READING GUIDE

FOR THE REPOSITORY ON WOOD FURNITURE
BP X30-323-4

Contents

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Introduction

> Background

> General background on environmental labelling

Article 54 of law No. 2009-967 passed on 3 August 2009 states that consumers shall be given objective environmental information on product characteristics (environmental impacts of the product/packaging pair).

Environmental labelling applies to all consumer products targeted at the end-consumer. Since spring 2008, AFNOR has been conducting work headed by ADEME to develop the methodologies assessing environmental impacts with the involvement of all stakeholders: professionals, but also based on input from civil society. **The AFNOR repository of best practices BP X30-323 is the framework document that sets out the general principles** so that companies who wish to initiate environmental labelling can do so on the basis of a common methodology. The repository has established that the indicators should allow products belonging to the same category to be compared. It is therefore necessary for the indicators to be calculated in the same manner. For this reason, and as an extension of this repository, work groups have met to specify calculation methods.

Sector-specific work groups bring together professionals and other stakeholders concerned by a product family to discuss and propose calculation methodologies specific to a given product.

> Specific background of the reading guide: work on wood furniture

This repository covers wood furniture. It is set to incorporate furniture made of other types of materials (excluding bedding and upholstered seats, which are specifically covered by other repositories).

> Environmental labelling principles

In order to provide consumers with information that is representative of the main environmental impacts of products, the environmental labelling system is based on a key method for all work in the area: **life-cycle analysis** (LCA). This assessment makes it possible to identify and evaluate all the potential environmental impacts of a product at each stage of its life cycle: raw materials production or extraction, product manufacture, distribution, product use and the impacts associated with its end-of-life processing or disposal.

ISO 14040 and ISO 14044[1] provide an international framework for this type of assessment. The standards have, however, left various methodological options open. The purpose of the cross-sector methodology annex and the sector-specific methodology annexes is to further specify these methodologies in order to ensure that all calculations follow the same method and that the results included in the environmental labelling system are therefore comparable.

> Objective of the reading guide

The aim of this reading guide is to explain some of the concepts and requirements included in the repository on wood furniture and make them accessible to a wider audience so that everyone can understand the choices made in the repository.

There is also a reading guide for the cross-sector methodology annex that is applicable to all products.

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[1] www.iso.org

Presentation of the product covered by the repository

> ## Introduction

The work group on Furniture (WG7), jointly le by the Union Nationale des Industries Françaises d'Ameublement (UNIFA — national association of French furniture industries) and ADEME, started meeting in February 2009. The work conducted in 2009 and 2010 culminated in a repository for the "Wood furniture" product category. The PROPILAE pilot project, conducted by the FCBA Technological Institute, provided valuable input. The wood furniture repository was adopted by the general platform in January 2011.

> ## Functional unit

> ### Determining the functional unit and the lifespan

▪ **Functional unit**

The functional unit is the unit of measurement used to evaluate the service provided by the product. The "wood furniture" designation covers a wide variety of products, and there are consequently several different functional units:

| Product type	Functional unit
Table	1 place setting for each year of use *Place setting*: smallest of either the table edge perimeter divided by 60 cm or the table surface divided by 2400 cm²
Storage furniture	Volume (1 dm³) or surface (1 dm²) per year of use, depending on the furniture sub-categories
Wooden bedframe	1 sleeping berth for each year of use
Seat, chair, bench	1 sitting place — a minimum of 50 cm wide when the product is advertised as accommodating at least two people — for each year of use

▪ **Lifespan**

The product lifespan makes it possible to express the functional unit for one year of use: the impacts labelled represent the impact of the product divided by its lifespan.

The lifespan can be determined according to co-product design or by performance tests (see the lifespan section).

> ## Wood furniture life cycle and study scope

All the stages of the wood furniture life cycle are taken into account. The only stages that are not accounted for are those:

- with **negligible impact** on the environmental balance of the seat:
  o packaging transport;
  o transport of waste produced by manufacturing processes;
  o transport of after-sales services products;
  o distributor;
  o use;
  o point-of-sale;

- that are **excluded by the methodological repository BP X30-323** (consumer transport is offset).
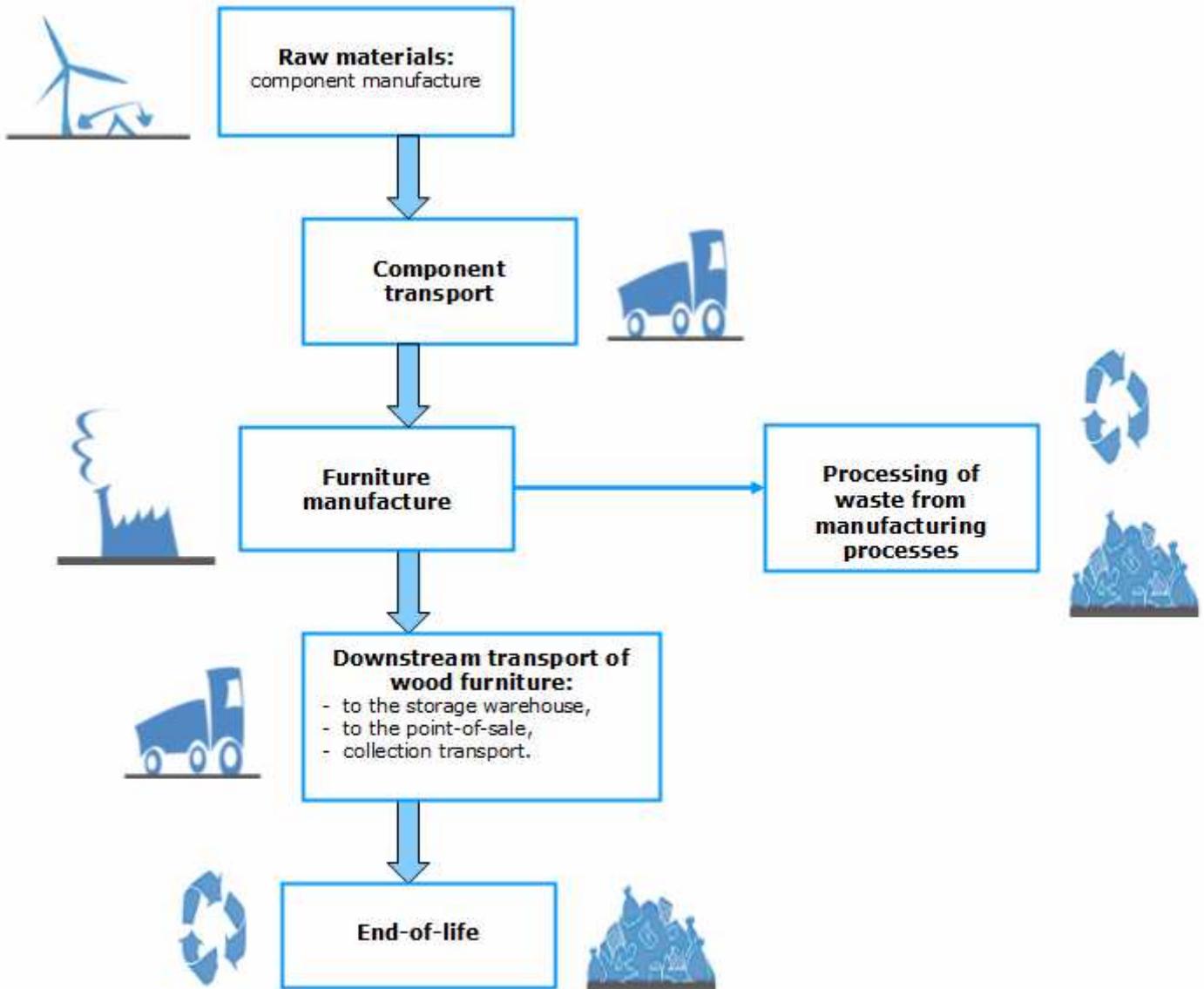
Wood furniture life cycle

Explanation of methodological choices

> Lifespan calculation

For each furniture category, **standard lifespans** have been defined by furniture industry professionals.
This lifespan **depends on the furniture design criteria**.

Manufacturers can claim lifespans that differ from the standard values, on the basis of performance test results.

Example: Table

A minimum **standard lifespan** common to all table categories has been set at **10 years**.
Other standard lifespans have been set on the basis of table design:

Standard lifespan	Design criterion
15 years	Mechanically assembled structure
20 years	Bonded and/or welded structure

If they so desire, professionals may demonstrate that their tables last longer by using the performance tests described in the harmonized standards:
- load deflection;
- horizontal fatigue;
- loaded handling resilience.

For each of these tests, the table is given a rating on a scale of 1 to 8 (1, 2, 4 or 8). Not all tests are equally important, and they are therefore weighted with a coefficient.

Test	Rating	Coeff.
Load deflection	1 2 4 8	30
Horizontal fatigue	1 2 4 8	50
Loaded handling durability	1 2 4 8	20

The overall rating is thus obtained by calculating the weighted mean of the ratings and converting it to a percentage to **determine the lifespan of the table:**

Overall rating	Lifespan (years)
<20%	10
Between 20 and 50%	15
Between 20 and 50%	20
>80%	25

Such tests exist for several other types of furniture and use the same rating and corresponding weighting system. Furthermore, all furniture types have a standard lifespan. This data is summarized in the following table:

Furniture type	Tests	Minimum standard lifespan[2]
Storage furniture (living areas, kitchen, bathroom)	- Loaded handling durability (hinges) - Loaded handling durability (drawer sliding gear) - Load deflection (trays/shelves/drawer bottoms) - Horizontal force behaviour *(except for bathroom and kitchen storage furniture)*	10 years *except for bathroom and kitchen storage furniture:* 15 years
Wooden bedframe, chair, seat, bench		7 years

▷ Environmental issues and impacts

▷ Environmental impact assessment:

Some criteria have been identified as decisive for the overall environmental balance of wood furniture:

▪ Natural resource depletion:
Manufacturing the various components of wood furniture requires the use of non-renewable materials and resources.

▪ Greenhouse effect:
The manufacturing, storage and transport activities that occur throughout the life cycle of wood furniture result in greenhouse gas emissions that drive climate change.

▪ Acidification:
Some gases (e.g. sulphur dioxide and nitrogen dioxide) released into the air by the wood furniture industry become acids when they come in contact with humidity. These acids then fall back to the ground during rainfall events and modify the pH of rivers, lakes and soil.

▪ Photochemical oxidant production:
Atmospheric emissions of Volatile Organic Compounds (VOC) lead to chemical reactions in the atmosphere under the effect of sunlight that form photochemical oxidants. The main photochemical oxidant is ozone, which contributes to an increase in background pollution, is harmful to plant species and can contribute to climate change (greenhouse gas).

▪ Non-hazardous waste production:
Non hazardous waste is waste that, contrary to inert waste, can burn or produce chemical, physical or biological reactions without being hazardous or toxic for the environment or human health (plastics, untreated wood, metals, etc.).

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[2]Minimum standard lifespan: *This is the value common to all categories; it is not dependant on furniture design criteria. This is therefore a minimum lifespan.*

The selection of the environmental impacts to use in environmental labelling **communication** was carried out on the basis of several criteria:
- ease of implementation for the database used by the company;
- differentiability of the impact for a majority of products on the market;
- impact coverage over the life cycle as a whole.

Among the five possible indicators, **only three were selected to be included in environmental labelling communication**:

> ### Indicators retained for wood furniture:
>
> - **the greenhouse effect**, expressed in kg CO_2 eq.;
>
> - **acidification**, expressed in g SO_2 eq.;
>
> - **photochemical oxidant production**, expressed in kg NMVOC eq.
>
> **(see the Unit glossary)**

> Data underlying impacts and articulation of primary and secondary data

> Type of data used for labelling

The work group shall specify which parts of the quantified data shall necessarily be primary data and which can or shall be secondary data.

This choice depends on:
- o the relative importance of this data for the overall balance;
- o the availability of the data;
- o the cost involved in obtaining the data.

The **primary data** primarily covers wood furniture components, because the manufacturing phase causes most of the environmental impacts.
Data collection efforts shall therefore be carried out for this step.

> ### Data used to calculate impacts:
>
> - **Primary data**: data measured or calculated by the company (also called specific data)
> - **Secondary data**: averaged data used by all companies (i.e. materials impacts)
> - **Semi-specific data**: secondary data that is proposed by default and that the company can replace with primary data.

The following table summarizes the choices made for wood furniture modelization:

Life cycle phase	Primary data	Semi-specific data	Secondary data
Raw materials	- Product composition - Sustainable forestry - Wood milling processes		Materials impacts
Manufacturing site	- Energy use per product type - Wood output efficiency	VOC emissions (If a Solvent Management Plan is mandatory, this is primary data)	Energy impacts, depending on the energy mix
Transport		Default values for transport scenarios for materials and furniture within France	- Tonne-kilometre impacts depending on the mode of transport - Secondary data on procurement (truck fill factor and empty backhaul rate)
End-of-life			End-of-life of bulky materials (including collection) and household packaging

❯ Other methodological choices

❯ Co-product allocation

If data on resource use and discharges of the wood furniture production line is available, it shall be used. Otherwise, the total site resource use and discharges shall be split between the various co-products: this is allocation.

Allocation rules	
Single-product manufacturing	**Multi-product manufacturing**
Allocation on a pro rata basis of the functional units produced for this manufacturing step	The resource use and discharges of the manufacturing line or site shall be expressed in relation to the total wood volume used or number of units manufactured per year

For modelizing **wood scrap recycling,** the **allocation of the benefits is equally split (50/50)** between the user and the producer of the recycled material. However, work underway may lead the work group to change its position on this point.

❯ Data validity period and frequency of updates

The environmental labelling shall be updated each time there is a modification that leads to a significant increase for one of the selected indicators. This updating operation shall be carried out in the following situations:
- production relocated outside France;
- modification of product composition;
- change in procurement area for one of the components;
- change of finishing product;

- change in wood supplier that makes it impossible to continue incorporating temporary carbon sequestration.

Environmental information must be **updated after 5 years at least for initial labelling** and updating frequency subsequently depends on when this repository is updated.

▶ How data is validated

The company shall keep the information used in the calculations available for any subsequent inspection.

▶ Greenhouse gas emissions time lag

Not all the emissions associated with a product life cycle take place at the same time. As greenhouse gas impact is assessed over 100 years, when emissions are significantly delayed (in relation to product manufacture), they generate fewer impacts on the greenhouse effect over this 100 year timescale. Sector-specific work group No. 7

has decided to integrate time lag for wood furniture.

Greenhouse gas emissions in the end-of-life phase are therefore weighted with a coefficient that is determined based on the product lifespan and the lifespan of the greenhouse gas (GHG). Given that the global warming potential (GWP) is conventionally calculated on a 100-year basis, the coefficient applied amounts to subtracting from this 100 year baseline the amount of time during which the GHG is not present in the atmosphere.

If a piece of storage furniture has an estimated lifespan of 10 years, the emissions to include in the accounting are:

Emissions to include = Emissions before end-of-life + End-of-life emissions * (100-10)/100

For gases with a lifespan that is shorter than the new reference period (100-10) — i.e. methane — emissions are not weighted with a correction factor.

Unit glossary

Indicator	Unit	Illustration
Greenhouse effect	kg CO_2 eq.	1 tonne CO_2 eq. represents a Paris - New York round trip by plane.
Air acidification	g SO_2 eq.	Mean discharges per European per year amount to 73.6 kg SO_2 eq.
Photochemical oxidant production	kg NMVOC eq.	NMVOC are non-methane volatile organic compounds.