GENERAL PRINCIPLES FOR AN ENVIRONMENTAL COMMUNICATION ON MASS-MARKET PRODUCTS

PART 24: METHODOLOGY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT OF HOUSEHOLD TEXTILES

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Preamble

This document was prepared by working group WG 5 “TEXTILES – LEATHER” attached to the “environmental communication on mass-market products” platform coordinated by ADEME (Mrs. OUGIER/Mr. FOURDRIN) with the AFNOR secretary (Mr. BALCAEN).

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The list of organizations involved in the follow-up, drafting and/or making of this guide can be found at the end.

This sector-specific guide on household linen is based on he sector-specific guide for clothing. Any change in either of these sector-specific guides will necessarily prompt change in the other for the sections and clauses common to both.

Scope

This guide is specifically dedicated to household linen products.

The purpose of this guide is to:

— frame the methodology for the environmental impact assessment of these products;

— simplify the calculation methodology to enable all businesses producing household linen to be able to adopt and use the scheme for environmental communication on mass-market products.

1. Scope

This sector-specific guide pulls together all the input data required to calculate the environmental impacts of household linen articles as defined below:

Household linen: This designation encompasses **bed linen such as** bedsheets, fitted sheets, duvet covers and pillowcases made up from a woven fabric or several yarn-dyed fabrics (obtained by weaving) or made up by stitches (obtained by knitting [1)], without filling.

This designation can also extend to any (woven or knitted) article **such as table linen** (napkins, tablecloths, table runners, tea towels, etc.) or **certain textiles used for soft furnishings (curtains, drapes, blinds)** etc.

Kitchenwear such as aprons or over gloves fall under the scope of the sector-specific guide on "clothing".

Associated CPA codes:

13.92.12: Bed linen

13.92.13: Table linen

13.92.14: Toilet and kitchen linen (excluding aprons)

13.92.15: Curtains, interior blinds, valances (except bed-valances)

Code 13.92 has not been adopted as certain make-up processes have not been studied.

2. Functional unit and reference flow

2.1. Functional unit

The functional unit (FU) adopted is **"one piece of produced and cared household linen"**

What?:	Household linens
How much?:	A piece of household linen
How?:	A piece of household linen washed at between 30℃ and 60℃ and tumble-dried one out of two times
How much time?:	Across 100 care cycles, except for curtains and blankets (10 care cycles)

[1)] The information related to knitting is available in the sector-specific guide on clothing.

The product under consideration in this guide is the product supplied 'as is' to the user, i.e. the household linen article and its packaging system: primary packaging [2)] (which the consumer takes home — e.g. plastic film-wrap, coat hanger, carton box, etc.), secondary packaging [3)] (used to group packages together — e.g. groupage carton) and tertiary packaging [4)] (if any — e.g. pallet, pallet-wrap, spacers).

2.2. Reference flow

The environmental impacts are expressed in terms of the functional unit on the basis of the reference flow.

For the use phase, the numbers of care cycles to factor in are tabulated below:

Woven flatwork linens (any type of household linen)	Number of care cycles
Bedsheets, fitted sheets, duvet covers and pillowcases Table linen (napkins, tablecloths, table runners, tea towels, etc.)	100 care cycles
Blankets, curtains	10 care cycles

NOTE It is important to remember that with this functional unit, the use phase is not a solid guarantee but simply a way of modelling use so as to assess the environmental impacts.

This FU is thus liable to be improved during subsequent revisions to this guide for household linens.

2.3. Reference sizes

Different dimensions and masses per unit area will mean different masses, so it is therefore recommended to repeat the mass calculation for each household linen under study:

Dimensions (m×m) × mass per unit area (g/m²) = mass (g)

Illustrative examples of adult-size bedsheets:

Cotton bedsheet: 1,80 (m)×3,20 (m)×140 (g/m²)=806,4 g

Other standard bedding sizes possible

2,40 (m)×3,10 (m)×125 g/m² ➔ mass=930 g

2,40 (m)×2,80 (m)×135g/m² ➔ mass=907,2g

3 (m)×3,10 (m)×125g/m² ➔ mass=1,16 kg

The mass of a bedsheet can therefore range from 800 g up to around 1 kg.

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2) Sales packaging or primary packaging is packaging intended for the consumer or end-user.

3) Secondary packaging is packaging designed to group together unitized groups of articles.

4) Tertiary packaging is packaging for transport. Note that as a rule, transport packaging is uncommon as the secondary packaging is fitted directly into the containers.

Other examples:

— Fitted sheets range from 97 g for a cot (60×120 in 135g/m²) up to 580 g (200×200 in 145g/m²);

— Duvet covers range from 130 g for a cot (80×120 in 135g/m²) up to 792 g (240×220 in 150g/m²);

— Pillowcases range from 53 g (65×65 in 125g/m²) up to 63 g (65×65 in 150g/m²);

— Bolster cases range from 168 g (80×140 in 150g/m²) up to 222 g (80×185 in 150g/m²).

3. Main environmental issues

The main environmental issues for woven flatwork linens are the same as for made-up textile articles in general:

— Impact on global warming;

— Impact on water resources, both from the water use perspective and the water quality (pollution) perspective;

— Depletion of non-renewable natural resources and energy consumption.

4. Lifecycle inventory data at the source of the environmental impacts

Based on available environmental studies and current knowledge, the following data have been identified as source of the above-cited environmental impacts.

These data are recapped in the table below.

Environmental impacts	Impact source data
Greenhouse effect	Fibre production Manufacturing Use Primary packaging (in certain cases)
Water consumption	Production of certain fibres Use Textile finishing (in certain cases)
Water pollution (eutrophication)	Production of certain fibres Manufacturing Packaging (in certain cases)
Water pollution (aquatic ecotoxicity)	Production of certain fibres Use Packaging Finishing—at least in principle, but the models currently available are not sharp enough to get reliable confirmation
Depletion of natural non-renewable resources	Production of fibres Manufacturing Use Transport Packaging
Consumption of non-renewable energy	Use Manufacturing

5. Relevant environmental indicators and calculation methodologies

The first three environmental impacts previously identified and selected for environmental communication shall be characterized using the environmental indicators set forth in the table below. This table indicates the unit of measurement and the calculation method for each impact indicator. The indicators must be expressed using ratios of the units stated in the table to the functional units stated in section 1 of the sector-specific guide.

Environmental impacts	Impact indicators	Units used[5]
Greenhouse effect	Greenhouse gas emissions	kg eq. CO_2
Water pollution	Eutrophication (freshwater)	kg eq. P
Water consumption	Water consumption (water scarcity)	eq. m^3

The results output of the environmental impact assessment shall differentiate use-phase impacts from impacts tied to the other stages in the product life cycle. Depending on the communicational format used, this differentiation can clearly educate consumers on the use-phase environmental impacts linked to household linens.

Feedback received from the project work has identified the following impact indicators as additional indicators chosen for environmental communication:

— Depletion of natural non-renewable resources;

— Aquatic ecotoxicity;

— Human toxicity;

— Consumption of non-renewable energy ;

— Photochemical pollution.

These additional indicators have not, however, been consolidated at working group WG5 level which means there is no obligation to quantify them.

The selection criteria justifying the environmental indicator choices adopted are given in Annex to the sector-specific guide for “clothing”.

6. Allocation rules for products and co-products

6.1. Allocations connected to raw materials

These allocation rules are the same are those employed in the life cycle inventories in the ADEME databases for environmental communications.

[5] These units, as linked to characterization methods, are given here for information only. The methods employed shall be conform to the general principles for an environmental communication on mass-market products (Part 0).

6.2. Allocations of the impacts of textile finisher facilities

A given finisher facility may be able to process several different models of household linens, and production line-level specific data is not always available.

Where the operator wants to use specific data for textile finishing (see section 9.3), the site's consumptions and waste shall be subdivided between the different co-products processed as set out below:

— subdivision according to separate processes (allocation bypassed); or

— if this is not feasible, subdivision according to the mass of products involved.

6.3. Allocations of the impacts and benefits of recycling the product and its packaging system

Recycling textile fibre into textile fibre

The impacts and benefits of recycling are allocated to the material incorporating the recycled fibre (0/100-basis allocation). The model to use is specified in the general principles for an environmental communication on mass-market products (Part 0).

Recycling non-textile material into textile fibre

The allocation rule adopted here is the allocation scheme for plastics specified in the general principles for an environmental communication on mass-market products (Part 0) (50/50-basis allocation)

Packaging (non-textile*)*

The impacts and benefits of recycling the (non-textile) packaging are allocated as per the rules specified in the general principles for an environmental communication on mass-market products (Part 0).

6.4. Incineration

The impacts and benefits of energy recovery from the products and packaging are allocated as per the rules specified in the general principles for an environmental communication on mass-market products (Part 0).

7. Conditions for taking into account end-of-life processes

7.1. End-of-life of household linen

According to Eco-TLC/ADEME figures, the rate of collection of household linen is 13,6 %. This guide works to the assumption that any household linen collected is then processed by fibre unravelling.

For the remaining unrecyclables, the hypothesis adopted is the same as that applied for all residual household waste.

7.2. Production scraps

The end-of-life of production scraps is not modelled here. That said, the material engaged in production scraps is modelled using the bulk loss rates defined as semi-specific or secondary data according to each stage in the life cycle (see 9.2 Articulation between primary, secondary and semi-specific data).

7.3. End-of-life of the packaging

For primary, secondary and tertiary packaging, the end-of-life is dependent on the materials employed. Recommended guidance is to use the most up-to-date household packaging recycling rates (for primary packaging) or industrial packaging recycling rates (for secondary and tertiary packaging) that can be obtained via the ADEME database.

8. Scope of the assessment and calculation methodology for the selected indicators

8.1. Description of the household linens life cycle

The stages in the life cycle of household linen are contained within the stages described for clothing, i.e.:

— Production of the primary raw material;

— Spinning;

— Weaving or knitting;

— Finishing;

— Make-up.

On top of these steps, it is necessary to add the production of the packaging and end-of-life, and consumer use of the household linen and its end-of-life.

Annex D proposes a detailed breakdown of the stages involved in household linen re-processing and offers guidance on the allied calculations.

8.2. Stages accounted for in the life cycle analysis

— The stages involved in raw materials production;

— Production and end-of-life of the sticking and embroidery yarns and any accessories added (logo, buttons, etc.);

— Production and end-of-life of the packaging;

— The stages involved in making up textile-articles (clothing or household linen) (made-up textile process steps including spinning, finishing, weaving, knitting, tailoring);

— The stages involved in distribution up to the warehousing (transport approach: transport from make-up to the delivery depots or distribution hubs);

— The stages involved in production transport;

— The use-phase stages: washing, drying, ironing;

— The end-of-life stages.

8.3. Stages not accounted for in the life cycle analysis

The following flows are excluded as ruled outside the scope of household linen articles.

— Flows tied to Research and Development (R&D);

— Flows tied to employee transportation from home to work and back;

— Flow tied to out-of-office missions;

— Flows tied to product-related services such as advertising, canvassing and marketing.

Rationale for exclusion: the stage is impossible to model/the flows are impossible to allocate to a given product or product reference.

Cut-off rules: (stages deemed negligible as they add very little weight on the all-round global impacts)

— Customer journeys between their home and the point-of-sale: in accordance with the recommendations of the ADEME/AFNOR platform on environmental communication, this stage will be the subject of a different communication directed at the end-customer;

— Transport tied to the collection of primary packaging waste after use by the consumer.

The following accessories are disregarded as both their mass and environmental impact radius are considered negligible:

— price tags (excluding hang tags);

— woven sow-in labels;

— care labels;

— threading;

— bias (excluding fastenings);

— stitches.

For all other garment accessories (buttons, slide fasteners, RFID chips, etc.), the rule of a 5 % cut-off by mass on energy content and environmental impact radius shall be verified.

9. Articulation between primary and secondary data

Primary activity data (or specific data) is a quantified value obtained by direct measurement or calculations using direct measurements of an activity or process in the product life cycle. This value is used, after multiplication by an emission or characterization factor, to calculate an impact category indicator.

NOTE 1 The primary data sources reflect the specific nature and efficiency of a process and as a result, their specific environmental impacts.

NOTE 2 The primary activity data does not include emission or characterization factors.

EXAMPLE Source-type and amount of fibres used.

Secondary (or generic) data is a quantified value of an activity or product life cycle process obtained from sources other than the direct measurement or calculations using direct measurements.

EXAMPLE Electricity consumption in the knitting phase.

Semi-specific data is

— primary (or specific) data to be filled in by the operator, but for which a default value is proposed;

— data given by default but that may be specified by the operator to improve the environmental impact assessment.

EXAMPLE By default, the guide sets the electricity consumption required to make up a scarf at 1 kWh/article. However, the scarf studied required 0,7 kWh at the make-up step. The default value can be re-specified.

These intentionally conservative values are designed to encourage the actors in the market chain to substitute in their own value so as to improve the results of the environmental assessment. These conservative values, as proposed, are not mean textile-industry values and are therefore strictly for use within this methodological-guidance framework.

9.1. Primary (or specific) data collection framework

Make-up site, weaving site, knitting site and textile finishing site shall be determined:

— either from make-or-buy forecasts (when the first order is placed), restock included (restock forecasts shall be coherent with figures for the previous years);

— or consider the main supplier of the article, where ‘main supplier’ accounts for over 70 % of total production output for said article.

In both cases, the determination of the energy mix for the make-up site covers the entire end-to-end article production circuit and not just channels corresponding to articles sold in France.

For the make-up stage, the producer can if necessary go into deeper detail (such as differentiating restock from first stock-in or even exclusively considering those articles sold in France).

For weaving or knitting, if the linen-makers supply the fabrics, the data on the procurement circuits can be used; otherwise the worst-case energy-mix data shall be used.

9.2. Articulation between primary, secondary and semi-specific data

The table below presents the articulation between primary, secondary and semi-specific data.

		PCR						IMPACTS BASE		
		Primary data		Semi-specific data		Secondary data				
Stage	Sub-stage	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Generic inventory data		
								Processes	Technical representativeness	Geographical representativeness
Raw materials		- Amounts and types of materials (including, where relevant, percent recyclate) in the finished household linen.						- Production of **spun yarns** and **filament yarns** (including the spinning and fibre-preparing processes systematically associated with these fibres), including recycled yarns	Yarn (natural fibres): - staple cotton, sheepwool, silk and linen - organic cotton, recycled cotton, merino wool, angora wool, cashmere, alpaca, eiderdown - "better cotton", GMO cotton, hemp, jute, ramie, camelhair, cowhair, goathair, horsehair, silk-cotton, abaca, esparto, coconut, broom, sisal hemp, sunn hemp, henequen, maguey Spun yarn and filament yarn (artificial man-made fibres): - viscose - modal, Lyocell - cupro Spun yarn and filament yarn (synthetic man-made fibres): - polyester, polyamide (nylon), acrylics, polyurethane, aramids, polyethylene - recycled polyester, recycled polyamide - elastodiene, acetate, alginate, protein fibre, triacetate, chlorofibres, fluorofibres, modacrylics, polyimides, polylactides, polypropylenes, polycarbamides, vinylal, trivinyl, elastomultiester, elastolefin, melamine, polypropylene/polyamide bicomponents	National (aggregated with spinning)
		- Amounts and types of materials (including, where relevant, percent recyclate) in the finished primary packaging (e.g. plastic shirt-wrap), secondary packaging (e.g. groupage carton) and tertiary packaging (e.g. pallets)						- Production of packaging materials - Forming of packaging materials		Worldwide
Make-up and embroidery	Make-up	- Country			- Rate of losses per product category	- Electricity consumption for the 5 groups of make-up processes as defined herein*		- Electricity generation - Make-up (infra, water…) excluding energy consumption	Mean consumption figures of the energy mix	National Worldwide
	Embroidery	- Country			- Rate of losses per product category	- Electricity consumption per embroidered surface*		- Electricity generation - Embroidery (infra, water…) excluding energy consumption	Mean consumption figures of the energy mix	National Worldwide

		PCR						IMPACTS BASE		
		Primary data		Semi-specific data		Secondary data				
Stage	Sub-stage	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Generic inventory data		
								Processes	Technical representativeness	Geographical representativeness
Composites, coatings and bondings	Composites			- Country		- Electricity consumption* - Rate of losses*		- Electricity generation - Production of composites (production of foam sheeting and support) excluding energy consumption	Mean consumption figures of the energy mix	National Worldwide
	Coating			- Country		- Electricity consumption* - Rate of losses*		- Electricity generation - Production of coated fabric (production of coatstock and support) excluding energy consumption	Mean consumption figures of the energy mix Coating (acrylic, polyurethane, polyvinyl chloride (PVC) and polyester) with different masses per unit area NB: For PVC coatings, account for the type of volatile organic compound (VOC) treatment	National Worldwide
	Bondings			-Country		- Electricity consumption* - Rate of losses*		- Electricity generation - Production of bonded fabric (production of films and support) excluding energy consumption	Mean consumption figures of the energy mix Bonded films (polyurethane, polyester or polytetrafluoroethylene (PTFE))	National Worldwide
Make-up of fabrics	Fabric Weaving			-Country - Unit of weave (number of picks per cm and mass per unit area)		- Electricity consumption per unit of weave* - Rate of losses*		- Electricity generation - Weave (infra, water…) excluding energy consumption	Mean consumption figures of the energy mix	National Worldwide
	Fabric knitting (including knitted lacework)			- Country - Type of knitting (hosiery or not)		- Rate of losses* - Electricity consumption* ('traditional' knitting) - Electricity consumption ('hosiery' knitting)*		- Electricity generation - Knitting excluding electricity consumption	Mean consumption figures of the energy mix - Traditional knitting (infra, water…) - Hosiery knitting	National Worldwide
	Sizing			- Country		- Electric power consumption		- Electricity generation - Sizing excluding electricity consumption	Mean consumption figures of the energy mix	National Worldwide
	Lacework (from leavers-lace looms)			- Country		- Electricity consumption* - Rate of losses*		- Electricity generation - Production of leavers lace excluding energy consumption	Mean consumption figures of the energy mix	National Worldwide
	Nonwoven fabric			- Country		- Electricity consumption* - Rate of losses*		- Electricity generation - Production of non-woven fabric excluding energy consumption	Mean consumption figures of the energy mix	National Worldwide

		PCR						IMPACTS BASE		
		Primary data		Semi-specific data		Secondary data				
Stage	Sub-stage	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Generic inventory data		
								Processes	Technical representativeness	Geographical representativeness
Finishing	Level 1 (rough)			- Country - Type of heat energy, if needed		- Electricity consumption* (upper-bound value) - Heat energy consumption, if needed (upper-bound value) - Finishing-process consumption (physical value to key in according to process units)		- Electricity generation - Heat generation - Textile finishing processes to level 1 excluding energy consumption (with upper-bound water consumption figures; mean type and amount of chemicals, WWTP included)	Mean consumption figures of the energy mix 4 types of energy source: coal, biomass, fuel oil and gas - Dyeing - Printing - Composite chemical finish - Mechanical finish - Denim bleaching	National Europe Worldwide
	Level 2 (moderate)			- Country - Type of heat energy, if needed		- Electricity consumption* (upper-bound value) - Heat energy consumption, if needed (upper-bound value) - Finishing-process consumption (physical value to key in according to process units)		- Electricity generation - Heat generation - Textile finishing processes to level 2 excluding energy consumption, each process differentiated into the 3 WWTP levels (good, moderate/poor, none) (with upper-bound water consumption figures; mean type and amount of chemicals, WWTP included)	Mean consumption figures of the energy mix 4 types of energy source: coal, biomass, fuel oil and gas Each process shall be differentiated into the 3 WWTP levels) - Yarn dyeing - Fabric dyeing - Garment dyeing **Ultimately according to type of material: polyester, cotton, etc.** - Discharge printing - Digital printing - Transfer printing - Pigment printing - Stain-repellent - Flame-retardant - Rain-repellent - Mite-repellent - Anti-microbial - UV-repellent - Anti-UV (Ultra-Violet) - Micro-encapsulation - Mercerization - Napping - Shearing - Chemical bleaching - Mechanical bleaching - Laser bleaching - Ozone bleaching	National Europe Worldwide

		PCR						IMPACTS BASE		
		Primary data		Semi-specific data		Secondary data				
Stage	Sub-stage	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Generic inventory data		
								Processes	Technical representativeness	Geographical representativeness
Finishing	Level 3 (finer-grained on energy)	- Electricity consumption - Heat energy consumption per energy source type (gas, fuel oil, coal, etc.)		- Country		- Water consumption - Presence and efficiency of the wastewater treatment plant / DIRECTLY PROCESSES-LINKED -Type and amount of chemicals* - Amount of textile waste*		- Electricity generation - Heat generation - Production of softened water - Wastewater treatment plants differentiated into the 3 levels (good, moderate/poor, none) - Production of the chemicals used in the finishing-process steps - Treatment of production waste	Mean consumption figures of the energy mix 4 types of energy source: coal, biomass, fuel oil and gas Each process shall be differentiated into the 3 WWTP levels) - **Yarn dyeing** - **Fabric dyeing** - **Garment dyeing** **Ultimately according to type of material: polyester, cotton, etc.** - **Discharge printing** - **Digital printing** - **Transfer printing** - **Pigment printing** - **Stain-repellent** - **Flame-retardant** - **Rain-repellent** - **Mite-repellent** - **Anti-microbial** - **UV-repellent** - **Micro-encapsulation** - **Mercerization** - **Napping** - **Shearing** - **Chemical bleaching** - **Mechanical bleaching** - **Laser bleaching** - **Ozone bleaching**	National Europe
	Foams							- Foam	- Polyurethane (PU) – high-density - PU – low-density - PU – memory foam - PU – moulded foam - Natural latex - Synthetic latex ue	Worldwide l
Transport	Upstream			- Scenarios on upstream transport (mode of transport and distance travelled)				- Transport-mode processes	- Truck -Ship - Air	
	Downstream	- Mode of transport and distance travelled to Paris if the depot is outside France				- Mode of transport - Distance travelled		- Transport-mode processes	- Truck - Ship - Air	

		PCR						IMPACTS BASE		
		Primary data		Semi-specific data		Secondary data				
Stage	Sub-stage	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Activity-related data, to be linked to in-Base inventory data	Elementary flows and data without direct links to the Base	Generic inventory data		
								Processes	Technical representativeness	Geographical representativeness
Use	Machine-wash at 30°C – gentle cycle Machine-wash at 40°C – gentle cycle Machine-wash at 30°C – normal cycle Machine-wash at 40°C – normal cycle Dry-cleaning		- Wash or not? - Type of wash programme			- Amount of water, energy, laundry detergent used - Amount of water, energy, laundry detergent used - Amount of water, energy, laundry detergent used - Amount of water, energy, laundry detergent used - Amount of electricity, water and perchloroethylene	- VOC emissions	- Electricity generation - Production of liquid or powdered detergent - Wastewater treatment - Production of tap water - Production of perchloroethylene		France France
	Drying		- Dry or not?			- amount of energy		- Electricity generation		France
	Ironing		- Iron or not? - Time on ironing			- Electricity consumption per hour		- Electricity generation		France
End-of-life	Treatment of end-of-life made-up textile-articles							- End-of-life textile waste treatment processes	- Landfilling - Incineration with waste-to-energy recovery - Incineration without waste-to-energy recovery - Recycling processes (tbd—the guide does not ask for specifications)	France
	Treatment of production waste							- Textile production waste treatment processes	0/100-basis allocation: recycling textile fibre into textile fibre 50/50-basis allocation: recycling non-textile material into textile fibre Mean inventory	Worldwide l
	Treatment of end-of-life packaging waste							- End-of-life waste packaging treatment processes	- Landfilling - Incineration with waste-to-energy recovery - Incineration without waste-to-energy recovery	France

Notes to this table

* Activity-stream data expected to be integrated into the ADEME database.

** As regards the impact of the materials, users of this methodology shall make the distinction between:

The units that are equipped to deal with effluents and those which are not, for activities that have a potential impact on water (particularly for tanning, textile finishing, etc.).

The countries' energy mixes for the materials.

9.3. Special case of textile finishing

Textile finishing is modelled as set out below:

— Country where textile finishing is effectively done is a semi-specific data;

— The fibre-preparing processes systematically associated with these fibres (e.g. scouring of the raw wool) shall be integrated as fibre production-stage processes);

— For the other processes, it is necessary to:

  — Either select out the processes per article (see below) at a rough (level-1) level or at a finer-grained (level 2) level;

  — Or collect the finisher factory's activity-stream data ratioed to 1 kg of finished articles, without differentiating the different textile finishing operations run inside the company (level 3).

In cases where a process-oriented selection is opted for, the two modelling levels are as follows:

Level 1	**Level 2**
Dyeing	Yarn dyeing / Fabric dyeing / Article dyeing
	Fabric dyeing
	Made-up article dyeing
	Ultimately according to type of material: polyester, cotton, etc.
Printing	Discharge printing
	Digital printing
	Transfer printing
	Pigment printing
Composite chemical finish	Stain-repellent
	Flame-retardant
	Rain-repellent
	Mite-repellent
	Anti-microbial
	UV-repellent (UV: Ultra-Violet)
	Micro-encapsulation
	Mercerizing
Mechanical finish	Napping
	Shearing

Important remarks:

— The data on (electrical and heat) energy and water consumption are defined as upper-bound data. The rationale is that as levels 1 and 2 can be operator-specified, it is necessary to start out from conservative upper-bound data figures.

That said, when populating the database on the dyeing process (and any other processes selectable from the level-1 and level-2 lists), type and amount of chemicals is defined as a mean (and not, therefore, an upper-bound) data value as a differentiation is irrelevant here.

— In cases where woven fabrics are produced, the consumption of sizing agents is allocated to weaving (amounts and types defined as secondary/generic data), but any 'desizing' process shall automatically be allocated to the finishing stage.

— Again in cases where a process-oriented selection is opted for, defining the heat-energy mix hinges on level of knowledge of the producer-country (just like for the case of electricity mix) – semi-specific data, i.e.:

  — By default: heat-energy mix with the greatest impacts

  — Otherwise: heat-energy mix of the country concerned

If the option chosen is to take finisher-factory values, the data to be collected is as follows:

— Electricity consumption: primary (or specific) data

— Heat energy consumption per energy source type (gas, fuel oil, coal, etc.): primary (or specific) data

— Water consumption: primary (or specific) data

— Presence and efficiency of the wastewater treatment plant (WWTP): primary (or specific) data.

The methodology to employ for defining 'efficiency' is to be validated at a later date, in response to proposals put forward by the data developers. The approach could, for example, involve a 3-level selection scheme (as already proposed for leather goods): no WWTP or inefficient WWTP / moderate-efficiency WWTP / highly effective WWTP.

— Type and amount of chemicals: secondary (or generic) data

It is effectively difficult to find databased data that can adequately segregate between chemicals, and ecotoxicity did not get selected as a first-line indicator for environmental communication. Note, however, that the good practices guide reads as follows: "*When the guide comes up for revision, points requiring urgent attention will be whether it is relevant to include the ecotoxicity indictor and to integrate the chemicals consumption data (type and amount) as semi-specific data.* "

— Amount of textile waste: secondary (or generic) data

In this case, the data collected is related to the year before the calculation (and thus production).

NOTE on colour schemes: Earlier studies on eco-design and trials on environmental communication found differences in water consumption and energy consumption figures between pale, dark and mid-shade colour schemes. However, as modelling per colour or colour category would be too complex to be practicably implementable, we will follow the WG5 recommendations on this issue and make no distinction between colour schemes on articles of "household linen", in line with all other made-up textile articles.

9.4. Use case

All articles of household linen share the same use-case scenario, i.e. machine-care by consumers at home. The figure of 100 care cycles adopted to quantify this use phase comes from a survey led on bedsheet, duvet cover and pillowcase users.

NOTE These data were not captured through any kind of official survey, and consequently, if at some point the work by WG5 on textile product durability manages to find an all-textiles consensus, then this sector-specific guide will align to any indications and updates proposed by the various sector-specific working groups. Example: Durability according to standardized test methods or any other survey on French consumer patterns.

Outside of the number of care cycles, the calculations shall integrate the care-label washing instructions, i.e. between 30 and 60℃ for household linens. Fewer and fewer people are washing at 90℃. Most household linen is now machine-washable, but there are a handful of simple rules to follow, and that are the same for articles of wearing apparel. To recap:

— Bleaching: bleaching programmes are not considered here.

— Drying

For household linen, a manageably simple scenario is proposed: 50 % of the time, the articles are machine-dried (the winter season), and the other 50 % of the time, the articles are naturally dried. This means the calculations therefore need to consider 50 machine-drying cycles and 50 natural-drying cycles.

NOTE This proposal also stems from a non-official survey and is therefore liable to change with future contributions.

— Ironing

For household linen that can be ironed, there are therefore 50 ironings to consider. The articles break down into two groups:

— For pillowcases or children's-size bedding: 3 min / article

— For all others: 5 min / article

NOTE This proposal also stems from a non-official survey and is therefore liable to change with future WG-led contributions.

— Detergent: amount of detergent used is a secondary (or generic) data.

10. Data validity over time and update frequency

The rules of procedure are specified in the general principles for an environmental communication on mass-market products (Part 0).

11. Validation process for data and results

The validation method for the data and results of the environmental communication currently envisaged for the textiles category is as follows:

The manufacturers keep a product reference file logging the primary (or specific) data. Validation consists in:

— making sure the indicator calculations are reproducible based on the file content;

— looking for proof of the information contained in the file, based on a sampling scheme.

Information related to the elaboration of labelling shall be made free, transparent and accessible to all, via appropriate channels (reports, websites, etc.). This information relates to the model assumptions, the data acquisition methods, the articulation between primary (or specific) and secondary (or generic) data, the emission factors and the assessment's limitations.

There is no obligation to give consumers the data needed to calculate the impact indicators.

This data shall, however, be kept for the market surveillance and inspection authorities, and as such it shall specify and retain (within the bounds of process confidentiality):

- the primary (or specific) data;
- the sources of the secondary (or generic) data;
- the default values adopted.

The data retention period will be set later.

12. Integrating delayed GHG (greenhouse gas) emissions

Articles of household linen, like wearing apparel, are not considered long-lifespan products.

It is not therefore relevant to integrate time-deferred embodied GHG emissions for this category of products.

Annex A
(informative)

Values for the secondary (or generic) and semi-specific data

A.1 Semi-specific data

— **Upstream transportation**

Model assumptions on the production sites

	Worldwide circuit	Turkey*	Euromed	Europe	France**
Extraction	No change				
Spinning	Asia/South America	Asia	Asia	Asia	France
Production of fabrics	Asia/South America	Asia 45 %/ Turkey 75 %	Asia 45 %/ Turkey 25 %/ Europe 30 %	Asia 4 %/ Turkey 25 %/ Europe 30 %	France
Finishing	Asia/South America	Turkey	35 %/ Europe 50 %	Asia 15 %/ Turkey 35 %/ Europe 50 %	France
Making-up	Asia/South America	Turkey	North Africa	Europe	France
Storage	France	Turkey	France	France	France

* In cases where make-up is done in North Africa rather than Turkey, it will be necessary to refer back to the Euromed circuit.

** Provided each step is done in France, otherwise it will be necessary to refer back to the Europe circuit.

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Default modes of transport and distances travelled for the production stages

	WORLDWIDE circuit (Asia / South America)	TURKEY* circuit	EUROMED circuit	EUROPE circuit	France** circuit
Extraction / production of fibres – Spinning	20,000 km by ship 800 km by truck				
Spinning – Production of fabrics	Asia / South America → Asia / South America 1000 km by truck	- 25 % Asia → Asia 0,25 × 1000 km by truck - 75 % Asia → Turkey 0,75 × (20,000 km by ship + 800 km by truck)	- 45 % Asia → Asia 0,45 × 1000 km by truck - 25 % Asia → Turkey 0,25 × (20,000 km by ship + 800 km by truck) - 30 % Asia → Europe: 0,30 × (20,000 km by ship + 800 km by truck)	- 45 % Asia → Asia 0,45 × 1000 km by truck - 25 % Asia → Turkey 0,25 × (20,000 km by ship + 800 km by truck) - 30 % Asia → Europe: 0,30 × (20,000 km by ship + 800 km by truck)	France → France 500 km by truck
Production of fabrics – Finishing	Asia / South America → Asia / South America 1000 km by truck	- 25 % Asia → Turkey 0,25 × (20,000 km by ship + 800 km by truck) - 75 % Turkey →Turkey 0,75 × 1000 km by truck	- 15 % Asia → Asia 0,15 × 1000 km by truck - 10 % Asia → Turkey 0,10 × (20,000 km by ship + 800 km by truck) - 25 % Turkey → Turkey 0,25 × 1000 km by truck - 30 % Europe → Europe 0,30 × 1000 km by truck - 20 % Asia → Europe 0,20 × (20,000 km by ship + 800 km by truck)	- 15 % Asia → Asia 0,15 × 1000 km by truck - 10 % Asia → Turkey 0,10 × (20,000 km by ship + 800 km by truck) - 25 % Turkey → Turkey 0,25 × 1000 km by truck - 30 % Europe → Europe 0,30 × 1000 km by truck - 20 % Asia → Europe 0,20 × (20,000 km by ship + 800 km by truck)	France → France 500 km by truck
Finishing – Make-up	Asia / South America → Asia / South America 1000 km by truck	Turkey → Turkey 1000 km by truck	- 15 % Asia → North Africa 0,15 × (20,000 km by ship + 800 km by truck) - 35 % Turkey → North Africa 0,35 × (3,500 km by ship + 800 km by truck) - 50 % Europe→ North Africa 0,50 × (2500 km by ship + 2000 km by truck)	- 15 % Asia → Europe 0,15 × (20,000 km by ship + 800 km by truck) - 35 % Turkey → Europe 0,35 × (2500 km by truck) - 50 % Europe → Europe 0,50 × (1000 km by truck)	France → France 500 km by truck

	WORLDWIDE circuit (Asia / South America)	TURKEY* circuit	EUROMED circuit	EUROPE Circuit	France** circuit
Make-up – Storage	Asia / South America → France 50 % by ship / truck (20,000 km / 800 km) 50 % by air / truck (10,000 km / 800 km)	Turkey → France 80 % by ship / truck (3000 km / 2000 km) 20 % by air / truck (3000 km / 1000 km)	North Africa → France 30 km by ship 2000 km by truck	Europe → France 2000 km by truck	France → France 500 km by truck
Recap	30,000 km by ship 4600 km by truck 5000 km by air	37,400 km by ship 5400 km by truck 600 km by air	42,505 km by ship 6030 km by truck	40,000 km by ship 6125 km by truck	20,000 km by ship 2800 km by truck

* In cases where make-up is done in North Africa rather than Turkey, it will be necessary to refer back to the Euromed circuit.

** Provided each step is done in France, otherwise it will be necessary to refer back to the Europe circuit.

— **Composites, laminates and bondings**

Does not apply to household linen.

— **Make-up and embroidery**

— The following rates of losses were adopted in the wake of talks between household linen industry and enterprise partners during the WG5 meeting held 04/02/2014.

Processes	Default data values proposed		Sources
WG on made-up "household linen" articles	Losses (%) round linen*	10	WG5 discussions held 04/02/14
	Losses (%) square linen**	3	

* Round linen: tablecloths, throw blankets, "round" (or non-square) deco pieces

** Square linen: all square or rectangular pieces, e.g. tablecloths, bed linen, household linen, etc.

— **Production of fabrics (woven, knitted, lacework, nonwoven)**

County of manufacture: Default energy mix proposed in the ADEME database

The highest impacts are obtained for high-pick-count and low mass-per-surface-area fabrics, hence the default values defined in the table below.

The household linens studied fall into the first category. However, recommended practice is to recalculate the basis weights (mass per unit area) and redo the pick counts in order to be able to select a category.

Categories of fabrics	**Pick count** (picks/m)		**GSM (mass per unit area)** (g/m²)	
	Standard-practice interval	**Default value**	**Standard-practice interval**	**Default value**
Handtowel	800 to 1600	1600 (i.e. 16 picks/cm	140 - 400	140
Bedsheet, fitted sheet, duvet cover	1700 to 3000	3000 (i.e. 30 picks/cm)	140 - 400	140

The following equation can be used to determine unit of weave for a mixed-fabric article *k*, each fabric being characterized by a pick count, a basis weight, and a mass.

(Equation 1)

$$unit\ of\ weave = \sum_{k=1}^{n}\left(\frac{pick\ count_k}{GSM_k} \times mass_k\right)$$

where

Unit of weave — common-denominator unit characterizing all fabrics required to produce the article (picks per m)

$Mass_k$ — mass of fabric *k* required to produce the article (g). This mass figure is calculated from the rates of loss and the mass of fabric *k* incorporated in the article (g) -> primary data.

$Pick\ count_k$ — pick count of fabric *k* (picks per m) -> semi-specific data

GSM_k — mass per unit area *k* (g/m²) -> semi-specific data

The environmental impact tied to the weaving stage is then determined using equation 2:

(Equation 2)

Impact of weaving = *Impact per unit of weave* × *Unit of weave*

where

Impact of weaving	weaving-stage environmental impact per article (impact)
Impact per unit of weave	environmental impact per unit of weave (impact/(picks per m) -> secondary data
Unit of weave	common-denominator unit characterizing all fabrics required to produce the article (picks per m)

— **Spinning**

Spinning-mill country: Default energy mix proposed in the ADEME database.

A.2 Secondary (or generic) data

— **Spinning**

— Manufacture of continuous filament in the case of synthetic or artificial man-made materials: data (including water consumption and heat-energy mix) integrated under production of the fibres.

— **Distribution of the article:**

— Mode of transport: by truck;

— Distance travelled: 500 km.

NOTE For depots that are outside France, mode of transport and distance travelled to Paris (see 8.2) need to be added as primary (or specific) data.

— **Use**

Machine-washing (domestic washer)	Electricity	30℃: 0,9 kWh / cycle 40℃: 0,554 kWh / cycle 60℃: 0,86 kWh / cycle *[1][4]*
	Water	29,1 L / cycle *[4]*
	Cycle	3 kg *[4]*
	Detergent	115 mL (standard liquid laundry detergent) for a 4,5 kg-load wash *[6][7]*
Professional cleaning (dry-cleaning)	Electricity	Ⓟ and Ⓕ : 9 kWh/cycle for a 12 kg capacity machine loaded to 80 % capacity or < 1 kWh/kg *[4]*
	Water	Ⓟ 14 L / kg (wash-phase water can be recovered to cool the machine in the drying phase) Ⓕ 35 L / kg *[4]*
	Perchloroethylene	Ⓟ and Ⓕ : 0,0125 L / kg *[4]*
	VOC emissions	10 g / kg *[4]*
Machine-drying	Electricity	2,01 kWh / cycle for 6 kg *[4]*
Ironing	Electricity	1,6 kWh / hour Time on ironing: see table below

[1] GfK Retail and Technology, GIFAM GEM Conference, September 2008 and Energy Foundation

[2] Retail and Technology, GIFAM GEM Conference, September 2008

[3] Life Cycle Assessment of Disposable and Reusable Nappies in the UK. Environment Agency May 2005

[4] Centre Technique de la Teinture et du Nettoyage www.cttn-iren.com / Société Française de chimie - http://www.sfc.fr/Donnees/mine/soch/texsoch.htm

[5] Environmental Improvement Potentials of Textiles (IMPRO-Textiles)

[6] Sector-specific guide on laundry detergents

[7] Regulation (EC) No. 648/2004

Annex B
(informative)

Criteria grid

	Greenhouse gas emissions	Eutrophication	Acidification	Water consumption	Consumption of non-renewable energy	Depletion of natural non-renewable resources	Aquatic toxicity	Photochemical pollution
Relevance	**Compulsory**							
Evaluation of an environmental issue in the product category and attributable to product	YES	YES	YES	YES	YES	YES	YES	YES
Importance of the issue		++	+	++++	+	Did not prove standardizable	+++	+++
Differentiation for a majority of products on the market	++ Differentiation possible according to producer countries and energy consumption rates.	+++ Differentiation possible, especially between materials	++ Same as for climate change	+++ Differentiation possible, especially between materials	+ Differentiation possible, especially for the use phase	+	+++ Differentiation possible, especially between materials	YES (modes of transport, choice of materials, treatment processes and finishing processes)
Redundancy with other indicators			Partial redundancy with climate change (consumption of fossil-fuel resources) and saltwater eutrophication (elementary flows employed in both categories)		Redundancy with consumption of mineral and fossil-fuel resources			

Makes it possible to highlight eco-design opportunities	+++ Process optimization (energy efficiency)	+ Choice and weight of materials	++ Process optimization	+ Choice of materials	-		+ choice of materials	YES

	Greenhouse gas emissions	**Eutrophication**	**Acidification**	**Water consumption**	**Consumption of non-renewable energy**	**Depletion of natural non-renewable resources**	**Aquatic toxicity**	**Photochemical pollution**
Implementation, feasibility								
Possibility/ease to implement for the database	IPCC 2007	ReCiPe 2008	ReCiPe 2008	No. Flow indicator.	No. Flow indicator.	EDIP 97 (2004).	USETOX	ReCiPe 2008

Accessibility to primary (or specific) data required for the organization to characterize the indicator	++ (energy consumption rates, types of distribution-stage transport)	+ (type of distribution-stage transport, cotton source, etc.),	++ (energy consumption rates, types of distribution-stage transport)	+ (production-stage and make-up-stage water consumption)	++ (energy consumption rates, types of distribution-stage transport)	++ (energy consumption rates, types of distribution-stage transport)	- 1. The LCIs lack detailed data for the production or raw materials like linen and silk Struggle to get the primary data figures on potentially-toxic effluent discharges at the "make-up—manufacture" stages (textile finishing, weaving, etc.) 2. The UseTox methodology is missing characterization factors for certain toxic pollutants 3. The crux of the issue lies with collecting primary (or specific) data, as production is the key phase involved and the only source data on production available is secondary (or generic) data.	+ (yes for choice or materials and transport-related data, no for treatment processes and finishing processes)

	Greenhouse gas emissions	Eutrophication	Acidification	Water consumption	Consumption of non-renewable energy	Depletion of natural non-renewable resources	Aquatic toxicity	Photochemical pollution
Consistency								
Consistency with the recommendations of the ADEME/AFNOR platform	YES	YES	YES	Flow indicator accepted by the platform	No. Flow indicator.	YES	YES	YES
Life cycle scope	YES	YES	YES	YES	YES	YES	YES	YES
Product/packaging scope	YES	YES	YES	YES	YES	YES	YES	YES
Robustness, reliability								
Scientific and international recognition	Featured in the ILCD handbook	Featured in the ILCD handbook	Featured in the ILCD handbook	Not featured in the ILCD handbook	Not featured in the ILCD handbook	Featured in the ILCD handbook	Featured in the ILCD handbook	Featured in the ILCD handbook
Methodological robustness	IPCC 2007. Consensus-built method ILCD class-I	ReCiPe 2008. Consensus-built method ILCD class-II	ReCiPe 2008. Consensus-built method ILCD class-II	Temporary methodology defined in the general principles for an environmental communication on mass-market products (Part 0).	ReCiPe 2008. Consensus-built method	ILCD class-II	ILCD class-II	ILCD class-II
Reliability of the modelling component (computation rule)								

	Greenhouse gas emissions	Eutrophication	Acidification	Water consumption	Consumption of non-renewable energy	Depletion of natural non-renewable resources	Aquatic toxicity	Photochemical pollution
Robustness, reliability (ending)								
Expected reliability of primary (or specific) data	Good on the country of production Moderate on electricity and heat energy consumption through the production cycle	Good on the country of production Moderate on electricity and heat energy consumption through the production cycle	Good on the country of production Moderate on electricity and heat energy consumption through the production cycle	Moderate on water consumption	Good on the country of production Moderate on electricity and heat energy consumption through the production cycle	Good on the country of production Moderate on electricity and heat energy consumption through the production cycle	Poor – little primary (or specific) data available	Moderate-to-poor
Reliability of the secondary (or generic) data available	Moderate-to-poor for silk	Moderate-to-poor for silk	Moderate-to-poor for silk	Moderate for cotton LCIs Moderate-to-poor for silk	Moderate-to-poor for silk	Moderate-to-poor for silk	Moderate for cotton LCIs	
Conclusion								
Indicator selected?	Indicator selected	Indicator selected	Indicator excluded as there is redundancy with climate change	Indicator selected	Indicator excluded	Indicator excluded	Indicator excluded	Indicator excluded

Other indicators

	Destruction of the ozone layer	Human toxicity (with or without carcinogenic potential)	Depletion of water resources	Inorganic particulate emissions	Ionizing radiation	Terrestrial eutrophication	Ecotoxicity (terrestrial and saltwater)	Land and soil change
Conclusion								
Indicator selected?	**Not studied**	**Not studied**	**Studied under "water consumption"**	**Not studied**	**Not studied**	**Not studied**	**Not studied**	**Not studied**

Annex C
(informative)

Points to be further specified when the household linens guide comes up for 1st revision

At each revision, all methodology-related points need to be re-addressed. When the guide next comes up for revision, the following points warrant close attention;

Care phase

It will be necessary to consolidate the number of care cycles completed during the use-phase, per category of household linen. Along the same lines, there is room to improve the modelling of patterns of use of tumble-dryers.

List of indicators

The guide revision process will offer the opportunity to confirm or amend the list of indicators adopted in light of feedback captured by the working group. In-depth discussions on eutrophication will provide grounds to confirm or change the sub-indicator adopted for this particular environmental issue (freshwater eutrophication).

Production of fabrics

The modelling of the weaving stage warrants full-scale revision to be improved. Likewise for the knitting stage.

Lifespan/durability

Quality–lifespan as a construct is difficult to operationalize for textiles across the board: the ability to norm these constructs via lab-based test methods (wear resistance, tear resistance, colourfastness, etc.) would be a useful step forward.

Annex D
(informative)

Rationales

Definition of the FU

WG5 “Textiles” was forced to address the issue of integrating an absolute-value lifespan of a piece of clothing into the definition of the FU. However, without access to reliable sources, and despite the best efforts of an *ad hoc* focus group on the in-wear durability of wearing apparel—durability that is essentially dictated by the effects of care (shrinkage/stretching, colourfastness/fade, etc.) and use (changes in surface look, such as pilling; wear due to rubbing, etc.)—WG5 Clothing was unable to come up with an explicitly time-framed definition of the FU. Note that the information on user behaviour patterns, which concern the use-phase of the life cycle, has never been explored through in-depth studies. By extension, this same stance is also the stance taken for household linen.

This is why, in an effort to ensure that the definition of FU factors in the entire life cycle, including the use-phase, the FU adopted is predicated on a number of care cycles undergone by the household linen—clothing and household linen design accounts for care by the user. This definition of the FU thus implicitly gives a “relative” lifespan (that is equally dependent on each individual user’s wear-and-care regime). In other words, under the same care conditions, the same piece of clothing or household linen may last two years for one user and three years for another user depending how each of them uses the article (how often they wear it and care it).

List of the people involved in the follow-up, drafting and/or making of this guide

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ACV PLUS

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AFNOR

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CACHE CACHE

CAMPINGAZ - SOCIETE APPLICATION DES GAZ

CARBONETEX

CAROLINE SOREZ - CAECO

CARREFOUR CMI

CARTON ONDULE DE FRANCE

CCD - CENTRE DE LA CONSOMMATION DURABLE

CCI DE SEINE ET MARNE

CCI REGION PARIS ILE DE FRANCE - BIOP

CEC - CIE EUROPEENNE DE LA CHAUSSURE

CELIO INTERNATIONAL

CGDD - COMMISSARIAT GEN DEVELOPPEMENT DURABLE

CHANEL COORDINATION SAS

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CODDE - CONCEPTION DVPT DURABLE ENVT

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COOPERATIVE MU

CRP HENRI TUDOR

CSO CNRS

CTC

CTP - CENTRE TECHNIQUE DU PAPIER

CWF CHILDREN WORLDWIDE FASHION

CYCLECO

DAMART SERVIPOSTE

DBAPPAREL

DECATHLON

DECATHLON SA - B TWIN

DELAPLACE CONSULTING

DELTA PLUS GROUP SA

DEVANLAY SA - DIV LACOSTE

DGCCRF

DGE / SEN

DHJ INTERNATIONAL SAS

DIRAMODE-PIMKIE

DMC

ECO CONCEVOIR

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ECO-ADAPT

ECOEFF

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ETHIC AND LIFE

EVEA

EVEIO

FCBA

FCD - FEDE COMMERCE DISTRIBUTION

FCJT - FEDERATION CHAUSSURES JOUETS & TEXTILES

FED FSE TANNERIE MEGISSERIE

FEDERATION DE LA MAILLE ET DE LA LINGERIE

FEU VERT

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FLY

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GIRARDOT CEDRIC - CEDD

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GREENEXT SERVICE

GROUP HYGIENE

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H&M HENNES & MAURITZ

H3C-CARAIBES

HACOT COLOMBIER SA

HARP & ASSOCIES

HERMES INTERNATIONAL

HOLDING TEXTILE HERMES

HOP CUBE

I CARE ENVIRONNEMENT

IFM - INSTITUT FRANCAIS DE LA MODE

IFTH

IISG - ISTITUTO ITALIANO SICUREZZA DEI GIOCATTOLI

INTERTEK SUSTAINABILITY SOLUTIONS

JULES

KIABI EUROPE

KINDY

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PHILIPPE SONNETTE

POLE TEXTILE ALSACE

PPR - PINAULT PRINTEMPS REDOUTE

PROMOD

PROMOD SA

QUANTIS

RAUTUREAU APPLE SHOES

RDC ENVIRONNEMENT

RHOVYL SAS

ROGER WILLI

SALOMON SAS

SAMSON SAS

SAS CORDERIE MEYER SANSBOEUF

SC GALEC - GROUPEMENT EDOUARD LECLERC

SGS ICS

SGS MANAGEMENT SERVICES

SGS NORTH AMERICA INC.

SIGVARIS

SILVE

SIPLEC - SOC D'IMPORTATION LECLERC

SOKOA

SOLODI

SONOVISION

STE NOUVELLE INTERPLUME

STEPHANE RABEHANTA

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SYNDICAT NATIONAL COMMERC DE CHAUSSURE

SYNDICAT NATIONAL DES PLUMES ET DUVETS

SYNDICAT TEXTILE DE L'EST

TERRA 21

TF CREATION

TFT - THE FOREST TRUST

TISSAGE GERARDMER GARNIER-THIEBAUT

TISSUS GISELE

TRICOTAGE DES VOSGES

TUDO BOM

UCV - UNION GRAND COMMERCE CTRE VILLE

UFIH

UIT - UNION INDUSTRIES TEXTILES

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CGDD - COMMISSARIAT GAL DEVELOPPEMENT DURABLE
CHANTELLE
CINOV
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COPACEL
ECOFOLIO
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HARP & ASSOCIES
HOP CUBE
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NOVASHIRE
PRICEWATHERHOUSE COOPERS ADVISORY
SMURFIT KAPPA FRANCE SAS
SNFA
SOLINNEN
UNIFA

References

L'étude CIMECO (2009): Analyses de Cycle de Vie comparatives de deux draps de lit: un polyester coton en mélange et un 100 % PES microfibres blancs, IFTH Mulhouse

L'affichage environnemental (2010 2012) d'un Drap Polyester coton en mélange blanc, IFTH Mulhouse

Other studies or test-trials:

Affichage environnemental (2010 2012) sur une chemise et du fil à broder, IFTH Mulhouse

The draft sector-specific guide on wearing apparel currently with WG5 in the finalization phase, the other sector-specific guides published, and the general principles for environmental communication on mass market goods (part 0)

L'ADEME EN BREF

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