

ANNEX 1

of DT-ECO-01/2008

COVERINGS

EU ECO-LABEL AWARD SCHEME REVISION AND DEVELOPMENT



WORK PACKAGE 2

AND WORK PACKAGE 3


**1st BACKGROUND DOCUMENT for the II° AHWG Meeting
(Brussels, 11th March 2008)**

VERSION 18 February 2008

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1. Introduction and summary

This report describes the work carried out and the results obtained during the project entitled “**Study for the HFC (Hard Floor Coverings) revision and SFC (Soft Floor Coverings) criteria development**” during the period December 2007-up to date.

The project was commissioned by the European Commission to APAT (*Italian Agency for the Protection of the Environment and Technical Services*) in March 2007; during this project, APAT is supported for technical aspects by *Life Cycle Engineering* (LCE – Turin, Italy).

This Background Document will be illustrated during the second Ad Hoc Working Group (AHWG) meeting that will take place in Brussels on the 11th March 2008. All the documents concerning the various steps by which the HFC product group has been revised and the SFC product group has been investigated is available at the following web site:

http://ec.europa.eu/environment/ecolabel/product/pg_hardfloor_en.htm

The first important remark is the new classification that has been approved during the EUEB meeting of 12-13 December 2007 last: the new **COVERINGS** product group will be formed by hard coverings, wood based floor coverings and textile floor coverings (see Figure 1.1).

AIMS AND OBJECTIVES

The overall aim of the project is to update the Hard Floor Covering (HFC) criteria, and to develop a new set of criteria for the so called “Soft Floor Coverings (SFC)” product group, that may be regarded fully compatible with the European Union Eco-Label Award Scheme (European Regulation N. 1980/2000 on a revised Community Eco-label Award Scheme) as below indicated.

“The Eco-label may be awarded to a product possessing characteristics which enable it to contribute significantly to improvements in relation to key environmental aspects.....the key environmental aspects shall be determined by identifying the categories of environmental impact where the product under examination provides the most significant contribution from a life cycle perspective, and among such aspects the ones for which a significant potential for improvement exists...”¹.

This approach requires the use of an appropriate methodology capable of comparing, in a systematic and scientific way, the potential environmental impacts of different products belonging to the same product group. Life Cycle Assessment (LCA) is the methodology identified for this purpose. The definition of Eco-label criteria is therefore supported by different LCA studies performed on each family of the new product group.

¹ Regulation (EC) No 1980/2000, Article 3.

The purpose of this report, following the presentation of the First Draft of Eco-label criteria, is to draw up all the background information necessary, for the preparation of the Second Draft Criteria that will better qualify technical approach, data and hurdles for the new Eco-label criteria.

ACTIVITIES FRAMEWORK

The project is composed of 3 Work Packages (WPs) with different tasks:

WP1. Development of a Preliminary Report for the revision of the criteria focused on the revision of the existing hard coverings criteria (the word “floor” has been deleted for the inclusion of both floor and wall coverings – see later) and the development of new criteria for the so called former “SFC” product group that is now composed by wood based and textile floor coverings..

Work Package 1 was concluded with the achievement of the WP1 Final Report (January 2008) after the EUEB meeting of 12-13 December 2007.

The EU Commission decided, on the basis of WP1 results, to implement **WP2** for the revision of the existing HFC criteria (now hard coverings) and **WP3** for the development of two new product groups not previously included in the HFC group (originally defined as SFC, now wood based and textile floor coverings).

WP2. Revision of criteria for HARD COVERINGS

Work Package 2 is composed by 2 tasks

Task1

The aim of this activity is the revision of the Commission Decision 2002/272/CE criteria for the HFC product group. All the comments and proposals emerged from the WP1 Final Report have been included in this Background Document, that is used as technical support to the First Draft Criteria Proposal.

The next Background Document and the 2nd Draft Criteria Proposal will contain the results which will raise during the 2nd AHWG meeting (11 March 2008).

Task 2

The 2nd Draft Criteria Proposal with the relative background document will be discussed during the 3rd AHWG meeting (still to be defined). The Final Report, containing the information and the conclusions of the whole WP2, and the Final Draft Criteria Proposal, including the revision of the

criteria for the HFC product group, will be the main outcome of this task. The Final Draft Criteria Proposal will be then presented to the EUEB (second EUEB meeting). After the approval of the criteria proposal by the EUEB the Eco-label User's manual for the applicant will be prepared.

Table 1.1 - Timetable for the WP2 activities (up to date 18/02/2008).

WP2 Task	Month												
	Jan. 2008	Feb. 2008	March 2008	April 2008	May 2008	June 2008	July 2008	Aug. 2008	Sept. 2008	Oct. 2008	Nov. 2008	Dec. 2008	Jan. 2009
Task 1			II AHWG meeting										
Task 2							III AHWG meeting		EUEB meeting				Eco-label User's manual

Table 1.2 - WP2 Hard coverings actions and timetable (LCE is Life Cycle Engineering).

ACTION	WHO	DEADLINE	DOCUMENTS REQUIRED
1 st Background documents and 1 st Draft criteria proposal	LCE/APAT	15 Feb. 2008	<ul style="list-style-type: none"> ▪ 1st Background Document ▪ 1st Draft criteria proposal
Preparation of the 2 ^o AHWG Meeting	LCE/APAT	15 Feb. 2008	<ul style="list-style-type: none"> ▪ Updating mailing list ▪ Meeting Invitation and Agenda
1 st Background documents and 1 st Draft criteria proposal diffusion to EC	APAT/LCE	18 Feb. 2008	<ul style="list-style-type: none"> ▪ 1st Background Document ▪ 1st Draft criteria proposal
Comments from EC	CE	25 Feb. 2008	-
Documents for the 2 ^o AHWG Meeting:	LCE	26 Feb. 2008	<ul style="list-style-type: none"> ▪ 1st Background Document and 1st Draft criteria proposal (updated)
2 ^o AHWG Meeting Presentation of the 1 st Background documents and 1 st Draft criteria proposal	LCE/APAT	11 March 2008	<ul style="list-style-type: none"> ▪ 1st Background document ▪ 1st Draft criteria proposal
Minutes of the 1 st AHWG meeting	LCE	22 March 2008	<ul style="list-style-type: none"> ▪ Minutes of the AHWG meeting
Management of the AHWG comments	LCE	March/April 2008	-
2 nd Background documents and 2 nd Draft criteria proposal	LCE/APAT	29 August 2008	<ul style="list-style-type: none"> ▪ 2nd Background document ▪ 2nd Draft criteria proposal
2 nd Background documents and 2 nd Draft criteria proposal diffusion to EC	APAT/LCE	29 August 2008	<ul style="list-style-type: none"> ▪ 2nd Background document ▪ 2nd Draft criteria proposal
Comments from EC	CE	5 Sept. 2008	-
Preparation of the 3 ^o AHWG Meeting	LCE/APAT	5 Sept. 2008	<ul style="list-style-type: none"> ▪ Updating mailing list ▪ Meeting Invitation and Agenda
Documents for the 3 ^o AHWG Meeting:	LCE	26 Sept. 2008	<ul style="list-style-type: none"> ▪ 2nd Background document and 2nd Draft criteria proposal (updated)
Minutes of the 3 ^o AHWG meeting	LCE	10 Oct 2008	<ul style="list-style-type: none"> ▪ Minutes of the AHWG meeting
Management of the AHWG comments	LCE	Oct. 2008	-
Preliminary Report presentation at EUEB Meeting	LCE/APAT	3 Dec. 2008	<ul style="list-style-type: none"> ▪ 3rd Background documents ▪ Final draft criteria
Final Report	LCE	31 st Dec. 2008	<ul style="list-style-type: none"> ▪ Final Report

ACTION	WHO	DEADLINE	DOCUMENTS REQUIRED
Preparation of the User manual "coverings: hard coverings"	LCE	Dec. 2008/ Jan. 2009	<ul style="list-style-type: none"> User manual "coverings: hard coverings"

WP3. Development of new criteria for WOOD BASED AND TEXTILE floor coverings

Work Package 3 is composed by 2 tasks

Task1

The aim of this activity is the development of the ecological criteria for new sub-products group, as established during WP1 and not already included in the Decision 2002/272/CE for HFC.

The first Background Document (March 2008) includes the preliminary identification and assessment of the energetic and environmental aspects of the production systems concerning the new sub-products group systems..

The 2nd Background Document and the 2nd Draft Criteria Proposal will contain the results which emerged during the 2nd AHWG meeting (11/03/2008).

Task 2

The 2nd Background Document and the 2nd Draft Criteria Proposal will be discussed during the 3rd AHWG meeting. The Final Report, containing the information and the conclusions of the whole WP3, and the Final Draft Criteria Proposal, including the development of the new criteria for the new sub-products group will be the outcome of this task. The Final Draft Criteria Proposal will be presented to the EUEB (second EUEB meeting). After the approval of the criteria proposal by the EUEB the Eco-label User's manual for the applicant will be prepared.

Table 1.3 - Timetable for the WP3 activities (up to date 15/02/2008).

WP3 Task	Month												
	Jan. 2008	Feb. 2008	March 2008	April 2008	May 2008	June 2008	July 2008	Aug. 2008	Sept. 2008	Oct. 2008	Nov. 2008	Dec. 2008	Jan. 2009
Task 1			II AHWG meeting										
Task 2							III AHWG meeting		EUEB meeting				Eco-label User's manual

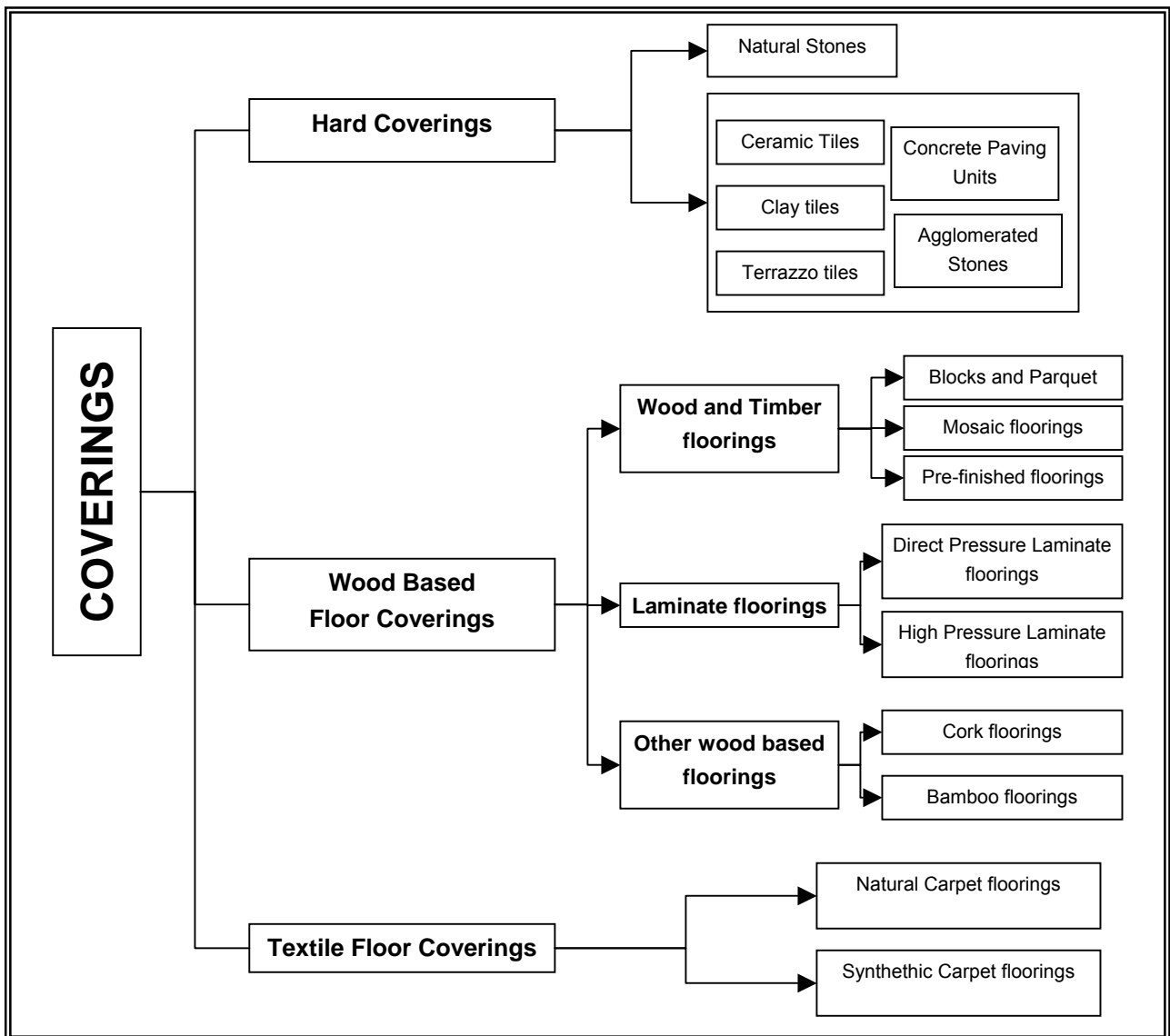
Table 1.4 - WP 3 Hard coverings actions and timetable (LCE is Life Cycle Engineering).

ACTION	WHO	DEADLINE	DOCUMENTS REQUIRED
1 st Background documents and 1 st Draft criteria proposal	LCE/APAT	15 Feb. 2008	<ul style="list-style-type: none"> ▪ 1st Background Document ▪ 1st Draft criteria proposal
Preparation of the 2 ^o AHWG Meeting	LCE/APAT	15 Feb. 2008	<ul style="list-style-type: none"> ▪ Updating mailing list ▪ Meeting Invitation and Agenda
1 st Background documents and 1 st Draft criteria proposal diffusion to EC	APAT/LCE	18 Feb. 2008	<ul style="list-style-type: none"> ▪ 1st Background documents ▪ 1st Draft criteria proposal
Comments from EC	CE	25 Feb. 2008	<ul style="list-style-type: none"> ▪ -
Documents for the 2 ^o AHWG Meeting:	LCE	26 Feb. 2008	<ul style="list-style-type: none"> ▪ 1st Background documents and 1st Draft criteria proposal (updated)
2 ^o AHWG Meeting Presentation of the 1 st Background documents and 1 st Draft criteria proposal	LCE/APAT	11 March 2008	<ul style="list-style-type: none"> ▪ 1st Background Document ▪ 1st Draft criteria proposal
Minutes of the 2 nd AHWG meeting	LCE	22 March 2008	<ul style="list-style-type: none"> ▪ Minutes of the AHWG meeting
Management of the AHWG comments	LCE	March/April 2008	-
2 nd Background documents and 2 nd Draft criteria proposal	LCE/APAT	29 August 2008	<ul style="list-style-type: none"> ▪ 2nd Background Document ▪ 2nd Draft criteria proposal
2 nd Background documents and 2 nd Draft criteria proposal diffusion to EC	APAT/LCE	29 August 2008	<ul style="list-style-type: none"> ▪ 2nd Background Document ▪ 2nd Draft criteria proposal
Comments from EC	CE	5 Sept. 2008	-
Preparation of the 3 ^o AHWG Meeting	LCE/APAT	5 Sept. 2008	<ul style="list-style-type: none"> ▪ Updating mailing list ▪ Meeting Invitation and Agenda
Documents for the 3 ^o AHWG Meeting:	LCE	26 Sept.2008	<ul style="list-style-type: none"> ▪ 2nd Background Document and 2nd Draft criteria proposal (updated)
Minutes of the 3 ^o AHWG meeting	LCE	10 Oct 2008	<ul style="list-style-type: none"> ▪ Minutes of the AHWG meeting
Management of the AHWG comments	LCE	Oct. 2008	-
Preliminary Report presentation at EUEB Meeting	LCE/APAT	3 Dec. 2008	<ul style="list-style-type: none"> ▪ 3rd Background Document ▪ Final draft criteria

ACTION	WHO	DEADLINE	DOCUMENTS REQUIRED
Final Report	LCE	31 st Dec. 2008	<ul style="list-style-type: none"> Final Report
Preparation of the User manual "coverings: Wood based floor and Textile floor"	LCE	Dec. 2008/ Jan. 2009	<ul style="list-style-type: none"> User manual "coverings: Wood based floor and Textile floor"

STRUCTURE OF THE DRAFT CRITERIA

According to the EUEB meeting (12-13 December 2007) outcomes, the new Criteria proposal will be structured in the following way (Figure 1.1):



It is important to highlight that only one Commission Decision will be established for all the three sub-groups of coverings. The main product group will be simply called “Coverings” including the following the sub-products group:

- **“Hard Coverings”**, with the extension of “Hard Floor Coverings” group to “Wall Coverings”. This extension is intended, for the different product families, that the production processes must remain the same, using the same materials and the same manufacturing methods.
- **“Wood Based Floor Coverings”** new sub-products group, that includes products properly made of wood (i.e.: “Wood and Timber floorings”), products derived from fibrous material originated from wood (i.e.: “Laminate floorings”), and particular coverings made of vegetal material not properly defined as *wood* (i.e.: Cork and Bamboo floorings).
- **“Textile Floor Coverings”** new sub-products group, that includes natural and synthetic carpets floorings.

ISSUES RELATED TO THE NEW FLOOR COVERINGS SUB-PRODUCTS GROUP

DEFINITION

The European Regulation 1980/2000 article 2 states that *“product group must fulfil the following conditions:*

- (a) it shall represent a significant volume of sales and trade in the internal market;*
- (b) it shall involve, at one or more stages of the product's life, a significant environmental impact on a global or regional scale and/or of a general nature;*
- (c) it shall present a significant potential for effecting environmental improvements through consumer choice as well as an incentive to manufacturers or service providers to seek a competitive advantage by offering products which qualify for the Ecolabel; and*
- (d) a significant part of its sales volume shall be sold for final consumption or use”*

The inclusion in the EU Ecolabel scheme, of the new sub-products groups, has been based on the following aspects:

- European market share;
- Environmental aspects involved in the product life cycle and possibility of environmental improvement;

- Subsistence and sharing of National labels for the product group.

The candidate categories of the new sub-products group for which a specific set of criteria for the Ecolabel Scheme will be proposed are shown in Table 1.5.

The categories indicated are the most relevant in terms of production sold in the European markets (see Figure 5.1 – WP1 Final Report). In the last decade, for these products, there has been a strong trend of sales increases (see Figure 5.2– WP1 Final Report). Furthermore, as indicated previously the production processes for these products have opportunities for improvement by reducing environmental impacts during their lifecycle.

Table 1.5 - Proposal of Product Group definition categories.

Category	Description
Textiles floorings (carpets)	Heavy, durable floor covering, usually of woven, knotted, or needle-tufted fabric, commonly installed with tacks or staples, or by adhesives.
Wood based Floor Coverings	Wood and timber floorings, laminate floorings and other wood based floorings which are made as main constituent material, from wood, wood powder and/or wood-based material or vegetable materials. A wood floor can be unfinished , and once installed sanded, then finished on site or, more modernly, pre-finished in a factory.

However, it should be stressed that the inclusion of these new floor coverings **are only intended for floor coverings and not wall coverings products**

Other National Ecological Labels experiences

Already existing approaches have been considered such as the **Nordic Swan** labelling, the **Blue Angel** label, the Austrian environmental protection label **UZ 56**, the **GUT** that is a European specific label for carpet, and the **Oeko-Tex 100** standard, testing harmful substances for textile products.

The approach that is currently used by the Nordic Swan labelling (**Swan regulation**) scheme for the floor-covering sector certifies the award the following products types:

- *solid wood;*
- *parquet;*
- *laminate;*
- *linoleum;*

- *carpets.*

The German **Blauer Engel** has a label for products made by wood and/or wood-based material (RAL-UZ 38), including also those for flooring purposes.

The approach adopted by Germany's Blue Angel label, identifies three different groups of criteria for products belonging to the Floor Coverings family, only one of which can be used for the Ecolabel aims:

- *Floor coverings made of wood:* these criteria apply to ready to use final products for indoor use (e.g. furniture, interior doors, panels, floorings with painted surfaces, laminate floorings, prefabricated parquet/linoleum) which are mainly made, i.e. for more than 50%, from wood/flower, wood powder or wood-based materials (chipboards, core boards, fibreboards, veneer panels, each non-coated or coated). Window frames and semi-finished products do not fall within the scope of these criteria.

This family of products is included in widest Basic Criteria for *Low-Emission Wood Products and Wood-Base Products*, that comprises also furniture, panels, prefabricated parquet and similar (**RAL-UZ 38**).

Another Basic Criteria has been established for the Textile floor coverings, under the label of *Low-Emission Textile Floor Coverings - RAL-UZ 128*.

- *These Criteria apply to textile floor coverings according to DIN ISO 2424:* the requirements for award of the Blue Angel eco-label refer not only to the materials and substances used during manufacture but also to the period of actual use and the disposal of the products.

The Austrian environmental protection label "**UZ 56**" for the floor coverings recognizes the following typology of products useful for Ecolabel aims:

1. *Textile floor coverings*, with the exception of loose mats and adjusted carpets;
2. *Parquet and timber floorings*, in accordance with standard EN 14342.

Flooring criteria for the **Austrian Eco Label** do not include laminates.

The European Carpet Industry has created the **GUT label** for carpets to test products against the highest standards, to promote environmentally friendly solutions for carpet installation as well as recycling projects and, in general terms, during the whole life cycle of the product.

“Confidence in textiles”: this has been the motto of the independent test institutes of the *International Oeko-Tex Association* since 1992, with their tests for harmful substances according to **Oeko-Tex Standard 100** for textile products of all types which pose no risk whatsoever to health.

REPORT ORGANIZATION

To comply with the aims of the project, the present report is structured into three main sections :

- **Hard Coverings;**
- **Wood based Floor Coverings;**
- **Textile Floor Coverings.**

This report mainly deals with the development of the First Draft Criteria Proposal.

The documents that will be distributed on the occasion of the Second AHWG Meeting will be:

- the 1st Background Report;
- the 1st Draft Criteria Proposal.

HARD COVERINGS

This section deals with the revision of the former Criteria on the Hard Floor Coverings product group included in the Commission Decision 2002/272/CE.

The main change has been the extension of the “Hard Floor Coverings” group to “Wall Coverings” that will now change in the new sub-products group called “**Hard Coverings**” (hereafter **HC**). However, the definition is intended both for floor and wall coverings where the production processes must remain the same, using the same materials and the same manufacturing methods.

In the following chapters are analyzed all the changes to the existing criteria.

2. The 1st Draft Criteria Revision framework

The Criteria revision has been structured on the basis of the available information and that received during WP1. In general it is possible state that no extreme changes have been advocated. However, for each criterion a detailed proposal will be illustrated in order to have a definitive picture of what can or should be changed.

The existing Ecolabel criteria structure has been slightly changed, with same additional criterion, but it is still composed of 7 main phases as shown in Figure 2.1. Every criteria describes a specific stage of the productive chain of HC products. For each stage a set of criteria is proposed to describe the environmental impact both at general and at specific level.

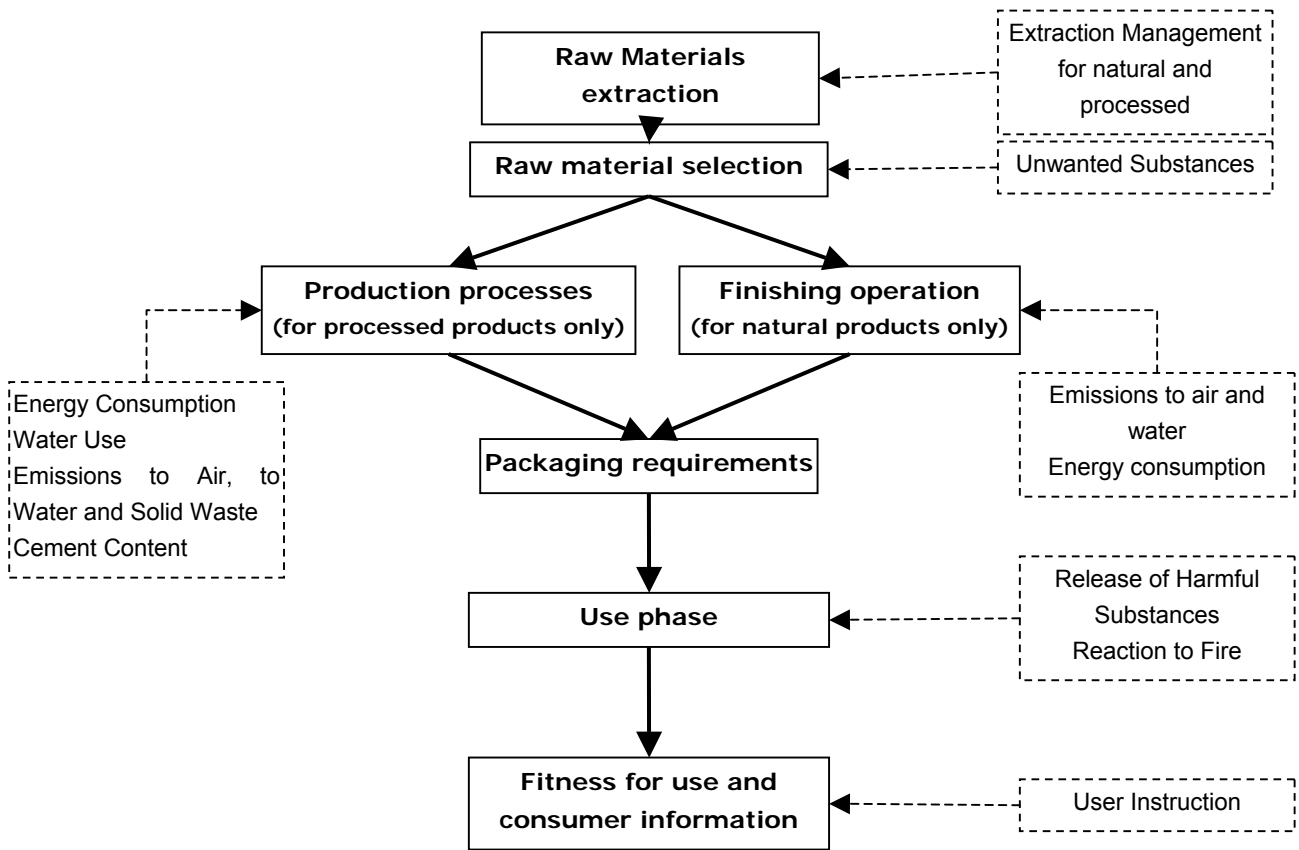


Figure 2.1 - The HC Ecolabel Criteria structure .

In Table 2.1 the applicability of each HC criteria to the different product families is shown.

Table 2.1 - Applicability of each HC criteria to the different product families.

Criteria	Point - Theme	Fired Products		Hardened products			Natural Stones
		Ceramic Tiles (CEN/TC 67)	Clay Tiles (CEN/TC 178)	Agglomerated stones (JWG 229/246)	Concrete Paving Units (CEN/TC 178)	Terrazzo Tiles (CEN/TC 229)	CEN/TC 246
1.1	Raw materials extraction management						<input checked="" type="checkbox"/>
1.2	Raw materials extraction management	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2	Raw materials selection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	Finishing operations						<input checked="" type="checkbox"/>
4.1	Energy requirement for firing (ERF) limit	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4.2	Water use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4.3	Emissions to air	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4.4	Emissions to water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4.5	Cement			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5	Waste management	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.1	Recovery of waste	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6.1	Use phase	<input checked="" type="checkbox"/>					
7	Fitness for use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	Consumer information	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	Information appearing on the ECO-label	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Definition of the product group (*Commission decision, Article 2*)

The former article defines the composition of the product group that can obtain the Ecolabel.

“The product group ‘hard floor-coverings’ shall comprise the following hard products for internal/external flooring use, without any relevant structural function: natural stones, agglomerated stones, concrete paving units, terrazzo tiles, ceramic tiles and clay tiles.”

It has to be pointed out that the CEN definitions for the different product families has not been changed.

All the interested parties agree that the division between wall and floor covering is irrelevant. Some technical documents, as, i.e., the BREF for Ceramic sector, demonstrated that in many cases, the productive processes are the same and the same tiles are used for both flooring and wall coverings. No technological and economic differences between wall and floor coverings production processes exist anymore: the BREF document for ceramic industry deals with “wall and floor tiles” as a single product group, because there is the substantial equivalence among the different production methods. This consideration could be applied also for the other sectors.

The labelling of the wall coverings is, however, possible only in the case that *wall* and *floor* are similar coverings, i.e. where the production processes remain the same, using the same materials and the same manufacturing methods.

Considering also the commercial and market issues, it has to be noticed that the use of tiles indifferently for wall or flooring purposes is now common. Furthermore, the possibility of extending the product scope without having to change the criteria could give many other producer access to the Ecolabel award with the positive effects on the number of products awarded.

New proposal: The name of the product group has been changed to “**Hard Coverings**”.

Framework (Assessment and verification requirements)

This section of the document has the objective to present the structure of the "Covering" product group and its subdivision. The definition, the CEN code identification (when existing) and some specific characteristics for each sub-products group are included.

Previously the former group of HFC was divided only in the two families of *Natural* and *Processed Products*.

Taking into account the new structure of the Covering product group (see the chapter “Structure of the Draft Criteria” and Figure 1.1) this chapter has to be updated to consider possible changes in the CEN TC codes and to include the new sub-products group of the *Wood based Floor Coverings* and *Textile Floor Coverings*.

Furthermore, it is also stated that “*The competent bodies are recommended to take into account the implementation of recognised environmental management schemes, such as EMAS or ISO14001, when assessing applications and monitoring compliance with the criteria (note: it is not required to implement such management schemes).*”

It appears also necessary to include the **EPD System** in the list of the schemes that should be taken into account by the competent bodies and can facilitate the EU Ecolabelling. The companies that comply with the EDP System, in fact, are facilitated in providing data for the Ecolabel award.

1. RAW MATERIALS EXTRACTION

1.1 Extraction management (for natural products only)

Extraction activities determine several kinds of environmental impacts that need to be well managed.

One of the major problems which occurred during the criteria application process is the Indicator I.1 of the scoring table “Water recycling ratio” and the associated Technical Appendix – A3.

The term *waste water* used in the calculation formula, should be clearly defined in the Appendix – A3 as “*the water used in processing plants*”. The refinement of stone products is, in fact, the first stage of the production line, where water is actually used: normally a small amount of water is used in natural stone quarrying and this is not possible to recycle.

In this way, it should be considered also the cases of quarries in which sawing is not applied or in which the exploitation level is situated under the water table. In this case most of the water passing through originates from rain and subsoil water, and is conveyed out of the quarry. Thus, a great quantity of the water leaving the quarry is not *waste water* but *fresh water*.

In the updating of the scoring table it should also be considered that most of the quarries can not today recycle more than the 80% of the waste water (Source: The Swedish Stone Industries Federation). The range limit has, thus, to be lowered from 80% to 65%.

The parameter I.3 “Block recovery” has been identified as critical, because the dealing of commercial blocks on the total amount of material extracted. In fact, the extractor does not actually control the % of block good that are put on the market and used for flooring manufacture. Thus, paradoxically, extractors working on quarries with good quality material, but using worse techniques could be favourite instead of extractors adopting the best techniques, with worse quality quarries. The criterion could be changed taking into account the amount of the total saleable material quarried instead of only the blocks. The modified criteria has been named “Material Recovery”, where the term “material” includes: *the block , the shapeless pieces, the rock and everything that is sold by the quarry and is not designated not to landfills*. The calculation formula has been changed as follows:

$$\frac{\text{m}^3 \text{ commercial materials}}{\text{m}^3 \text{ extracted recovery material}} \quad [\%]$$

The percentage values for the scoring calculation has been increased of 20%:

Indicator	Notes		Score				Relative weights
			5 (excellent)	3 (good)	1 (sufficient)	Exclusion Hurdle	
I3) Blocks recovery	m ³ commercial materials / m ³ extracted material [%]	MARBLES	> 60	60 – 50	49 – 40	< 40	-
		GRANITES	> 70	70 – 60	59 – 50	< 50	
		OTHERS	> 40	40 – 35	34 – 30	< 30	

In order to give more importance to the impacts generated by the quarrying activity, a new requirement called: “*Extraction activity project and environmental recovery*” has been included asking for the supply of the following documentation:

- *the authorization for the extraction activity;*
- *the environmental recovery plan;*
- *the map indicating the location of the quarry;*
- *the declaration of conformity to the Directive 92/43/CEE and Directive 79/409/CEE.*

With regard to point W1 “Nature Conservation” a link to official “Natura 2000 net” web sites has been added. This is useful for the consultation of documents for verifying the compliance with the Decision requirements.

http://ec.europa.eu/environment/nature/index_en.htm is the official site of the EU where to find information about:

- the normative requirements imposed by the *Directive 92/43/CEE (Habitats Directory)* and *Directive 79/409/CEE (Birds Directory)*;
- the areas and the sites included in the Birds Directive;
- the areas and the sites included in the Habitats Directive

The Test Methods indicated in the Decision have been checked. No further updating is requested since the Test Methods have not changed.

1.2 Extraction management (for processed products only)

Many producers notified some difficulties to collect all the necessary information requested for the extraction activity. This is because they frequently have direct contacts with commercial suppliers rather than with the extractor and the quarry are not under their direct control. Thus, the necessity to modify the “*Extraction activity project and environmental recovery*” parameter it emerged

The manufacturer will provide, in any case, a technical report including the following mandatory list of documents (the same as for the natural stones):

- *the authorization for the extractive activity;*
- *the environmental recovery plan;*
- *the map indicating the location of the quarry;*
- *the declaration of conformity to the Directive 92/43/CEE and Directive 79/409/CEE.*

It has been specified that, if the extraction activity is not directly managed by the producers, the documentation shall in any case be requested to the extractor/s.

A link to official “Natura 2000 net” web sites has been added. This is useful for the consultation of documents for verifying the compliance with the Decision requirements.

It has been indicated a link where to find information about the mentioned Directives 92/43/CEE and 79/409/CEE.

As previously indicated, http://ec.europa.eu/environment/nature/index_en.htm is the official site of the EU where to find the needed information.

The Test Methods indicated in the Decision has been checked. No further update is requested since the Test Methods have not changed.

2. RAW MATERIALS SELECTION

Raw materials selection is strictly related to the mandatory regulations, especially for the criteria referring to the use of hazardous substances and chemicals in the production process.

For a more clear interpretation and for simplifying the applicant task of meeting the requirements, the criterion has been divided in three parts as follows:

- 2.1** *Absence of risk phrases in raw materials;*
- 2.2** *Limitation of the presence of some substances in the additives (when used);*
- 2.3** *Limitation of the presence of asbestos and polyester resins in raw materials.*

With regards to the first point (see 2.1), the indication of the “*Council Directive 67/548/EEC*” (*Dangerous Substances Directive*) has been integrated with the “*Council Directive 1999/45/EC*” (*Dangerous Preparations Directive*) *on the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations, and relevant amendments*, containing additional rules concerning preparations. The use of recovered materials (scraps) arising from the same process (closed-loop recycling) or from other processes (open-loop recycling), and the possible use of secondary materials in addition or in substitution of the raw materials, has been taken into consideration. However, these have to comply with all the normative requirements recognized for raw materials.

Finally, a more generic issue stating that “*the use of any dangerous substances prohibited at EU level is banned*” has been added.

If manufacturers buy externally semi-processed products (mixtures), then they have to ask their supplier to comply with the normative indicated in this requirement.

Furthermore, since 2005, the EU Directive 1999/77/EC bans the use of asbestos it has been decided to leave the sentence which forbids its use.

3. FINISHING OPERATIONS (for natural products only)

The criterion imposes that finishing operations shall be made according to some requirements and limits for some parameters, specified in the Commission Decision document.

From WP1 the necessity to regulate the waste management for the natural stones production process emerged. The finishing activity generates different types of wastes, most of all waste water and sewage mud from sawing operations.

It is not possible to establish, due to the differences of raw materials extracted, a mandatory requirement for the reuse of a certain percentage of slabs from quarrying or finishing operation. Marble slabs can be easily recovered, i.e., for rehabilitation purposes, while granite waste is not recyclable because containing metal residues due to the excavation techniques.

The Test Methods indicated in the Decision have been checked. No further updating is requested since the Test Methods have not changed.

4. PRODUCTION PROCESSES (for processed products only)

4.1 ENERGY CONSUMPTION

With reference to the modification of Table A1 of the Annex A4 (Energy consumption calculation) to obtain, from the use of non renewable resources CO₂ emissions data, the criteria has been changed in *“Energy consumption in the firing stage and CO₂ emissions”*.

With the aim of not penalizing the present tendency of producing larger format tiles, the hurdle measure unit for PER and ERF has been modified, introducing a consumption parameter linked to the unit of weight of the cooked/hardened products. The energy consumption has been expressed in **MJ/kg** instead of MJ/m². With this new requirement, without distinction between different limits of specific weight, the distortions in the results due to esthetical differences between different products will be avoided.

New Proposal:

The phrase “*all the hurdles are expressed in MJ per square metre of final product ready to be sold*” has been modified in “*all the hurdles are expressed in **MJ per kg** of final product ready to be sold.*”

In particular, the modification is based on the following assumptions:

A. Process energy requirement (PER) limit

Since the in criterion the MJ/m² measure unit was related to the firing process, it is not obligatory to change the parameter also for the hardened products. The following two options should be considered:

- a) to leave unchanged the requirement;
- b) to change the current criterion unit to MJ/kg converting, as indicated below:

Agglomerated stones

With reference to the LCA document on HC, the data, indicate below, has been used:

- Process energy consumption = 114 MJ/m²;
- Slab thickness used as reference for calculation = 0,3 dm;
- Slab area used as reference for calculation = 100 dm² (1 m²);
- Specific weight = 2,42 kg/dm³.
- Existing EU eco-label hurdle value = 100 MJ/m²

$$\frac{100 \text{ MJ/m}^2}{(100 \text{ dm}^3 * 0,3\text{dm}) * 2,42 \text{ kg/dm}^3} = 1,57 \text{ MJ / kg}$$

The value **1,6 MJ/kg** can be considered for agglomerated stones.

Terrazzo tiles

For this group it has not been possible to make any conversion due to lack of data.

B. Energy requirement for the firing (ERF) limit

The existing criterion states that:

“The energy requirement for firing (ERF) stages for ceramic tiles and clay tiles shall not exceed:

	Hurdle (MJ/m²)
Ceramic tiles (specific weight ≤ 19 kg/m²)	50
Ceramic tiles (specific weight > 19 kg/m²)	70
Clay tiles (specific weight ≤ 40 kg/m²)	60

Assessment and verification: the applicant shall calculate the ERF according to the Technical Appendix — A4 instructions and provide the related results and supporting documentation”.

Ceramic tiles

The National Italian Guidelines² for the characterization of the ceramic sector³ BAT gives an energetic consumption range from 1,9 – 4,8 MJ/kg for the firing stage. A **3,5 MJ/kg** limit for the ceramic tiles could be established, with no more references to classes of specific weight.

Clay tiles

With regard to clay tiles, considering that the specific weight is almost the same as for the ceramic tiles, the LCA results and the similar production processes, the value **3,5 MJ/kg** used for the ceramic tile sector is also applicable for clay tiles.

New Proposal:

The new criteria could be the following:

“The energy requirement for firing (ERF) stages for ceramic tiles and clay tiles shall not exceed:

	Hurdle (MJ/kg)
Ceramic and Clay tiles	3,5 MJ/kg

² Decreto Ministero Ambiente 29 gennaio 2007 recante “Emanazione di linee guida per l’individuazione e l’utilizzo delle migliori tecniche disponibili, in materia di fabbricazione di vetro, fritte vetrose e prodotti ceramici” - Supplemento Ordinario alla Gazzetta Ufficiale n. 125 del 31/5/2007

³ “Rapporto Integrato - Ambiente Energia Sicurezza-Salute Qualità, L’industria italiana delle piastrelle di ceramica e dei materiali refrattari verso uno sviluppo sostenibile, ASSOPIASTRELLE- SNAM, 1998”

Technical Appendix – A4

To qualify the processes/products from a greenhouse gases emissions point of view, an interesting information that could be supplied at this stage refers to the **CO₂ emissions** generated during the firing activities from non renewable fuels or electric energy use. This data should be reported as further information, and not as mandatory criteria, in the dossier elaborated for the Ecolabel requirements as well as additional information for the final consumer.

Table 2.2 shows how the ERF value table defined for the old criteria could be modified to insert CO₂ emissions data. It has to be specified that the emission values are referred only to the firing stage.

Table 2.2 – Modification of the PER/ERF table in the Appendix A4 of the Commission Decision 2002/272/EC with CO₂ emissions inclusion

Production period	Days	From	To			
*Production (kg)						
Fuel	Quantity	Units	Conversion factor	Energy (MJ)	Emission factor (g CO ₂ / MJ)	CO ₂ emissions
Natural gas		kg	54,1		56,1	
Natural gas		Nm ³	38,8		56,1	
Butane		kg	49,3		76	
Kerosene		kg	46,5		71,9	
Gasoline		kg	52,7		69,3	
Diesel		kg	44,6		74,1	
Gas oil		kg	45,2		84	
Heavy Fuel oil		kg	42,7		87	
Dry Steam Coal		kg	30,6		95	
Anthracite		kg	29,7		98,3	
Charcoal		kg	33,7		94,6	
Industrial Coke		kg	27,9		108,2	
Electricity (from net)		kWh	3,6		400	
Total energy						
Specific energy consumption (MJ/*kg of product)						
Total CO ₂ emissions (g)						
Specific CO ₂ emissions (CO ₂ /*kg of product)						

The emission factors reported in Table 2.2 are those reported in the *Commission Decision of 29 January 2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC*.

The results of the energy consumption calculation in the Table A1 – Annex A4 has to be reported in MJ/kg.

It could be discussed if further reference for emission factors should be used. For example the use of specific national emission factors (also defined within the EU ETS regulation) could be taken into consideration.

However, it is important to note that a specific project on “EU Ecolabel – the carbon footprint measurement toolkit” has been recently sponsored by the EC.

4.2 WATER USE

The existing criterion for water use states that:

“The waste water produced by the processes included in the production chain shall reach a recycling ratio of at least 90%. The recycling ratio shall be calculated as the ratio between the waste water recycled, internally or externally at the plant, and the total water that leaves the process, as defined in the Technical Appendix — A3.

Assessment and verification: the applicant shall provide the calculation of the recycling ratio including raw data on total waste water produced, water recycled and the quantity and source of virgin water used in the process.”

The practice of water recycling is, at present, common in almost all the Industrial tiles sector.

New Proposal:

For a better clarification of the recycling concept, the criteria text has been modified as follows:

“The waste water produced by the processes included in the production chain shall reach a recycling ratio of at least 90%. The recycling ratio shall be calculated as the ratio between the waste water recycled or recovered by applying a combination of process optimisation measures and process waste water treatment systems, internally or externally at the plant, and the total water that leaves the process, as defined in the Technical Appendix — A3. The percentage of recovery refers only to processed waste water and the amount of “drainage water” has not to be considered.”

To accomplish with the request to insert a requirement to the “water consumption” before the processing phase, it could be request that a certain percentage (i.e.: 50%) of the water used in the manufacturing process derives from internal recycling:

“At least 50% of water consumption should derived from the rate of waste water recycled”.

Assessment and verification: the applicant shall provide a declaration of conformity with the requirement.

4.3 EMISSIONS TO AIR

Existing criteria set out threshold values for some air emissions such as emissions of particulate, phosphor (F), nitrous oxides (NO_x) and sulphur dioxides (SO₂) occurring in the manufacturing process of processed HFCs as indicated in the Decision.

According to the results of the Final Report for HFC and SFC (see chapter 2: “EU legislation analysis: regulatory improvements for the floor coverings sector”) distributed in January 2008, no modifications have been introduced to the current EU Ecolabel limits, as they still comply with the new law limits (applied in some EU countries) and the indications of the existing BREF and BAT.

New Proposal:

The Test Methods indicated have been checked and updated as shown in the following table:

Table 2.3 - The updated set of test methods for criteria 4.3 (air emissions).

Parameters	Existing Hurdle mg/m ²	Product group	Updated Test Method proposal CEN/ISO
Particulate matter (Dust)	300	Agglomerated stones	EN 13284-1
	200	Ceramic Tiles	
	250	Clay Tiles	
	300	Terrazzo and Concrete	
Fluorides (as HF)	200	Ceramic Tiles	ISO 15713
	200	Clay Tiles	
Nitrogen oxides (as NO _x)	1.200	Agglomerated Stones	EN 14792
	2.500	Ceramic Tiles	
	3.000	Clay Tiles	
	2.000	Terrazzo and Concrete	
Sulphur dioxides (SO ₂)	850	Agglomerated Stones	EN 14791
	1.500	Ceramic Tiles	
	2.000	Clay Tiles	
	1.500	Terrazzo and Concrete	
Styrene	2.000	Agglomerated Stones	-

Note: for *Fluorides* parameter **ISO** standard **15713** is the only existing method, since no CEN methods are yet available.

4.4 EMISSIONS TO WATER

The existing criterion for water use states that:

After waste water treatment, whether on-site or off-site, the following parameters shall not exceed the following limits:

Parameter	Current Hurdle	Test methods
<i>Suspended solid emission to water</i>	40 mg/l	ISO 5667-17
<i>Cd emission to water</i>	0,015 mg/l	ISO 8288
<i>Cr(VI) emission to water</i>	0,15 mg/l	ISO 11083
<i>Fe emission to water</i>	1,5 mg/l	ISO 6332
<i>Pb emission to water</i>	0,15 mg/l	ISO 8288

The law limits are still the same as those used in 2001-2002 , as reference for the existing values, so the hurdles do not need to be changed.

The Test Methods indicated in the Decision have been checked. No further updating is requested since the Test Methods have not changed.

4.5 CEMENT

A survey on existing Environmental Product Declarations (EPDs) on cement shows that the existing hurdle is still restrictive, and also from the analysis of the “Reference Document on Best Available Techniques in the Cement and Lime Manufacturing Industries” (European Commission, Dec. 2001) it emerged that no modification in the parameter limits are needed.

Parameter	Current Hurdle (g/t)	Test methods
Dust	65	EN 13284-1
SO ₂	350	EN 14791
NO _x	900	EN 14792

The Test Methods indicated in the Decision have been checked and updated.

5. WASTE MANAGEMENT

In order to make the criteria application more clear, it has been specified that the first part of the requirement is valid for “all the Hard Covering products”, including the natural stones.

Only for natural stones, the request to provide appropriate documentation about waste management deriving from quarrying and from finishing operation, has been added. Waste management and the re-use of by-products (sawing included) have to be declared.

Assessment and verification: the applicant shall provide a declaration of conformity with the requirement, in accordance with the Directive 2006/21/CEE of 15/03/2006.

5.1 RECOVERY OF WASTE *(for processed products only)*

The minimum percentage of waste recovery (at least 70% of waste must be recovered) has not changed.

In order to give more emphasis to the procedures adopted to re-use by-products originated from the process, a requirement for producing appropriate documentation has been introduced as indicated below:

- kind and quantity of waste recovered;
- kind of disposal;
- information (internally or externally to the production process) about the reuse of waste and secondary materials in the production of new products.

6. USE PHASE

The following request is valid for all the product families and not only to glazed tiles.

It is a necessity, shared by all the interested parties, to include a requirement to control and limit radioactive emissions. Although some proposal were for the introduction of the parameter in the “raw material selection” criterion, it has been decided to insert it at this point because the control of possible release of radioactive material has been inserted on the finished product destined to the consumer.

To understand if the use of materials with some **radioactivity** effects (e.g. presence of zirconium), in the final products, have implications in terms of radioactivity emissions an investigation on the measurement methods and on the imposable limits has been done.

For the radioactivity value measurement, the European Union has adopted the standard regulation known as **RP 112**⁴ (“Radiological protection principles concerning the Natural Radioactivity of Building Materials”), currently used by the most important industrial building sectors.

From the analysis of the document emerges that it can be imposed hurdle values on two parameters:

“**I_γ**”: emerges from the relationship between the concentrations of radionuclides in materials with the external dose.

“**I_α**”: emerges from the relationship between the concentrations of *radio-226* in materials with the internal dose.

The following limits could be imposed:

Parameter	EU Hurdle	Test methods
I_γ	2	RP 112
I_α	1	

6.1 RELEASE OF DANGEROUS SUBSTANCES *(for processed products only)*

Since the current limits for the release of dangerous substances (Pb and Cd) and the relative test methods are those established for the ceramic products destined to the alimentary sector, the hurdles currently individuated for this criterion does not need a revision as the limit is already very stringent.

Parameter	Current Hurdle (mg/m ²)	Test methods
Pb	80	ISO 10545-15
Cd	7	

Some comments, which emerged during the 1st AHWG meeting, proposed the introduction of a new requirement "Cr₆ limitation" for the finished product. It should be considered that the presence

⁴ Radiation Protection 112, 1999.

of this element is very low in the product and that the additional test methods could be very expensive for the applicant. It has been decided not to consider the parameter.

The Test Methods indicated in the Decision have been checked. No further updating is requested since the Test Methods have not changed.

7. PACKAGING

This new criterion has been introduced, due to the many requests received for regulating the reducing of the environmental impacts related to the packaging production .

The following requirement will be mentioned in the Decision:

“Packaging used should be multi use systems or be made out of 100% recycled materials with a take back opportunity for recycling,. Halogenated plastics should be excluded for use as packaging materials.”

8. FITNESS FOR USE

The criterion cites that:

The product shall be fit for use. This evidence may include data from appropriate ISO, CEN or equivalent test methods, such as national or in-house test procedures.

Since the extension of the sub-product group to the wall coverings has occurred, a clear indication of the different use for which the product is suitable has to be indicated. The following phrase has to be added in the criterion:

“An indication of the kind of use for which the product is fit for use has to be clearly indicated: wall, floor or wall/floor”.

The Normative References indicated has been checked. No further updating is requested since the Directive is still in force.

The criterion number has been modified.

9. CONSUMER INFORMATION

The criterion states that the product has to be sold with information about the EU Ecolabel award, with the recommendations for its use and maintenance, with an indication of the route of recycling or disposal and with information on the EU Ecolabel and its related product groups.

The criterion does not change.

The criterion number has been modified.

10. INFORMATION APPEARING ON THE ECOLABEL

The criterion states that:

Box 2 of the Ecolabel shall contain the following text:

Natural products:

- *reduced impact of extraction on habitats and natural resources,*
- *limited emission from finishing operations,*
- *improved consumer information and waste management.*

Processed products:

- *reduced energy consumption of production processes,*
- *reduced emissions to air and water,*
- *improved consumer information and waste management.*

The criterion does not change.

The criterion number has been modified.

WOOD BASED FLOOR COVERINGS

3. The 1st Draft Criteria Development framework

TOWARD THE CRITERIA (FOR ALL THE PRODUCT FAMILIES)

Considering that the first steps of the production processes are very similar for “Wood and Timber floorings”, “Laminate floorings” and “Other wood based floorings “, the results of the following discussion are valid for all the “ Wood based floor coverings” sub-product groups.

The manufacture of wooden flooring is relatively simple. However the timber has to be planted, grown, thinned, felled, soil-cultivated and re-planted. After felling, the trees are transported to sawmills where barking, sawing to the desired dimensions and drying take place. Nevertheless, some types of wooden flooring would require an intermediate processing/treatment stage. This may include the application of oil or lacquer.

Figure 3.1 shows an example of wooden flooring manufacturing processes.

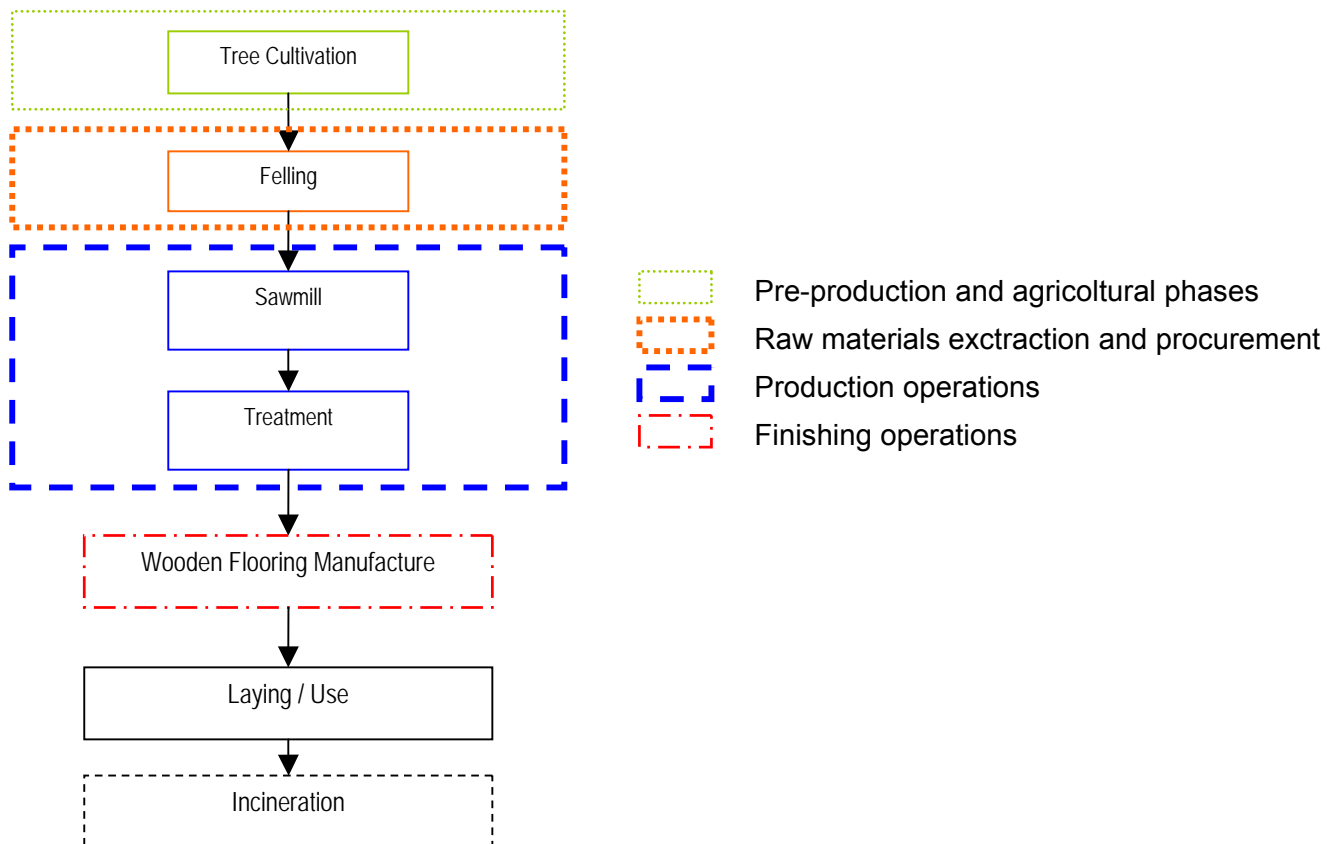


Figure 3.1 - A flow chart of manufacture of wooden flooring.

From different documents provided in the WP1 Final Report and from the incoming LCA analysis nearly completed, it emerges that the main aspects that must be managed, for each life cycle stage, are the following:

Table 3.1 – Main environmental aspects involved in the manufacture of a wooden covering.

Life Cycle phase	Subphase	Aspect
Raw materials	<i>Purchasing</i>	<ul style="list-style-type: none"> • Origin of the wood and forest management
Production	<i>Treatments</i>	<ul style="list-style-type: none"> • Use of chemical in the wood treatment; • Use of chemical substances for coating • Use of colorants • Other additives
	<i>Sawmill</i>	<ul style="list-style-type: none"> • Energy consumption (electric and fuel) • Air emissions • Water emissions
	<i>Wastes</i>	<ul style="list-style-type: none"> • Recycling of by-products
Use phase	<i>Activities</i>	<ul style="list-style-type: none"> • Release of dangerous substances • Fitness for use
	<i>Product requirements</i>	<ul style="list-style-type: none"> • Durability

TOWARD THE CRITERIA (*only for laminates floorings*)

From analysis of the productive process shown in figure 3.2 some differences emerged between the manufacture of laminates and the other flooring made of solid wood. The main differences are the following:

- the use of raw materials as chips, sawdust and forest slugs instead of wood slabs to produce a chipboard panel support;
- the use of non wooden coating materials, as resins;
- the gluing process applied to merge chipboard and coating surfaces.

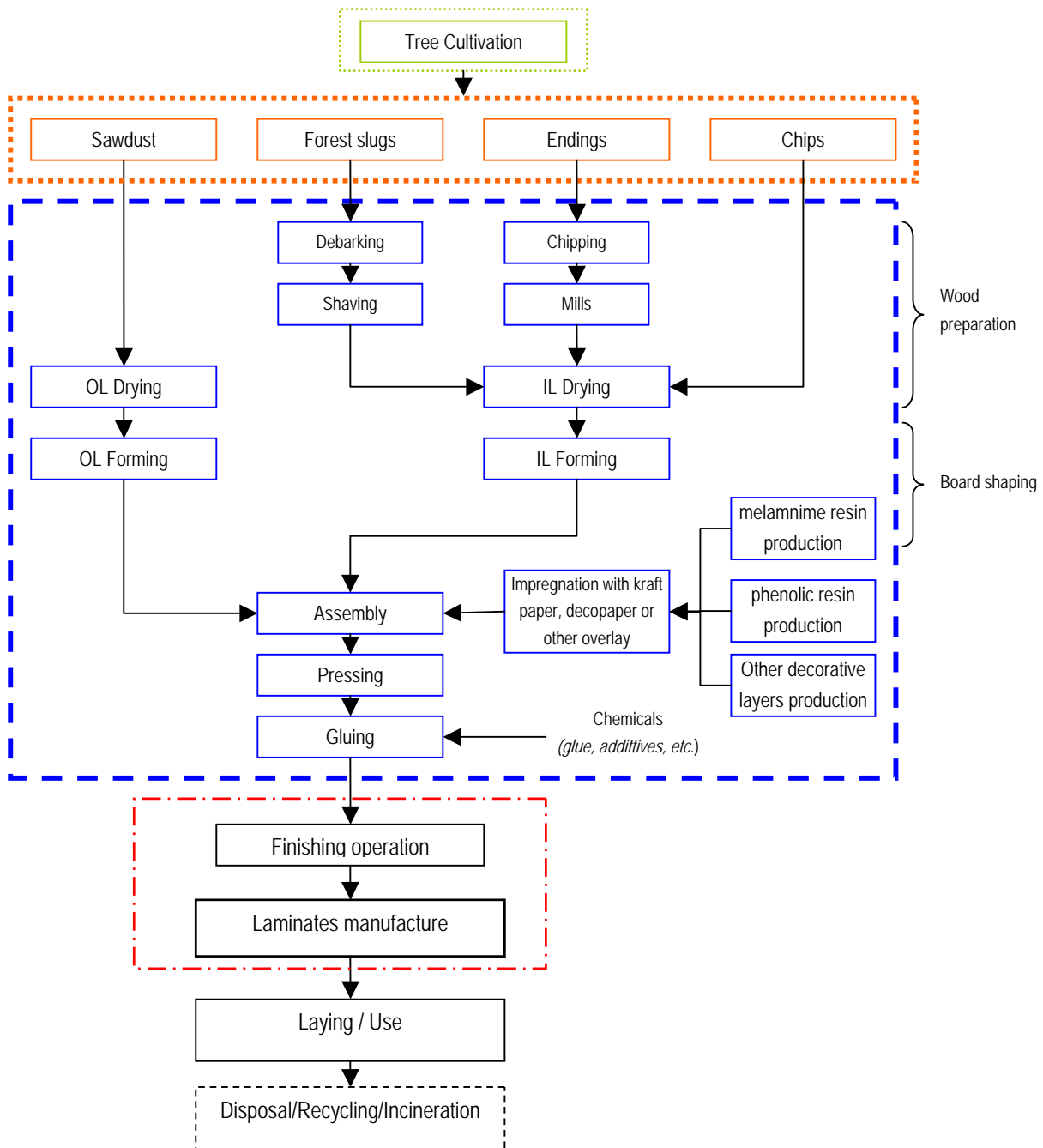


Figure 3.2 - A simplified flow chart of manufacture of laminates (Data elaborated by LCE). OL=Outside Layer; IL=Internal Layer.

It should be highlighted, that the production of a chipboard involves almost a higher energy consumption rate compared to slab production. The other aspects are to be managed with specific criteria.

Thus, for laminate floorings, in addition to Table 3.2, the following aspects have to be considered:

Table 3.2 - Additional environmental aspects involved in the manufacture of a Laminate covering.

Life Cycle phase	Subphase	Aspect
Raw materials	<i>Purchasing</i>	<ul style="list-style-type: none"> Percentage of recycled materials used in the manufacturing
Production	<i>Treatments</i>	<ul style="list-style-type: none"> Absence of dangerous substances in the coating surfaces; Use of glue and other additives in the assembly phase;
Use phase	<i>Activities</i>	<ul style="list-style-type: none"> Release of dangerous substances Fitness for use
	<i>Product requirements</i>	<ul style="list-style-type: none"> Durability

CRITERIA DEVELOPMENT FOR THE WOOD BASED FLOOR COVERINGS SUB-PRODUCTS GROUP

Taking into account the previous considerations, the literature studies already cited in the WP1 Final Report and the incoming LCA analysis, carried out by LCE, the following criteria proposal has been developed.

Hereafter, some requirements that have to be the basis and the starting point for the new criteria for the sub-product group are suggested..

As recommended both from the EU Commission and from different stakeholders during the 1st AHWG meeting (Brussels, 28/09/2007), in order to harmonize as much as possible the European methods and standards related to products/processes, the following proposals are based on the already existing National labels for this product group (where existing) or refer to current Ecolabel criteria for similar products (i.e.: Draft criteria for wooden furniture).

All references are indicated in the text.

Definition of the product group (*Commission decision, Article 2*)

This article defines the composition of the product group that can obtain the Ecolabel award.

“The product group ‘Coverings’ shall comprise the following sub-products group for internal/external use, without any relevant structural function:

- *Hard Coverings: [omitted...];*
- **Wood based floor coverings:** *including wood and timber floorings, laminate floorings and other wood based floorings which are made, for more than 90% in mass (in the final product), from wood, wood powder and/or wood-based material. It does not apply to wall coverings or that for external use;*
- *Textile floor coverings: [omitted...].”*

The percentage (i.e.: 90% in mass) derives from some LCA studies conducted on laminates, demonstrating that the medium German composition of a laminate flooring is 90% wood based (see WP1 Final Report - Table 5.7, page 93).

References to the National Ecolabels

The Blue Angel label refers to end-products which contain at least 50 % wood or wood-based products (chipboard, block board, fibreboard, veneering, with or without a coating). Despite this relatively low percentage requirement, that leaves space for other materials, this label does not include any requirement for non wood materials.

The Nordic Swan’s requirements, instead, refer to floor coverings containing, in terms of weight, a minimum of 10% wood raw material. .

Framework (*Assessment and verification requirements*)

This section of the document has the objective to present the structure of the "Covering" product group and its subdivision. For each product a definition and some specific characteristics are included.

Taking into account the new structure of the "Covering" product group (see the chapter “Structure of the Draft Criteria” and Figure 1.1) this chapter has been updated to include the new sub-products group of " *Wood based Floor Coverings* and *Textile Floor Coverings*".

The definition proposed for the *Wood and Timber floorings*" sub-products group is:

“wood floors made by one solid piece of wood that have tongue and groove sides or constructed from several wood plies that are glued together in a multilayer panel. A wood floor can be unfinished, and once installed sanded, then finished on site or pre-finished in a factory”.

The definition⁵ proposed for the *Laminates* product group is:

“rigid floor covering with a surface layer consisting of one or more thin sheets of a fibrous material (usually paper), impregnated with aminoplastic thermosetting resins (usually melamine), pressed or bonded on a substrate, normally finished with a backer⁶”.

The functional unit, to which inputs and outputs should be related, is 1 m² of finished product.

The *European laminate floor covering industry* determines its technical position in the European commission of normalisation **CEN/TC 134**.

1. RAW MATERIALS

Specific material requirements

All virgin solid wood from forests must originate from forests that are managed so as to implement the principles and measures aimed at certifying sustainable forest management.

In Europe, the principles and measures referred to above shall at least correspond to the definition of SFM that was adopted in Resolution 1 of the 2nd Ministerial Conference on the Protection of Forests in Europe (Helsinki, 16-17 June 1993), the Pan-European Operational Level Guidelines for Sustainable Forest Management, as endorsed by the 3rd Ministerial Conference on the Protection of Forests in Europe (Lisbon, 2-4 June 1998) and the Improved Pan-European Indicators for SFM, adopted at the MCPFE Expert Level Meeting of 7-8 October 2002 that were approved at 4th Ministerial Conference on the Protection of Forests in Europe (Vienna, 28-30 April 2003).

Outside Europe, they shall at least correspond to the UNCED Forest Principles (Rio de Janeiro, June 1992) and, where applicable, to the criteria or guidelines for sustainable forest management

⁵ NALFA Standards (2003)

⁶ “Baker”: a material bonded to the back of the substrate.

as adopted under the respective international and regional initiatives (ITTO, Montreal Process, Toronto Process, UNEP/FAO Dry-Zone Africa Initiative).

1.1 Sustainable forest management (only for solid wood)

Proposal for criteria:

At least 50% of the virgin solid wood from forests must originate from sustainable managed forests certified by independent third party forest certification schemes, fulfilling the criteria listed in paragraph 15 of the Council Resolution of 15 December 1998 on a Forestry Strategy for the EU and further development.

Assessment and verification: the applicant shall indicate types, quantities and origins of the wood used in the eco-labelled product. The origin of virgin solid wood shall be indicated with sufficient precision to allow checks, where appropriate.

For virgin solid wood from certified sustainably managed forests the applicant shall provide the appropriate certificate(s) together with supporting documentation showing that the certification scheme correctly fulfils the principles and measures of sustainable forest management.

For virgin solid wood from uncertified sustainably managed forests, the applicant and/or his supplier shall provide the appropriate declarations, charter, code of conduct or statement, verifying that the requirements of criterion 1.1 are met.

References to the National Ecolabels

With regard to this point, the Blue Angel states that: *“Solid wood, laminated wood, veneer and the wood used for the production of plywood shall not be taken from primeval forests (boreal and tropical primary forests). When buying timber the applicant undertakes to take wood from sustainable forestry into account.”* It does not impose any requirement on the percentage of wood derived from certified forests.

The Nordic Swan establishes that: *“at least 30% (annual average) of the wood must come from certified forests”*.

Instead, the Österreichisches Umweltzeichen (Austrian) eco-label states that: *“with the exception of recycled wood, the timber used and the wood fibres or wood splints shall originate from forests managed in accordance with the principles of sustainable forestry and verified accordingly. The share of certified timber is to be specified in the expert opinion”*.

1.2 Sustainable forest management (*only for laminates*)

Proposal for criteria:

At least 20% of the virgin solid wood from forests must originate from sustainable managed forests certified by independent third party forest certification schemes, fulfilling the criteria listed in paragraph 15 of the Council Resolution of 15 December 1998 on a Forestry Strategy for the EU and further development.

It is proposed to require the control of the chain of custody as proof of supply of sustainable forestry resources. The manufacturer shall provide evidence of commitment to a certificate of chain of custody (PEFC, FSC or equivalent): traceability procedure, letter of application for membership at one of systems, letter of control chain request.

Assessment and verification: the applicant shall indicate types, quantities and origins of the wood used in the production of wood-based materials. The origins of virgin wood (e.g.: sawdust, chips, fibres or forest slugs) shall be indicated with sufficient precision to allow checks, where appropriate.

For virgin solid wood from certified sustainably managed forests the applicant shall provide the appropriate certificate(s) together with supporting documentation showing that the certification scheme correctly fulfils the principles and measures of sustainable forest management.

For virgin solid wood from uncertified sustainably managed forests, the applicant and/or his supplier shall provide the appropriate declarations, charter, code of conduct or statement, verifying that the requirements of criterion 1.2 are met.

1.3 Recycled wood materials (*only for laminates*)

The use of recycled woodchip has to be implemented. The document used as reference is the 'EPF Standard for delivery conditions of recycled wood' of 24 October 2002.

Woodchip is defined as "processed post-consumer wood pieces formed by shredding, crushing, hammering or chopping" originating, most of all, from sawmills and other similar factories.

It has to be highlighted that woodchip delivered to the panel board manufacturer is considered to be waste, subject to the normal regulatory controls, and it should be treated appropriately until it is incorporated into a new wood based panel. Once processed into panel board, the material is no longer waste, so that regulatory control would no longer apply.

The recycled material shall comply with the provisions in the EPF Industry standard, as reported in paragraph 6 of the previous cited document .

The reference standard table is shown below:

Table 3.3 - Contamination limits allowed in recycled wood for the production of wood based products, according to the criteria 1.3

Elements and compounds	Limit values (mg/kg of total dry panel)	Test method (yet to be specified)
Arsenic	25	
Cadmium	50	
Chromium	25	
Copper	40	
Lead	90	
Mercury	25	
Fluorine	100	
Chlorine	1000	
Pentachlorophenol (PCP)	5	
Tar oils (benzo(a)pyrene)	0,5	

At least 5% in weight of the total dry raw materials used for the panel board production shall be recycled wood secondary material.

Assessment and verification: A declaration shall be provided that recycled wood is used in the production of wood based materials. In addition, test results shall be provided to verify compliance with limit values as laid down in table 3.3.

2. USE OF DANGEROUS SUBSTANCES (for all wooden products)

Proposal for criteria:

Chemical products and substances are used at different stages of a wood flooring life cycle . Three main phases can be identified:

- Raw wood treatments (impregnating substances and preservatives);
- Wood transformation processes (use of toxic and eco-toxic substances and additives);

- Coating and Surface treatments (decorative papers, fillers, varnishes, etc...).

These criteria have been developed with the aim to harmonize the requirement with that of the Draft Criteria for the EU Ecolabel wooden furniture product group. Furthermore, also it has refers to the Nordic Ecolabelling on the Floor coverings, which is very comprehensive regarding the requirement on chemical products.

2.1 Dangerous substances in the raw wood treatments

Additives and preservatives are used in the logging stage for the conservation of raw wood, before processing. In Europe, the use of these substances shall comply with the Directive 91/414/ECC on plant care products.

Proposal for criterion:

The applicant shall comply the following requirement:

*“Substances used for preserving timber shall comply with **Directive 94/414/CE** of 15 July 1991, concerning the marketing of plant protection products.”*

Assessment and verification: the applicant shall provide a declaration showing compliance to the EU Directive 94/414/CE, showing that the substances used are listed in the list established in the directive.

2.2 Dangerous substances in the transformation processes

There are different types of chemical substances and preparations used in the manufacturing process.

First of all, in many cases the use of **biocides** has to be controlled. In Europe the use of these substances shall comply with the **Directive 98/8/CE** of 16/02/1998 (Biocide Directive).

Proposal for criterion:

The applicant shall comply with the following requirement:

*“Substances used for wood preservation in the production process should comply with the directive **Directive 98/8/CE** (16 February 1998) concerning the placing of biocide products on the market.”*

With regard to the use of other chemicals, generically used in the treatment of solid wood and wood based products, the European norms of reference are the *“Council Directive 67/548/EEC”*

(*Dangerous Substances Directive*), the “*Council Directive 1999/45/EC*” (*Dangerous Preparations Directive*); (it is necessary to take into account also the modification made by the CE Regulation n.1907/2006 – REACH).

In line with the HC corresponding requirement, it is requested that: “*Wood used in wood based materials shall not be treated with substances or preparations that are assigned, or may be assigned at the time of application, any of the following risk phrases (or combinations thereof):*

- R40** (*limited evidence of a carcinogenic effect*);
- R45** (*may cause cancer*);
- R46** (*may cause heritable genetic damage*);
- R49** (*may cause cancer by inhalation*);
- R50** (*very toxic to aquatic organisms*);
- R51** (*toxic to aquatic organisms*);
- R52** (*harmful to aquatic organisms*);
- R53** (*may cause long-term adverse effects in the aquatic environment*);
- R54** (*Toxic to flora*);
- R55** (*Toxic to fauna*);
- R56** (*Toxic to soil organisms*);
- R57** (*Toxic to bees*);
- R58** (*May cause long-term adverse effects in the environment*);
- R59** (*Dangerous for the ozone layer*);
- R60** (*may impair fertility*);
- R61** (*may cause harm to the unborn child*);
- R62** (*possible risk of impaired fertility*);
- R63** (*Possible risk of harm to the unborn child*);
- R68** (*Possible risk of irreversible effects*);

as laid down in Directives 67/548/EEC, 1999/45/EC and their amendments.”

“*Raw materials classified as allergenic that are added to the floor covering must not exceed levels of 0.1% by weight in the finished floor covering.*”

“Chlorinated/brominated paraffins, halogenated flame retardants, organic tin compounds, phthalates and fluorinated compounds must not be actively added to the floor covering.

Cadmium (Cd), lead (Pb) and mercury (Hg) must not be actively added to the floor covering.”

As for the wooden furniture, another aspect to be managed is the presence of formaldehyde in the raw materials. Since the products are quite similar both in terms of materials and production processes, the requirement proposal is the same:

“The content of free formaldehyde in products or preparations used in the panels shall not exceed 0.3% by weight.

The content of free formaldehyde in binding agents, adhesives, and glues for plywood panels or laminated wood panels shall not exceed 0.5% by weight.”

Assessment and verification: the applicant shall provide appropriate declarations verifying that the above requirements are met. For the chemical products used in the production of wood-based materials a MSDS or equivalent documentation shall be presented containing information on health hazard classification.

2.3 Dangerous substances in the coating and surface treatments

Generic requirements

All the materials and the coatings, substances, additives and binding agents used in this phase must comply with the requirements defined in the previous criterion (2.2).

It could be reasonable to use, for wood floorings, the more specific requirements identified for wooden furniture, due to the similarity in the process and treatments, especially for the laminates, which are:

“Chemical substances classified as harmful for the environment by the chemical manufacturer/supplier in accordance with EU classification system (28th Amendment to Directive 67/548/EEC) shall comply with the 2 following limits :

1. Chemical substances classified as harmful for the environment in accordance with the Directive 1999/45/EG must not be added to substances and preparations for surface treatment. Nevertheless the products may contain up to 5 % volatile organic compounds (VOC) as defined in the Directive 1999/13/EC (VOC shall mean 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.). If the product requires dilution, the contents of the diluted product must not exceed the aforementioned threshold values.

2. The applied quantity (wet paint/varnish) of environmentally harmful substances shall not exceed 14 g/m² surface area and applied quantity (wet paint/varnish) of VOC shall not exceed 35 g/m².

The applicant shall provide a declaration of compliance with this criterion, together with documents to support this declaration, including:

- a complete recipe with designation of quantities and CAS numbers for constituent substances
- the test method and test results for all substances present in the product, according to the Directive 67/548/EEC
- a declaration stating that all constituent substances have been disclosed · number of coats and quantity applied per coat per square meter of surface
- Method of application.

Assessment and verification: the following standard degrees of effectiveness are used for the purpose of calculating the consumption of surface treatment product: Spraying device without recycling 50%, spraying device with recycling 70%, electrostatic spraying 65%, spraying, bell/disk 80%, roller varnishing 95%, blanket varnishing 95%, vacuum varnishing 95%, dipping 95%, rinsing 95%.”⁷

Adhesives

“The VOC content of adhesives used in the assembly of the product shall not exceed 10% by weight”, as indicated in the Austrian label.

Assessment and verification: a declaration shall be provided by the applicant indicating all adhesives used in the assembly of furniture, as well as the compliance with this criterion.

Formaldehyde

Formaldehyde emissions from substances and preparations for surface treatment liberating formaldehyde shall be less than 0.1 ppm.

Assessment and verification: the applicant and/or his supplier shall provide a declaration that the above requirement is met, together with information on the formulation of the surface treatment.

⁷ Second Interim Report on the Development of Eco-label criteria for wooden furniture (2007) - Paris, 15 February 2007

3. PRODUCTION PROCESS

3.1 Energy Consumption

The Nordic Swan Ecolabelling, is the only label that proposes a specific calculation tool for the limitation of the energy consumption at the manufacturing stage for “solid wood and laminate floor coverings”.

A similar method of measurement and control is recommended:

The requirements are organized in two parts: the calculation of a point score and the application of limits to the total score for wood and laminate flooring as indicated below:

“Energy consumption is calculated as an annual average of the energy consumed during the production process (excluding premises heating) from the raw material in bulk to the finished floor covering. This means, for example, that the energy calculation for wood-based products starts from the wooden logs.

For synthetic (non-renewable) raw materials, the calculations start from the production of the plastic monomer. The calculation shall not include the energy content of the raw material (nda: feedstock energy).

The energy calculation shall include at least 95% by weight of the raw materials’ energy consumption. The energy required to manufacture adhesives and varnish shall not be included in the calculations.

*Nordic Ecolabelling has chosen the units **kWh/m²**, though calculations may also be made in MJ/m² (1 kWh=3.6 MJ).*

The energy contents of various fuels are given.

If the producer has an energy surplus that is sold as electricity, steam or heat, the sold quantity can be deducted from the fuel consumption. Only the fuel that is actually used in floor covering production shall be included in the calculations.

Electricity consumption refers to electricity purchased from an external supplier.

Environmental parameter	Requirement
A = Wood from certified, sustainable forest (%)	Min. 30%
B = Proportion of recycled wood raw materials (%)	-
C = Proportion of renewable fuels (%)	-

D = Electricity consumption (kWh/m ²)	Max. 20 kWh/m ²
E = Fuel consumption (kWh/m ²)	Max. 50 kWh/m ²

$$P = \frac{A}{25} + \frac{B}{25} + \frac{C}{25} + \left(4 - \frac{D}{5}\right) + \left(4 - \frac{E}{12.5}\right)$$

Requirement: $P \geq 11.5$ for laminate flooring

$P \geq 10.5$ for wood flooring

The European Commission - DG Environment currently carrying out a project for the development of a Calculation Toolkit for the CO₂ measurement. Possibly this toolkit could be applied for the calculation of the GHG impacts deriving from the use of non renewable resources at the production phase or from the whole life cycle of the product.

Thus, a sort of “climate declaration” could be produced and delivered to the consumer.

3.2 Emission to air

The main air pollutants associated to the production process are formaldehyde emissions from coating and dust emissions from mechanical transformation processes.

Specific indications on some of these issues derive from the Austrian labelling “UZ 56” about wood dust and from the Second Interim report on furniture for formaldehyde emissions.

Proposal for criterion:

Wood dust

“The wood-dust emissions present in the exhaust air released by wood-machining equipment shall be less than or equal to 10 mg/m³ and less than or equal to 50 mg/m³ in the exhaust air released by splints or fibre dryers.”

VOC emissions are currently under investigation.

3.3 Waste management

Information should be given to the consumer on the different ways to dispose of the product, ranking them according to their impact on the environment, for example : reuse, recycling, energy production.

A minimum percentage of waste recovery, which will be different for solid wood and for laminates production, could be imposed.

In order to give more emphasis to the procedures adopted to re-use the by-products from process, a requirement for producing appropriate documentation has been introduced as follows:

- kind and quantity of waste recovered;
- kind of disposal;
- information (internally or externally to the production process) about the reuse of waste and secondary materials in the production of new products.

4. USE PHASE

4.1 RELEASE OF DANGEROUS SUBSTANCES

In order to control the potential release of dangerous substances in the use phase and at the end of the wood based floor coverings life, the following parameters on the finished products shall be verified:

Formaldehyde release

Some references about the possible criteria and test methods applicable come from the Nordic Swan Ecolabelling. It distinguishes that the products and the relative requirements have to comply with: “normal floor coverings” (hurdle: 0,13 mg/m³ air; test method: EN 717-1) and with coverings “containing chipboard and fireboard” (single test hurdle: 8 mg/100 g dry test; single test hurdle: 6,5 mg/100 g dry test; test method: EN 120).

The Blue Angel imposes a limit of 0,05 ppm. However, the reference are made to national methods and testing institutes. This same value is adopted by the Austrian “UZ 56” label.

VOC emissions

The Nordic Swan criteria does not apply to floor coverings that comprises more than 75% wood weight and for which adhesives and surface treatment products contain a maximum of 1% by weight of organic solvents. The requirement states that the emission of organic solvents must not exceed 2 g/m² of floor covering.

The Austrian label and the Blue Angel both adopt the following limits:

- Organic compounds (Boiling point 50-250°C) : 300 µg/m³ air;
- Organic compounds (Boiling point > 250° C) : 100 µg/m³ air

The Nordic Swan approach is advocated, firstly because it is more simple for the applicant and secondly the requirement is expressed in m² which is the unit measurement by which wood flooring is sold. In such case, the requirement on VOCs emission it would be not necessary, because, as specified in the Article 2 of the new decision (in case of acceptance), the Wood based floor coverings: *“includes wood and timber floorings, laminate floorings and other wood based floorings which are made, for more than 90% in mass (in the final product), from wood, wood powder and/or wood-based material”*.

5. PACKAGING

“Packaging used should be multi use systems or be made out of 100% recycled materials with a take back opportunity for recycling. Halogenated plastics should be excluded for use as packaging materials.

All materials shall be easily separable in recyclable parts consisting of one material (e.g. cardboard, paper, textile, etc..).”

Assessment and verification: a sample of the product packaging shall be provided on application, together with a corresponding declaration of compliance with this criterion.

6. FITNESS FOR USE

Details of the test procedures and results shall be provided, together with a declaration that the product is fit for use based on all other information about the best application by the end-user.

The EC conformity mark 'CE' for construction products, for example, provides producers with an attestation of conformity easily recognisable and may be considered as sufficient in this context.

The norms of reference are the **Directive 89/106/EEC** of 21/12/1988 for construction products and its modification, the **Directive 93/68/CEE** of 22/07/1993.

7. CONSUMER INFORMATION

The criterion states that the product has to be sold with information about the EU Ecolabel award, with the recommendations for its use and maintenance, with an indication of the route of recycling or disposal and with information on the EU Ecolabel and its related product groups.

8. INFORMATION APPEARING ON THE ECOLABEL

The criterion cites that:

Box 2 of the Ecolabel shall contain the following text:

- *sustainable managed forests and reduced impact on habitats;*
- *hazardous substance restricted;*
- *production process energy saving;*
- *limited pollutant emissions to air;*
- *no risk to health in the living environment;*
- *reduced pollutant hazards in the wastes;*
- *Durability, safety and fitness for use.*

TEXTILE FLOOR COVERINGS

4. The 1st Draft Criteria Development framework

TOWARD THE CRITERIA

The Textile floor covering sub-group comprises the carpet products family.

The manufacture of tufted carpet can be split into three processes:

1. *Tufting*: in this phase of process a multi needled tufting machine is used to form the pile in the backing cloth;
2. *Dyeing*: the product is coloured unless the yarn was dyed beforehand;
3. *Backing*: the backing is then coated in adhesive and a foam or secondary backing applied.

Two examples of manufacturing processes are given in Figure 4.1 (polyamide carpet) and in Figure 4.2 (woollen carpet).

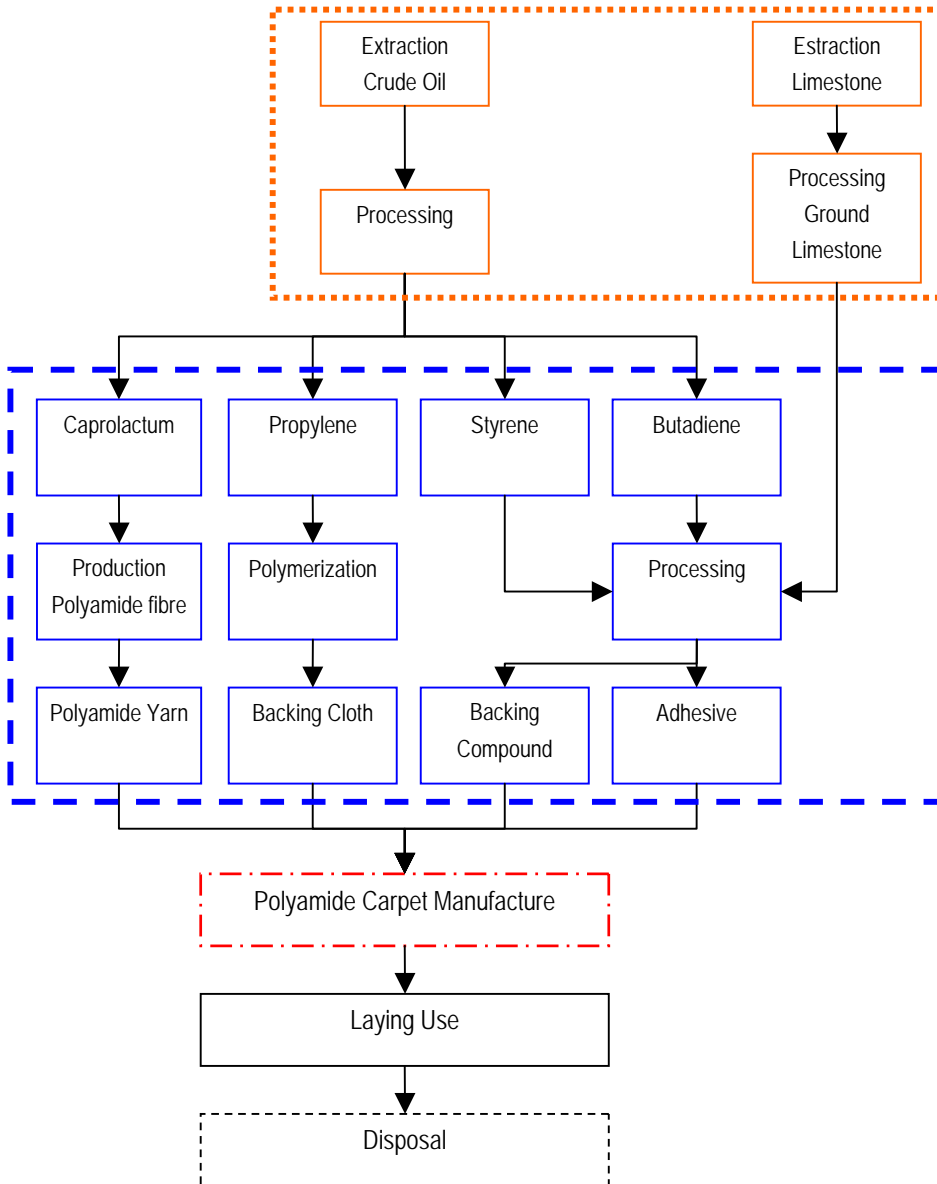


Figure 4.1 - A flow chart of polyamide carpet manufacture.

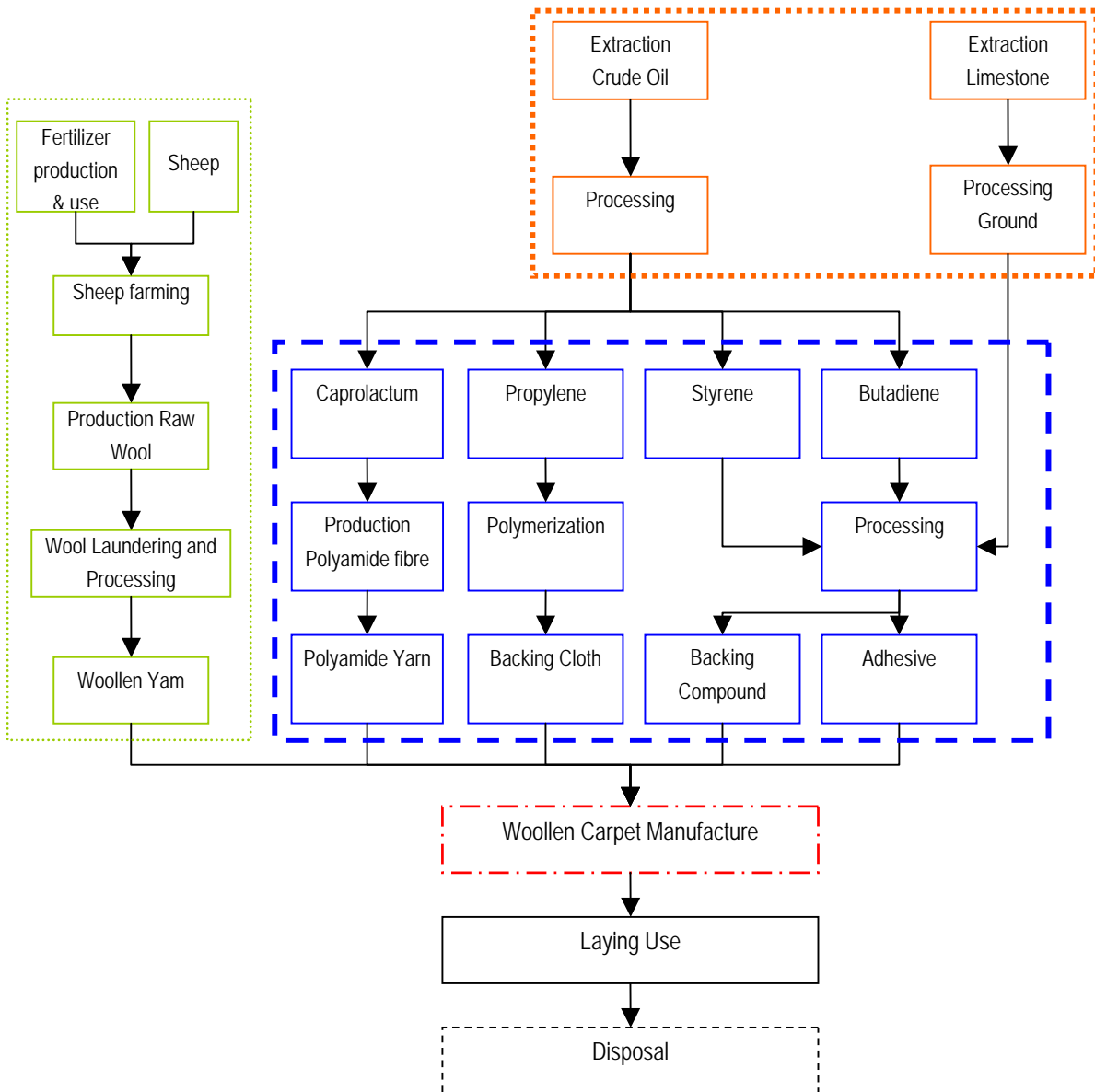






Figure 4.2 - A flow chart of woollen carpet manufacture.

-  Pre-production and agricultural phases
-  Raw materials extraction and procurement
-  Production operations
-  Finishing operations

TOWARD THE CRITERIA

From a quick analysis of the productive process shown in figures 4.1 and 4.2, it emerges , between the manufacture of polyamide and of woollen carpets, that the main difference is in the raw materials production phase. The raw materials used in the production are different: for polyamide carpets only synthetic materials are used, while for the woollen products natural resources (i.e.: wool) are also utilized.

In the following table (Table 4.1) a summary of the major sources of environmental impacts is shown.

Table 4.1 – Main environmental aspects involved in the manufacture of a textile floor covering.

Life Cycle phase	Subphase	Aspect
Raw materials	Purchasing	<ul style="list-style-type: none"> • Absence of dangerous an toxic substances • Absence of dangerous substances in baking materials
Production	Treatments	<ul style="list-style-type: none"> • Chemicals and auxiliaries
	Processes	<ul style="list-style-type: none"> • Energy consumption
	Wastes	<ul style="list-style-type: none"> • Emissions to water
Use phase	Activity	<ul style="list-style-type: none"> • Release of dangerous substances
	Product requirements	<ul style="list-style-type: none"> • Fitness for use.

CRITERIA DEVELOPMENT FOR THE TEXTILE FLOOR COVERINGS PRODUCT GROUP

Taking into account the previous considerations, the literature studies already cited in the WP1 Final Report and the incoming LCA analysis, carried out by LCE, the following criteria proposal has been developed.

Hereafter, some requirements that have to be the basis and the starting point for the new criteria for the sub-product group are suggested.

As recommended both from the EU Commission and from different stakeholders during the 1st AHWG meeting (Brussels, 28/09/2007), in order to harmonize as much as possible the European methods and standards related to products/processes, the following proposals are based on the already existing National labels for this product group (where existing) or refer to current Ecolabel criteria for similar products (i.e.: textiles).

All references are indicated in the text.

References to the National Ecolabels

The Blue Angel label RAL-UZ 128 applies to textile floor coverings according to ISO 2424⁸.

The Swan labelling for floor coverings requirements are applied to textile fibres that constitute more than 15% by weight of the floor covering (normally carpets).

The Austrian label “UZ-56” apply to “the textile floor coverings, with the exception of loose mats and adjusted carpets”.

Furthermore it has been highlighted that the present draft criteria aim is to the harmonize with the revision of the *EU Ecolabel criteria for textile products*⁹, even so it does not apply to floor coverings.

From a comparative analysis, it emerges a fairly full harmonization in terms of the environmental aspects identified, the limits imposed and, often, in the methods recognized between the previous mentioned labels,. The aim of these new criteria is to merge the different requirements to obtain an instrument that would permit to manage, as much as possible, from an environmental point of view, the whole life cycle of the product, where the single national labels are deficient.

The Blue Angel label RAL-UZ 128 and the EU Ecolabel criteria for textile products are the most suitable labels with regard to the materials and chemicals criteria, while only the Nordic Swan imposes hurdles for the energy consumption.

Definition of the product group (*Commission decision, Article 2*)

This article defines the composition of the product group that can obtain the Ecolabel award.

“The product group ‘Coverings’ shall comprises the following products for internal/external use, without any relevant structural function:

- *Hard Coverings: [omitted...];*
- *Wood based floor coverings: [omitted...]*

⁸ ISO 2424 Textile floor coverings - Vocabulary (ISO 2424:1992), 1999-01

⁹ Final Draft Textile criteria

- **Textile floor coverings:** *the group includes the family of carpets, defined as heavy, durable floor covering, usually of woven, knitted, or needle-tufted fabric; commonly installed with tacks or staples, or by adhesives. It does not apply to wall coverings or that for external use;*

Framework (Assessment and verification requirements)

This section of the document has the objective to present the structure of the Covering product group and its subdivision. For each product a definition and some specific characteristics are included.

Taking into account the new structure of the Covering product group (see the chapter “Structure of the Draft Criteria” and Figure 1.1) this chapter has been updated to include the new sub-products group of *Wood based Floor Coverings* and *Textile Floor Coverings*.

The definition proposed for the *Textile Floor Coverings* group is:

“The sub-group includes the family of carpets, defined as heavy, durable floor covering, usually of woven, knitted, or needle-tufted fabric; commonly installed with tacks or staples, or by adhesives”.

The reference the **ISO 2424:2007 - Textile floor coverings – Vocabulary** could be used, if it is suggested a more comprehensive definition of the group by including not only carpets but also other textile floor coverings,

The *European Textile Floor Coverings industry* determines its technical position in the European commission of normalisation **CEN/TC 134**.

The functional unit, to which inputs and outputs should be related, is 1 kg of finished product.

The criteria are divided into three main categories, using a life cycle approach: raw textile fibres, backing materials (general requirements and chemicals), processes, use phase and fitness for use.

1. RAW MATERIALS

Generic materials requirements

With regard to the presence in the materials used for the manufacturing of the products, the European norms of reference are the “*Council Directive 67/548/EEC*” (*Dangerous Substances Directive*), the “*Council Directive 1999/45/EC*” (*Dangerous Preparations Directive*); (it is necessary to take care also to the modification made by the CE Regulation n.1907/2006 – REACH).

It should be requested that: “*The materials and the shall not contain substances or preparation that are assigned, or may be assigned at the time of application, any of the following risk phrases (or combinations thereof):*”

- R40 (limited evidence of a carcinogenic effect);*
- R45 (may cause cancer);*
- R46 (may cause heritable genetic damage);*
- R49 (may cause cancer by inhalation);*
- R50 (very toxic to aquatic organisms);*
- R51 (toxic to aquatic organisms);*
- R52 (harmful to aquatic organisms);*
- R53 (may cause long-term adverse effects in the aquatic environment);*
- R54 (Toxic to flora);*
- R55 (Toxic to fauna);*
- R56 (Toxic to soil organisms);*
- R57 (Toxic to bees);*
- R58 (May cause long-term adverse effects in the environment);*
- R59 (Dangerous for the ozone layer);*
- R60 (may impair fertility);*
- R61 (may cause harm to the unborn child);*
- R62 (possible risk of impaired fertility);*
- R63 (Possible risk of harm to the unborn child);*
- R68 (Possible risk of irreversible effects);*

as laid down in Directives 67/548/EEC, 1999/45/EC and their amendments.”

1.1 Textile fibres

Aiming to reduce non renewable resources, it could be imposed a minimum percentage of renewable materials use, i.e.:

“At least 20% by weight of the floor covering must be composed of renewable raw materials.

Renewable raw materials are defined as those materials *“that are derived from biological materials that are continually reproduced in nature.”*

In this case, a detailed description of the product and the materials which the floor covering is made, with the specification of their proportions (% by weight) shall be requested

However, it should also to be underlined that this requirement could exclude some products (i.e.: polyamide carpets) to be awarded with the Ecolabel scheme.

Similarly, a prescription on the percentage of recycled material could be provided, i.e.:

“At least 10% by weight of the floor covering must be composed of recycled raw material”.

Recycled fibres are defined as *“fibres originating only from cuttings from textile and clothing manufacturers or from post-consumer waste (textile or otherwise) ”*

If the origin of the fibres are recycled the criteria set in this section does not apply.

With regard to the presence of dangerous substances, it must be applied the **“generic material requirements”** described at the beginning of this criteria (**1. Raw materials**).

With reference to the productive processes for carpets shown in figure 4.1 and 4.2, only some textile fibres can be considered in to fulfil with this criterion.

Fibre-specific criteria are set in this section for wool, polyamide, polyester, polypropylene.

Wool – biocides (reference: Criterion 5, Final Draft Textile criteria; R5 Nordic Swan)

(a) The sum total content of the following substances shall not exceed **0,5 ppm**:

Biocide	CAS no
γ -hexachlorocyclohexane (lindane)	319-84-6
α -hexachlorocyclohexane	319-85-7
β -hexachlorocyclohexane	58-89-9
δ -hexachlorocyclohexane	319-86-8

aldrin	309-00-2
dieldrin	60-57-1
endrin	72-20-8
p,p'-DDT	50-29-3
p,p'-DDD	72-54-8

(b) The sum total content of the following substances shall not exceed **2 ppm**:

Biocide	CAS no
Propetamphos	31218-83-4
Diazinon	333-41-5
Dichlofenthion	97-17-6
Fenchlorphos	299-84-3
Chlorpyriphos	2921-88-2
Chlorfenvinphos	470-90-6

(c) The sum total content of the following substances shall not exceed **0,5 ppm**:

Biocide	CAS no
Cyhalothrin	68085-85-8
Cybermethrin	52315-07-8
Deltamethrin	52918-63-5
Fenvalerate	51630-58-1
Flumethrin	69770-45-2

(d) The sum total content of the following substances shall not exceed **2 ppm**:

Biocide	CAS no
Diflubenzuron	35367-38-5
Triflumuron	64628-44-0
Dicyclanil	
Cyromazine	

The test should be made on raw wool, before it comes through any wet treatment, for each lot of wool two times a year .

The previous requirements is not applied, where appropriate documentation is provided, if it is proved that the farmers produces at least 75 % of the wool, together with a declaration, provided by these farmers, that the substances listed above have not been applied to the concerned fields or animals.

Assessment and verification: the applicant shall either provide the documentation indicated above or provide a test report, using the following test method: IWTO Draft Test Method 59.

Polyamide fibre (reference: Criterion 7, Final Draft Textile criteria; R9 Nordic Swan)

The emissions to air of N₂O during monomer production, expressed as an annual average, shall not exceed 10 g/kg of finished polyamide 6 fibres produced or 50 g/kg of polyamide 6,6 produced.

Assessment and verification: the applicant shall provide detailed documentation and/or test reports showing compliance with this criterion, together with a declaration of compliance.

Polyester (reference: Criterion 8, Final Draft Textile criteria; R8 Nordic Swan)

The amount of antimony in the polyester fibres shall not exceed 260 ppm. Where no antimony is used, the applicant may state 'antimony free' (or equivalent text) in the eco-label labelled product.

Assessment and verification: The applicant shall either provide a declaration of non-use or a test report using the following test method: direct determination by Atomic Absorption Spectrometry. The test shall be carried out on the raw fibre prior to any wet processing.

Polypropylene (reference: Criterion 9, Final Draft Textile criteria; R10 Nordic Swan)

Lead-based pigments shall not be used.

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

Emissions of NO_x and SO₂ from the production of PP (monomer production, polymerisation and granulation) must not exceed the following limits:

NO_x: 12 kg/ton PP

SO₂: 11 kg/ton PP

Assessment and verification : the fibre manufacturer must measure or calculate the quantities of NO_x and SO₂ emitted during PP production.

1.2 Baking agents

It must be applied the “**generic material requirements**” described at the beginning of this criteria **(1. Raw materials)**.

Foam made of rubber (natural and synthetic latex, polyurethane, etc...) could be used for backings purposes. In the Nordic Ecolabel for Floor coverings mandatory requirements are set with regard to the content of some prohibited materials (R13, R14), while, for this aspect, in the Blaue Angel the criteria is only concern with the emissions in the use phase stage.

For this issue the Nordic Swan criteria seems to fulfil better with the EU Ecolabel needs. Limits are imposed to the presence of *1.3-butadiene* and of the *hydro-fluorocarbons*.

Furthermore, it should be specified that “*vulcanized foams shall not be used for back coating*”, because of the environmental impacts linked to their productive process.

2. PRODUCTION

It must be applied the “**generic material requirements**” described at the beginning of this criteria **(1. Raw materials)**.

In addition, some further requirements should be set.

Halogens

“*No halogenated organic compounds may be used in the manufacture of textile floor coverings*” is requested for all the National labels and the Final Draft Textile criteria.

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

Flame retardants

For the management of the substances and prepared used as flame retardants in the floor coverings production, considered the correspondence in the treatments applied, it can be used the same requirement than those used for the Final Draft Textile criteria ¹⁰.

¹⁰ Commission Decision 2002/371/EC – Criterion 28

Plasticizers

If any plasticizer substance in the manufacturing process is applied, it cannot contain phthalates.

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

2.1 Auxiliaries

In many cases chemicals are used to treat textile fibres.

In such cases, as required for textile products from the EU Ecolabel and to the Nordic Swan it should be request that:

“Alkylphenolethoxylates (APEOs), linear alkylbenzene sulfonates (LAS), bis(hydrogenated tallow alkyl) dimethyl ammonium chloride (DTDMAC), distearyl dimethyl ammonium chloride (DSDMAC), di(hardened tallow) dimethyl ammonium chloride (DHTDMAC), ethylene diamine tetra acetate (EDTA), and diethylene triamine penta acetate (DTPA) shall not be used and shall not be part of any preparations or formulations used.”

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

2.2 Dyes and pigments

Azo dyes

According to Directive 2002/61/EC: the use of Azo dyes, which potentially cleave one of the aromatic amines listed below is not permitted:

4-aminobiphenyl	(92-67-1),
benzidine	(92-87-5),
4-chloro-o-toluidine	(95-69-2),
2-naphthylamine	(91-59-8),
o-aminoazotoluene	(97-56-3),
2-amino-4-nitrotoluene	(99-55-8),
p-chloroaniline	(106-47-8),
2,4-diaminoanisole	(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),

<i>3,3'-dimethyl-4,4'-diaminodiphenylmethane</i>	<i>(838-88-0),</i>
<i>p-cresidine</i>	<i>(120-71-8),</i>
<i>4,4'-methylene-bis-(2-chloroaniline)</i>	<i>(101-14-4),</i>
<i>4,4'-oxydianiline</i>	<i>(101-80-4),</i>
<i>4,4'-thiodianiline</i>	<i>(139-65-1),</i>
<i>o-toluidine</i>	<i>(95-53-4),</i>
<i>2,4-diaminotoluene</i>	<i>(95-80-7),</i>
<i>2,4,5-trimethylaniline</i>	<i>(137-17-7),</i>
<i>4-aminoazobenzene</i>	<i>(60-09-3),</i>
<i>o-anisidine</i>	<i>(90-04-0).</i>
<i>2,4-Xylidine</i>	
<i>2,6-Xylidine</i>	

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

Dyes that are carcinogenic, teratogenic or reprotoxic

According to the Draft textile criteria (EU eco-label for textile products) and Öko-Tex Standard 100), (a) the following *dyes shall not be used:*

C.I. Basic Red 9

C.I. Disperse Blue 1

C.I. Acid Red 26

C.I. Basic Violet 14

C.I. Disperse Orange 11

C. I. Direct Black 38

C. I. Direct Blue 6

C. I. Direct Red 28

C. I. Disperse Yellow 3

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

(b) No use is allowed of dye substances or of dye preparations containing more than 0,1% by weight of substances that are assigned or may be assigned at the time of application any of the following risk phrases (or combinations thereof):

R40 (limited evidence of a carcinogenic effect),

R45 (may cause cancer),

R46 (may cause heritable genetic damage),

R49 (may cause cancer by inhalation),

R60 (may impair fertility),

R61 (may cause harm to the unborn child),

R62 (possible risk of impaired fertility),

R63 (possible risk of harm to the unborn child),

R68 (possible risk of irreversible effects),

as laid down in Council Directive 67/548/EEC of 27 June 1967 on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (1), and its subsequent amendments.

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

Potentially sensitizing dyes

According to the Draft textile criteria (EU eco-label for textile products) and Öko-Tex Standard 100, (a) the following dyes shall not be used:

C.I. Disperse Blue 3 C.I. 61 505

C.I. Disperse Blue 7 C.I. 62 500

C.I. Disperse Blue 26 C.I. 63 305

C.I. Disperse Blue 35

C.I. Disperse Blue 102

C.I. Disperse Blue 106

C.I. Disperse Blue 124

C.I. Disperse Blue 124

C.I. Disperse Brown 1

C.I. Disperse Orange 1 C.I. 11 080

C.I. Disperse Orange 3 C.I. 11 005

C.I. Disperse Orange 37

C.I. Disperse Orange 76 (previously designated Orange 37)

C.I. Disperse Red 1 C.I. 11 110

C.I. Disperse Red 11 C.I. 62 015

C.I. Disperse Red 17 C.I. 11 210

C.I. Disperse Yellow 1 C.I. 10 345

C.I. Disperse Yellow 9 C.I. 10 375

C.I. Disperse Yellow 39

C.I. Disperse Yellow 49

Assessment and verification: The applicant shall either provide a declaration of non-use of these dyes or a test report using the following test method for colour fastness: ISO 105-E04 (acid and alkaline, comparison with multi-fibre fabric).

2.3 Water emissions

Wool – biocides (reference: Criterion 5, *Draft textile criteria*)

After treating the scouring effluent, the final COD discharge shall not exceed 5 g/kg greasy wool. The pH of the effluent discharged to surface waters shall be between 6 and 9 (unless the pH of the receiving waters is outside this range), and the temperature shall be below 40°C (unless the temperature of the receiving water is above this value).

Assessment and verification: the applicant shall provide relevant data and test report, using the following test method: ISO 6060.

Waste water discharges from wet-processing (reference: Criterion 27, *Draft textile criteria*)

(a) Waste water from wet-processing sites (except greasy wool scouring sites) shall, when discharged after treatment (whether on-site or off-site), have a COD content of less than 20 g/kg, 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.

(b) *If the effluent is treated on site and discharged directly to waters, it shall also have a pH between 6 and 9 (unless the pH of the receiving water is outside this range) and a temperature of less than 40 °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.

Detergents, fabric softeners and complexing agents (reference: Criterion 15, Draft textile criteria)

At each wet-processing site, at least 95% by weight of the detergents, at least 95% by weight of fabric softeners and at least 95% by weight complexing agents used shall be sufficiently degradable or eliminable in wastewater treatment plants.

At each wet-processing site, the detergents (which contain surfactants) in use shall fulfil the criteria: the surfactants meet the criteria for ultimate aerobic biodegradation. At least 95% of the other substances by weight shall be sufficiently degradable or eliminable in wastewater treatment plants.

Assessment and verification: ‘sufficiently biodegradable’ means:

- if when tested with one of the methods OECD 301 A, OECD 301 E, ISO 7827, OECD 302 A, ISO 9887, OECD 302 B,
- or ISO 9888 it shows a percentage degradation of at least 70 % within 28 days, or if when tested with one of the methods OECD 301 B, ISO 9439, OECD 301 C, OECD 302 C, OECD 301 D, ISO 10707, OECD 301 F, ISO 9408, ISO 10708 or ISO 14593 it shows a percentage degradation of at least 60 % within 28 days,
- or if when tested with one of the methods OECD 303 or ISO 11733 it shows a percentage degradation of at least 80 % within 28 days,
- or, for substances for which these test methods are inapplicable, if evidence of an equivalent level of biodegradation is presented.

The applicant shall provide appropriate documentation, safety data sheets, test reports and/or declarations, indicating the test methods and results as indicated above, showing compliance with this criterion for all sizing preparations used.

Metal complex dyes (reference: Criterion 20, Draft textile criteria)

If metal complex dyes based on copper, chromium or nickel are used:

- (a) *In case of cellulose dyeing, where metal complex dyes are part of the dye recipe, less than 20% of each of those metal complex dyes applied (input to the process) shall be discharged to waste water treatment (whether on-site or off-site).*

In case of all other dyeing processes, where metal complex dyes are part of the dye recipe, less than 7% of each of those metal complex dyes applied (input to the process) shall be discharged to waste water treatment (whether on-site or off-site).

Assessment and verification: the applicant shall either provide a declaration of non-use or documentation and test reports using the following test methods: ISO 8288 for Cu, Ni; EN 1233 for Cr.

2.1 Energy consumption

The Nordic Swan Ecolabel, also, in this case proposes only a specific mandatory calculation tool for the limitation of the energy consumption at the manufacturing stage for “coverings”.

A similar method of measurement and control is recommended.

The requirements are organized in two parts: the calculation of a point score and the application of limits to the total score for textile floor covering as indicated below:

(for more information about the terms of application, see point 3.1 of the 1st Draft Criteria for the Wood Based Floor Coverings).

It is provided, below, the scoring table that the Nordic Swan applies to the Textile floor coverings¹¹:

Environmental parameter	Requirement
A = Proportion of renewable raw materials and recycled non-renewable raw materials (%)	Min. 30%
B = Proportion of renewable fuels (%)	-
C= Electricity consumption (kWh/m ²)	Max. 20 kWh/m ²
D= Fuel consumption (kWh/m ²)	Max. 50 kWh/m ²

$$P = \frac{A}{25} + \frac{B}{25} + \left(4 - \frac{C}{5}\right) + \left(4 - \frac{D}{12.5}\right)$$

Requirement: $P \geq 9.0$

¹¹ For more information, please see the “Swan labelling of floor coverings: R21, pag. 12

3. USE PHASE

3.1 RELEASE OF DANGEROUS SUBSTANCES

Some emission parameters on the finished products must be controlled in order to control the potential release of dangerous substances in the use phase and at the end of the textile floor coverings life.

According to the RAL UZ 128 the finished products have to be tested in the test chamber and demonstrating conformity with the “*Health risk assessment process for emissions of volatile organic compounds (VOC) from building products*” developed by the Committee for Health-related Evaluation of Building Products.

The following emissions values must not to be exceeded:

Substance	Requirements	
	Final Value 3 Days	Final Value 28 Days
Total organic compounds within the retention range C ₆ – C ₁₆ (TVOC)	≤ 250 µg/m ³	≤ 100 µg/m ³
Total organic compounds within the retention range > C ₁₆ – C ₂₂ (TSVOC)	≤ 30 µg/m ³	

C substances ¹¹	≤ 1 µg/m ³ per single value
Total VOC without LIC ^{12, 13}	≤ 50 µg/m ³
R value	≤ 1
Formaldehyde	≤ 0.02 ppm
Other aldehydes ¹⁴	≤ 0.02 ppm
4-Phenylcyclohexene	≤ 5 µg/m ³

11: C substances are carcinogenic substances classified into Category K1 or K2 in accordance with Directive 67/548/EEC (s. footnote No. 6) or TRGS 905 (s. footnote No. 8).

12: Including non-identifiable substances;

13: LCI = Lowest Concentration of Interest cf. “Health risk assessment process for emissions of volatile organic compounds (VOC) from building products”;

14: Other aldehydes which can be determined by use of the DNPH method (EN ISO 16000-3).

Assessment and verification: the applicant shall submit a test certificate according to the EN ISO 16000-9¹² which complies with this requirement. The test certificate shall be issued by a accredited laboratory.

¹² EN ISO 16000 – Indoor air pollution; Part 9: Determination of the emission of VOCs from building products and furnishing. Emission test chamber method.

4. PACKAGING

“Packaging used should be multi use systems or be made out of 100% recycled materials with a take back opportunity for recycling. Halogenated plastics should be excluded for use as packaging materials.

All materials shall be easily separable in recyclable parts consisting of one material (e.g. cardboard, paper, textile, etc...).”

Assessment and verification: a sample of the product packaging shall be provided on application, together with a corresponding declaration of compliance with this criterion.

5. FITNESS FOR USE

Details of the test procedures and results shall be provided, together with a declaration that the product is fit for use based on all other information about the best application by the end-user.

6. CONSUMER INFORMATION

The criterion states that the product has to be sold with information about the EU Ecolabel award, with the recommendations for its use and maintenance, with an indication of the route of recycling or disposal and with information on the EU Ecolabel and its related product groups.

8. INFORMATION APPEARING ON THE ECOLABEL

The criterion cites that:

Box 2 of the Ecolabel shall contain the following text:

- *hazardous and toxic substance restricted;*
- *production process energy saving;*
- *limited pollutant emissions to water;*
- *no risk to health in the living environment;*
- *reduced pollutant hazards in the wastes;*
- *durability, safety and fitness for use.*

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