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Technical Support for the Revision of the EU Ecolabel criteria – Product group “Footwear”

PRELIMINARY PROPOSAL WITH RECOMMENDATIONS ON THE SCOPE REVISION

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Executive Summary

This document provides background information for the revision of the EU Ecolabel for Footwear in terms of the scope definition and its possible extension to other leather products. The document first analysis all identified relevant sources of information, and then develops the main arguments to support the revised scope proposal. Finally, it presents conclusions and preliminary recommendations.

From analysing the market situation, the other European and non-European Ecolabels, the existing LCA studies, and the feedback from several registered stakeholders, it is clear that extending the scope to a broad range of leather products would be complicated, for three major reasons:

- 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, through fashion jackets to wallets), hindering the introduction of the comprehensive product group definition;
- Many of the so-called leather products are in fact composed of several materials, among which leather may be only a minor component. Indeed in certain analysed product groups, there is a considerable rise in the use of leather/synthetic material combinations. If all the products were to be considered within the scope, the majority of them 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, the EU Ecolabel would not meet its original goal: to provide the consumer with the most environmentally friendly choice within the same product group category;
- Leather technologies and processing are very product specific. In particular, technical and performance specifications that ensure the product functional durability within the use phase are quite different from one product to another and it would be complicated to introduce a common set of criteria.

Following these arguments, the principal recommendation on the scope extension is to maintain it as currently defined:

“The product group ‘footwear’ shall comprise all articles of clothing designed to protect or cover the foot (...)”

If the first option is perceived to be too narrow, the closest products to footwear could be considered:

“The product group ‘footwear and leather products’ shall comprise all articles of clothing or accessory

- ***Either designed to protect or cover the foot,***
- ***Or made of leather and designed as decorative or functional accessory, such as belts, bags, articles normally carried in the pocket...”***

Objective

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. 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); revision is justified because some criteria must be amended, withdrawn or introduced.

The revision process addresses the possible expansion of the scope for this product group and, consequently, the revision of the EU Ecolabel criteria to accommodate other types of leather products. Hence, one of the particular objectives is to determine the product group covered by the EU Ecolabel for Footwear and Leather products. Based on this definition, the EU Ecolabel criteria shall be reviewed so that they can apply to all products within analysed category, addressing the most important environmental impacts from the Life Cycle Assessment perspective.

In order to fulfil all the above mentioned aspects, this report addresses the functional, technical, economic and environmental aspects related to footwear and the leather sector, including:

- ✓ Legislation
- ✓ European Standards
- ✓ Other environmental labelling
- ✓ Preliminary market analysis
- ✓ Technology analysis
- ✓ Preliminary Life Cycle Assessment consideration

1 Background information

1.1 Current EU Ecolabel for Footwear and need for update

1.1.1 Product group definition

The article 1 of the current EU Ecolabel criteria document for Footwear (Commission Decision 2009/563/EC) defines the scope as: *"The product group 'footwear' shall comprise all articles of clothing designed to protect or cover the foot, with a fixed outer sole which comes into contact with the ground. Footwear shall not contain any electric or electronic components."*

Additionally, the framework of the Decision establishes the following cut-off limit: *"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."*

This definition is firmly based on the distinctive and very specific product's function that a consumer is looking for (to protect and cover foot). This is a key approach to be considered, having in mind that the EU Ecolabel is designed for consumers. This argumentation will be extensively analysed in the chapter 2.1.

1.1.2 Current criteria

The framework of the EU Ecolabel document under revision sets out the objectives of the criteria and defines the background for the assessment and verification requirements (functional unit, cut-off limit). The aims 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 criteria intended to meet this specific aim, 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

- The listed set of criteria should be carefully analyzed when defining the scope in order to identify the possible similarities that could be addressed by the variety of leather products.

1.1.3 Commission Statement as to the next Revision

In conjunction with the adoption of the present criteria document on March 2009, several statements were submitted by Member States relating to issues should be addressed/investigated further in the next revision. Thus, the revision of the EU Ecolabel for Footwear must at least 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) need to 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
- inclusion of waste phase of materials in the evaluation;
- regulation or exclusion of materials that are problematic in the waste phase;
- evaluation of PFAs and the related environmental problems;
- evaluation of PVC and the related environmental problems;
- evaluation of formaldehyde in leather.

Revision of the scope and definition of the Footwear product group was not specifically mentioned in the Commission Statement. However, based on a separate proposal, it appears prudent to evaluate the feasibility of the scope extension to include other leather products.

1.2 Legal documents

Labeling of EU market footwear components is regulated by the EU Footwear Labelling Directive (94/11/EC). Article 12 of the EU Textile Labelling Regulation (1007/2011) specifies: "The presence of non-textile parts of animal origin in textile products shall be indicated by using the phrase: 'Contains non-textile parts of animal origin' on the labelling or marking of products containing such parts whenever they are made available on the market."

However, there is no specific EU legislation that addresses exclusively the environmental performance of footwear or leather products. However, several key legislation and standards related to the target product group have been identified.

European and International standards are also relevant within the revision process because they ensure the quality of the products.

1.2.1 Relevant European environmental policy and legislation

Several Directives and legal instruments regulate the footwear and leather products supply chain in order to prevent potential harmful impacts to human health and the environment. The main regulatory framework which appears relevant when analysing the scope is briefly described in this section:

- **EU Ecolabel Regulation** No 66/2010
- **Labelling of footwear** Directive 94/11/EC of the European Parliament and of the Council of 23 March 1994 on the approximation of the laws, regulations and administrative provisions of the Member States relating to labelling of the materials used in the main components of footwear for sale to the consumer
- **CLP** Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (GHS Regulation)
- **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 (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
- Commission Decision of 17 March 2009 requiring Member States to ensure that products containing the biocide **dimethylfumarate** are not placed or made available on the market (2009/251/EC).
- **Biocidal products** Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the marketing, sale and use of biocidal products. The Regulation repeals and replaces Directive 98/8/EC, and will be applicable as of 1 September 2013. The objective of the new Regulation is to improve operation of the internal market for biocidal products and correct a number of weaknesses that were identified during the 11 years of implementation of the current Directive 98/8/EC. Waste Framework Directive 2008/98/EC.
- **Animal by-products** Regulation (EC) No.1069/2009, which establishes animal health and public health rules for the collection, transport, storage, handling, processing, and use or disposal of animal by-products.
- Commission Decision of 28 May 2009 amending Council Directive 76/769/EEC regarding restrictions on marketing and use of **organostannic compounds** for the purpose of adapting its Annex I to technical progress.

- **IED Directive 2010/75/EU** of the European Parliament and of the Council of 24 November 2010, on industrial emissions (integrated pollution prevention and control).
- **IPPC Directive 2008/1/EC** of the European Parliament and of the Council of 15 January 2008, concerning integrated pollution prevention and control.
- **Toy Safety Directive 2009/48/EC** of the European Parliament and of the Council of 18 June 2009 on the safety of toys. This Directive applies to products designed or intended, whether or not exclusively, for use in play by children under 14 years of age. Accordingly, products with a dual function are covered by the scope definition (e.g., baby footwear could easily come into contact with a baby's mouth). The new Directive establishes concentration limits for chemicals and substances used in toy component materials.
- **Azo Dyes Directive 2002/61/EC** of the European Parliament and of the Council of 19 July 2002 amending for the nineteenth time Council Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations (azocolourants).

1.2.2 European and International standards (CENs, ISO, IULTCS)

This section presents a summary of the main international standards relevant to the footwear and leather sectors.

1. **CEN – European Committee for Standardization.** CEN is officially recognized as a European standards body by the European Union. CEN has signed the 'Vienna Agreement' with the International Organization for Standardization (ISO), through which European and International standards can be developed in parallel.¹

CEN/TC 289 – Leather (62 related standards covering technical specification for upholstery, automotive, footwear, garments leather, among others)

CEN/TC 309 – Footwear (34 related standards)

CEN/TC 161 – Foot and leg protectors (15 related standards)

CEN/TC 162 – Protective clothing including hand and arm protection and lifejackets (5 related standards)

CEN/TC 193 – Adhesives (15 related standards)

CEN/TC 217 – Surfaces for sports areas (1 related standard)

CEN/TC 248 – Textiles and textile products (4 related standards)

¹ <http://www.cen.eu/cen/aboutus/pages/default.aspx>

2. ISO – International Organization for Standardization²

- **TC 120 Leather** (21 related standards): Standardization in the field of raw hides and skins including pickled pelts; tanned hides and skins and finished leather; leather products (including testing methods for leather products). Excluded: testing methods raw hides and skins, including pickled pelts, tanned hides and skins, and finished leather, which is within the domain of the IULTCS³; footwear, which is the field of work of ISO / TC 216; protective clothing and equipment, which is the field of work of ISO / TC 94.
- **TC 216 Footwear** (69 related standards): Standardization of test methods, terminology and performance requirements for components for footwear; test methods and terminology for whole shoe. Excluded: footwear for professional use (already covered by ISO / TC 94) and sizing system designation and marking for boots and shoes (addressed by ISO / TC 137).
- **TC 137 Footwear sizing designations and marking systems** (1 standard): Standardization of footwear sizing systems based on the measurement of the foot, and the designation and marking of such sizes; standardization of sizing ranges (unit and intervals); standardization of a system of calibrating the last or equivalent equipment; terminology.
- **TC 45 Rubber and rubber products** (435 related standards): Standardization of terms and definitions, test methods and specifications for rubber in any form, rubber products (including their dimensional tolerances) and major rubber compounding ingredients. By agreement with ISO / TC 61, coated fabrics, flexible cellular materials, footwear and hose, whether made of rubber or plastics, are also addressed in ISO / TC 45.

3. IULTCS - International Union of Leather Technologists and Chemists Societies

The IULTCS test methods are accepted by the International Organisation for Standardisation (ISO) and, following agreements in 1990 and re-affirmed in 2005, the ISO recognises IULTCS as an International Standardising Body. ISO has assigned responsibility for establishment of test procedures for leather to IULTCS and the resultant test method documents are published as a joint IULTCS and ISO

² www.iso.org

³ International Union of Leather Technologists and Chemists Societies

Standards. The European Committee for Standardisation (CEN), has through the CEN/TC 289 Technical Committee "Leather" (Secretariat: UNI Italy), jointly adopted many of the IU / ISO Standards. Once formally accepted, the EN Standards are mandatory in all EU member countries⁴. The standard methods address:

- Physical test methods
- Chemical test methods
- Fastness test methods

These regulations and standards illustrate the diversity of technical requirements related to footwear and leather products. Thus a broad scope extension would make the criteria related to the performance tests more complicated. It will most probably not be possible to have a common fitness for use criterion. That would have to be resolved by the division in different sub-criteria.

1.3 European and non-European Ecolabels and standards

1.3.1 Description

The following paragraph introduces the main European and non-European Ecolabels schemes and standards that address both footwear and/or leather containing product group(s). The labels shown have been selected due to their market penetration, their recognition on the market and because they are usually used as benchmarks during the EU Ecolabel criteria development process. By analyzing the way in which the scope is defined, it is possible to evaluate the feasibility of recommending the scope that covers all or by contrary determined leather products. The Ecolabels considered are set in the table in accordance with the scope enclosure.

Following the Nordic Swan specification, leather is included in the common group of textile, skins and leather, which is in alignment with the EU Ecolabel for textile. Blue Angel covers leather material by the product group of Footwear RAL-UZ 155 (2 licenses) and upholstery leather RAL-UZ 148 (9 licenses). Japanese Eco Mark makes a clear division between Footwear (Category No 143) and Leather clothes, gloves, and belts (Category No 144).

⁴ http://www.iultcs.org/pdf/IULTCS%20-%20OFFICIAL%20METHODS_March-2012.pdf

Table 1: European and non-European Ecolabels⁵

Ecolabel name & logo		Scope					Scope inclusion criteria
		Footwear	Textiles, Skins and Leather	Leather	Upholstery leather	Leather goods/ product	
Nordic Swan		Out of scope ⁶	X				<p><u>Scope inclusion criteria</u> : Mass & material At least 90% by weight of the product must consist of skins/leather or a mixture of skins/ leather and textile fibre. Clothing and furnishing fabrics.</p>
Environmental Choice New Zealand (New Zealand)			X				<p><u>Scope inclusion criteria</u> : Mass & material</p> <ul style="list-style-type: none"> • clothing textiles and accessories consisting of at least 90% by weight of textile fibres • interior textiles • fibre, yarn and fabric intended for use in clothing textiles or interior textiles. <p>This category does include skins and leather (from cattle, sheep, goats or pigs), no additional specification is established.</p> <p>This category does not include textile products for industrial use or carpets. Footwear is out of scope.</p>
Blue Angel		X					<p><u>Scope inclusion criteria</u>: Material It consists of leather, textile and/or plastic material. Definition of scope close to the EU Ecolabel. The use of PVC shall not be permitted.</p>

⁵ NB: The Netherlands (Milieukeur) and India (Eco Mark) also had Ecolabels related to leather but they are no longer active.

⁶ because of being covered by the EU Ecolabel for Footwear

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Ecolabel name & logo		Scope					Scope inclusion criteria
		Footwear	Textiles, Skins and Leather	Leather	Upholstery leather	Leather goods/ product	
Environmental Friendly Products Ecolabel (Czech Republic)		X					The scope definition is aligned with the EU Ecolabel for Footwear
Japan Eco Mark (Japan)		X					<u>Scope inclusion criteria:</u> material A. Leather shoes B. Rubber, plastic, and fabric shoes C. Other footwear (Japanese footwear, slippers, sandals)
Distintiu de garantia de calitate ambiental (Catalunya)				X			<u>Scope inclusion criteria:</u> Material It concerns exclusively skins contained in the final product. It excludes supplements such as metal parts, plastic, or other non-leather materials.
Japan Eco Mark (Japan)						X	<u>Scope inclusion criteria:</u> Surface Products having 60% (50% for gloves and mittens) or more of their outer surface ⁷ area made of leather.
Blue Angel					X		<u>Scope inclusion criteria:</u> Material leathers to be used in indoor environments as „semi-finished product“ or „surface material“ for the manufacture of leather according to DIN EN 15987 , especially upholstery leather according to DIN 68871

⁷ Surface area when the product is worn. In the case of reversible product, area of both inner and outer surface

Table 2: International Certifications related to leather and other schemes

Name & logo	Description	Comment
SG SchadstoffGeprüft" or "SG-label" Institutional	 <p>SG is a label for low-pollutants leather products awarded only to those products that meet the stringent limit values and parameters for harmful substances set forth in the SG test criteria catalogue</p>	<p><u>Scope inclusion criteria:</u> Material Leather, components made of textiles, leather fibre material, components made of card-board, paper wood cellulose fibre, cork and adhesives and plastics, rubber / artificial leather.</p>
OKO Tex 100 Institution related	 <p>The OEKO-TEX® Standard 100 is an independent test and certification system for textile raw, intermediate and end products at all stages of processing. The criteria cover the restricted use of harmful substances. Taken in their entirety, the requirements go far beyond existing national legislation</p>	<p>The standard is also applicable to mattresses, feathers and downs, foams, upholstery, and others material with similar characteristics.</p>
French labelling	<p>The environmental labeling of products in France is part of the law "Grenelle II de l'environnement". The labeling is not yet mandatory but tools, a database, PCR... are being developed in order to make it practical.</p>	<p>Platform ADEME-AFNOR has developed working groups by sector in order to develop PCR⁸, in the framework of the environmental labelling in France. Within this context, a specific working group dedicated to footwear developed a PCR. They currently work on the possibility to detail different PCR per type of shoes (e.g. town, sports, flip-flops...). But this working group is not dedicated to other leather products. There is a specific group for furniture, but not for cars and other leather goods.</p>

⁸ Product Category Rules

1.3.2 Analysis

The tables above (Table 1 and

Table 2) show that the existing Ecolabels and other schemes considerably differ in scope depending upon the criteria used to decide which areas are considered, for example:

- Some Ecolabels consider product group and corresponding criteria that refer exclusively to footwear, e.g. Eco Mark and Blue Angel. Here, the scope is close to the current EU Ecolabel for footwear, and is based on the final function of the product "to cover the foot".
- Other Ecolabels, such as Distintiu de garantia de calitate ambiental, apply the criteria that cover 'all products made of leather'. Here, the set of criteria only apply to leather itself, and not to other materials or the final product.
- Other Ecolabels apply criteria that cover products made of leather, but exclude footwear, e.g. Eco Mark, Nordic Swan, Environmental Choice. For the Nordic Swan, footwear was excluded, as being addressed by the EU Ecolabel criteria for footwear. For Eco Mark, there is a specific set of criteria for shoes (cf. first bullet point). These schemes also define a minimum quantity of leather that should be present in the end product.

NB: the performance tests for leather products are the ones related to leather and not to the finished products. The criteria are therefore not product specific but rather general.

1.4 Preliminary market analysis

This market analysis is not exhaustive and not very detailed. It fulfils however the objective of this report: to analyse the current scope and definition.

Considering the variety of leather goods it should be possible to evaluate which of the product types are the key drivers of the leather market, and then to incorporate this information into a revised and potentially extended product group scope and definition for the EU Ecolabel for footwear and leather products.

It should be however emphasised that the leather branch make an additional use of a variety of materials such as synthetic material (plastic, nylon, vulcanised fibre, PVC, PP, etc.), textiles, paperboard or a combination of all (with leather). The annual global production of tanned hides amounts to about 215 million pieces, which constitutes mainly bovine hides (65%), followed by sheep (20%), pig (10%), goat and kid skins (5%)⁹. The preliminary market analysis shows a very broad range of articles

⁹ International Council of Tanners, World leather use by end products – ICT estimates 2007

made of leather. Table 3 sets up the statistical estimates of the International Council of Tanners¹⁰, regarding the world leather use by end product in 2007.

Table 3: World leather use by end products – International Council of Tanners estimates 2007¹¹

Leather use-million square feet	
	2007 Estimates
Footwear	11,925
Furniture	3,210
Auto	2,340
Garments	2,290
Gloves	1,010
Other leather products	2,155
Total	22,930
Leather use-% of total production	
Footwear	52
Furniture	14
Auto	10,2
Garments	10
Gloves	4,4
Other leather products	9,4
Total	100

The above table shows that footwear is the major leather-made end product, sharing as much as 52% of global production. It is important to emphasize that footwear is considered as specific and separate product group, classified as a unique product category.

The official EU production statistics (Prodcom, Comext) does not consider precise leather market segmentation. The aggregation of leather with other materials within specific product groups limits the reliability of possible estimation that is why it is quite complicated to screen the market and specify the scope of possible interest. The only data that are clearly analysed considers footwear with leather uppers. Figure 1 illustrates approximate % division in terms of the production value (EUROSTAT, CBI 2010¹²).

¹⁰ <http://www.tannerscouncil.org/standards.htm>

¹¹ The International Council of Tanners is a worldwide organisation of producers of leather. They provide statistics and market data on leather and leather products.

¹² CBI Market Information Database (2010) Market Intelligence Reports, www.cbi.eu

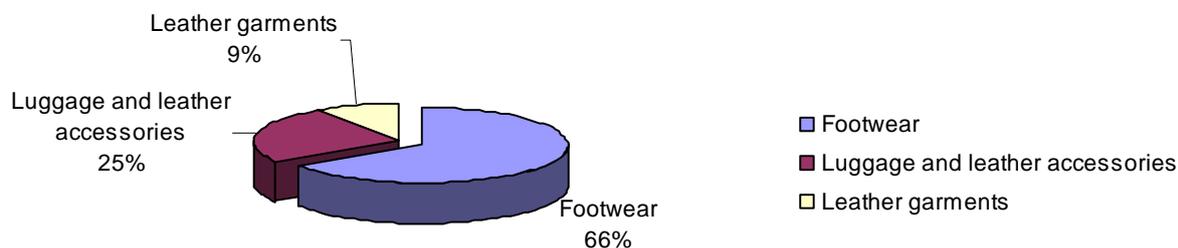


Figure 1: Estimated % division of leather market production value (EUROSTAT, CBI 2010)

According to the UNIC Report (2009)¹³ published by the COTANCE (the European Leather Industry Association), the Italian¹⁴ leather sector segmentation in reference to 1m² of leather is shown on the Figure 2.

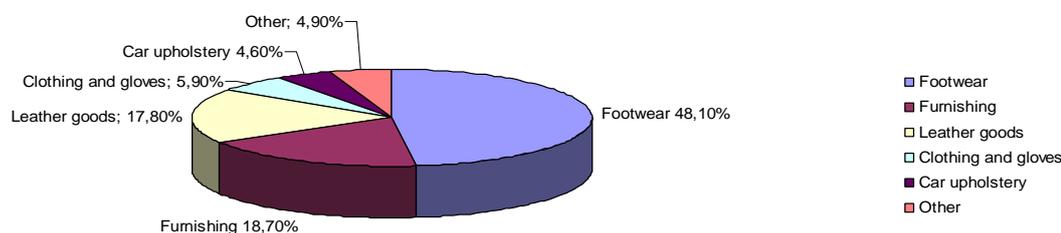


Figure 2: Italian production by sector of intended use % incidence according to the UNIC Report (2009)

The global production of footwear with leather uppers accounts for approx. 4.534,0 million pairs worldwide¹⁵, whereas the European is approx. 863 million pairs, 72% out

¹³ Unione Nazionale Industria Conciaria (2009) Environmental Report, Available at: <http://www.cotance.com/socialreporting/reports/ItalySER.pdf>

¹⁴ Italy is the major leather manufacturer in Europe

of which is leather footwear.¹⁶ In Europe, the apparent availability of footwear with leather uppers accounts for 1.086,7 million pairs (2008-2010 period). In 2008, the best-performing sectors were *casual footwear* (boots, ballerinas), *sports footwear* (sneakers) and *evening footwear*. Italy accounted for almost half of total EU production (CBI, 2010). In most EU countries footwear is supplied through the specialised distribution route, which is from manufacturer to importer/wholesaler to retailer. This channel is most relevant for exporters from developing countries led by China, Vietnam, India, Indonesia, Brazil and Thailand.

The "made of leather" proportion of luggage and leather goods category according to the CBI Report varies depending on the product sub-group, as demonstrated in the Table 4. That corresponds to the category "other leather products" from the Table 3.

Table 4: European leather fraction in leather goods¹⁷

Product groups	Products	Leather fraction (%)
Belts	Waist belts, shoulder belts	70%
Small leather goods	Wallets, pursues, billfolds, key pouches, cigarette cases, toilet bags, holders for binoculars holders, cameras, portable phones or music system, maps, GPS system	30%
Handbags	Including combination bags	25%
Business cases	Briefcases, computer cases, attaché cases, document cases, portfolios, school bags	20%
Suitcases	Suitcases, trunks, trolleys, vanity or beauty cases	4%
Travel bags	Travel bags, holdalls, overnighters, day-packs, rucksacks	2%
Other bags	Shopping bags, sport bags, cross over bags	na

The CBI study does not consider automotive and upholstery leather as a part of leather goods, thus reaffirming the general impression that these products are to be considered as a separated group of leather-made articles. Moreover, for these two sectors, it is quite clear that leather is not the main material used during the assembly phase. Additionally, the official European trade and production statistics do not introduce a detailed division of leather garments. According to the CBI reports leather garments cover mainly different kinds of leather jackets and coats. This category is estimated to take up 85% of the EU leather garments market. The reminded 15% consists primarily of trousers, leggings, skirts, dresses, body warmers, waistcoats, underwear and bikinis.

From this analysis, it appears that, except for belts, leather is not the major constituent of the final product. Thus, there is a potential risk that if the wide range of

¹⁵ FAO (2011) World statistical compendium for raw hides and skins, leather and leather footwear 1992-2011

¹⁶ CBI, The Footwear In The EU, May 2010

¹⁷ CBI, The Luggage And Leather Goods Market In The EU, March 2010

articles apparently relevant to leather were covered by the scope, it would then include products that do not predominantly contain leather (or that only contain a minor quantity of it). Therefore should there be a criterion that imposes a minimum content of leather; this would however exclude products of the same category (cf. chapter 2.1).

1.5 Available LCA studies on footwear, leather and leather products

Because the EU Ecolabel criteria should be based on the LCA, it is important to analyse existing and other related studies to assess with respect to their scope and the key findings of relevance. It is therefore important to focus on how the LCA studies defined their scope and what the hot spots are since the criteria should refer to them.

Table 5 presents list of the available LCA studies, analysing their scope and the identified hot spots.

Most LCA studies deal:

- either with leather as an intermediate product;
- or with a specific final product (e.g. shoes, gloves, etc.).

This is mainly due to the functional unit that must be precisely defined. In the case of leather as an intermediate product, 1 kg or 1 m² of leather is normal functional unit used. For LCA analysis of the end-products, the functional unit corresponds to unique item produced, e.g. a pair of shoes, a belt. LCA studies evaluate the environmental impacts of products with a defined function; therefore it is not possible to compare products with unrelated utility (e.g. a wallet versus a piece of furniture).

If the scope were extended, all the criteria that are product-specific would have then to be identified for each category of product covered by the analysis. This especially pertains to criteria related to the durability, use-phase, packaging, end-of-life, among others.

NB: Available LCA studies focus more frequently on leather than on final products.

The main hot spots identified by those studies are:

- Agriculture, cattle breeding and slaughtering: those phases are very sensitive because they have a major impact on the [SP1]life cycle of leather products (if taken into account). In general, only slaughtering is considered within the system boundaries.
- Processing of leather (tanning)
- Plastics: Other synthetic materials such as plastics, rubbers, and synthetic leathers may have a significant impact. In the LCA studies referenced, the focus on the leather. Therefore, no detail is given on the production of plastics.
- Manufacturing of finished product: This phase may or may not be significant. It is assessed on a case-by-case basis and depends mainly on the relative impacts of the raw materials used. This phase generally corresponds to cutting, sewing,

stitching... and the impacts are related mainly energy consumption. So, this phase impact depends on how well the industry manages its energy use.

- Transportation, use, and end-of-life are generally not significant.

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Table 5: Review of LCA studies and other relevant documents

Document	Type of document	Author	Date	Geography	Scope	Functional Unit	Goals	Identified hot spots
Leather for clothing, upholstery, footwear, leather goods, accessories and interior design	EPD	DANI	2011	Italy	Cradle to gate	1 m ²	Evaluate environmental impacts	Agriculture, breeding and slaughtering
Application of Life Cycle Assessment to Footwear, International Journal of LCA	LCA study	Milà et al.	1998	Spain	Cradle to grave	1 pair of shoes	Evaluate environmental impacts	Electricity production Solid wastes Water-related impacts at tannery
LCA of Italian and Spanish bovine leather	LCA study	BRUNO et al.	? (~2006)	Italy, Spain	Cradle to gate	200 kg of salted hide	Comparative LCA	Tannery chemicals
Use of Life Cycle Assessment in the Procedure for the Establishment of Environmental Criteria in the Catalan Eco-label of Leather	LCA study	Milà et al.	2002	Spain	Cradle to gate	1000 kg of salted hide	Support the development of an ecolabel	Agriculture, cattle raising Tannery solid wastes Chromium emitted to water
Sustainability Assessment of Nike Shoes	?	NIKE	2010	?	Raw materials	1 kg of raw materials	Evaluation of materials	NA
Finished Bovine Leather (<i>PCR for footwear in progress</i>)	PCR	International EPD System	2011	-	Cradle to gate	1 m ² of finished bovine leather	Methodology standard to assess footwear environmental impacts	NA
Life Cycle Analysis of leather	LCA	BLC (Leather	?	?	Cradle to	NA	Comparative	Post tanning operations

Document	Type of document	Author	Date	Geography	Scope	Functional Unit	Goals	Identified hot spots
		Technology Center)			grave		LCA	(not linked to the tanning agent)
CPI, Simplified Life Cycle Assessment Hot Spot Identification in the Leather Production Chain	Hot spot identification	CPI (Cleaner Production Institute)	2009	Pakistan	Cradle to grave	1 leather jacket	Evaluate environmental impacts	Tanning process Solid wastes Slaughtering
LIFE CYCLE ASSESSMENT OF GLOVE LEATHER IN ELICO-GLOVING AND HIDE UNIT	LCA	KEBEDE BEKELE	2007	Ethiopia	Gate to gate	1 square feet finished glove leather product	Evaluate environmental impacts	Processing chemicals
Life Cycle Assessment as a Tool for the Environmental Improvement of the Tannery Industry in Developing Countries, Environ. Sci. Technol Journal	LCA	Rivela et al.	2004	Latin America	Gate to gate	1000 kg of wet salt hide	Evaluate environmental impacts	Tanyard and retanning subsystems energy consumption
Analyzing the Environmental Impacts of Simple Shoes	LCA	University of Santa Barbara, California	2008	US	Cradle to grave	1 pair of shoes	Comparative LCA	Production of leathers, synthetic materials and plastics
Principes généraux pour l'affichage environnemental des produits de grande consommation: Partie 1 : Méthodologie d'évaluation des impacts environnementaux des chaussures	PCR	ADEME	2010	France	Cradle to grave	1 pair of shoes	Methodology standard to assess footwear environmental impacts	
Material flows in the life cycle of leather, Journal of Cleaner Production	LCA	Center of Environmental Studies	2009	India	Cradle to gate	100 m ² of leather	Evaluate environmental impacts	Tanning and finishing of leather Electricity consumption Solid wastes

Document	Type of document	Author	Date	Geography	Scope	Functional Unit	Goals	Identified hot spots
								Emissions and treatment of water
GHG emissions from animal food chains - Development of a quantification model using Life Cycle Analysis method	General information	FAO	2010	International	NA	NA	NA	
MEAT AND DAIRY PRODUCTION & CONSUMPTION Exploring the livestock sector's contribution to the UK's greenhouse gas emissions and assessing what less greenhouse gas intensive systems of production and consumption might look like	Working paper	Centre for Environmental Strategy University of Surrey	2007	UK	NA	NA	NA	
Sustainable and safe design of footwear integrating ecological footprint and risk criteria	Environmental footprint and risk assessment	Herva et al.	2011	Spain	Cradle to gate	1 pair of shoes	Ecodesign	Rubber Energy consumption for product manufacturing
Life Cycle Assessment/Carbon Footprint in the Leather Processing; Review of methodologies and recommendations for harmonization		UNIDO	2012	International	Cradle to grave	NA	Review of existing methodologies and results	

1.6 Technical Analysis – feedback from experts

This chapter presents technical analysis of footwear and leather products supported by the key output from preliminary personal (phone calls), and electronic (e-mail) communication with thirteen stakeholders that represent the leather and footwear sector (technical centres, tannery, manufacturers), inquired after the feasibility and possible range of the current scope extension. In general, their vision is quite similar.

1.6.1 Diversity of leather

The leather can show lots of differences depending on:

- The animal origin: mainly cattle, sheep, pig, goat and kid;
- The tanning process: chromium, organic (using glutaraldehyde or oxazolidine compounds), vegetable;
- The thickness: 0.9 mm to 2.5 mm;
- The finishing: aniline, semi-aniline, pigmented, nubuck, suede, embossed, bycast/coated, patent, laminated,(...);
- Technical requirements;
- Final product specific requirements.

All those differences reflect the application for which the leather is made: the type of leather product, the part of the shoe (upper, lining, sole...), the leather quality, among others.

1.6.2 Analysis of feedback

Following the opinion of the inquired stakeholders, leather is regarded as a very broad and diversified material used for various applications, which cover a vast range of products. In addition, it should be stressed that leather used in footwear is the most diversified and fulfils the strictest and very product-specific technical requirements¹⁸.

Footwear is in fact, already a large product group and it may be difficult to extent it even more, considering that it includes a voluminous range of products made from a variety of materials. Notwithstanding that leather is the main material used in footwear manufacturing, boots, shoes, sandals, sneakers, slippers, protective shoe, clogs, among others, might be made integrally or partly of leather, in addition to textile, rubber, synthetic materials, or wood, that the respective and revised criteria set should also encompass.

¹⁸ Except from upholstery and automotive leather that must fulfil specific technical and security requirements

Even if environmental requirements that refer to the tanning process are quite similar amongst leather products the technical and performance specifications are, however, product specific. From this point of view, it appears complicated to easily extend the scope, otherwise there would need to be specific criteria by type of product. Some performance criteria are similar for product groups related to footwear (belts, bags...) but in each case they are not exactly the same.

Additionally a variety of different materials used in leather goods should also be considered as they are often more used than leather.

In general, experts are not favourable to extend the scope to other leather product, except for very proximate articles such as i.e. belts or handbags. Even in this case, some criteria will have to be accurately specified. The table below summarises feedback received from several registered stakeholders about scope extension with main pros and cons.

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Table 6: Review of feedback received from experts about scope extension with main pros and cons

Scope extension to all leather product							
		Leather experts	Tanneries	Testing laboratories	Technology Centre	Leather Association	Manufacturers
CONS	Footwear is the largest product group in the EU Ecolabel, and it is difficult enough to cover it	x					
	Leather is used in a very broad range of different products with various final function					x	
	Difficulty to define generic criteria for some parameters due to high diversity of leather	x		x	x		
PROS	Footwear is the most important section in leather industry and leather is the most diversified for footwear	x					
	Different leather products show similar requirements for chemical and tannery emissions issue		x	x			
	Requirement for footwear related to leather are more strict than for other product				x		
General feedback		No	No	/	Yes/No	No	No
Scope extension to other products : belt & handbags							
CONS	Different leather products may need different set of technical and performance criteria per type of product			x			
	Considerable fashion/decorative requirement, often requiring compromises for technical specifications	x					
	Requirement for footwear related to leather are more strict than for other product				x		
PROS	No relevant technical difference among leather products	x			x		
	Same type of material used	x			x		
General feedback		Yes/No	/	Possible	Yes	/	Yes but focus on Leather/No

2 Technical analysis of the scope extension

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 apparently similar articles for which analogous criteria could apply.

However, to be considered as part of the same product group category, different criteria shall be met:

- The products shall fulfil the same function as required by a life cycle approach for the comparison of environmental performances. As a reminder, the current EU Ecolabel scope for Footwear (Decision 2009/563/EC) is fully based on the concept of "function" (see chapter 1.1 "Current EU Ecolabel for Footwear and need for update", p.7)
- The products' main environmental impacts shall be the same for defining similar criteria, and where "hot spots" depend mainly on the materials composition, and the technologies and processes used to make the products (cf. chapter 1.5).

The request to check the feasibility of possible scope extension to "other types of leather products" also raises the question of the exact definition of "leather products" which is very broad in terms of articles and sector (see chapter 1.4 "Preliminary market analysis", p.16), and implies a segmentation of the product group according to raw material instead of "function".

Finally, it is important to keep in mind that the EU Ecolabel is granted only to the most environmentally friendly brands in each product group. This helps public purchasers and consumers to identify green products. Business to business relations (i.e. the function being the production of leather) are thus not concerned by this scheme.

2.1 Function of the final product

The goal of the Ecolabels is to help consumers to choose the most environmentally friendly goods available on the market. When consumers look for a product, they actually seek for the specific function to fulfil (i.e. to eat, to dress). As with the LCA study, the EU Ecolabel should define a product category based on a common final utility. The ISO 14040:2006¹⁹ and ISO 14044:2006²⁰ standard 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). In addition, 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

¹⁹ ISO 14040, Environmental management - Life cycle assessment – Principles and framework, 2006

²⁰ ISO 14044, Environmental management - Life cycle assessment - Requirements and guidelines, 2006

cycle". In other words, scope definition should enclose products of the same category and with the same identified environmental hot spots.

This requirement is already addressed by the current ambit of the EU Ecolabel for footwear, as all are designated "to protect and cover the foot". If the scope is extended to all leather products (furniture, bags, accessories, luggage, gloves, automotive, etc...) it will not be possible to define a common function.

The only other potential specification could be "to purchase one square meter or one kg of leather" but this solution would be applicable to business-to-business transactions, where leather is an intermediate product, and where manufacturers purchasing a certain amount of leather would be able to identify which one is the most "eco-friendly".

Based on this analysis, the scope should not be extended to car upholstery and furniture since they clearly belong to a product category very distinctive to footwear. Additionally, car upholstery is not a product directly commercialised for the final consumers.

Other small leather goods such as belts or bags do not have the same functionality, but remain in the common market field ("clothing and accessories"), therefore a possible connection could be made by the consumer, enlarging the function "to dress and cover the body". The main problem that could arise after setting such definition is the possible inclusion of clothes and textile products that constitute separated product group category covered by the EU Ecolabel for textile²¹ (Commission Decision No 2009/567/CE).

2.2 Materials composition

The original proposal is to extend the scope to all products that are made of leather. However, as previously stated, leather is not necessarily the main material used in leather goods manufacturing (chapter 1.4). The potential restriction to articles that contain a minimum²² amount of leather raises the question of the "objective" comparison from the point of view of consumers who want to examine the EU Ecolabel versus ordinary products based on the "function" approach. Doubtlessly, if only leather wallets are included within the EU Ecolabel scope, the consumer will be unable to identify the most environmentally friendly wallets out of the wallet product group which also includes textile and plastic wallets.

As a compromise, it would be possible to consider the inclusion of these products, for which leather is the main material, and excluding those that do not fulfil the on the minimum leather content. The exact cut-off limit should be discussed with EU Ecolabel Board and registered stakeholders. As example, the International Council

²¹ Currently under revision

²² The threshold should be based on the relative importance of other materials in the contribution of the main environmental impacts. Environmental impacts due to other materials production should be negligible.

of Tanners sets up the limit of at least 80 % of leather content in automotive and upholstery applications²³, whereas the EU Ecolabel criteria for Textile requires 90 %: *"The product group 'textile products' shall comprise (...) consisting of at least 90 % by weight of textile fibres"*²⁴.

2.3 Technical and processing

The leather production-consumption chain consist of three main stages: hides and skins recovery as a by-product of meat industry, leather tanning and finishing, and final product assembly. As previously stated, the market is dominated by light bovine leather, used to make shoe uppers and other finished goods. The remainder products from the tanning processing stage consist of heavy leather and leather from sheep and goats.²⁵

The raw material of leather 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 the 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.²⁶

Generally, skins differ in total thickness, fibre bundle size and weave pattern, offering material from which the tanner can select the skin best suiting for a particular end use.²⁷ The animal-kind of origin will influence the assignment of type and quality of product to be created, thus the decision about the characteristic and destination of final product is taken at the very early stage of the leather supply chain. *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. It would be possible to extend the scope to other products as requirements (chemical and tannery emission issue) would be similar, however the technical specification of leather is different, thus the inclusion of footwear and leather goods as one group would be artificial, and it is not very advisable*²⁸.

The preliminary technical analysis of a variety of leather goods shed more light on the elemental classification mainly related to: tanning process used (chromium, vegetable, aldehyde), product destination (handbag, wallet, saddlery, footwear, jacket, furniture, automotive,...), leather origin (bovine, sheep, goat, kid,...), quality of

²³ <http://www.tannerscouncil.org/Code%20of%20Practice%20ratified%20Mar%202009.pdf>

²⁴ EU Ecolabel for textile²⁴ (Commission Decision No 2009/567/CE)

²⁵ FAO (2011) World statistical compendium for raw hides and skins, leather and leather footwear 1992-2011

²⁶ Salazar de Buckle, T. (2001) The Leather Global Value Chain - A Review - Report presented to UNIDO. Vienna

²⁷ Kite, M. and Thompson, R. (2006) Conservation of leather and related materials. Haines, B.M. The fibre structure of leather. Elsevier Ltd.

²⁸ *Personal communication with registered stakeholder*

leather and style (branded vs. commodity product), and technical requirements that are subjected mainly to the end-product durability that is related to the article use-phase.

When considering the production stage, the environmental requirements for the processes are quite similar among different leather products (chemicals, tannery emissions...), the technical and performance specification are however product oriented. *Thus, inclusion in the revised scope products other than footwear might not be reasonable as it is already by far the largest and more diversified group, and will be difficult enough to cover all types. Very occasionally footwear leathers could be similar in appearance and handle/feel to some garment and auto leathers, but they would never fulfil the performance specifications. The one area that is possibly closest to footwear leather is a specific type of leather goods, for example, belts and hand-bags. But in this product group there is typically a considerable fashion/decorative requirement, often requiring compromises for technical specifications²⁹.*

In general, experts are not in favour of extending the scope beyond footwear (cf. Table 6), except maybe for very similar (based on leather types and content) products, such as belts and handbags. In this case, some criteria will have to address each specific type of product.

²⁹ *Personal communication with registered stakeholder*

3 Conclusions and recommendations on the scope

The proposed scope extension contains products of different characteristics, compositions and functions which makes the determination of base case average products for conducting the LCA very complicated. Additionally, the proposed scope extension of the EU Ecolabel revision of footwear is practically so wide that is more appropriate to refer to it as a parallel revision of footwear and development of a new product group that covers "leather based products".

Following the arguments detailed in chapter 2 and summarized hereafter, the principal recommendation on the scope extension is to maintain it as currently defined:

"The product group 'footwear' shall comprise all articles of clothing designed to protect or cover the foot (...)"

The main argument to extend the scope is coherence towards a common product group category, which would be understandable by the consumer and also representative for the specific market (cf. chapter 2.1). The objective of the EU Ecolabel is to help the consumer to make the most environmentally friendly choice out of several types of products being considered for purchase. Therefore it makes sense that only goods related to apparel might be considered to be kept under the scope definition, as a consumer will never compare footwear to upholstery for car seats and furniture. Leather garments should also remain out of the scope, because they are addressed in the EU Ecolabel for Textiles.

Because leather has been chosen as a common characteristic and the basis for extending the scope, it is necessary that leather is the main material used for the products covered by the set of criteria of the EU Ecolabel for footwear and leather products. Therefore the inclusion in the scope of bags and other small leather goods (except belts) is not rightly recommendable as leather is not the major material used in these products (cf. chapter 2.2 and Table 4). One could imagine including only these products that contain a minimum amount of leather referring to them as "leather goods", the consumer, however, may not focus on the materials used when comparing different items. The exact cut-off limit should be discussed with the EU Ecolabel Board and involved stakeholders.

Additionally when referring to the leather market share (cf. chapter 1.4.), it could be preliminary assessed 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 considered to be covered by the scope represent a small market share.

From a technological and processing perspective, leather used in footwear is the most diversified, nevertheless technical and performance characteristics are product specific. For these reasons, among others, stakeholders consulted to date have not in general clearly supported the possible scope extension (cf. chapter 2.3).

Other existing European and non-European Ecolabels did not manage to develop a single common set of criteria pertaining to all leather products (cf. chapter 2.3), indicating three possible solutions to be considered:

- To keep the scope as it is, i.e. only covering footwear and extending the number of requirements concerning different materials used:
- To extend the scope to other leather products and impose a minimum quantity of leather in the product, with the exclusion of garments in order to avoid the possible affinity to the apparel function that falls under the scope of the EU Ecolabel for textile:
- To extend the scope to other leather products and set up performance tests criteria related to leather only and not to the final product.

The overall processing of leather is clearly identified as the environmental "hot spot" from the LCA perspective. It is then accurate to focus on this stage within the ongoing revision process, however the existing LCA do not analyse the broad scope of all leather products being based on a defined end function (cf. chapter 1.5):

- Either the scope is a cradle-to-gate approach, with the production of 1 m² or 1 kg of leather as the functional unit (business-to-business approach)
- Or the scope is a specific and product oriented (footwear, gloves...)

From the criteria setting perspective, the scope extension would require more than one functional unit, simultaneously all the criteria that are product-specific would have then to be identified for each category of product covered by the analysis. This especially pertains to criteria related to the durability, use-phase, packaging, end-of-life, among others.

However, and considering all the above mentioned arguments, if the first option (to maintain the current scope and definition covering footwear product group) is considered to be too narrow, by the way of similarities the closest products could be considered:

“The product group ‘footwear and leather products’ shall comprise all articles of clothing or accessory

- ***Either designed to protect or cover the foot,***
- ***Or made of leather and designed as decorative or functional accessory, such as belts, bags, gloves, and other articles normally carried in the pocket ...”***

The overall output of the analysis and argumentations presented in the present paper is summarized in Table 7. and 8.

Table 7: Arguments to maintain the current scope and definition covering footwear

	Pros	Cons
Product category	The scope is based on a consumer-oriented product category	
Market	Footwear covers around half the leather market	
	Footwear is the largest product group in the EU Ecolabel, and shows a much diversified segmentation	
Technologies and performance specifications	Performance specifications are specific to footwear and diversified	Leather is the most diversified for footwear
LCA	One common functional unit	
Market Analysis	Main leather market share	

Table 8: Arguments to extend the scope to other small leather products

	Pros	Cons
Product category	The scope covers a broader range of products	The scope covers products with different functions not similar on the consumer and market points of view
Material content	Same types of materials are used in footwear and small leather products	Leather is not the main material used in leather products (except footwear and belts)
		A cut-off limit would exclude products of the same category, even footwear
Technologies and performance specifications	Different leather products show similar requirements for chemical and tannery emissions issue	Performance specification are product specific
LCA		Different functional units for each products which make the comparison between products difficult
Market Analysis		Other than footwear leather products show limited market share

4 Literature

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- Unione Nazionale Industria Conciaria, Environmental Report, 2010
- LCA studies (cf. chapter 1.5)
- European and non-European Ecolabels and other schemes (cf. chapter 1.3.1)
- Regulations and directives (cf. chapter 1.2)

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