

Norwegian Furniture Industry:

Documentation of the product content

by

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"The goal for the spring 2006 was to produce EPDs for our entire product collection. Every week we have to answer questions from authorities in Norway and from abroad about the documentation of the content of our products" (Magnar Skjellum at Helland AS).

The goal of the project "Databases and product declarations for furniture" was to provide SMEs in the furniture industry with a tool that helped the companies to gather environmental information and to document this according to the requirements of ISO 14025. This project is part of a long term program in the Norwegian furniture industry with the pilot companies Helland AS, Håg ASA, Ekornes ASA and Jensen AS. The program was coordinated by Professor Annik Magerholm Fet at the Norwegian University of Science and Technology.

The cooperation between the companies started in 1999 with the Cleaner Production and Internal Waste Management program. Later, some of the companies implemented environmental management systems and good routines for environmental reporting. A couple of LCA projects were performed within the project. However, LCA appeared to be too complicated for the SMEs and they wanted to have a database with LCA data for the typical materials that were used in furniture. The database, founded partly on data from the GaBi databases and partly on business specific information, should be used to publish EPDs for their products. After products category rules (PCRs) were developed for seating solutions, mattresses and tables, all in accordance with the requirements of ISO 14025, the work with EPDs started. The PCRs, which are based on a stakeholder analysis as required by the standard, state the information that must be included in EPDs.



To ease the development of EPDs, the specific database was used to produce the LCA for selected furniture models. The database is thus the backbone of the data-assistance tool used to design and present the EPDs. The requirements were that the tool should make it simple to model a product as a combination of components and processes and their amounts (weight, number of pieces, hours of work, etc.). The output from the tool must be a "ready to use" workflow for creating an EPD, according to the PCRs. It is essential that the interface to the database be as simple as possible. Environmental loads are first calculated using the CML2001 method that is provided with GaBi and then entered into a Microsoft Excel spreadsheet. The composition of a furniture model is specified in Excel, and the total environmental loads for the furniture are then calculated. This information is the basis for creating

the furniture are then calculated. This information is the basis for creating an EPD in Microsoft Word format. The reason for using Excel and Word was to allow the furniture companies to use programmes that they already have licenses for and know how to operate.

Among the most time-consuming activities during the establishment of the database was the collection of furniture-specific environmental data and the determination of the best allocation procedures. Standard user and disposal scenarios for the furniture were defined and entered into the database.

Verification of the EPD by an independent third party is required in the Norwegian EPD-system. To ease this verification process, the database itself can be verified, and the verification of the EPDs could therefore be simplified to only verification of the in-house procedures on how to make EPDs for the products. These should include, at least: "Procedure for identification of environmental aspects of one's own products", "Procedure for achieving environmental product information at sub-suppliers", "Procedure for the development of the EPDs by using the data-assistant tool with a verified database for the actual industry".



One of the main challenges regarding the database was gathering and documenting sufficient specific data. According to the requirements of NEPD, at least 90 % of the contribution to the total environmental impact must stem from site-specific data (Næringslivets Stiftelse for Miljødeklarasjoner (NEPD) 2004). Data for the production of resources are considered specific if they represent similar technological and geographical situations and the system boundaries are identical. The database consists of company-specific data for the assembly processes and for the majority of the sub-supplier production. The rest is based upon data from other databases, complemented with literature data for the production of a number of renewable materials not found elsewhere (e.g. textiles). Another challenge regarding the database was its



operation by the user in industry. This has been solved by using Excel as the front end for the data-assistant tool, which has the advantage of having a familiar user interface. The front end was designed such that knowledge of LCA or environmental management systems is not needed to create an EPD. The drawback of choosing this solution is that flexibility is lost compared to developing customised software and that the software is not platform independent.

Approximately 50 EPDs for Norwegian furniture have been developed as a result of the project.

Environmental Declaration ISO 14025

Gruppedeclarasjon
Jensen Møbler AS



EPD

Næringslivets Stiftelse for Miljødeklarasjoner

NEPD nr.: 089no
Godkjent 26.5.2006 i tråd med ISO 14025, §§ 8.1.3, 8.1.4 og 9.4
Gyldig til 26.5.2009.

Bjørn Sveen
Stiftelsens Verifikasjonskomité

Verifikasjon av LCA-data:

Urvhengig 3. parts verifikasjon av data og annen miljøinformasjon i deklarasjoner foretatt av prof. Annik Magrethm Ret ved NTNU, i tråd med ISO 14025 § 8.1.3.

Annik Magrethm Ret

Deklarasjonen er utarbeidet av:

Jensen Møbler AS, v Birgit Andersen, tn. +4702082284

PCR: Produktkategorier for Liggenstøler er brukt. PCR godkjent av NEPDS verifikasjonskomité.

Informasjon om produsent:

Jensen Møbler AS, Sævik, Norge. Styresystemet inkluderer prosedyrer for innsamling av LCA-data og utstilling av EPD.



Figur 1: Jensen Supreme

	Vendbar	Rammemadrass	Kontinental
Global oppvarming	266,22 kg CO ₂ -ekv	266,05 kg CO ₂ -ekv	510,66 kg CO ₂ -ekv
Bergforbruk	8740,99 MJ	8402,49 MJ	12805,43 MJ
Andre sirkulære materialer	0 %	0 %	0 %

Informasjon om produktene: Dobbel liggenstilling med overmadrass.
Funksjonell enhet: 1 m² liggenstøle veddeholdt i 15 år.
Analysemetode: Denne miljødeklarasjonen omfatter produktets fulle livsløp, fra råvareutak til avhending.
Annet levetid: 15 år.
Annet markedsområde: Europa.

Tabell 1: Produktspesifikasjon

Overflateareal	Vendbar				Rammemadrass				Kontinental			
	Menge	Utdr.	Andel	Syngemått*	Menge	Utdr.	Andel	Syngemått*	Menge	Utdr.	Andel	Syngemått*
Gulv	21,99 kg	31,38 %	0 F	20,46 kg	23,62 %	0 F	22,96 kg	13,81 %	0 F	0,04 kg	0,04 %	0 F
Utt	0,04 kg	0,08 %	0 F	0 kg	0,00 %	0 F	0,19 kg	0,11 %	0 F	0,04 kg	0,04 %	0 F
Flate	11,42 kg	16,54 %	A F	10,06 kg	11,20 %	A F	23,21 kg	13,65 %	A F	0,04 kg	0,04 %	0 F
Platt	7,77 kg	11,09 %	A F	2,19 kg	2,53 %	A F	7,29 kg	4,26 %	C F	0,04 kg	0,04 %	0 F
PUR	2,68 kg	3,83 %	A F	0,72 kg	0,82 %	A F	1,17 kg	0,67 %	A F	0,04 kg	0,04 %	0 F
Dek	16,4 kg	23,14 %	A F	20,47 kg	23,04 %	A F	07,36 kg	4,26 %	A F	0,04 kg	0,04 %	0 F
Tekest	7,46 kg	10,56 %	C F	1,08 kg	1,23 %	C F	21,17 kg	12,30 %	C F	0,04 kg	0,04 %	0 F
Trin	0 kg	0,00 %	0 F	0 kg	0,00 %	0 F	0,01 kg	0,00 %	0 F	0,04 kg	0,04 %	0 F
Til	---	---	---	22,8 kg	25,45 %	A F	22,8 kg	13,15 %	A F	0,04 kg	0,04 %	0 F
Totalt	105,6 kg	100,00 %		114,8 kg	100,00 %		114,8 kg	100,00 %		0,04 kg	0,04 %	

* Syngemått er, til nå, ikke definert for noen materialer.
Ingen andre typer eller komponenter er brukt i analysen enn de som er listet opp i syngemåttene.

	Vendbar	Rammemadrass	Kontinental
13,51	14,57		
0,51	0,9		
320,26	625,43		
0,51	0,07		
0,45	0,67		
9880,22	16590		
81,64	140,07		
0,73	0,9		
11,60	10,60		
57,50	106,48		
0,22	0,27		
5,51	8,17		
125,04	147,41		
45,87	70,90		
71,77	111,31		
0,17	0,3		
0,54	0,81		
0,3	0,46		
15,12	26,08		
4,14	7,11		
0,25	0,39		
106,36,16	17892,81		

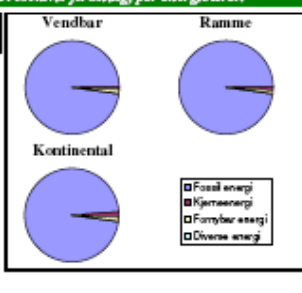
* Tabellen viser totalt vannforbruk for alle prosesser i et livsløpsperspektiv, fra råvareproduksjon til bruk og avhending.

Landareal og vannressurser.
Landarealer er ikke kartlagt. Oversikt over vannforbruk finnes i tabell 2.

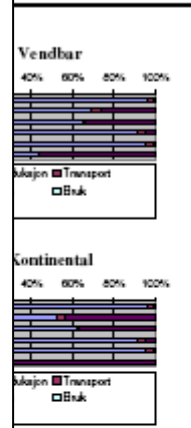
Tabell 3: Energiforbruk fordelt på energibærer.

Kategori	Brensel	Menge [MJ]		
		Vendbar	Ramme	Kontinental
Fossil energi	Hydrogen	0	0	0
Fossil energi	Kull	688,04	1071,17	1967,0
Fossil energi	Naturgass	5701,45	6104,03	7190,49
Fossil energi	Olje	2042,18	2091	3030,05
Fossil energi	Brensel	0,34	0,55	0,67
Kjernerenergi	Kjernerenergi	113,45	121,94	222,49
Fornybar energi	Biomasse	0,08	13,17	21,17
Fornybar energi	Naturgass	0	0	0
Fornybar energi	Vasskraft	100,46	60,51	166,05
Fornybar energi	Vindkraft	0,27	0,27	0,72
Diverse energi	Energigjenvinning	0	0	0
Diverse energi	Utslippstiltak	1,82	0,84	1,87
Totalt		8740,99	8402,49	12805,43

Figur 2: Prosentvis fordeling, per energibærer.



Figur 3: Fordeling per livsløpsfase.



Utslippstiltak	Avfall	Utslippstiltak	Avfall	Utslippstiltak	Avfall
Avfall	Avfall til deponi	416,64	Avfall til energi	750,00	1294,2
Utslippstiltak	Jern	353,49	Utslippstiltak	Kalsium	563,75
Utslippstiltak	Kalsium	4326,20	Utslippstiltak	Klorid	5901,17
Utslippstiltak	Natrium	1546,14	Utslippstiltak	Organiske utslipp	3373,94
Utslippstiltak	Organiske utslipp	1464,25	Utslippstiltak	Spilkevann	64600,43
Utslippstiltak	Spilkevann	634463,77	Utslippstiltak	Sulfid	1000,26
Utslippstiltak	Sulfid	695,84			2121,26

* Tabellen viser de 16 største utslippene til luft og vann. Hvis verdien for et utslipp ikke er oppgitt for et produkt, betyr det at utslippet ikke er blant de 16 største for det aktuelle produktet.

Tilleggsinformasjon

Det er gjort enkelte tilnærminger i forhold til materialvalg i analysen, da det ikke finnes spesifikke data for alle materialtyper. Dette gjelder spesielt for enkelte lim- og lakktyper. I slike tilfeller er det valgt å bruke lignende materialer fra Møbel databasen.

Example of a Norwegian EPD according to ISO 14025