally DNOP (di-n-octyl phthalate), DINP (di-isononyl phthalate), DIDP (di-isodecyl phthalate) are not permitted in the product.

Assessment and verification: The applicant shall provide a declaration of compliance with this criterion.

(i) Biocides: Only biocidal products containing biocidal active substances included in Annex IA of the Directive 98/8/EC of the European Parliament and of the Council, and authorised for use in footwear, shall be allowed for use.

Assessment and verification: The applicant shall provide a declaration that the requirements of this criterion have been met along with a list of biocidal products used.

## Rationale and Discussion

The functional substances highlighted under criterion 4 will already be banned indirectly through the new proposed criteria (criteria 1) on hazardous substances, the so-called horizontal approach. However, concerns over specific chemicals potentially used in the production process, such as biocides, phthalates, Short-Chain Chlorinated Paraffins, perfluorochemicals (PFCs), certain dyes, and other auxiliary substances, highlight the importance of their specific listing. There should be no additional costs associated with this criterion above those incurred already through the new horizontal ban and proposed MRSL.

Proposals for the restriction of additional functional substances or update of assessment and verification methods are analysed below. The inclusion on the black list is simultaneously reflected in the draft version of the MRSL.

### Biocides

Considering that biocides are not desirable products in EU Ecolabelled footwear, their use, understood as chemical preservation of raw or semi-finished material for transportation or storage, should be avoided to the greatest possible extent. Biocide shall not be incorporated into the final product in order to impart biocidal properties.

If biocidal substances are used they should meet requirement of the Criterion 1 (a). Only biocidal products containing biocidal active substances included in Annex IA of the Directive 98/8/EC of the European Parliament and of the Council, and Biocide Regulation (EC) No 528/2012, and authorised for use in footwear, shall be allowed for use. Applicants should consult the most current authorisation list: [http://ec.europa.eu/environment/biocides/annexi\\_and\\_ia.htm](http://ec.europa.eu/environment/biocides/annexi_and_ia.htm)

Assessment and verification: Unless separately specified under Criterion 1(c) the applicant shall provide a declaration that the requirements of this criterion have been met along with a list of biocidal products used, and supported by SDS.

- The following specific biocides are proposed to be restricted:

- Chlorophenols (their salts and esters);
- Polychlorinated biphenyls (PCB);
- Organotin compounds, including TBT, TPhT, DBT and DOT;
- Dimethyl fumarate (DMFu).
- Nanosilver

Pesticides are used in farm animal husbandry to prevent animal pests, fly infestations, and beetle attacks on the animals. Furthermore, biocides can also be used to preserve the hides before they arrive into the tannery. Hence, it is possible that biocides are introduced into tannery through their main raw material (hides and skins). Biocides are also used in the textile industry to prevent deterioration by insects, fungi, algae and microorganisms, and to impart hygienic finishes for specific applications. Sensitivity of the fibres differs on a case-by-case basis, but textiles made from natural fibres are generally more susceptible to biodeterioration than synthetic man-made fibres<sup>42</sup>. The

<sup>42</sup> Lacasse, K, Baumann, W. 2004. Textile Chemicals. Environmental data and facts. Institute fuer Umweltforschung. Dortmund. Springer Verlag

Biocidal Products Regulation (BPR, Regulation (EU) 528/2012)<sup>43</sup> addresses the marketing and use of biocidal products which are used to protect humans, animals, materials or articles against harmful organisms like pests or bacteria, by the action of the active substances contained in the biocidal product. This will repeal and replace the current directive on biocides (Directive 98/8/EC), which entered into force on 1 January 2013 and will be applicable from 1 September 2013, with a transitional period for certain provisions. According to this, all biocidal products require an authorisation before they can be placed on the market, and the active substances contained in that biocidal product must be previously approved by product type.

European Commission decisions on approval and non-approval of active substances are published in the Official Journal of the European Union. The European Commission keeps the list updated and available electronically to the public<sup>44</sup>. The European Commission includes approved active substances in the Union list of approved active substances (formerly Annex I of Directive 98/8/EC).

The Big 4 fungicides are commonly known by their abbreviations, for example, PCMC (para-chloro-metacresol), OIT (2-n-octylisothiazolin-3-one), OPP (ortho-phenylphenol), TCMTB (2-(thiocyanomethylthio)benzothiazole)<sup>45</sup>. Considering that biocides are not desirable products in EU Ecolabelled footwear, their use, understood as chemical preservation of raw or semi-finished material for transportation or storage, should be avoided to the greatest possible extent. Biocide shall not be incorporated into the final product in order to impart biocidal properties.

According to Blue Angel the preservatives used for protection during the transportation and storage of leather shall meet the following conditions for use on leather:

- 4-chloro-3-methylphenol < 600 mg/kg
- N-octylisothiazolinone < 250 mg/kg
- o-phenylphenol < 1000 mg/kg
- 2-(thiocyanomethylthio)benzothiazole < 500 mg/kg

The Nordic Swan requires that the biocides must comply the Biocide 98/8/EF Directive.

### Dimethylfumarate (DMF)

Dimethylfumarate (DMF) is a mould inhibitor which is used to protect items in transit from attack by micro-organisms. Commission Decision 2009/251/EC of 17 March 2009 under the General Product Safety Directive (2001/95/EC) prohibits placing on the market (or being made available) products which contain dimethylfumarate. The decision has been incorporated into REACH (Annex XVII) under entry 61:

### Organostannic compounds

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<sup>43</sup> More information available online at: <http://echa.europa.eu/regulations/biocidal-products-regulation>

<sup>44</sup> Last updated: 12th February 2013

<sup>45</sup> [http://www.tfl.com/web/files/eco\\_gl3\\_small.pdf](http://www.tfl.com/web/files/eco_gl3_small.pdf)



Organostannic compounds are substances that contain the metal tin along with carbon, hydrogen and oxygen. Decision No. 2009/425/EC<sup>46</sup> establishes restrictions on the marketing and use of organotin (also referred to as 'organostannic') compounds. The Commission incorporated this Decision into Annex XVII of the REACH Regulation (Regulation 1907/2006) by Regulation (EU) No. 276/2010 under entry no. 20. The Decision (2009/425/EC) focuses on the di- and tri- substituted organotin compounds due to their broad applications in the market; for example, insoles for shoes, anti-microbial finishing in socks and sports clothes, additive during production of polyurethane foam, as a stabilizer in production of PVC, and as a catalyst in production of silicone. As of 1 July 2010, products containing tri-substituted organotin compounds with concentrations greater than 0.1% by weight of tin were not allowed on the market. The use of dibutyltin and dioctyltin compounds has been restricted starting on 1 January 2012.

### **New proposal: Nanosilver**

The risks posed to the environment and human health by the nanomaterials should be assessed using the existing risk assessment approach in the EU. Based on the conclusions from the Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR)<sup>47</sup>, there is still scientific uncertainty about the safety of nanomaterials in many aspects, such as: hazard identification, exposure, uptake, absorption and transport across membranes, accumulation in secondary target organs, possible health effects, translocation of nanoparticles via the placenta to the foetus and in vitro and in vivo test methods validated or optimized for nanomaterials.

The current methods used in REACH to assess the toxicological and ecotoxicological risk may not be adequate to evaluate the risks related to nanomaterials. Consequently, there is a lack of knowledge regarding the damage nanomaterials may cause. Therefore, the Commission is considering modifying some of the technical provisions in the REACH Annexes, and has launched a public consultation to this effect, which is open for input from 21 June 2013 until 13 September 2013.

Due to its antimicrobial activity, nanosilver (nAg) has become the most widely used nanomaterial in an increasing number of products. The most common application of nanosilver is as an antimicrobial agent in products such as wound dressings, textiles, food storage containers and personal care appliances. Relatively little is known about the potential risks of nanosilver. In particular, the cytotoxicity of nanosilver with respect to mammalian cells remains unclear, because such investigations can be biased by the nanosilver coatings and the lack of particle size control.<sup>48</sup> It is hypothesized that the toxic effects of nanosilver are due to a combination of the specific properties of silver nanoparticles and generation of ions from them.<sup>49</sup> Over-exposure to nanosilver particles can cause other potentially harmful organisms to rapidly adapt and flourish that is, exposure to excessive doses of silver ion-releasing nanoparticles may actually improve bacterial survival rates<sup>50</sup>.

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<sup>46</sup> COMMISSION DECISION of 28 May 2009 amending Council Directive 76/769/EEC as regards restrictions on the marketing and use of organostannic compounds for the purpose of adapting its Annex I to technical progress.

<sup>47</sup> [http://ec.europa.eu/health/ph\\_risk/committees/04\\_scenihr/docs/scenihr\\_o\\_010.pdf](http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_010.pdf)

<sup>48</sup> Pratsinis A, Hervella P, Leroux J.C., Pratsinis S.E., Sotiriou G.A. 2013. Toxicity of silver nanoparticles in macrophages. *Small* 9 (15), pp 2576-2584

<sup>49</sup> Wijnhoven, S.W.P., Peijnenburg, W. J.G.M., Herberts, C.A. et al. 2009. Nano-silver – a review of available data and knowledge gaps in human and environmental risk assessment. *Nanotoxicology* 3. Pp 109-138

<sup>50</sup> Gunawan, Yang Teoh, W., Marquis, C.P., Amal, R. 2013. Induced Adaptation of *Bacillus* sp. to Antimicrobial Nanosilver. *Small*, published online 29 APR 2013

On the basis of the toxicology studies reviewed to date and the uncertainty associated with its possible environmental impacts, we propose a precautionary approach for the EU Ecolabel criteria. The requirement to restrict the use of nanomaterials is aligned with the requirement proposal established in the framework of the the on-going revision process of the EU Ecolabel for textile.

The Nordic Swan forbids the use of silver ions and nanosilver as antibacterial substances.

*New proposal: Flame retardants*

Flame-retardants shall not be used unless to conform with fire protection requirements to ensure safety at work. No halogenated flame-retardants may be used. The flame-retardants used must meet the requirements of Criterion 1.

Assessment and verification: The applicant shall provide declaration of no-use supported by Safety Declaration Sheet

Flame retardants are used to prevent or retard products from igniting when exposed to flames. They are widely used in textile manufacturing, as mentioned in the working document produced during the current EU textile Eco label revision. It should be stated, that according to the preliminary consultation conducted, usage of flame retardants in footwear seems to be restricted to very specific protective requirements (e.g., fireman boots). Further consultation with stakeholders is necessary to determine if the use of flame retardants is relevant to the analysed product group.

Various RSL documents currently addressed textile and footwear together, therefore, it was not possible to identify flame retardants of concern for footwear. This point has to be discussed further during stakeholder consultation process.

Several schemes (e.g., The Blue Angel and the New Zealand Ecolabelling Trust) restrict the use of flame retardant substances or flame retardant preparations.

*New proposal: Halogenated solvents*

(a) Solvents listed in the MRSL shall not be used

b) Chlorinated Benzenes and Toluenes shall not be used as carriers

Assessment and verification: The applicant shall provide declaration of no-use supported by SDS

As mentioned in the AFIRM guidance document, solvents are widely used during the manufacturing process of footwear or footwear components, for example, solvent use to make adhesive or as dye carriers. Some solvents used in adhesive systems are toluene and benzene.

These substances may be a concern because of their potential environmental, workplace safety and consumer safety impacts. As highlighted by AFIRM, solvents may play a significant role as residuals.

The Blue Angel, Oko Tex, several RSLs restrict the use of chlorinated benzenes and toluenes in dyed synthetic fibers.

### New proposal: PAHs

PAHs may be present in plastics, elastomers and rubber materials, and in lacquers, varnishes, paints and coatings. In addition to their other hazardous properties, some PAHs can be carcinogenic. Currently, eight PAH congeners are classified as known carcinogens (c-PAHs) in Annex VI of Regulation (EC) 1272/2008 (CLP regulation), as indicated in Table 6. The US Environmental Protection Agency has listed 16 different PAHs as priority environmental pollutants (EPA-PAH). The German authorities recommend that marketing and use of PAH contaminated products should be limited. In particular, the content of each of the eight PAHs legally classified as carcinogens should be restricted to a maximum concentration of 0.2 mg/kg in consumer products or any of their parts. The German committee 'Technische Arbeitsmittel und Verbraucherprodukte (AtAV)' has decided to require mandatory testing of the presence of Polycyclic Aromatic Hydrocarbons (18 PAHs) for the GS-certification process<sup>51</sup>.

**Table 6: PAH under REACH Annex XVII, entry 50**

Name	CAS	Limit	Source
Anthracene	120-12-7		
Benzo[a]anthracene (BaA)	56-55-3		
Chrysene (CHR)	218-01-9		
Benzo[b]fluoranthene (BbFA)	205-99-2	Sum total 10 mg/kg	In line with Annex XVII of REACH
Benzo[j]fluoranthene (BjFA)	205-82-3		
Benzo[k]fluoranthene (BkFA)	207-08-9		
Dibenzo[a,h]anthracene (DBA <sub>h</sub> A)	53-70-3		
Benzo[e]pyrene (BeP)	192-97-2	1 mg/kg	

On 31 October 2012, the European Commission (EC) submitted to the World Trade Organisation (WTO) its draft regulation on amending the restriction of polycyclic aromatic hydrocarbons (PAH), entry 50. The amendment is expected to be published by the 2nd half of 2013 and will apply in mid-2015. This extends the current PAH restriction to include rubber and plastic materials in consumer products such as toys, household utensils, tools for domestic use, sports equipment, footwear and clothing. If those articles fail to meet the PAH requirements, they cannot be placed on the EU market<sup>52</sup>.

The Nordic Swan restricts the use of PAH in the mineral oil part of an auxiliary chemical to be lower than 3 % of the total weight. The New Zealand Ecolabelling Trust sets this limit at 1 %. The Oeko-Tex standard sets the limit to 5 mg/kg for the baby product class and to 10 mg/kg for other product classes. The AFIRM global RSL sets the limit at 10 mg/kg for 18 PAHs.

<sup>51</sup> "Geprüfte Sicherheit: any product bearing the GS Mark indicates that it was tested and complies with the minimum requirements of the German Product Safety Act.

<sup>52</sup> [http://www.inmetro.gov.br/barreirastecnicas/pontofocal/textos/notificacoes/EEC\\_N\\_EU\\_73.pdf](http://www.inmetro.gov.br/barreirastecnicas/pontofocal/textos/notificacoes/EEC_N_EU_73.pdf)

Proposal for assessment verification: Alkylphenol ethoxylate

APEOs (Alkylphenoethoxylates) belong to the group of non-ionic surfactants used for scouring wool and leather, and also as an emulsifier or dispersing agent in dyestuff formulation. APEOs were voluntarily phased out by TEGEWA (Industrial Association for Textile and Leather Aids, Tanning Materials, and Raw Materials for Detergents) at the end of 2001. This commitment covers all European TEGEWA members, but not necessary manufacturers in other parts of the world; therefore, a ban on APEO is still relevant.

The European Union has regulated the industrial use of nonylphenol ethoxylates and nonylphenol since 2003. The EU's REACH Directive incorporated these regulations in Annex XVII and limits the amount of nonylphenol ethoxylate and nonylphenol as a substances or components in preparations to 0.1% by mass.

Blue Angel restricts the use of alkylphenol ethoxylates (APEOs) in footwear, specifically nonylphenols and nonylphenols ethoxylates. A specific test required for assessment and verification is performed by solvent extraction and GC-MS or LC-MS determination, setting the threshold for alkylphenols and alkylphenols ethoxylates as xx mg/kg each. This approach is in line with several RSL brands lists screened.

**Therefore, discussion with the stakeholders is necessary to determine if the applicant declaration of 'no use' should be supported by relevant testing methods.**

New proposal: Isocyanate

Polyurethane polymers are formed by reacting at least two isocyanate functional groups with at least two alcohol groups in the presence of a catalyst (tertiary amines, such as dimethylcyclohexylamine, and organometallic salts, such as dibutyltin dilaurate). The first essential component of a polyurethane polymer is the isocyanate. Molecules that contain two isocyanate groups are called diisocyanates. These are also referred to as monomers or monomer units, since they themselves are used to produce polymeric isocyanates that contain three or more isocyanate functional groups. Isocyanates can be classed as aromatic, such as diphenylmethane diisocyanate (MDI) or toluene diisocyanate (TDI); or aliphatic, such as hexamethylene diisocyanate (HDI) or isophorone diisocyanate (IPDI).

For shoe production, the main adhesive type is polyurethane, so release of methylene diphenyl diisocyanate (MDI), toluene diisocyanate (TDI), hexamethylene diisocyanate (HDI) and isophorone diisocyanate (IPDI) must be considered. From these substances, further components such as aliphatic amines, stabilizers, catalysts, etc. may be released or transferred to the final product.

The Nordic Swan air emissions limit for aromatic diisocyanates during polymerisation and spinning is 5 mg/kg produced fibre.

The restriction proposal is done for one substance:

**Table 7: Restriction proposal on isocyanates**

Substance	Limit	Verification	Source
Methylenediphenyl diisocyanate (MDI)	n.d.	Declaration from applicant supported by test results EN ISO 10283	Annex XVII REACH

### New proposal: Perfluorochemicals (PFCs)

Very stable, hydrophobic (water-repelling), and oleophobic (oil-repelling) manmade PFCs substances are used in surface coating and as protectant formulations for leather products and textiles that repel water, grease, and soil, and also in fire-fighting foams. PFCs are persistent in the environment, bioconcentrate in wildlife, and are persistent in humans, with most taking years to be cleared from the body. The highest production volume PFCs have been: perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA).

Humans are exposed to PFCs through occupational settings, environmental exposures and/or through contact with consumer goods (diet, air, water, food and household dust) where PFCs have been found. The PFCs environmental and health problems are currently being evaluated by US EPA (2012)<sup>53</sup> and European Food Safety Authority (2008)<sup>54</sup>. The recent study revealed that PFC in the children's bodies impaired the effect of childhood vaccines, even at normal concentrations/levels<sup>55</sup>. Experimental evidence exists with regard to reproductive toxicity for the two main PFCs, perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (EFSA, 2008).<sup>56</sup> The use of polyfluorinated compound has been related to hormonal disturbances in addition to presenting a risk for the development of breast cancer.<sup>57</sup>

The European Union (EU) Directive 2006/122/EC of the European Parliament and the Council of 12 December 2006 established restrictions on marketing and use of PFOS for new products in the non-food area which applied from 27 June 2008 onwards. Blue Angel Eco-label for footwear and Nordic Swan Eco-label for textile, hides/skins and leather prohibits the use of PFCs substances in these products.

The Oeko-Tex set limit values for PFOA (0.1 to 1 mg/kg depending on the product category) and for PFOS (1 µg/kg). AFIRM sets the limit for PFOA and PFOS in leather and textiles at 1 µg/kg. The Nordic Swan forbids the use of PFOS in the tanneries.

The restriction proposal is set in Table 8.

**Table 8: Restriction proposal on PFC**

Substance	Limit	Verification	Source
Perfluorooctane sulfonate (PFOS)	Greater than C4	Declaration from supplier supported by test report:- GC-MS-MS or HPLC-MS-MS	OECD <sup>58</sup>
Perfluoroalkyl sulfonate (PFAS)	Greater than C6	Declaration from the chemical supplier supported	OECD <sup>58</sup>

<sup>53</sup> EPA (2012) Contaminants – Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA)

<sup>54</sup> European Food Safety Authority.2008. Opinion of the scientific panel on contaminants in the food chain on perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and their salts. EFSA J 2008;653:, p 1-131.

<sup>55</sup> Hildebrandt, S. Reduce PFC exposure and rescue childhood vaccines. 2013. ScienceNordic. April 28, 2013, <http://sciencenordic.com/reduce-pfc-exposure-and-rescue-childhood-vaccines> (last check August, 2013)

<sup>56</sup> European Food Safety Authority.2008. Opinion of the scientific panel on contaminants in the food chain on perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and their salts. EFSA J 2008;653:, p 1-131.

<sup>57</sup> Bonefeld-Jorgensen, E.C. , Long, M. , Bossi, R, Ayotte, P., Asmund, G., Krüger, T., Ghisari, M., Mulvad, G., , Kern, P., Nzulumiki, P., Dewailly, E. 2011. Perfluorinated compounds are related to breast cancer risk in greenlandic inuit: A case control study. Environmental Health 10:88

<sup>58</sup> <http://www.oecd.org/fr/env/ess/gestion-risques/perfluorooctanesulfonatepfosandrelatedchemicalproducts.htm>

by SDS. / GC-MS-MS or HPLC-MS-MS

### Substances update proposal: Dyes

The specification for dye restriction will be included in the proposed MRSL under current Criterion 1 (see Annex VI) and as indicated in Table 9.

**Table 9: Update of restriction proposal on dyes**

Applicability	Substances	Limit	Verification	Source
Textile	azo dyes	Proposal: 20 mg/kg for each amine	EN 14362-1:2012 and 3:2012	AFIRM , OkoTex
Leather	azo dyes	Proposal: 20 mg/kg for each amine	CEN ISO/TS 17234	AFIRM, OkoTex
Textile/Leather	Chrome mordant dyes	Shall not be used	Declaration from the chemical supplier supported by SDS.	In line with the on-going revision of the EU Ecolabel for Textile

Around 98 % of leather dyes on the market for drum application are dyes which fix using the ionic interaction between the anionic sulphonate group of the dye and the cationic amine group of the collagen. The majority of the dyes used by leather industry are water-based acid dyes (which account for about 90% of the market), direct dyes, mordant dyes, pre-metalized dyes, and solubilised sulphur dyes. From the chemical point of view, the dyestuffs are predominantly azo dyes, or anthraquinone dyes. Triphenylmethane dyes may also be used. The addition of dyestuff may range from 0.05 % of the shaved weight of the leathers for pale shades to up to 10 % for deep shades. Pigments may also be added to aid the build-up of a shade, particularly for white leathers.<sup>59</sup> Most of the colorants used in the textile industry are soluble dyestuffs. The clear majority of these are azo dyes (70-80%). Most of the pigments on the market are azo pigments, followed next by phthalocyanines<sup>60</sup>.

### **Azo dyes**

The REACH regulation forbids the use of those azo dyes that (by reductive cleavage of one or more azo groups) may release any of 22 aromatic amines specified in Appendix 8 of Annex XVII of the Regulation. The amines 2,4-Xylidine (CAS 95-68-1), and 2,6-Xylidine (CAS 87-62-7) are not listed in the REACH Regulation. Its restriction stems from harmonization with Nordic Swan criteria for Textile, hides/skins and leather, and on-going revision of the EU Ecolabel for textile.

<sup>59</sup> BREF for Tanning of Hides and Skins. 2013.

<sup>60</sup> Sedlak.D. 2012. AFIRM Group. Chemical Guidance Document, <http://www.afirm-group.com/PDF12/AppendixF-ChemicalGuidance.pdf> (last check August 2013)

## **Metal complex dyes**

Metal complex dyes are pre-metallised dyes that show great affinity towards protein fibres. In this dye, one or two dye molecules are coordinated with a metal ion. The dye molecule is typically a monoazo structure containing additional groups such as hydroxyl, carboxyl or amino, which are capable of forming a strong co-ordination complex with transition metal ions such as chromium, cobalt, nickel and copper.<sup>61</sup> These types of dye are used particularly for wool<sup>62</sup>, although they are used in many other applications (e.g., leather finishing, coloring of plastics...).

The Nordic Swan only allows the use of metal complex dyes in dyeing of wool, wool mixes (i.e., wool mixed with other fibres such as viscose) and polyamide. Metal emissions to water after cleansing must not exceed 75 mg/kg fibre for Cu, 75 mg/kg fibre for Ni and 50 mg/kg fibre for Cr. Emissions of Cu and Ni shall be analysed in accordance with ISO 8288 and emissions of Cr shall be analysed in accordance with EN 1233 or equivalent methods. The New Zealand Ecolabelling Trust also has a similar requirement.

## **Mordant dyestuffs**

Mordant dyestuffs can be classified as acid dyes, but because of the technology with which they are applied, they are a stand-alone category of dyes. The dyestuff molecules do not contain chromium, however, chromium is present in the salt used to fix the dye onto the fibres. Commonly used salts in this process are: potassium dichromate, potassium chromate and sodium dichromate.

The EU Ecolabel for textile (under revision), The Nordic Swan and the New Zealand Ecolabelling Trust restrict the use of chrome mordant dyes.

### **Consultation questions**

- Shall the Criterion 4 be integrated into Manufacturing Restricted Substance List? If not, shall the Criterion 4 be kept as one or split according to the different functional substance groups, e.g., biocides, dyes, phthalates.
- Are the new functional substances proposed to be included in the current Criterion 4 accepted?
- Shall additional requirements for other functional substances be set?
- Is a precautionary approach to nanosilver justifiable on the basis of current evidence? Is new/additional evidence available?

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<sup>61</sup> <http://www.dyes-pigments.com/>

<sup>62</sup> [http://www.ineris.fr/ipcc/sites/default/interactive/bref\\_text/breftext/anglais/bref/BREF\\_tex\\_gb48.html](http://www.ineris.fr/ipcc/sites/default/interactive/bref_text/breftext/anglais/bref/BREF_tex_gb48.html)

## 5.1.5 CRITERION 5: Use of volatile organic compounds (VOCs) during final assembly of shoes

### Major proposed changes

Suggestion from stakeholders and existing eco-innovations to replace solvent-based adhesives with water-based adhesives or to revise the current emissions levels.

<b>Present criterion, Decision 2009/563/EC</b>
VOCs are any organic compound having at 293.15 K a vapour pressure of 0.01 kPa or more, or having a corresponding volatility under the particular conditions of use. The total use of VOCs during final footwear production shall not exceed, on average, 20 gram VOC/pair. Assessment and verification: the applicant shall provide a calculation of the total use of VOCs during final shoe production, together with supporting data, test results and documentation as appropriate, with the calculation made using EN 14602. (Registration of purchased leather, adhesives, finishes and production of footwear during at least the last six months is required.)
<b>Suggested criterion</b>
<b>Proposal: Solvents and adhesives used shall be water-based.</b>  Alternative proposal 1: The total use of VOCs during final footwear production shall not exceed, on average, xx gram VOC/pair.  Assessment and verification: the applicant shall provide a calculation of the total use of VOCs during final shoe production, together with supporting data, test results and documentation as appropriate, with the calculation made using EN 14602. (Registration of purchased leather, adhesives, finishes and production of footwear during at least the last six months is required.)

### Discussion

Volatile organic compounds (VOCs) are defined as any organic compound having at 293.15 K a vapour pressure of 0.01 kPa or more at a temperature of 293.15 K, or having a corresponding volatility under the particular conditions of use. VOCs play a significant role in the formation of ozone and respirable suspended particulates (RSPs) in the atmosphere. VOCs are present in many dyes, adhesives, cleaners and polishes used both in footwear and component materials manufacture. Some chemicals classified as VOCs might still be present in the finished retail product, creating potential exposure risk to the user.

Research has shown that workers employed in footwear manufacture are at increased risk of some cancers, the strongest evidence being for nasal cancer and leukemia. Footwear-workers are routinely exposed to complex mixtures of solvents in degreasers, hardeners, cleaners, primers, and adhesives used in the production process as toluene, n-hexane, acetone, and possibly dust particles, additives in shoe materials and degradation products of materials<sup>63</sup>.

<sup>63</sup> Dahlström Heusera, V., Moraes de Andradea, J., Erdtmanna, B. 2005. Comparison of genetic damage in brazilian footwear-workers exposed to solvent-based or water-based adhesive. Mutation Research/Genetic Toxicology and Environmental Mutagenesis 583, pp. 85–94



Solvents and adhesives are responsible for VOC emissions during and after the application. Those emissions may be responsible for about 35 % of photochemical ozone formation (see Task 3 of the Preliminary Report) during the manufacturing stage of footwear<sup>64</sup> and of 6 % during the production of leather.

In the footwear cementing technique, either solvent-based or water-based adhesives can be used for the stitching step. Solvent-based products are applied with a paint brush. Water-based adhesives can be applied manually by spraying techniques or by paint brushes.

At present, the adhesives most frequently used by footwear industry are polyurethane and polychloroprene adhesives based on organic solvents. The Task 2 of the Preliminary Report highlighted the following best practices commonly used on the market in order to avoid VOC emissions:

- Use of solvent-free adhesives and finishes (water-based, hot-melt),
- Use of filtration systems,
- Use of seams,
- Direct injection of soles.

However, the penetration of these innovations could not be quantitatively evaluated in the footwear sector. The quality tests to determine the upper-sole bonding strength with the use of water based-adhesives confirmed the feasibility of such replacements.<sup>65</sup> The complete elimination of solvents from the adhesives and the treatment process would mean a reduction of more than 80% of the use of solvents in the footwear manufacturing process<sup>66</sup>. A number of companies that are on the way to phase out the use of solvent-based adhesives have been identified within Task 2 Analysis (Section xxx). Following the criteria set by GOTS, neither aromatic nor halogenated based solvent can be used in all processing stages. According to PPRC<sup>67</sup>, the purchase price of water-based adhesives is generally 15%-20% less than solvent-based adhesives. So, it would not be an economic constraints to use such types of adhesives.

The LCA analysis used the assumption (based on data from stakeholders) that 20 g of VOC were emitted per one pair of footwear, which is the current limit set by the EU Ecolabel and Blue Angel. Photochemical ozone formation could be reduced by 3 % if a stricter limit is set at 18 g / pair and by 8 % for a limit of 15 g / pair.

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<sup>64</sup> Understood here as the manufacturing of uppers, soles, and linings and the final assembly. Therefore, it does not include the production of input materials such as textiles fabric, finished leather, and plastics pellets.

<sup>65</sup> <http://www.calsindis.inescop.es/results.pdf>

<sup>66</sup> [ec.europa.eu/environment/life/publications/life/envcompilation02.pdf](http://ec.europa.eu/environment/life/publications/life/envcompilation02.pdf)

<sup>67</sup> Pacific Northwest Pollution Prevention Resource Center: <http://www.pprc.org/>

### Consultation question

- Should water-based adhesives be imposed?
- What is the market penetration level of such practices?
- Shall the requirement regarding VOCs emission during material production and treatment also be covered by this criterion under a specific point?

#### 5.1.6 CRITERION 6: Energy consumption

##### Major proposed changes

Proposal to establish the consumption limit value.

##### Present criterion, Decision 2009/563/EC

The energy consumption at the manufacturing stage shall be declared.

Assessment and verification: the applicant is requested to provide the relevant information according to the Technical appendix A1.

##### Suggested criterion

Proposal: The energy consumption for footwear final assembly shall be declared.

Proposal 1: The energy consumption of footwear final assembly shall be lower than X MJ per pair on an annual base. If green energy is produced and/or used on site, it should be discounted from the total amount of energy consumed.

Proposal 2: The energy consumption of footwear final assembly shall be declared, together with the information on energy consumption for footwear components manufacture.

Assessment and verification: the applicant is requested to provide the relevant information according to the Technical appendix X (see Annex II of this document).

##### Discussion

The European Commission adopted the 'Energy efficiency plan 2011' (COM(2011) 109 final) in March 2011. Directive 2009/28/EC on the promotion of the use of energy from renewable sources (the "Renewable Energy Directive") established mandatory targets to be achieved by 2020 for a 20% overall share of renewable energy in the EU and a 10% share for renewable energy in the transport sector. One of the actions proposed to promote the energy efficiency plan set in the 'Roadmap for moving to a competitive low carbon economy by 2050' (COM(2011) 112 final) refers to future energy efficiency requirements for industrial equipment, improved information provision for SMEs, and energy audits and energy management systems for large companies<sup>68</sup>.

From the life cycle perspective, the energy consumption is one of the most relevant "hot spots" identified within the footwear LCA base case study, being responsible for up to 25% of overall

<sup>68</sup> [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Consumption\\_of\\_energy](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Consumption_of_energy)

impact. Therefore, it seems prudent to optimise the energy management, either by reducing its consumption and/or by usage of more environmentally respectful energy, such as energy from renewable sources. According to the IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation<sup>69</sup>, GHG emissions from renewable energy technologies are, in general, significantly lower than those associated with fossil fuel options. The median GHG emission values for all renewable energy sources range from 4 to 46 g CO<sub>2</sub>eq/kWh, while those for fossil fuels range from 469 to 1,001 g CO<sub>2</sub>eq/kWh (excluding land use change emissions). Task 4 of the Preliminary Report evaluated the environmental benefits of a footwear company which would use only green energy (assumed as wind power) instead of the European mix, based on an estimated electricity consumption of 2 kWh / pair of shoes (based on stakeholder feedback). Depending on the impact category, the improvement potential for one pair of footwear was between 5 and 19 %. According to EUROSTAT data, renewable energy sources have had the biggest change in the energy mix as their gross inland consumption of primary energy has increased by 74 % between 2000 and 2010, reaching 9.8 % of EU-27 share.

The improvement potential when reducing the electricity consumption from 2 to 0.5 kWh / pair of shoes (based on maximum and minimum values from stakeholders and a mix of Chinese and European electricity mixes) has been quantitatively assessed at between 2 and 18 % for one pair of footwear, depending on the impact category.

According to stakeholder consultation, the main barriers to set up the energy consumption threshold include:

- The contribution of renewable energy to primary energy supply varies substantially by country and region, and depends, to a large degree, on the structure of its energy system, the availability of natural resources for primary energy production, and the structure and development of each economy.
- According to discussions during the working group developing the ADEME-AFNOR PCR for footwear, the energy consumption during footwear assembly depends on the types of technology and processes used, which are directly linked to the type of component materials. The footwear industry still sometimes uses old machinery and technologies that are energy intensive. Therefore, it is very challenging to benchmark the energy consumption or to set one common limit value.
- The different steps of footwear manufacturing (manufacturing of uppers, of soles and linings, and assembly of footwear) generally take place in many different sites which makes the measurement and documentation of energy consumption complicated.

The ratio between total energy usage and the production volume, is also subjected to the specific climate conditions of the country where the product is manufactured (e.g., use of a heating system during long winter months in the North European countries). The basic proposal for the criteria revision is that the applicant shall record and report the energy consumption of the assembly site. The energy produced from green sources could be also declared. The licence criteria for textile skin and leather established by New Zealand Eco-labelling Trust and Nordic Swan Version 4.0. sets a similar approach. Additionally, the Trust label requires reporting the energy management policies, procedures and programmes, including annual report on energy use.

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<sup>69</sup> IPCC, 2011. IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation. Schlömer, C. von Stechow (eds). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1075 pp

Considering the relevance of energy consumption management, another approach to be analysed during the stakeholder consultation is to introduce a limit value on annual energy use on the annual base.

In both proposals, the scope of evaluation must be precisely defined:

- Only the final assembly site;
- Or, also the manufacturing sites for the uppers, soles and linings.

#### Consultation questions

- Shall a threshold value for energy consumption be defined?
- Should the use of green energy be promoted by discounting from the consumption value?
- Should the energy consumption be recorded and reported only for final assembly, or also for the manufacturing of components (uppers, soles, linings)?

#### 5.1.7 CRITERION 7: Packaging of the final product

##### Major proposed changes

More stringent criterion and alignment with textiles

##### Present criterion, Decision 2009/563/EC

Where cardboard boxes are used for the final packaging of footwear, they shall be made of 100 % recycled material.

Where plastic bags are used for the final packaging of footwear, they shall be made of, at least, 75 % recycled material or they shall be biodegradable or compostable, in agreement with the definitions provided by the EN 13432.

Assessment and verification: a sample of the product packaging shall be provided on application, together with a corresponding declaration of compliance with this criterion. Only primary packaging, as defined in the Directive 94/62/EC of the European Parliament and the Council, is subject to the criterion.

##### Suggested criterion

Proposal:

Where cardboard boxes are used for the final packaging of footwear, they shall be made of 100 % recycled material.

Where plastic bags are used for the final packaging of footwear, they shall be made of at least, 75 % recycled material, or they shall be biodegradable or compostable, in agreement with the definitions provided by the EN 13432.

Alternative option: Where cardboard boxes are used for the final packaging of footwear, they shall be made of 100 % recycled material.

Where plastic bags are used for the final packaging of footwear, they shall be made of at least, xx% recycled material or they shall be biodegradable or compostable, in agreement with the definitions provided by the EN 13432.

Assessment and verification: a sample of the product packaging shall be provided on application,

together with a corresponding declaration of compliance with this criterion. Only primary packaging, as defined in the Directive 94/62/EC of the European Parliament and the Council, is subject to the criterion.

### Rationale and Discussion

Although the packaging phase has not been highlighted as an environmental hotspot through the LCA literature review and the specific LCA, the improvement of environmental performance of packaging facilitates later waste management and reduces the resource consumption. Most brands consulted optimise their packaging by reducing its size and the weight, and by the using 100% recycled and recyclable materials, e.g., 100% recycled paper or bio-plastics as shoe box fillers. Puma developed a reusable bag which consumes much less material/fuel/water than the traditional shoes box (65% less cardboard and 60% decrease in manufacturing-related fuel and water)<sup>70</sup>.

According to stakeholders' feedback, the current criterion should be strengthened. The proposal is to raise the percentage of recycled plastic content. The exact percentage should be discussed with stakeholders.

### Consultation questions

- Should the recycling content of plastics bag be raised to xx%?

#### 5.1.8 CRITERION 8: Information on the packaging

##### Present criterion, Decision 2009/563/EC

###### (a) User Instructions

The following information (or equivalent text) shall be supplied with the product:

- 'These shoes have been treated to improve their water resistance. They do not require further treatment.' (This criterion is applicable only to footwear that has been water-resistant treated)
- 'Where possible, repair your footwear rather than throw them away. This is less damaging to the environment.'
- 'When disposing of footwear, please use appropriate local recycling facilities where these are available.'

###### (b) Information about the eco-label

The following text (or equivalent text) shall appear on the packaging:

'For more information visit the EU Ecolabel website: <http://www.ecolabel.eu>'

###### (c) Information to consumers

An information box in which the applicant explains its approach to environmental sustainability should be put on the packaging.

Assessment and verification: the applicant shall provide a sample of the product packaging and of the information supplied with the product, together with a declaration of compliance with each part of this criterion.

##### Suggested criterion

###### (a) User Instructions

The following information (or equivalent text) shall be supplied with the product:

<sup>70</sup> <http://www.fuseproject.com/>

- ‘These shoes have been treated to improve their water resistance. They do not require further treatment.’ (This criterion is applicable only to footwear that has been treated for water-resistance)
- ‘Where possible, repair your footwear rather than throw them away. This is less damaging to the environment.’
- ‘When disposing of footwear, please use appropriate local recycling facilities where these are available.’
- ‘Once a year, wax your leather shoes with appropriate product’
- ‘Use your shoes correctly, in accordance with their original design’
- ‘When necessary, please use a shoehorn to put on your shoes’

(b) Information about the eco-label

The following text (or equivalent text) shall appear on the packaging:

‘For more information visit the EU Ecolabel website: <http://www.ecolabel.eu>’

(c) Information to consumers

An information box in which the applicant explains its approach to environmental sustainability should be put on the packaging.

(d) when available and third-party reviewed, the environmental impacts of the pair of footwear may be displayed.

Assessment and verification: the applicant shall provide a sample of the product packaging and of the information supplied with the product, together with a declaration of compliance with each part of this criterion.

### Discussion and rationale

The objective of this criterion is to give the consumer valuable information on the product, its environmental impacts, and its proposed maintenance. In addition, EU Ecolabel Regulation No 66/2010 requires that “EU Ecolabel criteria shall include requirements intended to ensure that the products bearing the EU Ecolabel functions adequately in accordance with their intended use.”

Some stakeholders have suggested providing more information to the consumers. Therefore, we suggest summarising the environmental impacts of the pair of footwear. The results shall be calculated by using the ISO 14040 protocol and be reviewed by a third party in order to be displayed.

Stakeholders have also highlighted that instructions should be given to the consumers on how to improve the footwear durability and how to manage their post-consumer footwear waste.

### Consultation questions

- Should additional information be added?
- What are the most appropriate instructions to the user to improve the durability of footwear?

#### 5.1.9 CRITERION 9: Information appearing on the eco-label

##### Present criterion, Decision 2009/563/EC

Box 2 of the eco-label shall contain the following text:

- low air and water pollution,
- harmful substances reduced.

Assessment and verification: the applicant shall provide a sample of the product packaging showing the label, together with a declaration of compliance with this criterion.

**Suggested criterion**

Box 2 of the eco-label shall contain the following text:

- use of more eco-friendly materials,
- low air and water pollution,
- low water and energy consumption,
- reduce waste generation,
- harmful substances avoided',
- Durable product.

Assessment and verification: the applicant shall provide a sample of the product packaging showing the label, together with a declaration of compliance with this criterion.

**Discussion and rationale**

The revised criterion should comply with EU Ecolabel Regulation No 66/2010 and the message should be improved. 'Harmful substances reduced' implies that they are still present and may be misleading. 'Harmful substances avoided' is more in line with the new Regulation.

In addition, the message should be aligned with the proposed revised and the new criteria areas, if applicable.

**Consultation Questions**

- Should additional information be provided?

5.1.10 CRITERION 10: Parameters contributing to durability

**Present criterion, Decision 2009/563/EC**

Occupational and safety footwear shall carry the EC mark (in accordance with Council Directive 89/686/EEC).

All other footwear shall meet the requirements indicated in the table overleaf.

Assessment and verification: the applicant shall provide a test report corresponding to the parameters indicated in the table overleaf, using the following test methods:

- EN 13512 — Upper — Flex resistance,
- EN 13571 — Upper — Tear strength,
- EN 17707 — Outsoles — Flex resistance,
- EN 12770 — Outsoles — Abrasion resistance,
- EN 17708 — Whole sole — Sole adhesion,
- EN 12771 — Outsoles — Tear strength,
- EN ISO 17700 — Test methods for uppers, linings and in socks — Colour fastness to rubbing.

**Suggested criterion**

Occupational and safety footwear shall carry the EC mark (in accordance with Council Directive 89/686/EEC).

All other footwear shall meet the requirements indicated in the table overleaf.

Assessment and verification: the applicant shall provide a test report corresponding to the parameters indicated in the table overleaf, using the following test methods:

- EN 13512 — Upper — Flex resistance,
- EN 13571 — Upper — Tear strength,

- EN 17707 — Outsoles — Flex resistance,
- EN 12770 — Outsoles — Abrasion resistance,
- EN 17708 — Whole sole — Sole adhesion,
- EN 12771 — Outsoles — Tear strength,
- EN ISO 17700 — Test methods for uppers, linings and in socks — Colour fastness to rubbing.

## Discussion and rationale

Assurance of appropriate fitness for use quality of a product increases the time of its usage and reduces the quantity of items required to fulfil the functional unit. Different parameters influence the actual durability of one generic pair of shoes, however, only physic-chemical parameters may be controlled by the manufacturers; these are evaluated through corresponding standardized tests. Beyond product quality, the durability of shoes is also subjected to consumer behaviour and fashion trends. Because of high uncertainty level, and lack of possible statistical estimation on social aspects that potentially influence footwear lifetime, only product physical characteristic could be addressed.

The potential improvement is related to the use of appropriate materials and assembling processes that extend footwear lifetime in appropriate conditions.

The baseline scenario assumed that two pairs of footwear are required to fulfil the functional unit; that is to say, a consumer needs two pairs of footwear during one year. In other words, one pair of footwear can be worn 6 months<sup>71</sup> before being discarded. Based on this assumption, usage of the same pair of footwear for 12 months (6 months longer than the base case scenario) would yield an improvement potential of 50 % on all impact categories (in other words, the environmental impacts would be reduced by half).

The proposal is to follow the current EU Ecolabel approach: a minimum limit value for each selected ISO test method should be reached. According to stakeholders' opinion expressed on the questionnaire, selected fitness for use methods should be reviewed or clarified. Table 10 presents test methods that are required by different schemes in order to assess or ensure a sufficient durability of footwear. The Blue Angel uses the same tests as the current EU Ecolabel. The ADEME-AFNOR use some other tests. The relevance of including these tests in the criterion could be discussed further with stakeholders, together with analysis of possible tests redundancy.

**Table 10: Test methods required by other schemes related to the footwear product group**

Test method	ISO norm	Current EU Ecolabel	Blue Angel	ADEME-AFNOR
Upper – Flex resistance	ISO 13512	X	X	
Upper – Tear strength	ISO 13571	X	X	
Outsoles – Flex resistance	ISO 17707	X	X	X
Outsoles – Abrasion resistance	ISO 12770	X	X	
Outsoles – Tear strength	ISO 12771	X	X	
Whole sole – Sole adhesion	ISO 17708	X	X	X
Uppers, linings and insocks – Tear strength	ISO 17696			X

<sup>71</sup> 182.5 days during which the pair of footwear is worn (6 months worn every day, 1 year worn every other 2 days...). This approach comes from the PCR of ADEME-AFNOR and is the default scenario when performance tests have not been done.



Insoles – Abrasion resistance	ISO 20868			X
For the lining				
Textiles – Determination of the abrasion resistance of fabrics by the Martindale method – Part 2: Determination of specimen breakdown	ISO 12947-2			X
Test methods for uppers, linings and insoles – Colour fastness to rubbing	ISO 17700	X	X	

Simultaneously, an alternative approach in line with ADEME-AFNOR PCR for footwear<sup>72</sup> could also be considered. Recent works conducted by the responsible ADEME-AFNOR Working Group (under validation) have been made as specified in the box below.

#### **ADEME-AFNOR's approach for durability**

The durability of the footwear is based on five tests based on the respective ISO norms, presented in Table 10.

For each test, two limits are set:

- Minimum value representing a very poor resistance of the footwear, supposed to be the lowest possible on the market,
- Maximum value representing a very high resistance according to the test method and for which it is assumed the footwear will never reach the breaking point during its life cycle.

A linear score between 0 and 7.5, and based on the minimum and maximum values is then attributed for each test. Each score is then weighted with respect to its relative importance on the overall durability of footwear, and an overall score is given.

If this approach is used for the EU Ecolabel, the following parameters should be defined:

- Minimum and maximum values for each test,
- Weighting between the different tests thresholds for the final score that must be reached.

#### **Consultation questions**

- Shall other tests be used?
- Shall updated limits be introduced?
- Shall testing methods be updated?

<sup>72</sup> (BP X 30-323-1, 2010)

Table 11: Durability parameters

		General sports	School footwear	Casual	Men's town	Cold weather footwear	Women's town	Fashion	Infants	Indoor
Uppers flex resistant: (kc without visible damage)		Dry = 100 Wet = 20	Dry = 100 Wet = 20	Dry = 80 Wet = 20	Dry = 80 Wet = 20	Dry = 100 Wet = 20 - 20° = 30	Dry = 50 Wet = 10	Dry = 15	Dry = 15	Dry = 15
Uppers tear strength (Average force, N)	Leather	≥80	≥60	≥60	≥60	≥60	≥40	≥30	≥30	≥30
	Other materials	≥40	≥40	≥40	≥40	≥40	≥40	≥30	≥30	≥30
Outsoles flex resistance	Cut growth (mm) Nsc = no spontaneous crack	≤4 Nsc	≤4 Nsc	≤4 Nsc	≤4 Nsc	≤4 Nsc at - 10 °C	≤4 Nsc			
Outsoles abrasion resistance	D ≥ 0,9 g/cm <sup>3</sup> (mm <sup>3</sup> )	≤200	≤200	≤250	≤350	≤200	≤400			≤450
	D < 0,9 g/cm <sup>3</sup> (mg)	≤150	≤150	≤170	≤200	≤150	≤250			≤300
Upper-sole adhesion (N/mm)		≥4,0	≥4,0	≥3,0	≥3,5	≥3,5	≥3,0	≥2,5	≥3,0	≥2,5
Outsoles tear strength (Average strength, N/mm)	D ≥ 0,9 g/cm <sup>3</sup>	8	8	8	6	8	6	5	6	5
	D < 0,9 g/cm <sup>3</sup>	6	6	6	4	6	4	4	5	4
Colour fastness of the inside of the footwear (lining or inner face of the upper). Grey scale on the felt after 50 cycles wet		≥2/3	≥2/3	≥2/3	≥2/3	≥2/3	≥2/3		≥2/3	≥2/3

## 5.2 Additional proposed criteria area

### 5.2.1 New criterion: Corporate Social Responsibility (CSR)

#### Criterion proposal

Applicants shall ensure that the fundamental principles and rights at work as specified in the International Labour Organisation's (ILO) Core Labour Standards shall be observed by all production sites used to manufacture the licensed product(s). The ILO Core Standards that shall apply are:

029 Forced Labour

087 Freedom of Association and Protection of the Right to Organise

098 Right to Organise and Collective Bargaining

100 Equal remuneration

105 Abolition of Forced Labour

111 Discrimination (Employment and Occupation)

155 Occupational safety and health

138 Minimum Age Convention

182 Elimination of the Worst Forms of Child Labour

These standards should be communicated to production sites used to manufacture the final product.

*Assessment and verification:* The applicant shall demonstrate third party verification of compliance, to include site visits, for all production sites in the supply chain for their licensed products. This shall take place upon application and subsequently during the license period if new production sites are introduced.

A license may be suspended or revoked if substantive evidence is received by Competent Bodies that the fundamental principles of the ILO Core Labour Standards have been breached.

#### Rationale and discussion

Responding to the new challenges and legal requirements within the recent years, footwear and apparel manufacturers and brands have received increasing attention from Governments, NGOs and consumers in relation to their environmental performance. The common trends of outsourcing practices have also raised the importance of Corporate Social Responsibility (CSR) for overseas suppliers.

Among the surveyed stakeholders, less than half (30-40%) have signed a declaration such as the "Global Compact", or equivalent, or work with an international scheme (SA8000, ISO26000...), and a few hold a certification and/or are certified through an industry or third-party CSR scheme.

The Blue Angel sets in general information that the Blue Angel eco-label may be awarded to products if the manufacture complies with the ILO Core Labour Standards. The Nordic Swan sets a criterion requiring the licensee to follow the ILO Conventions at all production sites for the ecolabelled textile, hide and/or leather.

## 5.2.2 New criterion: Materials origin

### **Criterion proposal**

#### **(a) origin of hides and skins**

Only raw hides and skins from animals kept primarily for milk and/or meat production are allowed to be used in the product. Wild, endangered or vulnerable species according to International Union for Conservation of Nature (IUCN) Red List of Threatened Species shall be explicitly excluded<sup>73</sup>.

Assessment and Verification: The applicant shall submit a declaration from the leather manufacturer stating that no hides and skins of wild and endangered species according to the IUCN classification are used, or that the leather-manufacturing company conducts compliance verification checks on the raw materials used.

#### **(b) cotton and other natural cellulosic seed fibres**

Cotton and other natural cellulosic seed fibres (hereafter referred to as cotton) shall contain a minimum content of xx% either organic cotton or xx% of IPM (Integrated Pest Management) cotton. In addition to this:

Products meeting specific content thresholds for organic or IPM cotton shall be permitted to display additional text alongside the Ecolabel communicating the content claim.

Assessment and verification: The applicant should provide a declaration of compliance with this criterion from the cotton manufacturer.

#### **(c) Origin of natural rubber, wood, and cork**

Virgin wood, cork or natural rubber may not come from illegal felling and trade or from forests that need to be protected for ecological and/or social reasons. The material shall be covered by valid sustainable forest management and chain-of-custody certificates issued by an independent third-party certification scheme such as FSC, PEFC or equivalent. Cellulose for synthetic cellulose fibres must come from sustainable forestry.

Where certification schemes allow mixing of certified material and uncertified material in a product or product line, the proportion of uncertified material shall not exceed xx %. Such uncertified material shall be covered by a verification system which ensures that it is legally sourced and meets any other requirement of the certification scheme with respect to uncertified material.

The certification bodies issuing forest and/or chain of custody certificates shall be accredited/recognised by that certification scheme.

Assessment and Verification: The applicant shall provide information on the geographic origin of wood, cork or the natural rubber used for producing rubber products. With respect to the wood, cork, natural rubber or cellulose fibres used by the applicant shall submit certificates establishing compliance with this criterion. Certificates will be accepted from the independent third-party certification scheme, such as the Forest Stewardship Council (FSC), or equivalent, providing evidence of sustainable forestry and a chain of custody (CoC). Regarding wood from the European

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<sup>73</sup> <http://www.iucnredlist.org/>

economic area (EU and EFTA), the PEFC certification scheme is recognized as equivalent (PEFC - Programme for the Endorsement of Forest Certification Schemes).

If the product or product line includes uncertified material, proof should be provided that the uncertified material is less than 50 % and is covered by a verification system which ensures that it is legally sourced and meets any other requirement of the certification scheme with respect to uncertified material.

## Rationale and Discussion

The LCA revealed that input materials have great impacts on the environment, being responsible for 40-90% of the impact share, depending on the impact category considered. In line with the LCA findings, the main areas of best practices identified under Task 2 of the Preliminary Report pertain to the use of more sustainable raw materials. It also has been suggested by stakeholders that fairness among main material types used in footwear manufacturing should be considered; therefore, leather, textiles, synthetic materials, natural rubber, wood and cork are considered. **The introduction of such Criterion should be further discussed with stakeholders.**

### (a) Origin of hides and skins

The agriculture phase<sup>74</sup> represents a significant share of total emission impact, e.g., energy consumption accounts to 50-60% of the whole life cycle impact of leather (Mila et al, 2002). As analysed through a specific LCA case study, depending on the impact category, the overall impact impacts of the agricultural phase, i.e., farming and slaughtering, can account for as much as 18 to 80 % of the life cycle impacts of footwear, although only 10% of these impacts are allocated to the hides. Consequently setting requirement on sustainable farming would be justified to encourage possible reduction of environmental impact of this phase. However, it should be noted that footwear is one of the most globalized goods; thus, cattle raising, tanning, and final product manufacturing could be subjected to inter-continental trading. Therefore, the issue regarding the ability of footwear manufacturer to control the agriculture phase arises.

Organic agricultural methods are internationally regulated and legally enforced by many nations, based in large part on the standards set by the International Federation of Organic Agriculture Movements (IFOAM), an international umbrella organization for organic farming organizations established in 1972.<sup>75</sup> The Rainforest Alliance offers third-party certification and ecolabelling services to forests and farms managed in ways that reduce environmental impacts and increase social benefits. The RA-Cert Division evaluates and certifies sustainable forestry operations under the standards of the Forest Stewardship Council (FSC) using the Rainforest Alliance Certified™ Seal and FSC labels. Likewise, this unit evaluates sustainable agriculture using the Sustainable Agriculture Standards and certifies compliance using the Rainforest Alliance Certified™ Seal<sup>76</sup>.

The IUCN Red List of Threatened Species (also known as the IUCN Red List or Red Data List), founded in 1963, is the world's most comprehensive inventory of the global conservation status of biological species. The International Union for Conservation of Nature (IUCN) is the world's main authority on

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<sup>74</sup> Including cattle raising

<sup>75</sup> Paull, J. 2010. From France to the World: The International Federation of Organic Agriculture Movements (IFOAM), *Journal of Social Research & Policy*, 1(2), pp.:93-102.

<sup>76</sup> <http://www.rainforest-alliance.org>

the conservation status of species. A series of Regional Red Lists are produced by countries or organizations to assess the risk of extinction for species within a political management unit.

It is important to stress that following ADEME-AFNOR and EPD System PCRs for footwear, the agriculture phase is considered as being out of scope for the analysis. Nevertheless, we recommend introducing one criterion that involves the requirement on the origin of hides and skins used in the leather-making industry. In assuring that the animals have been farmed primarily for their meat and milk, hides and skins can be considered as a by-product. Therefore, most environmental impacts can be attributed to the production of meat and milk<sup>77</sup>. The Nordic Swan requires that there is traceability on the origin of leather (from the slaughterhouse, the hide distributors, and the tannery).

### **(b) organic cotton**

According to EUROSTAT data, footwear with textile uppers accounts to 7% by volume of the European textile production, and 19 % of apparent consumption (Eurostat, 2011). Cotton has been identified as one of the main textiles used by footwear sector.

Traditional cotton production requires large quantities of pesticides, covering 2.5% of the world's cultivated land yet using 16% of the world's insecticides--more than any other single major crop .The quantitative analysis of improvement potential for one pair of footwear has been guided by the criterion of the EU Ecolabel for textiles which requires that 50 % of cotton used in the final product<sup>78</sup> be grown using one or a combination of the following three production standards:

- (a) Cotton grown without the use of restricted pesticides,
- (b) Cotton grown according to IPM principles,
- (c) Cotton grown according to Organic standards.

Based on these assumptions, the improvement potential on the baseline scenario is 3 % on freshwater eutrophication. For other impact categories, the improvement potential is less than 1 %.

According to (IMPRO-Textiles, 2013), GM cotton has experienced a dramatic increase in cultivation since its introduction, augmenting global production by approximately 44 % from 2002 to 2005. Transgenic crops offer the benefit of increased yields and lower costs due to the reduced application of agrochemicals. Therefore, it seems that GM cotton might be an economical replacement for conventional cotton crops. However, one issue that has come to light in recent years is the decrease in marginal returns from GM crop cultivation due to stagnating or even decreasing yields in the long run (Eyhorn et al., 2007). Pest resistance to some GM crop defences is also a concern, however, and some cases have already been confirmed. Although organic cotton cultivation has increased in the past years, its uptake has been relatively modest and relatively insignificant in comparison with global cotton production (Baffes, 2004).

In general terms, the costs of production, processing and seed purchase still remain a major threat to the organic cotton industry. Several companies have announced the use of organic cotton, including Adidas, H&M, Nike, Ethletic, Veja, and Mark and Spenser, among others.

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<sup>77</sup> UNIDO, Life Cycle Assessment/Carbon Footprint in the Leather Processing (Review of methodologies and recommendations for harmonization), October 2012

<sup>78</sup> Commission Decision draft proposal of May 2013

### **(c) origin of natural rubber, wood, and cork**

Footwear with wood soles account for 4% of European production, and 1% of apparent consumption by volume. The data on the content of natural rubber cannot be extracted from official European statistical data because it is aggregated with synthetic rubber; together, both types of rubber account for 12% of European production, and 43% of consumption (Eurostat, 2011). However, considering the scarcity of natural rubber, it is assumed that shoes that contain natural rubber represent only minor market share. From this point of view, the need for requiring sustainable wood as raw materials might not be supported. However, the introduction of sustainable sourcing of wood in the criteria has been added to ensure that illegal and unsustainable sourcing of materials of natural origin (wood, cork, rubber) is not allowed in EU ecolabelled products. Introduction of the criterion is also supported by Regulation (EU) No 995/2010 of the European Parliament and of the Council of 20 October 2010 which specifies the obligations for operators who place timber and timber products on the market – also known as the Timber Regulation. This regulation prohibits introduction of illegally harvested timber and products derived from such timber into the EU market, requiring EU traders who place timber products on the EU market to exercise 'due diligence,' as specified by Commission Implementing Regulation (EU) No 607/2012 of 6 of July 2012.

Even if criterion requirement is not expected to bring significant benefits at the product group level compared to other product groups, it will help protect the credibility of the EU Ecolabel. Moreover, natural materials are often used by companies that profess the environmental benefit of using them instead of synthetic materials. Therefore, it seems that the criterion would meet market expectations. Blue Angel for footwear set the similar approach establishing the requirements on tracing of the material origin.

#### **Consultation question**

- Should a criterion on leather origin be introduced?
- Should leather be certified as originating from the sustainable agriculture?
- Should the criterion that requires XX% for organic cotton, or XX% for IPM content be introduced?
- Should criteria on wood, cork and natural rubber origin be introduced?

### 5.2.3 New criterion: Use of recycled materials

#### **Criterion proposal**

##### **(a) Use of recycled polyester in textile uppers and linings**

Polyester fibres shall be manufactured using a minimum content of PET that has been recycled from pre-consumer and/or post-consumer waste. Staple fibres shall contain a minimum content of xx% and filament fibres xx%.

Assessment and verification: Recycled content shall be traceable back to the reprocessing of the feedstock. This shall be verified by independent third party certification of the chain of custody or by documentation provided by suppliers and processors.

##### **(b) Use of recycled plastic in shoe soles**

Shoe soles shall be manufactured using a minimum content of xx that has been recycled from pre-consumer and/or post-consumer waste.

Assessment and verification: Recycled content shall be traceable back to the sole manufacturer. This shall be verified by documentation provided by suppliers and processors.

## Rationale and Discussion

### (a) Use of recycled polyester in textiles uppers and linings

The Task 2 analysis revealed that several companies use recycled materials in their products, in particular polyester or nylon. Consumption of energy for synthetic fibre production was simultaneously identified as one of the key environmental issues to be addressed within the on-going revision process of the EU Ecolabel for the textile product group.

Production of polyester fibres accounts for about 40-45% of total global annual fibre production<sup>79</sup>. Recycled PET fibre accounted for approximately 8% of the world PET fibre production in 2007<sup>80</sup>. In Europe in 2011, 39% of all recovered European PET was used to produce polyester fibres<sup>81</sup>. Production of polyester has been identified as an energy and natural resources intensive process.

The full life cycle of 1 kg of polyester fabric is responsible for release of more than 30 kg CO<sub>2</sub> equivalents to the atmosphere (around 20 kg are associated with 1 kg of cotton). Because no agricultural production is needed, the ecosystems impacts are lower than for cotton (IMPRO-Textiles, 2009). Depending on the allocation methods applied, when contrasted with virgin PET, recycled PET fibres offer 40–85% saving on non-renewable energy used (NREU), and a saving of 25–75% in global warming potential (GWP)<sup>82</sup>. Furthermore, according to the LCA findings, mechanical and semi-mechanical recycling show better environmental profiles than chemical recycling; however, chemically recycled fibres can be used in a wider range of applications.

Through Task 4 of the revision process, we know that use of recycled polyester will generate up to 4% improvement on the impacts of the footwear life cycle. This value depends on the impact category considered, the quantity of polyester used in the shoes, and the recycling allocation rules.

According to several sources (Silva, Edmir, 2011<sup>83</sup>, Christopher Intagliata, 2012<sup>84</sup>, IPTS, 2013<sup>85</sup>, and ICISpricing, 2013), recycled polyester is cheaper than virgin polyester (by about 10 to 30 %). The price of virgin polyester is constantly rising with the price of petroleum. **However, the demand for**

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<sup>79</sup> <http://textileexchange.org>

<sup>80</sup> Thiele U. 2009. In: 13th international polyester recycling symposium, pp 22–3.

<sup>81</sup> <http://www.petcore-europe.org>

<sup>82</sup> Shena, L., Worrellb, E., Martin K. Patela, M.K. 2010. Open-loop recycling: A LCA case study of PET bottle-to-fibre recycling. *Resources, Conservation and Recycling* 55, pp 34–52

<sup>83</sup> [http://www.academia.edu/1131358/RECYCLED\\_POLYESTER\\_LITERATURE\\_REVIEW](http://www.academia.edu/1131358/RECYCLED_POLYESTER_LITERATURE_REVIEW)

<sup>84</sup> <http://www.livescience.com/32231-does-recycling-plastic-cost-more-than-making-it.html>

<sup>85</sup> (End-of-Waste Criteria for Waste Plastic for Conversion - Technical Proposals, 2013)



recycled polyester is greater than the supply, which sets a limit for this market and the possible growth of this eco-innovation<sup>86</sup>.

### **(b) Use of recycled plastic in shoe soles**

At present, conventional plastics and synthetic rubbers used in the shoe industry are almost entirely based on fossil raw materials. Overall production of plastics on the basis of crude oil consumption is approximately 260 million tons per year worldwide<sup>87</sup>. Some 500,000 tons of polyurethane (PUR) are used annually worldwide for shoe soles production<sup>88</sup>.

Task 2 revealed that footwear that incorporates recycled synthetic materials are used on the market as suggested by stakeholders and found on the brand websites. Nevertheless, insufficient quantitative data are available to analyse the market penetration of such an initiative. There are several examples of brands that integrate recycled materials, e.g., recycled tires<sup>89,90</sup>, into their shoe production, especially for soles. The economic benefits study of Simple Shoes that evaluated use of recycled tyres compared to natural rubber show 93% of cost decrease<sup>91</sup>. According to reRUBBER<sup>92</sup>, 1 kg of recycled rubber can save 1 kg of CO<sub>2</sub> compared to synthetic rubber. Nonetheless, the exact data on the total percentage of recycled plastics in footwear present on the European market is unknown. From this reason the evaluation of market share is not possible on the basis of official statistical data, and should be discussed further with stakeholders.

#### **Consultation question**

- 1 Shall the requirement on the minimum content of polyester that comes from recycling be introduced?
2. Shall minimum recycling content for other synthetic fibres be considered?
3. What is the market situation regarding the use of recycled plastic in shoe soles?

<sup>86</sup> SETAC Europe 22<sup>nd</sup> Annual Meeting / SETAC 6<sup>th</sup> World Congress (2012) – Market-based allocation of recycling benefits

<sup>87</sup> Endres, H.J., Siebert-Raths, A. 2011. Engineering Biopolymers-Markets - Manufacturing, Properties and Applications, Carl Hanser Verlag, München, 2011.

<sup>88</sup> <http://www.research.bayer.com/en/23-green-shoe.pdf>

<sup>89</sup> The rate of recycled rubber varies depending on the brands and is indicated in brackets

<sup>90</sup> <http://recycledreused.wordpress.com/2011/04/19/top-5-recycled-shoe-companies/>

<sup>91</sup> Cf. task 3 for more detailed on this LCA study

<sup>92</sup> <http://www.rerubber.com/environmental-impact/>

#### 5.2.4 New criterion: PVC usage

##### **Proposed criterion**

(b) The footwear shall not contain PVC.

Assessment and verification: the applicant shall provide a declaration of compliance with this criterion.

##### **Rationale and Discussion**

Analysis of PVC usage as a footwear component has been suggested by the Commission Statement 2009/ ENV G2 the EU Ecolabel which supported the Commission Decision 2009/563/EC establishing the EU Ecolabel criteria for footwear. The evidence found indicated that PVC may cause environmental problems, especially considering possible risk to hazardous exposure during product life cycle<sup>93</sup>, since it requires hazardous chemicals in production, releases harmful additives and creates potentially toxic wastes. If the end of life treatment is not managed correctly, significant impacts can arise from this life cycle phase, especially if the footwear is exported to or reused in non-European countries where the end of life is not controlled.

Several environmental and consumer NGOs have been advocating phasing out of PVC in consumer goods. Following the World Health Organization precautionary principle, whenever a potentially hazardous chemical is identified if a clearly safer alternative exists, the reasons to accept even a small, highly uncertain risk, should be questioned<sup>94</sup>. From the EU Ecolabel criteria setting perspective, when consulting other European Ecolabel relevant for the product group under revision, both Blue Angel and Nordic Swan restrict PVC usage. Japanese Eco-Mark forbids the use of halogenated compounds, Recognizing the feasibility of existent alternatives, many brands are on the way to becoming PVC-free; this approach has been adopted by Nike, Esprit, Adidas, Puma, and Timberland, among others. The alternatives are increasingly well known and well developed, and in many cases are already cost-competitive with PVC<sup>95</sup>. Therefore, it is undesirable to ecolabel products to contain PVC (including membranes and coatings).

The restriction on PVC usage in EU Ecolabelled footwear should be discussed further during the AdHoc Working Group Meeting.

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<sup>93</sup> Huisingh, D (Editor-in Chief). 2011. Special Issue. Improving the health of the public, workers and the environment. Twenty years of toxic use reduction. Journal of Cleaner Production,. Volume 19/5, March 2011. 572 pp. Elsevier

<sup>94</sup> Marco Martuzzi, M., Tickner, J.A. (Eds).2004. The precautionary principle: protecting public health, the environment and the future of our children. World Health Organization. Europe.

<sup>95</sup> Delilah Lithner, D., Larsson, A., Dave, G. 2011. Environmental and health hazard ranking and assessment of plastic polymers based on chemical composition. Science of the Total Environment 409 , pp 3309–3324

### Consultation questions

- Shall the use of PVC be excluded?

#### 5.2.5 New criterion: Waste management systems

##### Proposed criterion

The applicant shall record and provide the wastage rate for its assembly site.

The wastage rate is calculated as follows: the mass of output products minus the mass of input materials) divided by the mass of input materials.

*Following discussion with stakeholders, the proposal is to set a wastage limit value and to precisely define the steps of production (upper, sole...) in the scope of evaluation.*

The applicant must document his approach on the waste management and how he intends to improve it.

##### Rationale and discussion

The Commission statement requires assessing the possibility of developing a criterion on the waste management.

The European Union's approach to waste management is based on an integrated, hierarchical system that considers the following order of prioritization: prevention, re-use, recycling, recovery, and disposal<sup>96</sup>.

According to the LCA study findings, wastage rate is a significant parameter because it directly relates to the mass of input materials needed to produce a certain amount of pairs. The increase in wastages rate is proportional to quantity of input materials required, and, as previously highlighted (Task 3 of the Preliminary Report) the production of input materials is one major hot spot identified.

Footwear manufacturing involves the use of a large range of materials that are processed to achieve the appropriate size and format. The shape of the components to be cut is rarely the same, therefore, the optimization of material cutting is one of the key challenges of the material management. This is especially true when leather is used because it is neither homogenous nor rectangular.

If the wastage is reduced by 50 %<sup>97</sup> (from 15 % to 5% - maximum and minimum values from stakeholders), the impacts on the environment for on pair of footwear could be lowered between 4 and 12 %, depending on the impact category.

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<sup>96</sup> In line with the Framework Waste Directive (2008/98/EC)

<sup>97</sup> Including the reuse

By optimizing the supply chain and employing material saving principles during the footwear manufacturing processes, considerable decrease in wastage could be achieved.

Because the production of footwear may take place on many different geographical locations, the information collection would require an advanced state of control and management of the entire supply chain. Having a criterion only for the assembly site would limit the benefits of such improvement. However, it could establish a solid base for improving material management, and possibly boost further research and innovation, such as reuse post-manufacturing rubber and leather cuttings, e.g., for sole of new shoes<sup>98</sup> In the long-term, the manufacturer will always benefit from the introduction of a comprehensive waste management system.

Most stakeholders (~70%), including corporations, confirmed the feasibility of introducing a requirement for a waste management system, with the following caveats:

- It could be based on LCA.
- It would be possible to set requirements on the waste management system at the production stage, but not for the product end of life.
- Circular economy could be promoted (re-use of waste as material or energy)
- It could be based on the efficiency (a percentage of the production)

Several stakeholders stated that a waste management system is not a quantitative indicator of the environmental performance of the product, being somewhat subjective. The EU Ecolabel criteria should remain clear and straightforward.

The parameter is important, hence, the proposal is to include it in the criteria. Surveyed stakeholders have also indicated that this criteria area is important. Among other things, they proposed to use the efficiency as percentage of the production as indicator.

The New Zealand Trust sets qualitative standards on the waste management. The licence holder must report annually the quantities and types of wastes generated, recovered for reuse, recycled, disposed, and burned by them and their suppliers. They also must have effective waste management policies and procedures and/or a waste management programme. They also must report initiatives related to the waste management.

The relevance of the “at source prevention” principle and reduction of the quantity of waste generated, supported by the quantitative estimation of the possible environmental savings, support the need for further consultation in order to assess the feasibility of criterion inclusion.

#### Consultation questions

- Should a limit value be set for the wastage rate?
- What production steps should be included in the calculation of such a rate?

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<sup>98</sup> Information gathered through personal communication

## 5.2.6 New criterion: Post-consumer wastes

### Criterion proposal

The brand shall explain qualitatively its management system, if it exists.

### Rationale and discussion

It is estimated that the amount of waste arising from post-consumer shoes could reach 1.2<sup>99</sup>-1.5<sup>100</sup> million tonnes per year. Less than 5% of global footwear production has been estimated to be recycled or reused, with most being disposed of in landfill sites<sup>101,102</sup>. One of the primary reasons for the low reuse/recycling rate is that most modern footwear products contain a complex mixture of leather, rubber, textile, polymers and metallic materials that makes it difficult to perform complete separation and reclamation of material streams in an economically sustainable manner. Many brands have promoted eco-innovations in order to improve the end of life of footwear (see Task 2 of the Preliminary Report). However, it is difficult to assess the potential improvement related to these because there are insufficient data regarding:

- The streams statistics,
- The processes of recycling,
- The substituted products.

Although there are many initiatives for the management of post-consumers wastes, it appears complicated to set one common quantitative criterion because it would have to be very specific to each brand and system. Therefore, the proposal is to address this issue by introducing specific information for the consumer indicating that footwear should be dispose according to the adopted segregation system (usually used apparel bins).

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<sup>99</sup> Michael James Lee, M.J., Rahimifard, S. 2012. An air-based automated material recycling system for postconsumer footwear products. Resources, Conservation and Recycling 69, pp 90– 99

<sup>100</sup><http://www.eco-naturalista.eu>

<sup>101</sup> World Footwear. The future of polyurethane soling, world footwear. Cambridge, MA: Shoe Trades; 2005. p. 18–20.

<sup>102</sup> SATRA. Footwear market predictions: forecasts for global footwear trading to 2009. Kettering: SATRA Technology Centre; 2003.

### 5.3 Rearrangement of criteria

In order to achieve a coherent life cycle analysis, we recommend rearranging the criteria per life cycle stage, as presented in Table 12.

**Table 12: Rearrangement of criteria**

Life cycle phase	Criteria as currently defined (# in the current Ecolabel, and name)
Origin of raw materials	Origin of materials Use of recycled materials Use of PVC
Use of chemical substances and Presence of chemical substances	1: Dangerous substances in the final product 4: Exclusion of hazardous substances
Processes	2: Reduction of water consumption 3: Emission from the material production (limitation of water pollution) 5: Use of VOCs during final assembly of shoes 6: Energy consumption Corporate Social Responsibility
Waste management	Waste management system
Packaging	7: Use of recycled material for packaging
Use phase	8: Information on the packaging 9: Information appearing on the Ecolabel 10: Parameters contributing to durability
End of life management	Post-consumers wastes

## ANNEXES

### Annex I BAT consumption and emissions levels (hides, skins, textiles, and polymers)

**Table 13: BAT water consumption levels – Raw hide<sup>103</sup>**

Process stages	Water consumption per tonne of raw hide <sup>104</sup> (m <sup>3</sup> /t)	
	Unsalted hides	Salted hides
Raw to wet blue/white	10 to 15	13 to 18
Post-tanning processes and finishing	6 to 10	6 to 10
Total	16 to 25	19 to 28

**Table 14: BAT water consumption levels – Skin<sup>103</sup>**

Processes stages	Specific water consumption <sup>105</sup> (litres/skin)
Raw to pickle	65 to 80
Pickle to wet blue	30 to 55
Post-tanning processes and finishing	15 to 45
Total	110 to 180

**Table 15: BAT water consumption levels – Textiles processing<sup>106</sup>**

Process stages	Water consumption
finishing of yarn	70 - 120 l/kg
finishing of knitted fabric	70 - 120 l/kg
pigment printing of knitted fabric	0.5 - 3 l/kg
finishing of woven fabric consisting mainly of cellulosic fibres	50 - 100 l/kg
finishing of woven fabric consisting mainly of cellulosic fibres (including vat and/or reactive printing)	<200 l/kg
finishing of woven fabric consisting mainly of wool	<200 l/kg
_ finishing of woven fabric consisting mainly of wool (for processes that require high liquor ratio)	<250 l/kg

<sup>103</sup> Source: BREF on Tanning of Hides and Skins

<sup>104</sup> Monthly average values. Processing of calfskins and vegetable tanning may require a higher water consumption.

<sup>105</sup> Monthly average values. Wool-on sheepskins may require a higher water consumption

<sup>106</sup> BREF for Textiles Industry

Table 16: BAT emissions levels - (BREF Polymers, 2007)

	VOC (g/t)	Dust (g/t)	COD (g/t)	Suspended solids (g/t)	Direct energy (GJ/t)	Hazardous waste (kg/t)
<b>LDPE</b>	New: 700 - 1100 Existing: 1100 - 2100	17	19-30		Tube: 2.88 – 3.24* Autoclave: 3.24 – 3.60	1.8-3.0
<b>LDPE copolymers</b>	2000	20			4.5	5.0
<b>HDPE</b>	New: 300 - 500 Existing: 500 - 1800	56	17		New: 2.05 Existing: 2.05 – 2.52	3.1
<b>LLDPE</b>	New: 200 - 500 Existing: 500 - 700	11	39		New: 2.08 Existing: 2.08 – 2.45	0.8
<b>GPPS</b>	85	20	30	10	1.08	0.5
<b>HIPS</b>	85	20	30	10	1.48	0.5
<b>EPS</b>	450-700	30			1.80	3.0
<b>S-PVC</b>	VCM: 18 - 45 Splitview: 18 - 72	10-40	50-480	10**		0.01-0.055
<b>E-PVC</b>	100 - 500 Splitview: 160 - 700	50-200	50-480	10**		0.025-0.075
<b>UP</b>	40-100	5-30			2-3.5	7
<b>ESBR</b>	170-370		150-200			
<p>*Excludes a potential positive credit of 0 to 0.72 GJ/t for low pressure steam (depending on export possibilities for low pressure steam)                      'New' and 'existing' refers to new or existing installations.                      ** Alternatively, 1 – 12 g/t AOX are achieved for PVC production sites or combined sites with PVC production</p>						
	S to air (kg/t)	SO <sub>4</sub> 2- to water (kg/t)	COD (g/t)	Zn to water (g/t)	Direct energy (GJ/t)	Hazardous waste (kg/t)
<b>Viscose staple fibres</b>	12-20	200-300	3000-5000	10-50	20-30	0.2-2.0



**Annex II Correspondence table between current criteria and new proposed ones**

Current criteria		Revised criteria
1	<p>Dangerous substances in the final product</p> <p>(a) For shoes made of leather, there shall be no Chromium VI in the final product. Assessment and verification: the applicant and/or his supplier(s) shall provide a test report, using test method EN ISO 17075 (detection limit 3 ppm). The sample preparation must follow the indications of the EN ISO 4044.</p> <p>(b) There shall be no Arsenic, Cadmium and Lead in the materials used for the product assembly or in the final product. Assessment and verification: the applicant and/or his supplier(s) shall provide a test report using one of the following EN 14602 test methods: testing the materials or testing the final product. For leather products the sample preparation shall follow EN ISO 4044.</p> <p>(c) The amount of free and hydrolysed formaldehyde of the components of the footwear shall not exceed the following limits: — textile: not detectable, — leather: 150 ppm. Assessment and verification: the applicant and/or his supplier(s) shall provide a test report, using the following test methods: Textiles: EN ISO 14184-1 (detection limit: 20 ppm); Leather: EN ISO 17226-1 or 2.</p>	<p>(a) Hazardous substances and mixtures</p> <p>According to Article 6(6) of Regulation (EC) No 66/2010, the EU Ecolabel may not be awarded to any product, or any article of it as defined in Article 3(3) of Regulation (EC) No 1907/2006 or homogenous part of it that contains substances meeting the criteria for classification with the hazard statements or risk phrases as specified in Table 3 in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council or Council Directive 67/548/EC, or substances referred to in Article 57 of Regulation (EC) No 1907/2006. In case the threshold for classification of a substance or mixture with a hazard class differs from the one of a risk phrase, then the former prevails. The risk phrases in Table 3 generally refer to substances. However, if information on substances cannot be obtained, the classification rules for mixtures apply. Substances or mixtures which change their properties through processing and, thus, are no longer bioavailable, or undergo chemical modification in a way that removes the previously identified hazard are exempted from criterion 1 (a).</p> <p>Concentration limits for substances or mixtures which may be or have been assigned the hazard statements or risk phrase listed in Table 3, meeting the criteria for classification in the hazard classes or categories, and for substances meeting the criteria set out in points (a), (b) or (c) of Article 57 of Regulation (EC) No 1907/2006, shall not exceed the generic or specific concentration limits determined in accordance with Article 10 of Regulation (EC) No 1272/2008. Where specific concentration limits are determined, they shall prevail over the generic ones.</p> <p>Concentration limits for substances meeting the criteria set out in points (d), (e) or (f) of Article 57 of Regulation (EC) No 1907/2006 shall not exceed 0.1% weight by weight.</p>

Current criteria	Revised criteria
	<p>The final product shall not be labelled with a hazard statement.</p> <p>Assessment and verification: for the product or any article or homogenous part of it, the applicant shall provide a declaration of compliance with criterion 1 (a), together with related documentation, such as declarations of compliance signed by their suppliers, on the non-classification of the substances or materials with any of the hazard classes associated to the hazard statements referred to in</p> <p>Table 3 in accordance with Regulation (EC) No 1272/2008, as far as this can be determined, as a minimum, from the information meeting the requirements listed in Annex VII to Regulation (EC) No 1907/2006. This declaration shall be supported by summary information on the relevant characteristics associated to the hazard statements referred to in</p> <p>Table 3, to the level of detail specified in Sections 10, 11 and 12 of Annex II to Regulation (EC) No 1907/2006.</p> <p>Information on intrinsic properties of substances may be generated by means other than tests, for instance, through use of alternative methods such as in vitro methods, by quantitative structure activity models or by the use of grouping or read-across in accordance with Annex XI to Regulation (EC) No 1907/2006. Sharing of relevant data across the supply chain is strongly encouraged.</p> <p>The information provided shall relate to the forms or physical states of the substance or mixtures as used in the final product.</p> <p>For substances listed in Annexes IV and V to Regulation (EC) No 1907/2006, which are exempted from registration obligations under point (a) and (b) of Article 2(7) of that Regulation, a declaration by the applicant shall suffice to comply with criterion 1 (a).</p> <p><b>Possible derogation should be discussed with stakeholders.</b></p> <p>(b) Substances listed in accordance with Article 59(1) of Regulation (EC) No 1907/2006</p> <p>No derogation from the exclusion in Article 6(6) of Regulation (EC) No 66/2010 shall be</p>

Current criteria	Revised criteria
	<p>given concerning substances: identified as substances of very high concern and included in the list provided for in Article 59(1) of Regulation (EC) No 1907/2006, or present in mixtures, in an article or in any homogeneous part of a complex article in concentrations &gt; 0.1%. Specific concentration limits determined in accordance with Article 10 of Regulation (EC) No 1272/2008 shall apply in cases where the concentration is lower than 0.1%.</p> <p>Assessment and verification: reference to the list of substances identified as substances of very high concern shall be made on the date of application<sup>107</sup>. The applicant shall provide a declaration of compliance with criterion 3 (b), together with related documentation, including declarations of compliance signed by the material suppliers and copies of relevant Safety Data Sheets for substances or mixtures in accordance with Annex II to Regulation (EC) No 1907/2006 for substances or mixtures. Concentration limits shall be specified in the Safety Data Sheets in accordance with Article 31 of Regulation (EC) No 1907/2006 for substances and mixtures.</p> <p>(c) Manufacturing Restricted Substance List</p> <p>The final product and the production recipes used to manufacture the final product shall not contain the hazardous substances listed in the Manufacturing Restricted Substance List (MRSL) at or above the concentration limits specified. The MRSL can be found in Annex VI.</p> <p>The MRSL shall be communicated to suppliers and agents responsible for the different stages of production. Verification and testing requirements are specified in the MRSL for the production stage and for the final product.</p> <p>Assessment and verification: The applicant shall provide a declaration of compliance with the MRSL supported by evidence as applicable to the substances and production recipes used to manufacture the final product. The specific requirements are indicated in the MRSL and include declarations obtained from those responsible for related production stages, declarations from chemical suppliers and test results from laboratory analysis of samples of the final product.</p>

<sup>107</sup> <http://echa.europa.eu/web/guest/candidate-list-table>

Current criteria			Revised criteria	
				<p>Declarations obtained from production stages shall be supported by Safety Data Sheets (SDS) for production recipes and, where necessary, declarations from chemical suppliers. Safety Data Sheets shall be completed in accordance with the guidance in Section 10, 11 and 12 of Annex II of Regulation (EC) 1907/2006 (Requirements for the Compilation of Safety Data Sheets). Incomplete Safety Data Sheets (SDS) will require supplemental declarations from chemical suppliers.</p> <p>Laboratory analysis of the final product shall be performed for specific product lines, where specified in the MRSLS and according to the test methods listed. Testing, where required, shall be performed upon application and once a year thereafter on a random basis for each product line, with results then communicated to the relevant Competent Body. Test data obtained for the purposes of compliance with industry MRSLS and other footwear certification schemes shall be accepted where the test methods are equivalent and have been performed on a representative sample of the final product. A failing of a test result during a license period shall result in retesting for the specific product line. If the second test fails, then the license shall be suspended for the specific product line. Remedial action consisting of an evaluation report identifying the reasons for test failure followed by achievement of a compliant test result will be required in order to re-instate the license.</p>

Current criteria		Revised criteria	
2	Reduction of water consumption	<p>The following limits to water consumption for the tanning of hide and skin shall not be exceeded:</p> <ul style="list-style-type: none"> <li>— Hides: 35 m<sup>3</sup>/t,</li> <li>— Skins: 55 m<sup>3</sup>/t,</li> </ul> <p>Assessment and verification: the applicant and/or his supplier(s) shall provide appropriate documentation that the mentioned limits have not been exceeded.</p>	<p>Reduction of water consumption</p> <p>Proposal 1 (a): The following limits to water consumption for the tanning of hide and skin shall not be exceeded:</p> <ul style="list-style-type: none"> <li>— Hides: xx m<sup>3</sup>/t,</li> <li>— Skins: xx m<sup>3</sup>/t,</li> </ul> <p>Proposal: 2 (b) The limits to water consumption for the processing of textiles should fulfil the requirement of the EU Ecolabel for textile criteria.:</p> <ul style="list-style-type: none"> <li>— finishing of yarn: 70 l/kg</li> <li>— finishing of knitted fabric: 70 l/kg</li> <li>— finishing of woven fabric consisting mainly of cellulosic fibres: 200 l/kg</li> <li>— finishing of woven fabric consisting mainly of wool: 250 l/kg</li> </ul> <p>Assessment and verification: the applicant and/or his supplier(s) shall provide appropriate documentation that the referenced limits have not been exceeded.</p>

Current criteria		Revised criteria	
3	Emission from the material's production (limitation of water pollution)	Emission from the material's production (limitation of water pollution)	Emission from the material's production (limitation of water pollution)
	<p>(a) If the waste waters from leather tanning sites and from the textile industries are released directly into fresh waters the content of COD shall not exceed 250 mg COD/l of water discharged.</p> <p>If the waste waters from leather tanning sites are released into a municipal waste water treatment plant/facility, then this criterion shall not apply, as long as it can be demonstrated:</p> <ul style="list-style-type: none"> <li>— that the discharge of waste water from the tanning site into the municipal waste water supply is authorised and,</li> <li>— that the municipal waste water treatment facility is operational and that the subsequent discharge of treated water into the fresh water system is in line with minimum Community requirements according to Council Directive 91/271/EEC.</li> </ul> <p>Assessment and verification: the applicant shall provide a test report and complementary data, using the following test method: COD: ISO 6060 — Water quality, determination of chemical oxygen demand.</p> <p>Where the waste water is discharged into a municipal waste water treatment facility, documentation must be provided from the relevant authority showing that the discharge is authorised and that that municipal plant is operational and that it meets the minimum requirements of Directive 91/271/EEC.</p> <p>(b) Tannery waste water after treatment shall contain less than 1 mg Chromium (III)/l.</p> <p>Assessment and verification: the applicant shall provide a test report and complementary data, using the following test methods: ISO 9174 or EN 1233 or EN ISO 11885 for Cr</p>	<p>(a) Waste water from leather tanning sites shall, when discharged to surface waters after treatment (whether on-site or off-site), have a COD content of less than <b>xx mg/l</b>, expressed as <b>an annual average</b>. Assessment and verification: The applicant shall provide detailed documentation and test reports, using <b>ISO 6060</b>, showing compliance with this criterion, together with a declaration of compliance.</p> <p>Assessment and verification: the applicant shall provide a test report and complementary data, using the following test method: COD: ISO 6060 — Water quality, determination of chemical oxygen demand.</p> <p>(b) Proposal 1: Wastewater discharge form textile processing shall comply with the criteria for the EU Ecolabel for textile.</p> <p><b>Wastewater discharges to the environment shall not exceed 20 g COD/kg textiles processing. This requirement shall apply to weaving, dyeing, printing and finishing processes used to manufacture the product(s). The requirement shall be measured downstream of on-site wastewater treatment plant and/or municipal wastewater treatment plant receiving wastewater from these processing sites.</b></p> <p><b>If colour removal is required, then the following spectral absorption coefficients shall be met:</b></p> <ul style="list-style-type: none"> <li><b>(i) 436 nm (yellow sector) 7 m-1</b></li> <li><b>(ii) 525 nm (red sector) 5 m-1</b></li> <li><b>(iii) 620 nm (blue sector) 3 m-1</b></li> </ul> <p><b>Where used in dyeing processes, salt shall either be recycled or diluted so as to be less than xx mg/l in final discharges to the environment.</b></p> <p><b>Assessment and verification: The applicant shall provide detailed documentation and test reports, using ISO 6060 and ISO 7887:2011 as relevant, and showing compliance with this criterion</b></p>	

Current criteria	Revised criteria
	<p data-bbox="1189 272 2007 331"><i>If the effluent is treated on site and discharged directly to surface waters, it shall also meet the following requirements:</i></p> <p data-bbox="1189 363 2007 395"><i>(i) pH between 6 and 9 (unless the pH of the receiving water is outside this range)</i></p> <p data-bbox="1189 427 2007 486"><i>(ii) Temperature of less than 35°C (unless the temperature of the receiving water is above this value)</i></p> <p data-bbox="1189 518 2042 577"><i>Assessment and verification: The applicant shall provide documentation and test reports showing compliance with this criterion, together with a declaration of compliance.</i></p> <p data-bbox="1189 609 2042 732"><i>(c) Proposal 2: Waste water from processing of natural rubber and/or manufacturing of synthetic rubber sites shall, when discharged to surface waters after treatment (whether on-site or off-site), have a COD content of less than X g/kg, expressed as an annual average.</i></p> <p data-bbox="1189 764 2042 860">Assessment and verification: the applicant shall provide a test report and complementary data, using the following test method: COD: ISO 6060 — Water quality, determination of chemical oxygen demand.</p> <p data-bbox="1189 892 2042 987"><i>(d) Proposal 3: If the waste waters from activities covered by Criterion 3 (a), (b) and (c) are released into a municipal waste water treatment plant/facility, then this criterion shall not apply, as long as it can be demonstrated that:</i></p> <ul data-bbox="1285 1003 2042 1203" style="list-style-type: none"> <li data-bbox="1285 1003 2042 1062"><i>- the discharge of waste water from the site into the municipal waste water supply is authorised and,</i></li> <li data-bbox="1285 1078 2042 1203"><i>- the municipal waste water treatment facility is operational and that the subsequent discharge of treated water into the fresh water system is in line with minimum Community requirements according to Council Directive 91/271/EEC.</i></li> </ul> <p data-bbox="1189 1235 2042 1331"><i>(e) Tannery waste water after treatment shall contain less than X mg total Chromium. Assessment and verification: the applicant shall provide a test report and complementary data, using the following test methods: ISO 9174 or EN 1233 or EN ISO 11885 for Cr.</i></p>

Current criteria		Revised criteria		
4	<p>Exclusion of use hazardous substances (up until purchase )</p>	<p>(a) Pentachlorophenol (PCP) and Tetrachlorophenol (TCP) and its salts and esters shall not be used. Assessment and verification: the applicant and/or his supplier(s) shall provide a declaration that the materials do not contain such chlorophenols along with a test report using the following test methods: Leather, EN ISO 17070 (limit of detection 0,1 ppm); Textile, XP G 08-015 (limit of detection 0,05 ppm)</p> <p>(b) No azo dyes shall be used that may cleave to any of the following aromatic amines (...) Assessment and verification: the applicant and/or his supplier(s) shall provide a declaration that such azo dyes have not been used. Should a verification of this declaration be carried out, the following test methods shall be used: Leather — CEN ISO TS 17234; Textile — EN 14362 1 or 2. Textiles limit 30 ppm (note:false positives are possible for 4-aminoazobenzene and confirmation is therefore recommended); Leather limit 30 ppm (note: false positives are possible for 4-aminoazobenzene, 4-aminodiphenyl and 2-naphthylamine and confirmation is therefore recommended).</p> <p>(c) The following N-Nitrosamines shall not be detected in rubber</p> <ul style="list-style-type: none"> <li>— N-nitrosodimethylamine (NDMA)</li> <li>— N-nitrosodiethylamine (NDEA)</li> <li>— N-nitrosodipropylamine (NDPA)</li> <li>— N-nitrosodibutylamine (NDBA)</li> <li>— N-nitrosopiperidine (NPIP)</li> <li>— N-nitrosopyrrolidine (NPYR)</li> </ul>	<p>cf . Criterion 1</p>	<p>Alignment with proposed criterion 1 (c) should be discussed with stakeholders</p> <p>New process and functional substances are proposed to be specifically listed:</p> <ul style="list-style-type: none"> <li>• Isocyanate: MDI;</li> <li>• PAHs;</li> <li>• Solvents;</li> <li>• Halogenated organic carriers;</li> <li>• Flame retardants;</li> <li>• PFCs;</li> <li>• Organotin compounds;</li> </ul> <p>Update on following group of substances is proposed:</p> <ul style="list-style-type: none"> <li>• Dyes;</li> <li>• Heavy metals;</li> <li>• Biocides;</li> <li>• Formaldeyde;</li> <li>• Alklphenol ethoxylates and Alkylphenols</li> </ul> <p>The threshold limits are suggested as the starting point for discussion as indicated in the MRSL( Annex VI).</p>



Current criteria	Revised criteria
<p>— N-nitrosomorpholine (NMOR)</p> <p>— N-nitroso N-methyl N-phenylamine (NMPPhA)</p> <p>— N-nitroso N-ethyl N-phenylamine (NEPhA)</p> <p>Assessment and verification:the applicant shall provide a test report, using test method EN 12868 (1999-12) or EN 14602.</p> <p>(d) C10-C13 chloralkanes shall not be used in leather, rubber or textile components.</p> <p>Assessment and verification: the applicant and/or his supplier(s) shall provide a declaration that such chloralkanes have not been used.</p> <p>(e) No dyes meeting the criteria for classification as carcinogenic, mutagenic toxic to reproduction, hazardous/dangerous to the environment with the following R-phrases: R40, R45, R49, R50, R51, R52, R53, R60, R61, R62, R63 or R68 (or any combination), shall be used. (Classification rules as according to Council Directive 67/548/EEC or Directive 1999/45/EC of the European Parliament and of the Council. Alternatively, classification may be considered according to Regulation (EC) No 1272/2008 of the European Parliament and of the Council. In this case no substances or preparations may be added to the raw materials that are assigned, or may be assigned at the time of application, with the following hazard statements (or combinations thereof): H351, H350, H350i, H400, H410, H411, H412, H413, H360F, H360D, H361f, H361d H360FD, H361fd, H360Fd, H360Df, H341.</p> <p>Assessment and verification: the applicant shall provide a declaration of non-use of such dyes.</p> <p>(f) Alkylphenol ethoxylate (APE), and Perfluorooctane sulfonate (PFOS) shall not be used.</p> <p>Assessment and verification: the applicant shall provide a declaration of non-use of such substances.</p> <p>(g) No dyes meeting the criteria for classification as sensitising to skin (R43) shall be used. (Classification rules as according to Directive 67/548/EEC or Directive 1999/45/EC). Alternatively,</p>	

Current criteria	Revised criteria
<p>classification may be considered according to Regulation (EC) No 1272/2008. In this case no substances or preparations may be added to the raw materials that are assigned, or may be assigned at the time of application, with the following hazard statement: H317.</p> <p>Assessment and verification: The applicant shall provide a declaration of non-use of these dyes.</p> <p>(h) Phthalates: Only phthalates that at the time of application have been risk assessed and have not been classified with the phrases (or combinations thereof): R60, R61, R62, R50, R51, R52, R53, R50/53, R51/53, R52/53, in accordance with Directive 67/548/EEC, may be used in the product (if applicable). Additionally DNOP (di-n-octyl phthalate), DINP (di-isononyl phthalate), DIDP (di-isodecyl phthalate) are not permitted in the product.</p> <p>Assessment and verification: The applicant shall provide a declaration of compliance with this criterion.</p> <p>(i) Biocides: Only biocidal products containing biocidal active substances included in Annex IA of the Directive 98/8/EC of the European Parliament and of the Council, and authorised for use in footwear, shall be allowed for use.</p> <p>Assessment and verification: The applicant shall provide a declaration that the requirements of this criterion have been met along with a list of biocidal products used.</p>	

Current criteria		Revised criteria	
5	<p>Use of VOCs during final assembly of shoes</p>	<p>VOCs are any organic compound having at 293,15 K a vapour pressure of 0,01 kPa or more, or having a corresponding volatility under the particular conditions of use.  The total use of VOCs during final footwear production shall not exceed, on average, 20 gram VOC/pair.  Assessment and verification: the applicant shall provide a calculation of the total use of VOCs during final shoe production, together with supporting data, test results and documentation as appropriate, with the calculation made using EN 14602.  (Registration of purchased leather, adhesives, finishes and production of footwear during at least the last six months is required.)</p>	<p>Use of VOCs during final assembly of shoes</p> <p><b>Proposal: Solvents and adhesives used shall be water-based.</b></p> <p>Alternative proposal 1: The total use of VOCs during final footwear production shall not exceed, on average, <del>xx</del> gram VOC/pair.</p> <p>Assessment and verification: the applicant shall provide a calculation of the total use of VOCs during final shoe production, together with supporting data, test results and documentation as appropriate, with the calculation made using EN 14602.  (Registration of purchased leather, adhesives, finishes and production of footwear during at least the last six months is required.)</p>

Current criteria			Revised criteria	
6	Energy consumption	<p>The energy consumption at the manufacturing stage shall be declared.</p> <p>Assessment and verification: the applicant is requested to provide the relevant information according to the Technical appendix A1.</p>	Energy consumption	<p>Proposal: The energy consumption for footwear final assembly shall be declared.</p> <p>Proposal 1: The energy consumption of footwear final assembly shall be lower than X MJ per pair on an annual base. If green energy is produced and/or used on site, it should be discounted from the total amount of energy consumed.</p> <p>Proposal 2: The energy consumption of footwear final assembly shall be declared, together with the information on energy consumption for footwear components manufacture.</p> <p>Assessment and verification: the applicant is requested to provide the relevant information according to the Technical appendix X (see Annex II of this document).</p>
7	Use of recycled material for packaging	<p>Where cardboard boxes are used for the final packaging of footwear, they shall be made of 100 % recycled material.</p> <p>Where plastic bags are used for the final packaging of footwear, they shall be made of, at least, 75 % recycled material or they shall be biodegradable or compostable, in agreement with the definitions provided by the EN 13432.</p> <p>Assessment and verification: a sample of the product packaging shall be provided on application, together with a corresponding declaration of compliance with this criterion.</p> <p>Only primary packaging, as defined in the Directive 94/62/EC of the European Parliament and the Council, is subject to the criterion.</p>	Use of recycled material for packaging	<p>Proposal:</p> <p>Where cardboard boxes are used for the final packaging of footwear, they shall be made of 100 % recycled material.</p> <p>Where plastic bags are used for the final packaging of footwear, they shall be made of at least, 75 % recycled material, or they shall be biodegradable or compostable, in agreement with the definitions provided by the EN 13432.</p> <p>Alternative option: Where cardboard boxes are used for the final packaging of footwear, they shall be made of 100 % recycled material.</p> <p>Where plastic bags are used for the final packaging of footwear, they shall be made of at least, xx% recycled material or they shall be biodegradable or compostable, in agreement with the definitions provided by the EN 13432.</p> <p>Assessment and verification: a sample of the product packaging shall be provided on application, together with a corresponding declaration of compliance with this criterion.</p> <p>Only primary packaging, as defined in the Directive 94/62/EC of the European Parliament and the Council, is subject to the criterion.</p>

Current criteria		Revised criteria	
8	Information on the packaging	<p>(a) User Instructions The following information (or equivalent text) shall be supplied with the product: — ‘These shoes have been treated to improve their water resistance. They do not require further treatment.’ (This criterion is applicable only to footwear that has been water-resistant treated) — ‘Where possible, repair your footwear rather than throw them away. This is less damaging to the environment.’ — ‘When disposing of footwear, please use appropriate local recycling facilities where these are available.’</p> <p>(b) Information about the eco-label The following text (or equivalent text) shall appear on the packaging: ‘For more information visit the EU Ecolabel website: <a href="http://www.ecolabel.eu">http://www.ecolabel.eu</a>’</p> <p>(c) Information to consumers An information box in which the applicant explains its approach to environmental sustainability should be put on the packaging. Assessment and verification: the applicant shall provide a sample of the product packaging and of the information supplied with the product, together with a declaration of compliance with each part of this criterion.</p>	<p>(a) User Instructions The following information (or equivalent text) shall be supplied with the product: — ‘These shoes have been treated to improve their water resistance. They do not require further treatment.’ (This criterion is applicable only to footwear that has been treated for water-resistance) — ‘Where possible, repair your footwear rather than throw them away. This is less damaging to the environment.’ — ‘When disposing of footwear, please use appropriate local recycling facilities where these are available.’ — ‘Once a year, wax your leather shoes with appropriate product’ — ‘Use your shoes correctly, in accordance with their original design’ — ‘When necessary, please use a shoehorn to put on your shoes’</p> <p>(b) Information about the eco-label The following text (or equivalent text) shall appear on the packaging: ‘For more information visit the EU Ecolabel website: <a href="http://www.ecolabel.eu">http://www.ecolabel.eu</a>’</p> <p>(c) Information to consumers An information box in which the applicant explains its approach to environmental sustainability should be put on the packaging. (d) when available and third-party reviewed, the environmental impacts of the pair of footwear may be displayed.</p> <p>Assessment and verification: the applicant shall provide a sample of the product packaging and of the information supplied with the product, together with a declaration of compliance with each part of this criterion.</p>
9	Information appearing on the Ecolabel	<p>Box 2 of the eco-label shall contain the following text: — low air and water pollution, — harmful substances reduced.</p> <p>Assessment and verification: the applicant shall provide a sample of the product packaging showing the label, together with a declaration of compliance with this criterion.</p>	<p>Box 2 of the eco-label shall contain the following text: — use of more eco-friendly materials, — low air and water pollution, — low water and energy consumption, — reduce waste generation, — harmful substances avoided’, — Durable product.</p> <p>Assessment and verification: the applicant shall provide a sample of the product packaging showing the label, together with a declaration of compliance with this criterion.</p>

Current criteria		Revised criteria	
10	Parameters contributing to durability	Parameters contributing to durability	Parameters contributing to durability
	<p>Occupational and safety footwear shall carry the EC mark (in accordance with Council Directive 89/686/EEC). All other footwear shall meet the requirements indicated in the table overleaf. Assessment and verification: the applicant shall provide a test report corresponding to the parameters indicated in the table overleaf, using the following test methods:</p> <ul style="list-style-type: none"> <li>— EN 13512 — Upper — Flex resistance,</li> <li>— EN 13571 — Upper — Tear strength,</li> <li>— EN 17707 — Outsoles — Flex resistance,</li> <li>— EN 12770 — Outsoles — Abrasion resistance,</li> <li>— EN 17708 — Whole sole — Sole adhesion,</li> <li>— EN 12771 — Outsoles — Tear strength,</li> <li>— EN ISO 17700 — Test methods for uppers, linings and in socks — Colour fastness to rubbing.</li> </ul>	<p>Occupational and safety footwear shall carry the EC mark (in accordance with Council Directive 89/686/EEC). All other footwear shall meet the requirements indicated in the table overleaf. Assessment and verification: the applicant shall provide a test report corresponding to the parameters indicated in the table overleaf, using the following test methods:</p> <ul style="list-style-type: none"> <li>— EN 13512 — Upper — Flex resistance,</li> <li>— EN 13571 — Upper — Tear strength,</li> <li>— EN 17707 — Outsoles — Flex resistance,</li> <li>— EN 12770 — Outsoles — Abrasion resistance,</li> <li>— EN 17708 — Whole sole — Sole adhesion,</li> <li>— EN 12771 — Outsoles — Tear strength,</li> <li>— EN ISO 17700 — Test methods for uppers, linings and in socks — Colour fastness to rubbing.</li> </ul>	<p>Occupational and safety footwear shall carry the EC mark (in accordance with Council Directive 89/686/EEC). All other footwear shall meet the requirements indicated in the table overleaf. Assessment and verification: the applicant shall provide a test report corresponding to the parameters indicated in the table overleaf, using the following test methods:</p> <ul style="list-style-type: none"> <li>— EN 13512 — Upper — Flex resistance,</li> <li>— EN 13571 — Upper — Tear strength,</li> <li>— EN 17707 — Outsoles — Flex resistance,</li> <li>— EN 12770 — Outsoles — Abrasion resistance,</li> <li>— EN 17708 — Whole sole — Sole adhesion,</li> <li>— EN 12771 — Outsoles — Tear strength,</li> <li>— EN ISO 17700 — Test methods for uppers, linings and in socks — Colour fastness to rubbing.</li> </ul>

**NEW PROPOSALS**

<p>CSR</p>	<p>Applicants shall ensure that the fundamental principles and rights at work as specified in the International Labour Organisation's (ILO) Core Labour Standards shall be observed by all production sites used to manufacture the licensed product(s). The ILO Core Standards that shall apply are:</p> <p>029 Forced Labour  087 Freedom of Association and Protection of the Right to Organise  098 Right to Organise and Collective Bargaining  100 Equal remuneration  105 Abolition of Forced Labour  111 Discrimination (Employment and Occupation)  155 Occupational safety and health  138 Minimum Age Convention  182 Elimination of the Worst Forms of Child Labour</p> <p>These standards should be communicated to production sites used to manufacture the final product.</p> <p><i>Assessment and verification:</i> The applicant shall demonstrate third party verification of compliance, to include site visits, for all production sites in the supply chain for their licensed products. This shall take place upon application and subsequently during the license period if new production sites are introduced.</p> <p>A license may be suspended or revoked if substantive evidence is received by Competent Bodies that the fundamental principles of the ILO Core Labour Standards have been breached.</p>
<p>Materials origin</p>	<p><b>(a) origin of hides and skins</b></p> <p>Only raw hides and skins from animals kept primarily for milk and/or meat production are allowed to be used in the product. Wild, endangered or vulnerable species according to International Union for Conservation of Nature (IUCN) Red List of Threatened Species shall be explicitly excluded<sup>108</sup>.</p> <p>Assessment and Verification: The applicant shall submit a declaration from the leather manufacturer stating that no hides and skins of wild and endangered species according to the IUCN classification are used, and that the leather-manufacturing company conducts compliance verification checks on the raw materials used.</p> <p><b>(b) cotton and other natural cellulosic seed fibres</b></p> <p>Cotton and other natural cellulosic seed fibres (hereafter referred to as cotton) shall contain a minimum content of xx% either organic cotton or xx% of IPM</p>

<sup>108</sup> <http://www.iucnredlist.org/>

	<p>(Integrated Pest Management) cotton. In addition to this:</p> <p>Products meeting specific content thresholds for organic or IPM cotton shall be permitted to display additional text alongside the Ecolabel communicating the content claim.</p> <p><b>(c ) Origin of natural rubber, wood, and cork</b></p> <p>Virgin wood, cork or natural rubber may not come from illegal felling and trade or from forests that need to be protected for ecological and/or social reasons. The material shall be covered by valid sustainable forest management and chain-of-custody certificates issued by an independent third-party certification scheme such as FSC, PEFC or equivalent. Cellulose for synthetic cellulose fibres must come from sustainable forestry.</p> <p>Where certification schemes allow mixing of certified material and uncertified material in a product or product line, the proportion of uncertified material shall not exceed xx %. Such uncertified material shall be covered by a verification system which ensures that it is legally sourced and meets any other requirement of the certification scheme with respect to uncertified material.</p> <p>The certification bodies issuing forest and/or chain of custody certificates shall be accredited/recognised by that certification scheme.</p> <p>Assessment and Verification: The applicant shall provide information on the geographic origin of wood, cork or the natural rubber used for producing rubber products. With respect to the wood, cork, natural rubber or cellulose fibres used by the applicant shall submit certificates establishing compliance with this criterion. Certificates will be accepted from the independent third-party certification scheme, such as the Forest Stewardship Council (FSC), or equivalent, providing evidence of sustainable forestry and a chain of custody (CoC). Regarding wood from the European economic area (EU and EFTA), the PEFC certification scheme is recognized as equivalent (PEFC - Programme for the Endorsement of Forest Certification Schemes).</p> <p>If the product or product line includes uncertified material, proof should be provided that the uncertified material is less than 50 % and is covered by a verification system which ensures that it is legally sourced and meets any other requirement of the certification scheme with respect to uncertified material.</p>
Use of recycled materials	<p>(a) Use of recycled polyester in textile uppers and linings</p> <p>Polyester fibres shall be manufactured using a minimum content of PET that has been recycled from pre-consumer and/or post-consumer waste. Staple fibres shall contain a minimum content of xx% and filament fibres xx%.</p> <p>Assessment and verification: Recycled content shall be traceable back to the reprocessing of the feedstock. This shall be verified by independent third party certification of the chain of custody or by documentation provided by suppliers and processors.</p> <p>(b) Use of recycled plastic in shoe soles</p>



	<p>Shoe soles shall be manufactured using a minimum content of xx that has been recycled from pre-consumer and/or post-consumer waste.</p> <p>Assessment and verification: Recycled content shall be traceable back to the sole manufacturer. This shall be verified by documentation provided by suppliers and processors.</p>
PVC usage	<p>(b) The footwear shall not contain PVC.</p> <p>Assessment and verification: the applicant shall provide a declaration of compliance with this criterion.</p>
Wastages management systems	<p>The applicant shall record and provide the wastage rate for its assembly site.</p> <p>The wastage rate is calculated as follows: the mass of output products minus the mass of input materials) divided by the mass of input materials.</p> <p><i>Following discussion with stakeholders, the proposal is to set a wastage limit value and to precisely define the steps of production (upper, sole...) in the scope of evaluation.</i></p> <p>The applicant must document his approach on the waste management and how he intends to improve it.</p>
Post-consumers wastes	<p>The brand shall explain qualitatively its management system, if it exists.</p>

### **Annex III      Energy consumption calculation**

The energy consumption calculation refers only to the assembly (manufacturing stage) of the final product.

The average electric consumption (AEC) for each pair of shoes can be calculated two ways:

On the basis of the overall daily production of shoes of the plant:

- MJdp = average energy used per day in production of shoes [electricity + fossil fuels] (calculated on an annual basis),
- N = average number of pair of shoes produced per day (calculated on a annual basis),

$$AEC = MJdp / N$$

On the basis of the production of eco-labelled shoes of the plant:

- MJep = average energy used per day in production of eco-labelled shoes [electricity + fossil fuels] (calculated on an annual basis),
- Nep = average number of pairs of eco-labelled shoes produced per day (calculated on an annual basis),

$$AEC = MJep / Nep$$

## Annex IV Derogation request form

### EU Ecolabel revision

Derogation request		Substitution proposal	
Chemical substance name(s)		Chemical substance name(s)	
CAS, EC or Annex VI numbers		CAS, EC or Annex VI numbers	
Functional need and significance in the final product		Functional need and significance in the final product	
CLP Classifications from EU Ecolabel listing	<i>Please note if they are self-classified or have a harmonised classification</i>	CLP Classifications from EU Ecolabel listing	<i>Please note if they are self-classified or have a harmonised classification</i>
Current regulatory status	<i>E.g. on or proposed for the SVHC candidate list, registered, restricted</i>	Current regulatory status	<i>E.g. on or proposed for the SVHC candidate list, registered, restricted</i>
Existing scientific evidence and risk assessments relating to the substance	<i>E.g. REACH/ECHA dossiers, reference to scientific research</i>	Indication and comparison of environmental performance	<i>- Identification of classification/non-classification status of the substance</i>  <i>- identification of substances that can/have been substituted and supporting evidence of the improvement for specific hazards i.e. CLP classification, reference to scientific research/screening exercises</i>
The relevance of hazard classifications along the life cycle of the product e.g. manufacturing, use, disposal	<i>E.g. if the CLP classification and greatest risk of exposure relates to the form in which a substance is handled in the factory</i>	The life cycle relevance of environmental improvements	<i>Quantitative evidence of where the greatest improvement potential can be evidenced e.g. workforce exposure, wastewater, consumer exposure risk</i>
Typical concentration in the final product or specific components and articles (including ranges depending on function)		Typical concentration in the final product or specific components and articles (including ranges depending on function)	
Proportional contribution to final product classification (where relevant)	<i>Particularly relevant for mixtures and with reference to CLP rules</i>	Proportional contribution to final product classification (where relevant)	<i>Particularly relevant for mixtures and with reference to CLP rules</i>
Technical assessment of the functional need	<i>The necessity to be present in the product and according to its end-use or consumer requirements</i>	Compliance with product performance and functional requirements	<i>Evidence that the substitute fulfills the same requirements and technical needs, mechanisms used e.g. fitness for use test results, specifications</i>
Market availability of alternatives, their hazard profile and the potential for substitution	<i>Market availability and technical status of alternatives – why are they currently not suitable?</i>	Market availability, production volumes and other potential substitutes	<i>E.g. Market diffusion and technical status of substitute(s)</i>
Additional information		Additional information	

## Annex V Feedback from stakeholders

Stakeholders have been surveyed on several issues (scope, market, criteria revision...) through a questionnaire. Their feedback regarding the criteria revision is summarized here. The questionnaire is presented in Annex.

[font change] As general feedback, the following points were extracted from the stakeholders' consultation:

- Product group definition  
Most stakeholders find the current definition of the product group adequate and precise. The wording "fixed outer soles" should be specified because a priori it excludes footwear molded as one piece.
- Scope extension  
More than half the stakeholders (~57 %) are clearly not in favour of the scope extension. In general terms, stakeholders who supported the scope extension expressed their interest to cover more leather products within the EU Ecolabel in order to promote a greener market. Simultaneously, they suggested the need for fair requirements among all leather goods. Some stakeholders, because of several constraints, do not clearly express their interest in covering footwear and other leather products within one common scope. However, they would be interested in covering other leather products within the EU Ecolabel scheme. In practice, specific criteria for other leather products (or leather) could be developed instead of including them in one unique product group 'Footwear and leather products'.
- Suggestions for criteria revision  
Among the different suggestions posed by stakeholders for consideration in the criteria revision process, the following ones were highlighted as being highly relevant:
  - Focus on materials other than leather, e.g., plastics, textiles, metals;
  - Inclusion of recycled materials;
  - Updating the assessment and verification methods.

Regarding the general feedback for each criterion, the majority of stakeholders prefer not to introduce any change. However, stakeholders highlighted some potential improvements for almost all criteria; each stakeholder highlighted two or three different criteria. Criterion 2 and 3 raised particular concern.

1. Dangerous substances in the final product*	Shall be reviewed (see Article 6.6. and 6.7. of the EU Ecolabel Regulation EC/66/2010)			
2. Reduction of water consumption	<b>10</b> Keep	<b>4</b> Modify	<b>4</b> Remove	
3. Emission from the production of material (Limitation of water pollution)	<b>12</b> Keep	<b>4</b> Modify	<b>3</b> Remove	
4. Exclusion of use hazardous substances (up until purchase)*	Shall be reviewed (see Article 6.6. and 6.7. of the EU Ecolabel Regulation EC/66/2010)			
5. Use of VOCs during final assembly of shoes	<b>13</b> Keep	<b>2</b> Modify	<b>2</b> Remove	

6. Energy Consumption	<b>12</b> Keep	<b>2</b> Modify	<b>3</b> Remove
7. Use of recycled material for packaging	<b>15</b> Keep	<b>0</b> Modify	<b>2</b> Remove
8. Information on the packaging	<b>14</b> Keep	<b>2</b> Modify	<b>0</b> Remove
9. Information appearing on the eco-label	<b>13</b> Keep	<b>4</b> Modify	<b>0</b> Remove
10. Parameters contributing to durability	<b>13</b> Keep	<b>3</b> Modify	<b>0</b> Remove
The reasons why the stakeholders want to modify or remove some criteria are detailed below. As a general comment, more recent limits could be taken from the latest BREF document.			
1. Dangerous substances in the final product*	Each type of material should be addressed differently with a specific method. Plastics should be more explicitly mentioned.		
2. Reduction of water consumption	Water consumption is very difficult to monitor or it is difficult to obtain the documentation from the leather producer. One stakeholder suggests using the WFN (Water Footprint Network) <sup>109</sup> method. Water consumption highly depends on the type of leather and the tanning process.		
3. Emission from the production of material (Limitation of water pollution)	Water emissions requirements are not up to date. It does not consider the type of wastewater treatment plant (small, large...) nor the load. One stakeholder refers to BATNEEC standard. In addition, it is very difficult to get the documentation from the leather producer. The limits depend on the country of production.		
4. Exclusion of use hazardous substances (up until purchase)*	Stakeholders highlight PFC and the chromium as hazardous substances.		
5. Use of VOCs during final assembly of shoes	The EU Ecolabel should motivate shifting to water-based adhesives and treatments. The regulation on VOC emissions requires levels already difficult to deal with.		
6. Energy Consumption	<p>Modifying: Absolute energy consumption is not equitable for big and small manufacturers. This efficiency should be the focus of additional discussions and analysis.</p> <p>Removing: Energy consumption for shoe assembly does not seem to be significantly energy consuming. However, energy consumption could focus on tanning and on the production of other materials such as natural rubber. In addition, there is already a regulation with energy consumption limits that are difficult to deal with.</p>		
7. Use of recycled material for packaging	<b>The manufacturers do commonly achieve this by themselves.</b>		
8. Information on the packaging	The messages should be better and more detailed.		
9. Information appearing on the eco-label	The new criterion must comply with EU Ecolabel Regulation No 66/2010 and the message should be better (for example, 'Harmful substances reduced' implies that these substances are still present and may be misleading. 'Free from restricted substances' would be better).		
10. Parameters contributing to durability	The criteria do not consider different aspects of footwear: how the end-consumer treats the product, the different types of footwear (e.g., safety), and the fashion which lowers the durability. In addition, messages should inform the consumer about the right treatments to make his product durable.		

Additional considerations from stakeholders are presented below.

#### Additional aspects and criteria area suggested for consideration

Around half of the stakeholders (~55%) suggested additional aspects or criteria areas to be considered within the EU Ecolabel revision process:

<sup>109</sup> <http://www.waterfootprint.org/?page=files/WFN-mission>

- The use of recycled materials (in particular outsoles);
- LCA concepts (such as CO2 emissions);
- Transparency on logistics and transport over the whole value chain ;
- Recyclability of the end product' parts and information on proper end of life disposal (especially if the product was designed specifically);
- Address the environmental impacts of synthetic materials, textiles, and metals on par with leather (fairness between the different materials).

#### Water consumption limit

Most stakeholders (~75%) stated that it would be feasible to set up limits for water consumption for materials or production stages other than leather. It was also stressed that the current criteria are too concentrated on leather and not enough on other materials.

#### Waste management system

Most stakeholders (~70%) including industries, expressed the feasibility of introducing the requirement on waste management system: It could be based on LCA.

- It would be possible to establish requirements on the waste management system at the production stage, but not for the product end of life;
- A circular economy could be promoted (re-use of waste as material or energy);
- It could be based on the efficiency (a percentage of the production).

Several stakeholders stated that a waste management system is not a quantitative indicator of the environmental performance of the product, because it is somewhat subjective. Therefore, the EU Ecolabel criteria should remain clear and straightforward.

In general, stakeholders are in favor of keeping the assessment and verification methods. However, some stakeholders highlight the need to modify the current assessment and verification methods. Criteria 3, 4, and 1 resulted to be the most highlighted, as indicated in the table below.

In general, stakeholders think that assessment and verification methods should be updated. One stakeholder stresses that the methods should be easier to interpret and more straightforward because the applicant is not always the manufacturer (who makes many declarations).

Here are the answers of stakeholders:

How in your opinion should the criteria assessment and verification methods evolve:

\*Note: the Criterion 1 and 4 will be analysed jointly.

1. Dangerous substances in the final product*	8 Keep	5 Modify
2. Reduction of water consumption	8 Keep	5 Modify
3. Emission from the production of material (Limitation of water pollution)	6 Keep	6 Modify
4. Exclusion of the use hazardous substances (up until purchase)*	7 Keep	5 Modify
5. Use of VOCs during final assembly of shoes	10 Keep	3 Modify
6. Energy Consumption	9 Keep	4 Modify
7. Use of recycled material for packaging	11 Keep	2 Modify
8. Information on the packaging	13 Keep	0 Modify
9. Information appearing on the eco-label	13 Keep	0 Modify
10. Parameters contributing to durability	10 Keep	3 Modify

1. Dangerous substances in the final product*	The Criterion 1 will be analysed in accordance with Commission Statement (19/03/2009/ENV G2. New detection limits exist. Metal parts need other standards.
2. Reduction of water consumption	Need to establish benchmarks and methods for assessing water usage per pair of shoes.
3. Emission from the production of material (Limitation of water pollution)	<ul style="list-style-type: none"> <li>- Alternatives to ISO 6060 should be mentioned, directly in connection to the criterion. For some global areas, other valid standards are used.</li> <li>- These are difficult to address when there are extended supply chains. Alignment towards LWG methodology might be appropriate</li> </ul>
4. Exclusion of use hazardous substances (up until purchase)*	<ul style="list-style-type: none"> <li>- the Criterion 1 will be analysed in accordance with Commission Statement (19/03/2009/ENV G2)</li> <li>- Documents supporting the non-use (or similar) should be compulsory</li> </ul>
5. Use of VOCs during final assembly of shoes	Definition of VOC is needed (and is disputed for some areas). Verification is very hard to comprehend.
6. Energy Consumption	
7. Use of recycled material for packaging	.
8. Information on the packaging	
9. Information appearing on the eco-label	
10. Parameters contributing to durability	<p>The sole flexing method is not applicable for small soles and a better method would probably be EN ISO16177 with the performance criteria of no cracking following 50,000 flexes on a 90mm roller.</p> <p>Regarding the colour fastness criterion, the test method EN ISO 17700 has three different methods of exam (A, B and C) and it should be clarified which one is to be used (method A is the most widely applied method in Europe). The suitable test conditions (dry, wet, sweat, etc) may be discussed during the coming revision meetings in order to find an agreement.</p>

**Annex VI Draft proposal: MRSL**

Family of substances	Applicability	Substances	CAS	Proposal	Verification	Source / reason for exclusion
<b>Process</b>						
<b>Isocyanates (elastomers)</b>	Polyurethane, PU coatings, finishing	Methylenediphenyl diisocyanate (MDI)	26447-40-5	n.d.	Declaration from applicant supported by test results EN ISO 10283	Annex XVII REACH and SVHC
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>	Final product: Plastics and rubber, including plastic coatings	Anthracene	various	Sum total 10 mg/kg	Declaration from applicant supported by test results: ISO 21461	In line with Annex XVII of REACH
		Benzo[a]anthracene (BaA)				
Chrysene (CHR)						
Benzo[b]fluoranthene (BbFA)						
Benzo[j]fluoranthene (BjFA)						
Benzo[k]fluoranthene (BkFA)						
Dibenzo[a,h]anthracene (DBA <sub>h</sub> A)						
		Benzo[e]pyrene (BeP)		1 mg/kg		



Family of substances	Applicability	Substances	CAS	Proposal	Verification	Source / reason for exclusion
<b>N-Nitrosamines (Rubber processing)</b>	Plastics and rubber	—N-nitrosodimethylamine (NDMA)	various	n.d.	Declaration from applicant supported by test results (EN 12868 (1999-12) or EN 14602)	Current Criterion 4 (c)
		— N-nitrosodiethylamine (NDEA)				
		— N-nitrosodipropylamine (NDPA)				
		— N-nitrosodibutylamine (NDBA)				
		— N-nitrosopiperidine (NPIP)				
		— N-nitrosopyrrolidine (NPYR)				
		— N-nitrosomorpholine (NMOR)				
		— N-nitroso N-methyl N-phenylamine (NMPHA) — N-nitroso N-ethyl N-phenylamine (NEPHA)				
<b>Solvents (Materials processing, adhesives)</b>	Solvent in coated leather.	2-Methoxyethanol	109-86-4	Shall not be used	Declaration of no use from the supplier supported by SDS.	Toxic for reproduction (article 57c)
	Solvent for resins and polymers, paint strippers, ink removers, coatings	N,N-dimethylformamide	68-12-2			Toxic for reproduction (Article 57 c)
	Water based dyes	Bis(2-methoxyethyl) ether	111-96-6			Toxic for reproduction (article 57 c)
	azo colorant/ PU	4,4'-Diaminodiphenylmethane	101-77-9			Carcinogenic (article 57a)
	Solvent used in rubber industry, traces can be present only as a residue.	1,2,3-trichloropropane	96-18-4			Carcinogenic and toxic for reproduction (articles 57a and 57c)
	Solvent used in non-flammable adhesive /	1,2-Dichloroethane; ethylene dichloride	107-06-2			Carcinogenic (article 57a)

Family of substances	Applicability	Substances	CAS	Proposal	Verification	Source / reason for exclusion	
	packaging						
	PU and acrylate solvent coated leather	2-Ethoxyethanol	110-80-5			Toxic for reproduction (article 57c)	
	Textile/leather	Benzene-1,4-diamine dihydrochloride	624-18-0			Carcinogenic (article 57a)	
	Water based dyes	Bis(2-methoxyethyl) ether	111-96-6			Toxic for reproduction (article 57 c)	
	Synthetic leather and polymer coatings	Formamide	75-12-7			Toxic for reproduction (Article 57 c)	
	Polymers / from the blowing agent azodicarbonamide	N,N-dimethylacetamide (DMAC)	127-19-5			Carcinogenic (article 57a)	
	Solvent for resins and polymers, paint strippers, ink removers, coatings	N-methyl-2-pyrrolidone; 1-methyl-2-pyrrolidone	872-50-4			Toxic for reproduction (article 57c)	
	Final product	Trichloroethylene	79-01-6			Carcinogenic (article 57 a)	
Halogenated organic carriers (carriers)	(Polyester, acrylic, polyamide)	e.g. 1,2-dichlorobenzene, 1,2,4-trichlorobenzene, chlorophenoxyethanol; 2-Chlorotoluene; Pentachlorotoluene; Pentachlorobenzene, Tetrachlorobenzene	various	Shall not be used to dye.	Declaration from the applicant supported by SDS.	In line with the on-going revisions for the EU Ecolabel for textile, and for Bed Matresses	
Dyes	Textile	azo dyes	various	Proposal: 20 mg/kg for each amine	EN 14362-1:2012 and 3:2012	AFIRM, OkoTex	
	Leather	azo dyes	various	Proposal: 20 mg/kg for each amine	CEN ISO/TS 17234		
	Textile/leather/ polymers	Dyes shall not be used that are potentially sensitising.		various		Declaration from the chemical supplier supported by SDS.	Criterion 4 (g)
		CMR dyes	various	Shall not be used.	Declaration from the chemical supplier supported by SDS.	Criterion (e)	
		Chrome mordant dyes	Various		Declaration from the chemical supplier supported by SDS.	In line with the EU Ecolabel for Textile	

Family of substances	Applicability	Substances	CAS	Proposal	Verification	Source / reason for exclusion
		Dyes hazardous/dangerous to environment	Various		Declaration from the chemical supplier supported by SDS.	Criterion 4 (e)
Alkylphenol etoxylates (APEOs) and Alkylphenos (AP)	Final product	Nonylphenol, branched and linear				In line with the EU Ecolabel for Bed Matresses
		4-Nonylphenol				
		4-Nonylphenol, branched				
		Octylphenol	272193-28-8	Proposed threshold: 25 mg/kg sum total	Solvent extraction followed by LCMS	
		4-Octylphenol	1806-26-4			
		4-tert-Octylphenol	140-66-9			
		Polyoxyethylated octyl phenol 9002-93-1	9002-93-1			
Polyoxyethylated nonyl phenol 9016-45-9	9016-45-9					
<b>FUNCTIONAL SUBSTANCES</b>						
		Dimethylfumarate (DMF)	624-49-7	n.d.	Declaration from applicant supported by test results : ISO/TS 16186	EU Decision 2009/251/EC
		Boric acid	10043-35-3	n.d.	Declaration of no use supported by SDS	Toxic for reproduction (Article 57 c)
Biocides	Final product	Pentachlorophenol (PCP ) its salts and esters	87-86-5	Leather: 0,1 ppm; Textile: 0,05 ppm	Declaration of no use along with a test report Leather, EN ISO 17070; Textile, XP G 08-015	Criterion 4 (a)
		Tetrachlorophenol (TeCP) its salts and esters	4901-51-3	Leather: 0,1 ppm; Textile: 0,05 ppm	Declaration of no use along with a test report Leather, EN ISO 17070; Textile, XP G 08-015	Criterion 4 (a)
		Organotin compounds (Preservative, PU)	Final product: Leather and Plastic	Tributyltin compounds (TBT)	various	0.025 mg/kg

Family of substances	Applicability	Substances	CAS	Proposal	Verification	Source / reason for exclusion
additive, PVC stabilizer, silicone),	Coatings, Plastics and Textile Materials	Triphenyltin (TPhT)	various	0,5 mg/kg	EN ISO 17353	In line with OKo Tex
		Dibutyltin compounds (DBT)	Various	1 mg/kg	EN ISO 17353	In line with Blue Angel
		Diocetyl tin compounds (DOT)	Various	1 mg/kg	EN ISO 17353	In line with Blue Angel
		Monobutyltin compounds (MBT)	Various	1 mg/kg	EN ISO 17353	In line with Blue Angel
Phthalate (Plasticisers)	Final product: Rubber and Coatings or Printings of Materials	Dipentyl phthalate (DPP)	131-18-0	Sum total 0.01 % w/w (1000 mg/kg)	EN ISO 18856 or EN 14602 EN ISO 18856 or EN 14602	REACH )
		DNOP (di-n-octyl phthalate),	117-84-0			
		DINP (di-isononyl phthalate),	68515-48-0			
		DIDP (di-isodecyl phthalate),	68515-49-1			
		DEHP (diethylhexyl phthalate)	117-81-7			
		DBP (dibutyl phthalate),	84-74-2			
		BBP (benzyl butyl phthalate)	85-68-7			
		DIBP (di-isobutyl phthalate).	201-553-2			
Flame retardants	Final product	HBCDD – Hexabromocyclododecane	3194-55-6	Shall not be used	Declaration of no use supported by SDS	REACH
		PeBDE – Pentabromodiphenyl ether	32534-81-9			
		OcBDE – Octabromodiphenyl ether	32536-52-0			
		DecaBDE – Decabromodiphenyl ether	1163-19-5			
		PBBs – Polybrominated biphenyls	59536-65-1			
		TEPA – Tris(aziridinyl) phosphin oxide	545-55-1			

Family of substances	Applicability	Substances	CAS	Proposal	Verification	Source / reason for exclusion
		TRIS – Tris (2,3 dibromopropyl) phosphate	126-72-7			
		TCEP – Tris (2, chloroethyl) phosphate	115-96-8			
		Short chain chlorinated paraffins (C10-C13 ) chloroalkanes (SCCP)	various			Criterion 4 (a)
PFCs (Water repellents)	Final product	Perfluorooctane sulfonate (PFOS)	Various	Greater than C4	Declaration from supplier supported by test report:- GC-MS-MS or HPLC-MS-MS	OECD
		Perfluoroalkyl sulfonate (PFAS)	Various	Greater than C6	Declaration from the chemical supplier supported by SDS. / GC-MS-MS or HPLC-MS-MS	OECD
<b>FINAL PRODUCT (traces)</b>						
Heavy metals*	Final product	Arsenic (As)	440-38-2	n.d.	EN 14602	Current Criterion 1 (b)
		Antimony	7440-36-0	5 mg/kg	Non-leather: EN ISO 105-E04 ICP-MS Leather: EN ISO 17072-1	In line with Oko Tex 100I
		Cadmium (Cd)	7440-43-9	n.d.	EN 14602	Current Criterion 1 (b)
		Lead	7439-92-1	n.d.	EN 14602	Current Criterion 1 (b)
		Mercury	7439-97-6	0.02 ppm		In line with Oko Tex 100
	Metal parts	Nickel	7440-02-0	0.5 µg/cm <sup>2</sup> /week	EN1811	REACH Annex XVII
Formaldehyde (free and hydrolysed)	Final product (leather)	Chromium VI	18540-29-9	n.d. (detection limit 3 mg/kg)	Test report, using test method EN ISO 17075.	Current Criterion 1 (a)
	Textile	Formaldehyde	50-00-0	n.d.	EN ISO 14184-1:2011	Current Criterion 1 (c)
	Leather	Formaldehyde	50-00-0	20 mg/kg (babies) 75 mg/kg for others	ISO 17226-2	OkoTex, TFL
<i>*The list of heavy metals that should be listed, their threshold, and indication of the most appropriate testing method should be separately discussed during the consultation process n.d. not detectable</i>						

## Dyes

<b>(a) Aromatic amines that are restricted by REACH Annex XVII</b>		
<b>Aryl amine</b>	CAS Number	
4-aminodiphenyl	92-67-1	
Benzidine	92-87-5	
4-chloro-o-toluidine	95-69-2	
2-naphtylamine	91-59-8	
o-amino-azotoluene	97-56-3	
2-amino-4-nitrotoluene	99-55-8	
4-chloroaniline	106-47-8	
2,4-diaminoanisol	615-05-4	
4,4'-diaminodiphenylmethane	101-77-9	
3,3'-dichlorobenzidine	91-94-1	
3,3'-dimethoxybenzidine	119-90-4	
3,3'-dimethylbenzidine	119-93-7	
3,3'-dimethyl-4,4'-diaminodiphenylmethane	838-88-0	
p-cresidine	120-71-8	
4,4'-methylene-bis-(2-chloro-aniline)	101-14-4	
4,4'-oxydianiline	101-80-4	
4,4'-thiodianiline	139-65-1	
o-toluidine	95-53-4	
2,4-diaminotoluene	95-80-7	
2,4,5-trimethylaniline	137-17-7	
4-aminoazobenzene	60-09-3	
o-anisidine	90-04-0	
<b>(b) Aromatic amines that are restricted in some EU Member States</b>		
2,4-Xylidine	95-68-1	
2,6-Xylidine	87-62-7	
<b>(c) Dyes that may cleave to aromatic amines</b>		
<b>Disperse dyes that may cleave to aromatic amines</b>		
Disperse Orange 60		
Disperse Orange 149		
Disperse Red 151		
Disperse Red 221		
Disperse Yellow 7		
Disperse Yellow 23		
Disperse Yellow 56		

Disperse Yellow 218		
<b>Basic dyes that may cleave to aromatic amines</b>		
Basic Brown 4		
Basic Red 42		
Basic Red 76		
Basic Red 111		
Basic Red 114		
Basic Yellow 82		
Basic Yellow 103		
<b>Acid dyes that may cleave to aromatic amines</b>		
CI Acid Black 29	CI Acid Red 24	CI Acid Red 128
CI Acid Black 94	CI Acid Red 26	CI Acid Red 115
CI Acid Black 131	CI Acid Red 26:1	CI Acid Red 128
CI Acid Black 132	CI Acid Red 26:2	CI Acid Red 135
CI Acid Black 209	CI Acid Red 35	CI Acid Red 148
CI Acid Black 232	CI Acid Red 48	CI Acid Red 150
CI Acid Brown 415	CI Acid Red 73	CI Acid Red 158
CI Acid Orange 17	CI Acid Red 85	CI Acid Red 167
CI Acid Orange 24	CI Acid Red 104	CI Acid Red 170
CI Acid Orange 45	CI Acid Red 114	CI Acid Red 264
CI Acid Red 4	CI Acid Red 115	CI Acid Red 265
CI Acid Red 5	CI Acid Red 116	CI Acid Red 420
CI Acid Red 8	CI Acid Red 119:1	CI Acid Violet 12
<b>Direct dyes that may cleave to aromatic amines</b>		
Direct Black 4	Basic Brown 4	Direct Red 13
Direct Black 29	Direct Brown 6	Direct Red 17
Direct Black 38	Direct Brown 25	Direct Red 21
Direct Black 154	Direct Brown 27	Direct Red 24
Direct Blue 1	Direct Brown 31	Direct Red 26
Direct Blue 2	Direct Brown 33	Direct Red 22
Direct Blue 3	Direct Brown 51	Direct Red 28
Direct Blue 6	Direct Brown 59	Direct Red 37
Direct Blue 8	Direct Brown 74	Direct Red 39
Direct Blue 9	Direct Brown 79	Direct Red 44
Direct Blue 10	Direct Brown 95	Direct Red 46
Direct Blue 14	Direct Brown 101	Direct Red 62
Direct Blue 15	Direct Brown 154	Direct Red 67
Direct Blue 21	Direct Brown 222	Direct Red 72
Direct Blue 22	Direct Brown 223	Direct Red 126

Direct Blue 25	Direct Green 1	Direct Red 168
Direct Blue 35	Direct Green 6	Direct Red 216
Direct Blue 76	Direct Green 8	Direct Red 264
Direct Blue 116	Direct Green 8.1	Direct Violet 1
Direct Blue 151	Direct Green 85	Direct Violet 4
Direct Blue 160	Direct Orange 1	Direct Violet 12
Direct Blue 173	Direct Orange 6	Direct Violet 13
Direct Blue 192	Direct Orange 7	Direct Violet 14
Direct Blue 201	Direct Orange 8	Direct Violet 21
Direct Blue 215	Direct Orange 10	Direct Violet 22
Direct Blue 295	Direct Orange 108	Direct Yellow 1
Direct Blue 306	Direct Red 1	Direct Yellow 24
Direct Brown 1	Direct Red 2	Direct Yellow 48
Direct Brown 1:2	Direct Red 7	
Direct Brown 2	Direct Red 10	
<b>(d) Dyes that are CMR or which potentially be sensitising</b>		
<b>Dyes that are carcinogenic, mutagenic or toxic to reproduction</b>		
C.I. Acid Red 26	C. I. Direct Black 38	C.I. Disperse Blue 1
C.I. Basic Red 9	C. I. Direct Blue 6	C.I. Disperse Orange 11
C.I. Basic Violet 14	C. I. Direct Red 28	C. I. Disperse Yellow 3
<b>Disperse dyes that are potentially sensitising</b>		
C.I. Disperse Blue 1	C.I. Disperse Blue 124	C.I. Disperse Red 11
C.I. Disperse Blue 3	C.I. Disperse Brown 1	C.I. Disperse Red 17
C.I. Disperse Blue 7	C.I. Disperse Orange 1	C.I. Disperse Yellow 1
C.I. Disperse Blue 26	C.I. Disperse Orange 3	C.I. Disperse Yellow 3
C.I. Disperse Blue 35	C.I. Disperse Orange 37	C.I. Disperse Yellow 9
C.I. Disperse Blue 102	C.I. Disperse Orange 76	C.I. Disperse Yellow 39
C.I. Disperse Blue 106	C.I. Disperse Red 1	C.I. Disperse Yellow 49





