



Development of EU Ecolabel Criteria for Sanitary Products

1st Ad-hoc Working Group Meeting
8th June 2012, Seville

Joint Research Centre, Institute for Prospective Technological Studies



Overview of the presentation

1. Product scope definition
2. Background information on legislation and standards
3. Market analysis
4. Technical analysis
5. Identification of criteria areas





Development of EU Ecolabel Criteria for Sanitary Products

Session 1: Product scope definition

1st Ad-hoc Working Group Meeting
8th June 2012, Seville

Joint Research Centre, Institute for Prospective Technological Studies





Content

- Shaping “sanitary products”
- Overview of different schemes
- “Candidate list”
- Selection criteria
- Definition of the product scope





Shaping “sanitary products”

Sanitary = *protects health by the removal of dirt and waste, especially human waste OR describes the things which are used by women during their period*

A large number of products fitting with this definition

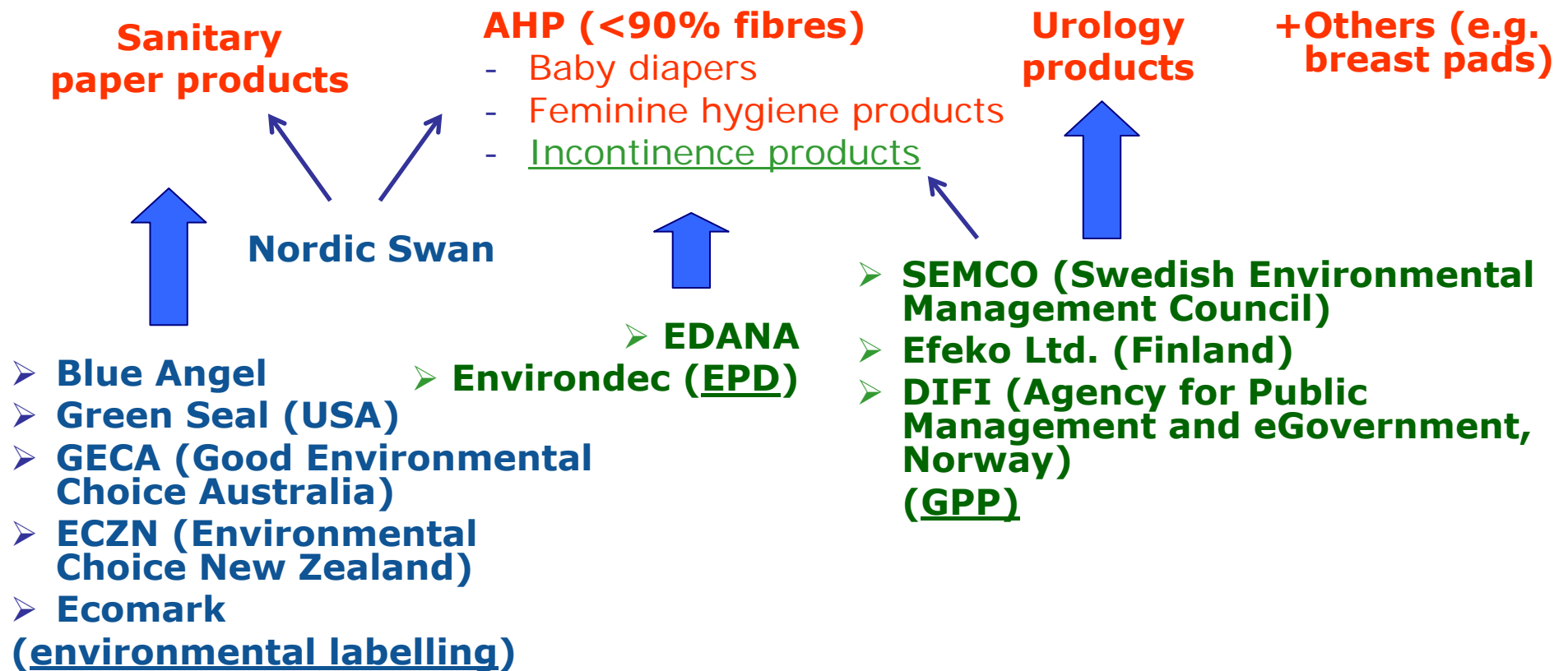
Approach

- Overview of different **schemes**
- Identification of a “**candidate list**” of products
- **Screening** of the products based on a set of criteria
- Definition of the **product group**





Overview of different schemes



Wide variation among the different schemes → need for **selection criteria**



“Candidate” list

Bed linen	Hand towels	Table napkin
Bedding underlay	Kitchen roll	Tampons
Breast pads (disposable)	Mesh / net pants	Tampons (incontinence)
Breast wipes	Paper towels/ tissues/ napkins/ rags	Tissue paper / handkerchief
Cleaning rags	Placemats	Toilet paper /(bathroom) tissue (sheets/rolls)
Cotton buds	Plastics accessories & devices	Toilet seat covers
Cotton pads	Sanitary paper	Toothpicks
Cotton wool	Sanitary towel / napkin	Tray liners
Draw sheets	Sanitary pads	Underlays
Diapers / nappies (children)	Panty liners	Urination devices
Diapers (incontinence)	Panty liners (incontinence)	Urology products (others than diapers)
Diapers formed (incont.)	Sanitary napkin (incontinence)	Wash cloths
Diapers contoured (incont.)	Male pouch (incontinence)	Wet wipes
Diapers w tape strips (incont.)	Surgical gowns	Wipes (general purpose)
Facial tissue / cleansing tissue	Table coverings	





Selection criteria

1. Coverage under existing EU Ecolabelling Scheme NO tissue papers and textile products
2. Categorisation of products in other schemes AHP (vs. tissue paper, 90% of fibres)
3. Similar function, use, technical characteristics, end of life Physical and direct collection of human body waste streams; Similar material composition; Similar waste management material composition
4. Market volume (PRODCOM) Baby diapers, sanitary pads and other products with similar use (e.g. tampons)
5. Medical devices directive Incontinence products should be excluded from the product scope??



Definition of the product scope

1. **The product group “sanitary products”** shall include products which :
 - a. Are used for the physical and direct collection of human body waste streams;
 - b. Are composed of a mix of natural fibres and polymers, with the fibre content lower than 90% by weight;
 - c. Are disposable

2. The product group **shall comprise**:
 - all kinds of children’s diapers
 - all kinds of sanitary pads/napkins and panty liners
 - all kinds of tampons
 - breast pads

3. **Incontinence products** purchased from retailers can be included on a **Member State** basis (?)

4. The product group **shall not comprise** other types of sanitary products classified under Council Directive 93/42/EEC (medical devices).

Agreement on products? Improving the technical definition? Reference to standards?



Development of EU Ecolabel Criteria for Sanitary Products

Session 2: Background information on existing legislation and standards

1st Ad-hoc Working Group Meeting
8th June 2012, Seville

Joint Research Centre, Institute for Prospective Technological Studies





Content

- Legislative background
- Technical standards
- Existing environmental labels and sustainable public procurement schemes
- Environmental claims: main trends
- Conclusions





Legislative background (I)

Piece of legislation	Scope	Potential impact on the EU Ecolabel for Sanitary Products
General Product Safety Directive (GPSD)	General requirements on safety of products on the market	No significant influence
Waste Framework Directive 2008/98/EC	Legal framework for the treatment of waste	Promotion of the most environmentally friendly scenarios of disposal or recovery
European Packaging and Packaging Waste Directive 94/62/EC	Heavy metal content and producer responsibility on the recovery of packaging	No significant influence
Product Liability Directive 85/374/EEC	Liability of European producers	No significant influence
Directive on the Protection of Animals Used for Scientific Purposes 2010/63/EU	Protection and welfare of animals used for scientific purposes	Animal experiments should not be an issue. Nevertheless, a written statement from the manufacturer stating the animal testing should be avoided whenever possible could be required.



Legislative background (II)

Piece of legislation	Scope	Potential impact on the EU Ecolabel for Sanitary Products
Medical Devices Directive 93/42/EEC	Harmonization of the market conditions related to medical devices and accessories	Products that fall under the Medical Devices Directive should not be included within the scope.
Biocidal Products Regulation 98/8/EC	Establishment of a positive list of active substances which may be used in biocidal products	To clarify whether the use of biocides is common practice and which are the related implications (nanomaterials)
CLP Regulation EC No. 1272/2008 and REACH Regulation EC No 1907/2006	<ul style="list-style-type: none"> - Classification, Labelling and Packaging of substances and mixtures. - Registration, Evaluation, Authorisation and Restriction of Chemical substances 	Article 6.6 of the EU Ecolabel Regulation (EC) No 66/2010 → Restrictions on substances or preparations/mixtures which can be classified as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction according to the CLP Regulation or to Article 57 of the REACH Regulation



Legislative background (III)

Where **lotions or fragrances** are used, even compliance with the **European Cosmetics Directive**.

Nordic Swan and SEMCo ban the use of lotions and fragrances.

General comments on the legislative background? Any missing pieces of legislation? Specific points of discussion later





Technical standards (I)

Most common standards

Standard	Scope	Potential impact on the EU Ecolabel for SP
ISO 11948-1: Urine-absorbing aids - Part 1: Whole-product testing	Testing absorbency of incontinence products	Standard outdated and under revision
ISO 15621: Urine absorbing aids – general guidelines on evaluation	Guidelines on the evaluation of the most important factors of importance for users of absorbent incontinence products.	Some general guidance provided but lacks in specifics. Tests developed by industry may be rather used to define a minimum level of performance
WSP 354.1 (11): ADULT MANNEQUIN TEST - Absorption before leakage	Method for testing the performance of incontinence devices	Potential performance criteria for incontinence devices
WSP 350.1 (05): Syngina Method	Standard test method for menstrual tampons absorbency	Potential performance criteria for tampons
EU Tampon Code of Practice	Six classes of absorbency for tampons into six classes	Potential performance criteria for tampons

Parameter	Baby diapers	Incontinence products	Feminine hygiene pads	Tampons	Breast pads
Absorption		WSP 354.1		WSP 350.1	
Absorption	Free Swelling Capacity	Free Swelling Capacity			
Breathability					
Fit and comfort	P&G method?				
Leakage protection I	in-use test (questionnaire)				
Leakage protection II	Courtray Labservice: "Absorption before leakage" test (with mannequins)				
Leakage protection III	P&G: Speed of absorption OR acquisition time?				
Overall performance	in-use test (questionnaire)				
Retention	Centrifuge Retention Capacity	Centrifuge Retention Capacity			
Health issues		ISO 10993-series			
Skin protection	P&G method?				
Skin dryness I	Clinical skin hydration measurements using "trans- epidermal water loss" measurements (TEWL)				
Skin dryness II	in-use test (questionnaire)				
Skin dryness III	Rewet Method				
Others (e.g. odour control?)					

Which the most relevant?
Possible to fill the gap(s)?
Discussion foreseen later



Existing environmental labels and sustainable public procurement schemes

- Blue Angel
- **Nordic Swan**
- Green Seal (USA)
- Good Environmental Choice Australia
- Environmental Choice New Zealand
- Ecomark (Japan)
- **Swedish Environmental Management Council**
- **EDANA**

- **EPD (Environdec)**





Blue Angel

Not of relevance

Scope:

"Sanitary paper products made of recycled paper" (cleaning rags, handkerchiefs, kitchenroll, napkin, paper handkerchief, paper towels, sanitary paper and toilet paper)

Good Environmental Choice Australia Environmental Choice New Zealand Ecomark (Japan)

Not of relevance

Scope:

toilet paper; facial tissues; paper towels; table napkins



Green Seal

Scope:

- paper towels,
- general-purpose wipes,
- paper napkins,
- bathroom tissue,
- facial tissue,
- toilet seat covers,
- placemats,
- tray liners,
- table coverings,
- other sanitary paper products.

*Not of
relevance*



Non-woven sanitary products, general-purpose disposable and flushable wipes containing cleaning agents or fragrances, **disposable diapers, sanitary napkins and tampons are excluded.**



Nordic Swan

Useful insights

Scope:

disposable products such as:

- **breast pads**
- **children's diapers**
- **incontinence care products** (panty liners, shaped diapers and diapers with tape strips)
- **sanitary towels** (towels and panty liners)
- **tampons**
- cotton buds
- cotton wool
- toothpicks
- bedding underlays
- draw sheets
- wash cloths and
- surgical gowns

Criteria	
R1 Description of the product and the packaging	R24 Polymers, residual monomers in superabsorbents
R2 Percentage composition	R25 Polymers, extracts in superabsorbents
R3 Chemical products, classification	R26 Composition of the materials in the sanitary product
R4 Fluff-/ cellulose pulp, optical brighteners	R27 Fibre treatment, solvents
R5 Fluff-/cellulose pulp, general requirements as to production	R28 Silicone treatment, siloxane
R6 Fluff-/cellulose pulp – Fibre raw material	R30 Adhesive
R7 Fluff-/cellulose pulp, energy requirements for production	R31 Fragrance and flavour
R8 Fluff-/cellulose pulp, requirements as to emissions during production	R32 Lotion and skin care preparations
R13 Cotton, bleaching with the aid of chlorine gas	R33 Odour control substances
R14 Cotton, raw fibre	R34 Medicaments
R15 Viscose, bleaching with chlorine gas	R35 Nanomaterials
R16 Viscose, chemical oxygen demand (COD) emissions	R36 Flame retardants
R17 Viscose, sulphur emissions	R37 Dying
R18 Viscose, zinc emissions	R38 Inks for printing
R19 Non-woven, general requirements	R39 Packaging
R20 Non-woven, chemicals	R40 Labelling of plastic packaging
R22 Polymers, halogen-based	R41 Production waste
R23 Polymers, constituent substances	R42 Tampons
	R43 Information on packaging
	R44 Performance

- **Product**
- **Main materials**
- **Chemicals**
- **Manufacture process**
- **Consumer information**
- **Specific products**

Swedish Environmental Management Council

Scope:

Procurement criteria for incontinence and urology products, including children's diapers

Some
overlaps

<i>Criteria</i>
A.1. Producer's responsibility for packaging
B.1. Plastic/Polymers in the product
B.2. Perfume
B.3. Visual whitening agents
B.4. Colophony (Rosin)
B.5. Bleaching fluff pulp
B.6. Packaging in plastic
B.7. Cellulose packaging

- **Packaging**
- **Chemical substances**
- **Plastic materials + fluff pulp**



EDANA

Scope: GPP guideline for AHPs in public and in business-to-business (B2B) procurement.

<i>Criteria</i>
A.1. Producer's responsibility for packaging
B.1. Heavy metals/tinorganics in the plastic/polymers of the product
B.2. Visual whitening agents
B.3. Colophony (rosin)
B.4. Bleaching fluff pulp
B.5. Packaging in plastic
B.6. Cellulose packaging
B.7. Classified substances
C.1. Producer's environmental certification/registration
D.1. Wood sourcing policy
E.1. Perfume
E.2. Life cycle calculation
E.3. Global warming potential calculation
E.4. Acidification potential calculation
E.5. Eutrophication potential calculation

Useful insights

- **Packaging**
- **Chemical substances**
- **Fluff pulp**
- **Lifecycle-based indicators**



EPD (Environdec)

Scope: Product Category Rule (PCR) for AHP (female sanitary protection, children's diapers and adult incontinence products)

<i>Criteria</i>
2.2 Specification of the product
3 Functional unit
4 Content of materials and chemical substances
5 Units and quantities
6 General system boundaries
Chapters 6 through 9 describe requirements for the processes included within the system boundaries
10 Environmental performance-related information
10.1 Use of resources
10.2 Potential environmental impact
10.3 Other indicators
10.4 Additional environmental information
11 Content of the EPD
11.1 Programme related information
11.2 Product related information
11.3 Environmental performance-related information

Useful insights

- **Lifecycle-based indicators**
- **Tests on odour**



Environmental claims: main trends

Trend 1: Raw materials derived from **renewable sources** (plastics)

Trend 2: Certified organic or sustainably produced raw materials (pulp and cotton)

Trend 3: Products being **compostable or biodegradable** (broad definition, different standards)

Trend 4: Chlorine-free bleaching (pulp)

To be evaluated from a technical-scientific and market point of view...

Other schemes? Other trends?





Conclusions

- A **preliminary list of reference criteria** from Nordic Swan, SEMCO, EDANA, Environdec
- **Common issues** (e.g. certification of wood and pulp production) also based on the existing criteria that EU Ecolabel and Blue Angel set for other product groups (e.g. paper based products)
- **Criteria on hazardous substances** directly affected by some of the existing pieces of European legislation (e.g. Directive on the Protection of Animals Used for Scientific Purposes 2010/63/EU; Biocidal Products Regulation 98/8/EC; REACH and CLP regulations);
- **Fitness for use and technical criteria** as a topical issue.
- Specific points of discussion later...**comments on the conclusions, additional material and hints from stakeholders?**



Development of EU Ecolabel Criteria for Sanitary Products

Session 3: Market analysis

1st Ad-hoc Working Group Meeting
8th June 2012, Seville

Joint Research Centre, Institute for Prospective Technological Studies





Content

- Sales and production volume
- Market share by country
- Market structure
- Trends
- Import and export
- Conclusions

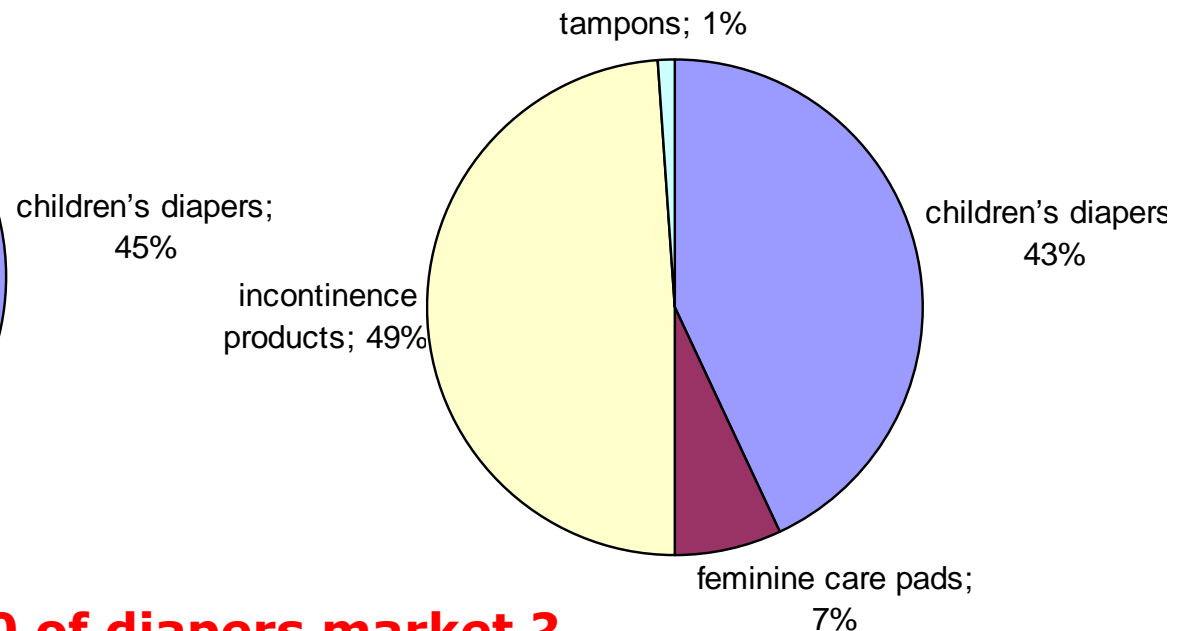
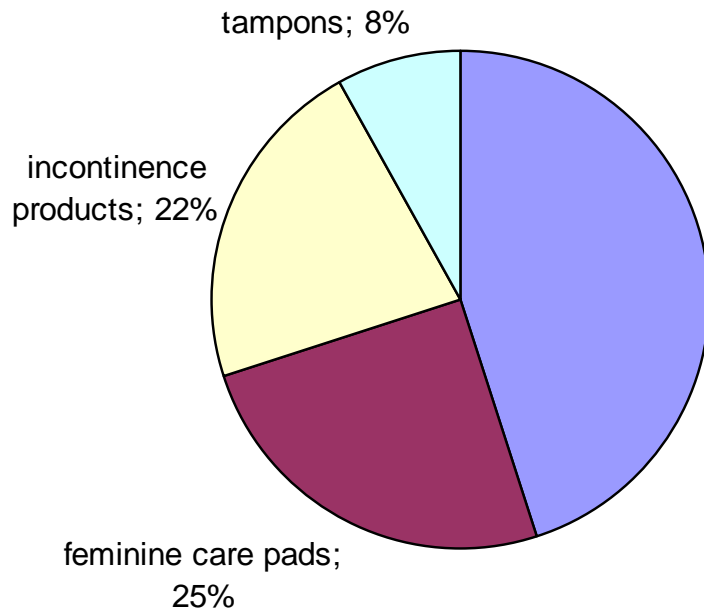
Source: Euromonitor data from EDANA



Sales and production volume (2011)

Over
11 billions of Euros

Almost
1.7 millions of tons



Breast pads market \leq 1/10 of diapers market ?



EU27 market share by country (2011)

<i>Country</i>	<i>Incontinence Product</i>	<i>Children's Diapers</i>	<i>Feminine Care - Pads</i>	<i>Feminine Care - Tampons</i>	<i>Total</i>	<i>Population share 2011</i>
France	18%	16%	12%	16%	15%	13%
Germany	19%	14%	17%	22%	17%	16%
Italy	13%	12%	12%	5%	12%	12%
Poland	6%	5%	7%	5%	6%	8%
Spain	12%	9%	13%	10%	11%	9%
UK	13%	15%	9%	19%	14%	12%

In terms of values:

- **75%** of the market from **6 countries**
- **88%** of the market from **11 countries**
- Sales volumes closely related to the **number of people**
- Some **country-specific** discrepancies
- Influence of demographic, economic and cultural factors



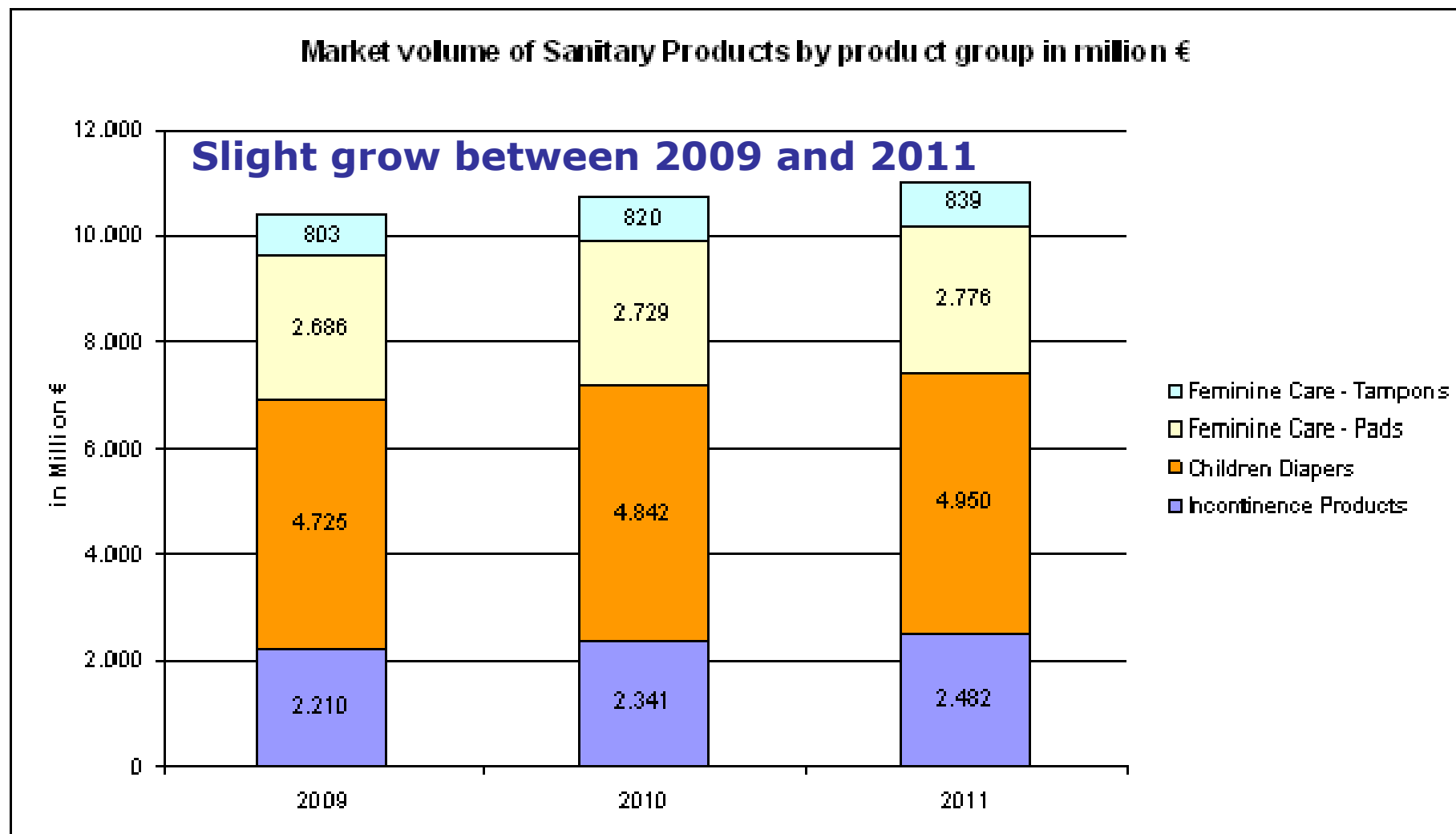
Market structure

- ✓ Aggregated data for **22 of the EU27 countries** (2010).
- ✓ No data for Cyprus, Finland, Luxemburg, Malta and the UK
- ✓ **No public procurement data** for incontinence products

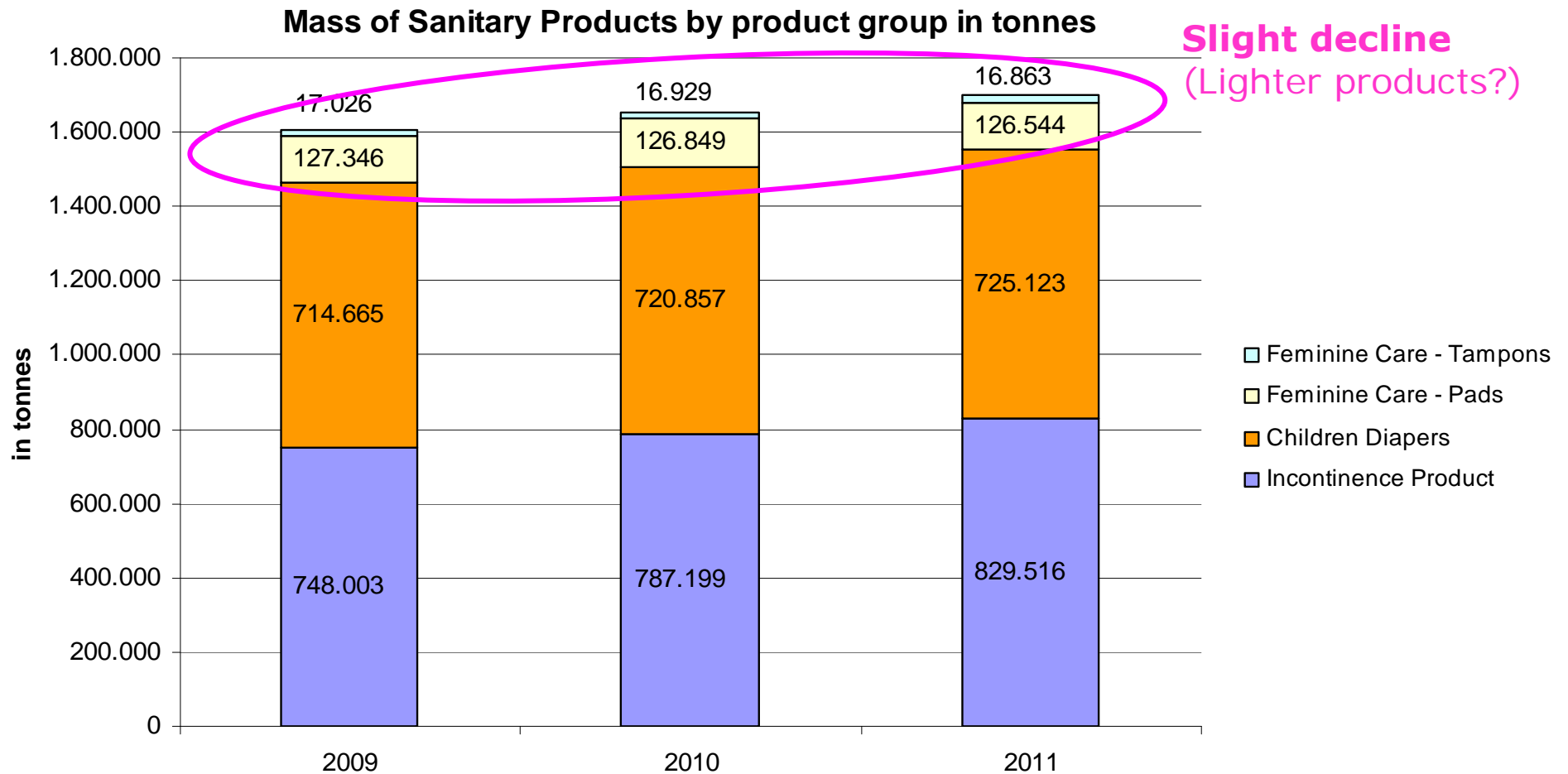
<i>Companies</i>	<i>market share (2010)</i>
Procter & Gamble	27%
SCA	11%
Fater SpA	8%
Arbora & Ausonia SL	8%
Kimberly Clark	7%
Johnson	6%
Aldi	2%
TZMO	2%
Companies with a market share <10%	24%
Companies with a market share <5%	11%

Some **larger players** with a significant list of **smaller companies**

Trends in terms of value

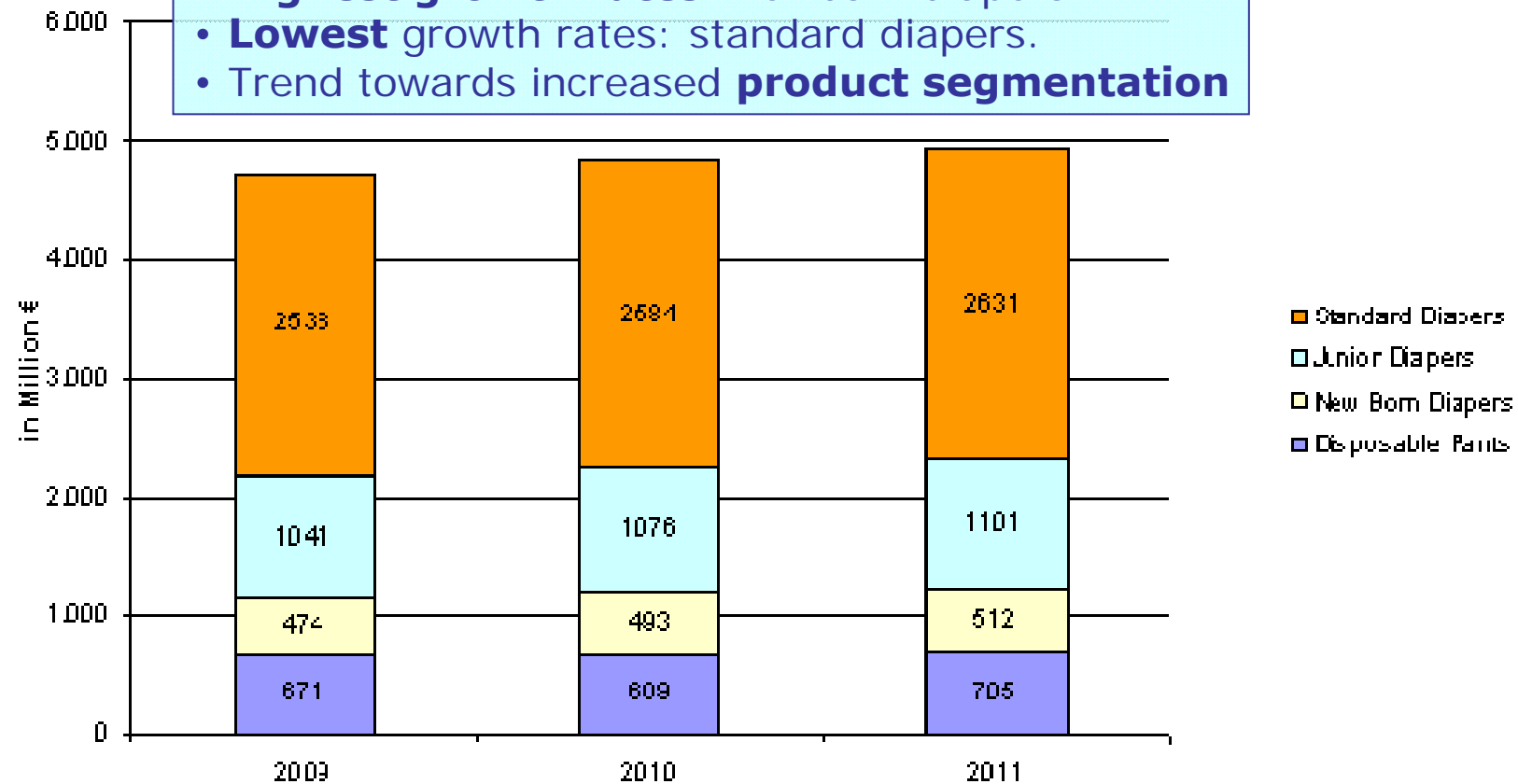


Trends in terms of weight



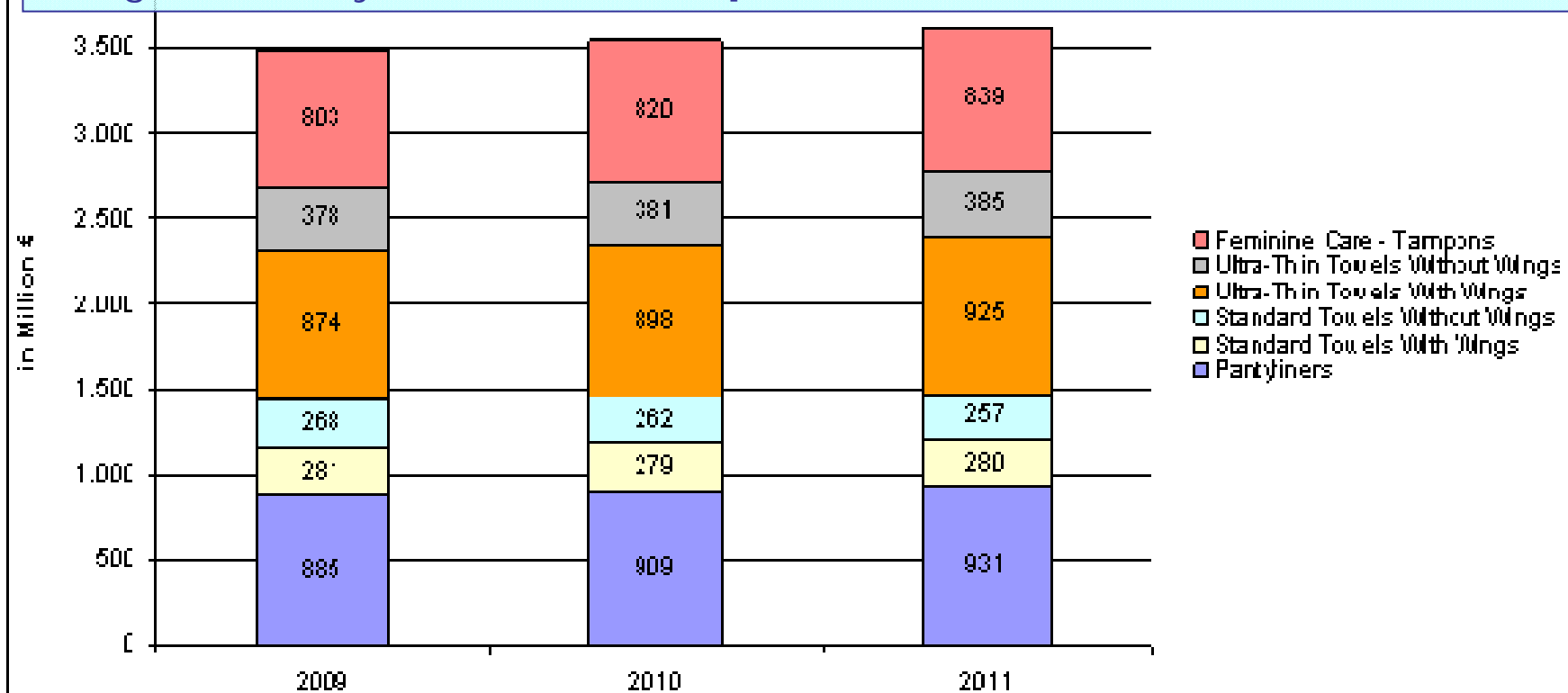
Trends for diapers

- 53% of the market in 2011 = **standard diapers**
- **Slight increase (2%)** between 2009 and 2011
- **Highest growth rates:** newborn diapers
- **Lowest** growth rates: standard diapers.
- Trend towards increased **product segmentation**



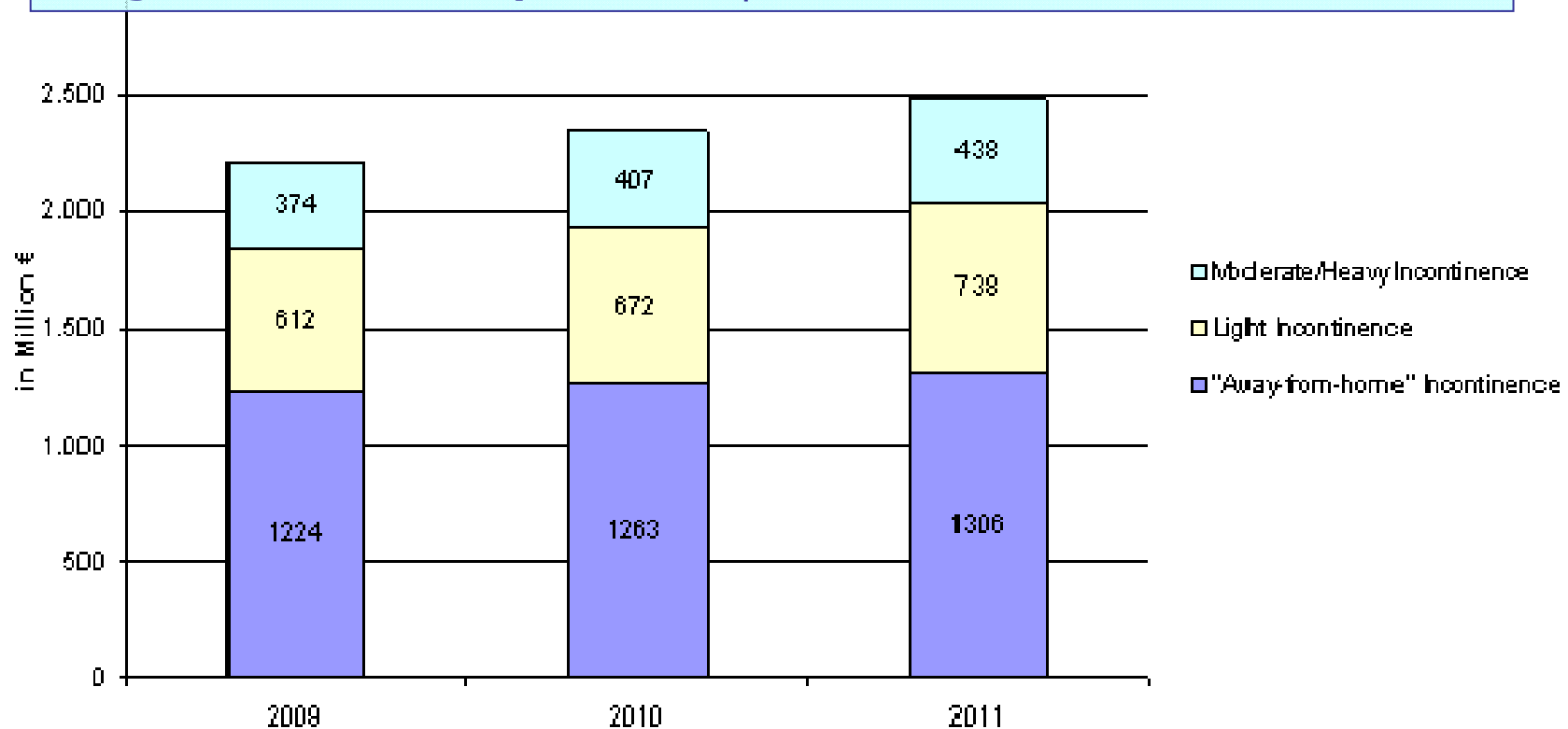
Trends for feminine care products

- 51% of the market = **ultra-thin pads with wings + panty liners**
- 23% = **tampons**
- 26% = standard pads (with/without wings) + ultra-thin pads without wings
- Almost **2% growth** between 2009 and 2011
- Slight tendency towards **thinner pads**



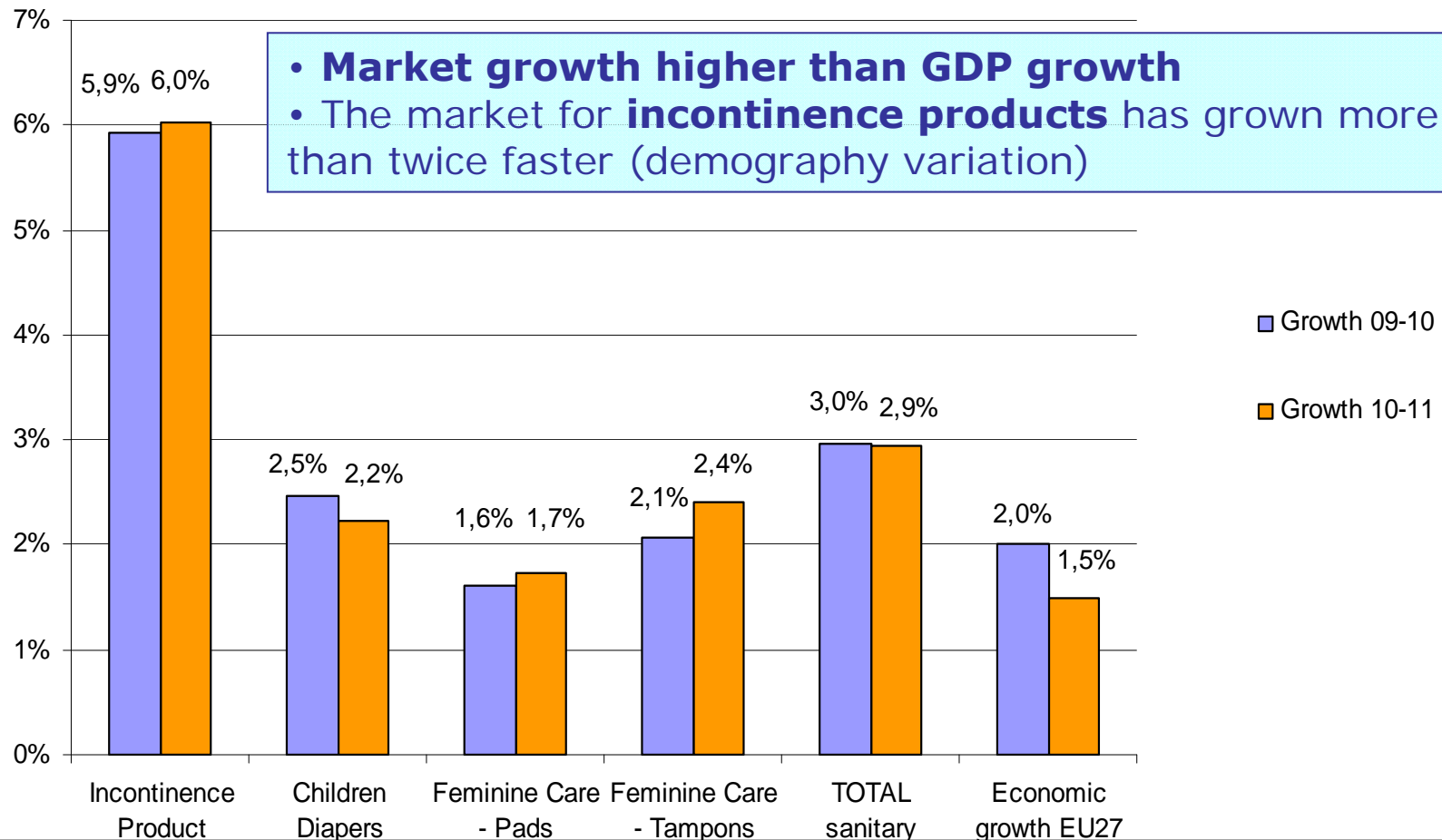
Trends for incontinence products

- 53% of incontinence products sold in public care facilities
- **Overall growth:** 6% in the last 2 years
- **Light incontinence products** (purchased at the retailers): 10%



Overall trends - comparison

Market growth rates for sanitary products for EU27 based on Euro sales figures



Import-Export



	<i>Total sales in million €</i>	<i>Import in % of total sales</i>	<i>Export in % of total sales</i>
Incontinence Products	2,482	2%	11%
Children's Diapers	4,950	2%	13%
Feminine Care - Pads	2,776	2%	11%
Feminine Care - Tampons	839	3%	4%

	<i>Total production in tonnes</i>	<i>Import in % of total production</i>	<i>Export in % of total production</i>
Incontinence Products	829,516	2%	13%
Children's Diapers	725,123	6%	27%
Feminine Care - Pads	126,544	11%	34%
Feminine Care - Tampons	16,863	22%	23%

- EU27 **internal consumption** of sanitary products
- **Export much higher** than import
- **Short transport distance**
- **Exported products** = lighter and more expensive
- **Imported products** = heavier and cheaper
- **Northern Africa or the Middle East** as main commercial partners



Conclusions (I)

Production volume:

- About **1.7 millions of tons** in 2011 on a weight basis, **children's diapers and incontinence products** make more than **90%** of the total.
- About **11 billions of Euros** in 2011 on the basis of sales shares, **feminine care products** contribute more than **30%** to the overall market.
- Slight **increase in the overall sanitary product market** between 2009 and 2011 (about 3% per year). The market for incontinence products has grown twice faster (importance of light incontinence products);

Functional segmentation of the market:

- Trends towards **differentiation** for diapers and incontinence products
- Trends towards **lighter** pads and panty liners for feminine care products.





Conclusions (II)

Geographical segmentation:

- Good correlation between **population** and **amount of sanitary products** sold in each country of the EU27
- Some **regional differences** on a product group-specific level

Import and export:

- 90% of sanitary products are produced and **consumed within the EU27**
- **Export is higher** than import
- Exchange mainly with **Middle East and Northern Africa**
- **Imported products** are **cheaper and heavier.**





Conclusions (III)

Market shares

- Procter & Gamble have the largest market share (27%)
- The next five largest companies together make more than 40%;
- Many SMEs are present in the market;
- Individual companies with significant market shares in some countries which have lower sales volume (e.g. Slovenia or Romania).

Key factors influencing the market:

- Demographic changes
- Consumer preferences and needs
- Others (e.g. price pressure, retail sector, financing models, labels)





Stakeholders are kindly invited to **revise and comment on the market highlights presented.** Useful pieces of **information** are even required with respect to:

- **Breast pads** (e.g. EU production/sales/consumption, imports/exports, growth rates, major players, etc.)
- **Country-specific differences** and **market shares**
- **Market segmentation in terms of technical aspects** (e.g. production processes, materials, waste treatment)
- Examples of products/companies/schemes/examples which can be considered leading innovators or the **industry "excellence"** from a sustainability point of view and estimation of the relative market penetration
- **Bad practices** from a sustainability point of view which are still commonly in use nowadays





Development of EU Ecolabel Criteria for Sanitary Products

Session 4: Technical analysis

1st Ad-hoc Working Group Meeting
8th June 2012, Seville

Joint Research Centre, Institute for Prospective Technological Studies





Content

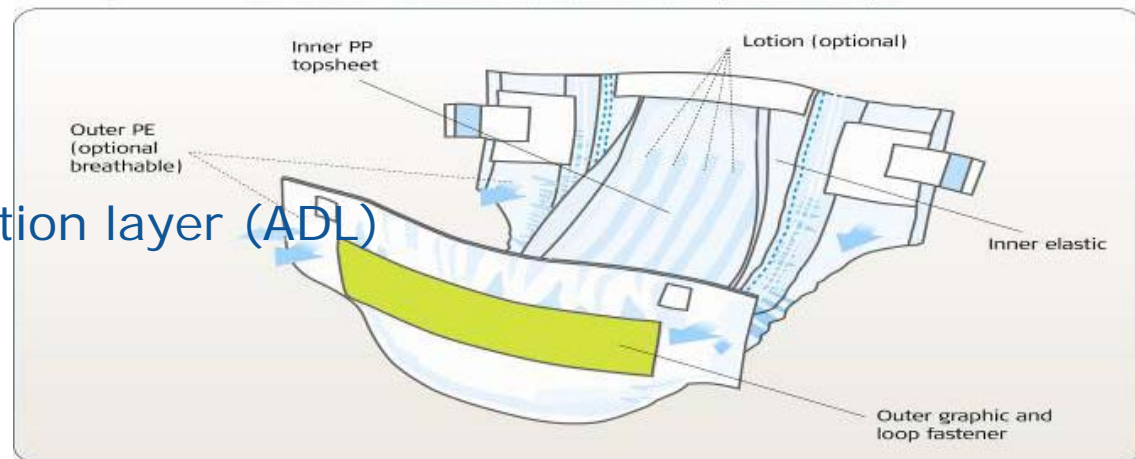
- Technological aspects and material compositions
- LCA analysis
- Hazardous substances



Technological aspects and material compositions: Disposable Children's Diapers

Four main components:

- a top-sheet
- an acquisition and distribution layer (ADL)
- the absorbent core
- a back-sheet



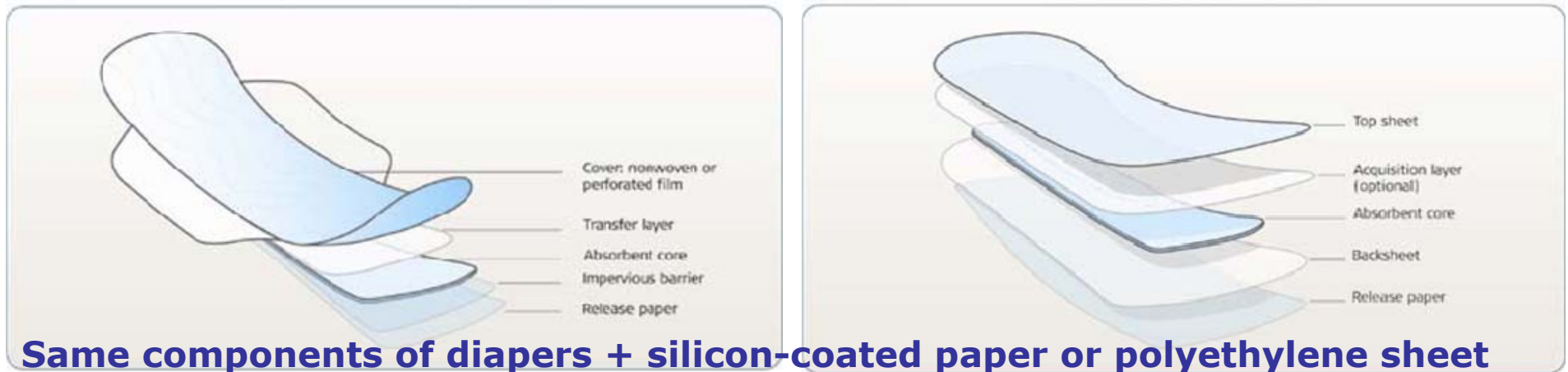
<i>Individual product</i>	<i>Definition</i>
New born nappies/diapers	Disposable children's nappies/diapers; Newborn - 2-5kg (4-11lbs)
Standard nappies/diapers	Disposable children's nappies/diapers; Standard - 6-10kg (13-24lbs)
Junior nappies/diapers	Disposable children's nappies/diapers; Junior - 11kg+ (24lbs+)
Disposable pants	Includes products designed for toilet training of babies or small children

Technological aspects and material compositions: Disposable Children's Diapers

Average weight between 36 to 42 grams

<i>Material</i>	<i>2004</i>	<i>2006</i>	<i>2011</i>
Fluff pulp	43%	35%	36.6%
Superabsorber (SAP)	27%	33%	30.7%
Polyethylene, low density (LDPE)	7%	6%	6.2%
Polypropylene (PP)	15%	17%	16.0%
Adhesive	3%	4%	2.8%
Elastics	1%	1%	0.4%
Other materials	4%	4%	7.3%
Tape			1.3%
Elastic back ear			3.2%
Frontal tape			1.4%
Various synthetic polymers			1.4%

Technological aspects and material compositions: Feminine care pads



<i>Individual product</i>	<i>Definition</i>
Panty liners	External sanitary protection designed for light flow
Standard Towels With Wings	Standard full-size towels, designed for medium to heavy flow and with adjustable extension tabs
Standard Towels Without Wings	Standard full-size towels, designed for medium to heavy flows
Ultra-Thin Towels With Wings	Thin-layered sanitary protection towels, designed to absorb different flows and with adjustable extension tabs.
Ultra-Thin Towels Without Wings	Included are thin-layered sanitary protection towels, designed to absorb different flows and without extension tabs.

Technological aspects and material compositions: Feminine care pads

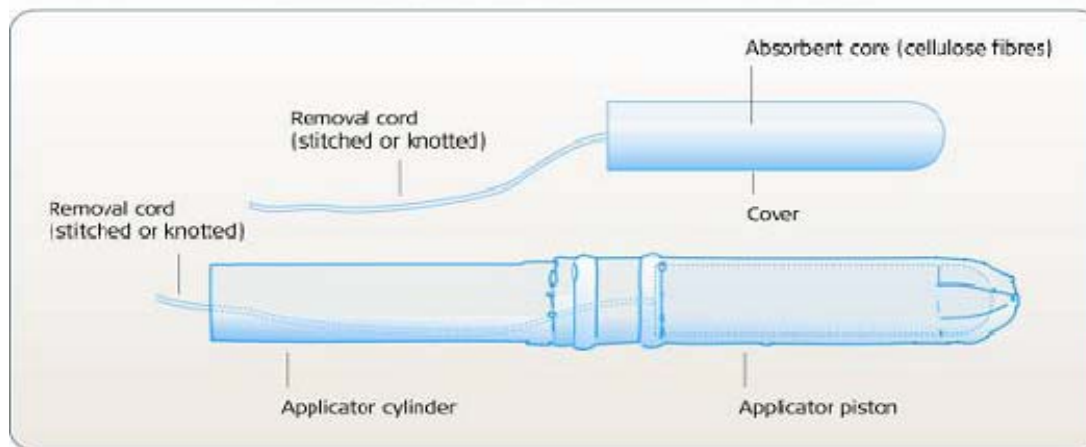
**Average weight between 1.5 grams (panty liners)
and 10 grams (standard towels)**

<i>Material</i>	<i>2006</i>
Fluff pulp	48%
PE, PP, PET	36%
Adhesive	7%
Superabsorber (SAP)	6%
Release paper	3%

Technological aspects and material compositions: Tampons

Composed of:

- A natural cellulosic absorbent material (e.g. rayon or cotton)
- A layer of nonwoven perforated film
- A withdrawal cord
- A thin film or paper wrapper
- An applicator made of coated paper or plastic (in some cases)

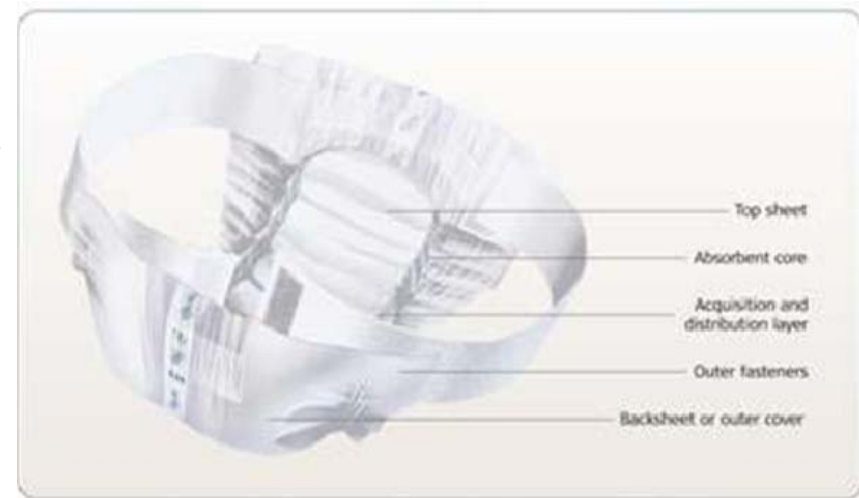


Average weight = 2.5 g

+ 2 g for the applicator

Technological aspects and material compositions: Incontinence products

- Design of **light incontinence products** similar to feminine hygiene products
- Design of **medium to heavy incontinence products** similar to children's diapers
- **Lower concentration of SAP**



<i>Individual product</i>	<i>Definition</i>
Away-from-home incontinence	Incontinence products used in hospitals and other health or nursing care establishments and distinguished from incontinence products purchased from retailers.
Light incontinence	Products designed for mild incontinence protection and light flow (e.g. normal pads, liners, shields, male pouches and guards)
Moderate/heavy incontinence	Products designed for moderate and severe levels of incontinence (e.g. ultra-absorbent pads and shields, pants, briefs, undergarments, adult diapers, pant/pad systems)

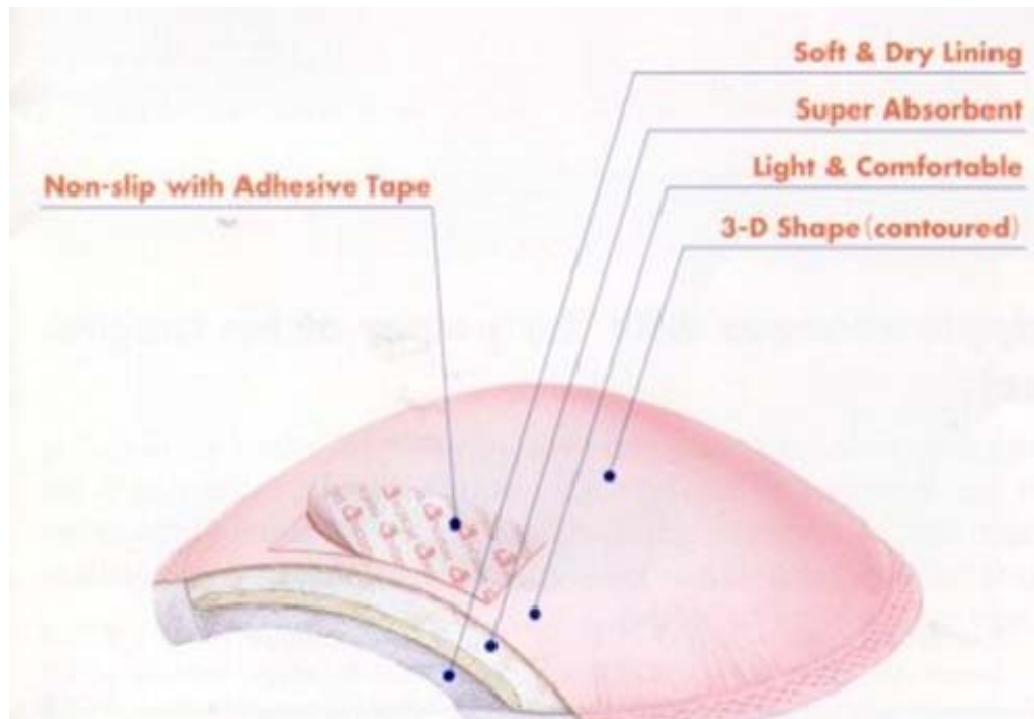
Technological aspects and material compositions: Incontinence products

Average weight: 116 grams
Less SAP than children's diapers

Material	2004	2006
Fluff pulp	59%	62%
Superabsorber (SAP)	14%	12%
Polyethylene (LDPE)	10%	10%
Polypropylene (PP)	9%	10%
Adhesive	4%	3%
Elastics	1%	0.4%
Other materials	3%	3%

Technological aspects and material compositions: Breast pads

Composition and functionality **similar to the other products**
Self adhesive tape for easy placement.



Average weight 4 g



Technological aspects and material compositions: packaging

- **Children's diapers and incontinence products** usually purchased as multiple products in a PE-bag. Single products can be compressed in order to pack more units of product within PE-bags
- **Feminine care pads** packed in cardboard boxes either with or without single plastic wrapping or in PE-bags.
- **Tampons** individually wrapped in PE foil. Multiple products are packed in a cardboard box.
- **Breast pads** either packaged as single products or as a bulk in cardboard boxes.
- **For all:** tertiary packaging (external cardboard box, LDPE film, wood pallet)





Technological aspects and material compositions: Main components

- Packaging
- Fluff pulp
- SAP and plastic
- Natural fibres

Information provided for each product is appropriate?

Information for breast pads?

Information on product alternatives?

Recent data and trends for next years?





Technological aspects and material compositions: Fluff pulp

- Cellulose from natural fibres, usually wood.
- Chemical pulp vs. Chemi-Thermo-Mechanical pulp (less intense treatment)
- By-products of the pulping process used to produce energy
- No recycled material is used

1. In which sense the **pulp used for sanitary products or for other applications** differ? Is the bleaching process necessary?
2. Which are the **most relevant technologies and which operational parameters** could be ruled within the EU Ecolabel?
3. Which are the **most relevant raw materials used and which parameters** could be ruled within the EU Ecolabel?



Technological aspects and material compositions: Super Absorbent Polymers

- Polymers that can absorb and retain extremely large amounts of a liquid.
- The gel which is formed successfully stores the fluid even under pressure
- Commonly made of sodium polyacrylates in cross-linked, grain form
- The ratio of fluff pulp to SAP in the absorbent core is variable

1. Which are the **SAPs** currently applied in Europe and worldwide?
2. Which **parameters** should be ruled within the EU Ecolabel?





Technological aspects and material compositions: Polymers and Plastics

- SAP, Polyethylene (PE), Polypropylene (PP), polyethylene terephthalate (PET), Polyurethane (PU)
- Crude-oil derived and non-compostable
- Plastics produced from renewable sources can be used (more expensive and not always more environmentally friendly)

1. Which are the **plastics** currently applied to sanitary products and for which components?
2. Which **parameters** should be ruled within the EU Ecolabel?





Technological aspects and material compositions: Natural fibres

- **Viscose** = regenerated cellulose fibre
- **Cotton** fibres purified from seeds, wax and protein and also bleached
- Fibres are bleached (Elemental Chlorine Free or Totally Chlorine Free method)
- Zinc emissions to water and hydrogen sulphide emissions to air

1. Which are the **fibres** currently applied and for which components?
2. Which **parameters** should be ruled within the EU Ecolabel?





Technological aspects and material compositions: End of Life

Children's diapers form about **2% of Europe's municipal solid waste (MSW)**. **Disposal options:**

- Landfill
- Incineration
- Composting
- Anaerobic digestion

Recycling is very difficult and unlikely at the state of the art

1. Are **further information available** on the options above?
2. Which **options should be promoted**? Are examples of initiatives available?



Technological aspects and material compositions: General questions

Stakeholders are kindly invited **to revise, and possibly complement,** the information provided and to indicate:

- 1. Technical alternatives** of relevance already in the market;
- 2. Industrial initiatives of interest** which could lead to an effective and sustainable innovation of products and technologies;
- 3. Expected trends for the future years.**



LCA analysis: survey on previous studies

Children's diapers (and incontinence products)	
1	Lentz R, Franke M, Thomé-Kozmiensky KJ 1989. Vergleichende Umweltbilanzen für Produkte am Beispiel von Höschen- und Baumwollwindeln
2	Fava JA, Curran MA, Boustead I, Parrish R 1990. Energy and environmental profile analysis of children's disposable and cloth diapers, Peer Review Panel. Comments on Franklin Associates, Ltd. Report. Kansas
3	Vizcarra AT, Liao PH, Lo KV 1994. A life-cycle inventory of baby diapers subject to Canadian conditions. Environ Toxicol Chem 13(10): 1707–1716.
4	Hakala S, Virtanen Y, Meinander K, Tanner T 1997. Life-cycle assessment, comparison of biopolymer and traditional diaper systems. Technical Research Centre of Finland (VTT), Research Notes 1876
5	Environment Agency UK 2005. Science Project reference: P1481. Life Cycle Assessment of Disposable and Reusable Nappies in the U.K, Bristol, UK
6	U.K. Environment Agency 2008. Science Report: SC010018/SR2. An updated lifecycle assessment study for disposable and reusable nappies. Bristol, UK
7	O'Brien, K et al. 2009. Life Cycle Assessment: Reusable and Disposable Nappies in Australia, Environmental Engineering, School of Engineering, The University of Queensland, Brisbane
8	Weisbrod AV, Van Hoof G 2012. LCA-measured environmental improvements in Pampers® diapers. International Journal of Life Cycle Assessment (2012) 17: 145-153
9	Colon J. et al. 2011. Possibilities of composting disposable diapers with municipal solid wastes. Waste Manag Res 29:249–259
10	EDANA 2008. Sustainability Report 2008: Baby Diapers and Incontinence Products. Brussels, Belgium. LCA study on incontinence products in 2004 from IFEU (Institut für Energie und Umweltforschung, - <i>Institute for Energy and Environmental Research</i>)
Feminine care products	
1	Mazgay M, Yaramenka K, Malovana O 2006. Comparative Life Cycle Assessment of Sanitary Pads and Tampons. Report of course "Life Cycle Assessment, 1N1800", Royal Institute of Technology Stockholm.
2	EPD for „Natracare regular natural ultra pad with wings“ (2012) According to General programme instructions for an international EPD system for environmental product declarations, Swedish Environmental Management Council (2008)





LCA analysis: survey on previous studies

Summary:

- **Many studies** on sanitary products, from late eighties
- **Children's diapers** as the most investigated product
- **Not possible** to know whether reusable or disposable diapers are the most environmentally friendly option
- Main contribution to the environmental impacts given by **production and consumption of raw materials** (use phase for reusable diapers). **Less significant** role played by **transportation, packaging and EoL**
- **Only one study** found for **feminine care pads and tampons**, some data gaps. **An EPD** for a sanitary pad even exists.
- Studies on **breast pads not available**.
- **Further investigation needed**



LCA analysis: goal and scope

Goal and scope:

1. Detect environmental **hot spots** in the life cycle of the sanitary products within the scope of the EU Ecolabel
2. Identify **improvement options** and best alternatives
3. Define **environmental criteria**

Approach:

1. Identification and analysis of **base case scenarios**
2. Interpretation of **preliminary results** and identification of **hot spots**
3. Identification of **improvement options** and **sensitivity analysis**
4. Definition of **best alternatives** and **environmental criteria**



LCA analysis: case studies definition

Base case scenarios

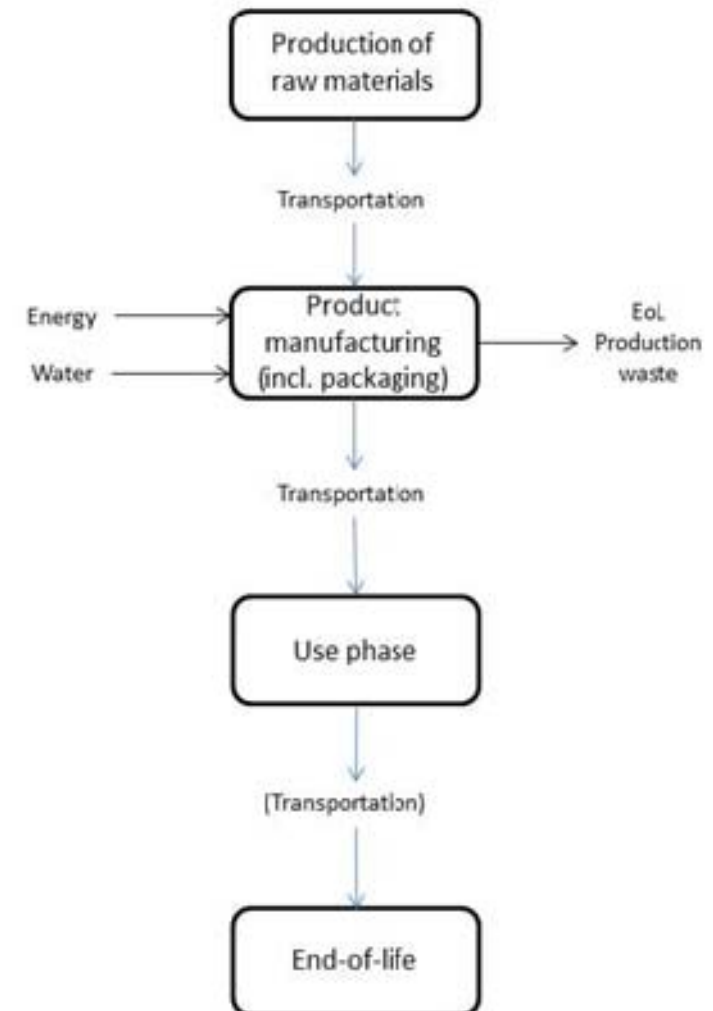
Five sanitary products, representative for **average products:**

- *children's diaper*
- *incontinence product*
- *feminine care pad*
- *tampon*
- *breast pad*

Functional unit: A single unit of product, including the packaging

System boundaries:

- cradle-to-grave;
- all material and energy flows of significance included





LCA analysis: impact assessment method

CML2001 = reference

Impact categories preliminarily considered of relevance:

- CML2001 - Global Warming Potential (GWP 100 years) [kg CO₂-Eqv.]
- Primary Energy Demand from non-renewable and renewable resources (lower heating value) [MJ]
- CML2001 - Eutrophication Potential (EP) [kg Phosphate-Eqv.]
- CML2001 - Acidification Potential (AP) [kg SO₂-Eqv.]
- CML2001 - Photochemical Ozone Creation Potential. (POCP) [kg Ethene-Eqv.]





LCA analysis: data modelling

- **Average data** representative **for the European market**
- **Different sources used** for information related to the production process
- **Data on weight** mostly from EDANA (to be adjusted slightly)
- Many publications available for children's diapers. Different situation for feminine care products and for breast pads.
- **LCI background data** from the **GaBi databases 2011**
- LCA Software: **GaBi 5**





LCA analysis: General data

Manufacture stage

- Same assumptions for all the products
- Production waste from the materials used = 4%
- Production waste from packaging = 0%

Transportation

- Raw materials: 100 km by truck (Euro 3, 27.4 t payload capacity) + 1000 km by ship for fluff pulp
- Final product: 1000 km by truck (Euro 3, 27.4 t payload capacity)

End of life scenario:

- 22.5% incineration with energy recovery,
- 14.1% incineration without energy recovery,
- 63.4% landfill

Stakeholders are kindly invited to indicate if these parameters are **appropriate** and which is the expected **variation/trend**

LCA analysis: BoM for diapers

<i>Raw Material</i>	<i>Weight [g]</i>	<i>Production waste [g]</i>	<i>Dataset from GaBi databases 2011</i>
Fluff pulp	15.0	0.60	Cellulose
Superabsorber (SAP)	12.6	0.50	SAP
Polyethylene, low density (LDPE)	2.5	0.10	LD-PE film
Polypropylene (PP)	6.6	0.26	PP Fleece
Adhesive	1.2	0.05	Adhesives
Elastics	0.2	0.01	PU Elastics
Other materials	3.0	0.12	
- Tape	(0.5)	(0.02)	
- Elastic back ear	(1.3)	(0.05)	
- Frontal tape	(0.6)	(0.02)	
- Various synthetic polymers	(0.6)	(0.02)	
Total	41.1	1.58	

Source: EDANA Sustainability report 2011, ref. year = 2011

Stakeholders are kindly invited to indicate if these parameters are **appropriate** and which are the more significant **variations of values** and **technical alternatives**

LCA analysis: BoM for incontinence products

<i>Raw Material</i>	<i>Weight [g]</i>	<i>Production waste [g]</i>	<i>Dataset from GaBi databases (2011)</i>
Fluff pulp	62.0	2.48	Cellulose
Superabsorber (SAP)	12.0	0.48	SAP
Polyethylene, low density (LDPE)	10.0	0.40	LD-PE film
Polypropylene (PP)	10.0	0.40	PP Fleece
Adhesive	3.0	0.12	Adhesives
Elastics	0.4	0.02	PU Elastics
Other materials	3.0	0.12	
Total	100.4	4.02	

Source: EDANA Sustainability Report on AHPs 2007-2008, ref. year = 2006

Stakeholders are kindly invited to indicate if these parameters are **appropriate** and which are the more significant **variations of values** and **technical alternatives**

LCA analysis: BoM for feminine care pads

<i>Raw Material</i>	<i>Weight [g]</i>	<i>Production waste [g]</i>	<i>Dataset from GaBi databases (2011)</i>
Fluff pulp	5.68	0.23	Cellulose
Superabsorber (SAP)	0.26	0.01	SAP
Polyethylene, low density (LDPE)	0.63	0.03	LD-PE film
Polypropylene (PP)	0.63	0.03	PP Fleece
Polyethyleneterephthalate(PET)	0.63	0.03	PET film
Adhesive	0.41	0.02	Adhesives
Release paper	0.31	0.01	Siliconated Kraftliner
Total	8.55	0.36	

Source: EDANA Sustainability Report on AHPs 2007-2008, ref. year = 2006

Stakeholders are kindly invited to indicate if these parameters are **appropriate** and which are the more significant **variations of values** and **technical alternatives**

LCA analysis: BoM for tampons

<i>Raw Material</i>	<i>Weight [g]</i>	<i>Production waste [g]</i>	<i>Dataset from GaBi databases (2011)</i>
Primary material (cellulose)	2.69	0.1	Cellulose
Polypropylene PP fleece	0.19	$7.3 \cdot 10^{-3}$	PP Fleece
Cotton yarn	0.11	$4.4 \cdot 10^{-3}$	Cotton fibre
Polypropylene applicator	2.00	0.08	PP casting part
Total	2.99 + 2.00	0.12 + 0.08	

Source: own estimation

Stakeholders are kindly invited to indicate if these parameters are **appropriate** and which are the more significant **variations of values** and **technical alternatives**

LCA analysis: BoM for breast pads

<i>Raw Material</i>	<i>Weight [g]</i>	<i>Production waste [g]</i>	<i>Dataset from GaBi databases (2011)</i>
Fluff pulp	3.12	0.13	Cellulose
Superabsorber (SAP)	0.76	0.03	SAP
Polypropylene PP fleece	0.04	$1.6 \cdot 10^{-3}$	PP fleece
Paper	0.08	$3.2 \cdot 10^{-3}$	Siliconated kraftliner
Total	4.00	0.16	

Source: own estimation

Stakeholders are kindly invited to indicate if these parameters are **appropriate** and which are the more significant **variations of values** and **technical alternatives**

Stakeholders are kindly invited to indicate if these parameters are **appropriate** and which are the more significant **variations of values** and **technical alternatives**

LCA analysis: manufacture data

(FU = 1 item of product)

<i>Packaging</i>	<i>Diapers</i>	<i>Incontinence</i>	<i>Feminine care pads</i>	<i>Tampons</i>	<i>Breast pads</i>
Polyethylene bag [g]	0.51	1.24	0.11	0.14	0.050
Cardboard box [g]	4.00	9.72	0.83	0.93	0.389
Polypropylene tape [g]	0.03	0.06	0.01	0.00	0.002
Wooden pallet [g]	0.23	0.56	0.05	0.016	0.022
Polyethylene stretch wrap [g]	0.51	0.13	0.01	0.004	0.005
<i>Energy</i>	<i>Diapers</i>	<i>Incontinence</i>	<i>Feminine care pads</i>	<i>Tampons</i>	<i>Breast pads</i>
Electrical energy [MJ]	0.21	0.52	0.04	1.05·10 ⁻²	2.09·10 ⁻²
Thermal energy [MJ]	0.02	0.05	4.49·10 ⁻³	1.06·10 ⁻³	2.10·10 ⁻³
<i>Auxiliary materials</i>	<i>Diapers</i>	<i>Incontinence</i>	<i>Feminine care pads</i>	<i>Tampons</i>	<i>Breast pads</i>
Lubricants [g]	3.8·10 ⁻³	9.2·10 ⁻³	7.9·10 ⁻⁴	1.86·10 ⁻⁴	3.7·10 ⁻⁴
Solvents/Ink [g]	5.8·10 ⁻³	1.4·10 ⁻²	1.2·10 ⁻³	2.87·10 ⁻⁴	5.7·10 ⁻⁴
<i>Others</i>	<i>Diapers</i>	<i>Incontinence</i>	<i>Feminine care pads</i>	<i>Tampons</i>	<i>Breast pads</i>
Water use [L]	0.002	0.006	5.0·10 ⁻⁴	1.7·10 ⁻⁴	2.35·10 ⁻⁴
Dust emissions [g]	3.5·10 ⁻⁴	8.5·10 ⁻⁴	7.2·10 ⁻⁵	2.44·10 ⁻⁵	3.39·10 ⁻⁵

Source:

Manufacturers for diapers, incontinence products and feminine care pads

Estimation for tampons (30% less energy intensive production) and breast pads (as diapers)

LCA analysis: preliminary results

Comparison among the products – overall figures

	Diapers	Incontinence	Feminine care pads	Tampons	Breast pads
Eutrophication Potential (EP) [kg PO₄³⁻-Eq.]	1.4E-04	4.5E-04	4,05E-05	2,11E-05	2,13E-05
Photochemical Ozone Creation Potential (POCP) [kg Ethene-Eq.]	7.2E-05	2.1E-04	2,03E-05	8,81E-06	8,70E-06
Global Warming Potential (GWP) [kg CO₂-Eq.]	1.4E-01	3.2E-01	2,75E-02	1,68E-02	1,21E-02
Acidification Potential (AP) [kg SO₂-Eq.]	6.1E-04	2.0E-03	1,75E-04	9,55E-05	9,25E-05
Primary Energy Demand [MJ]	4.9E+00	1.4E+01	1,29E+00	7,16E-01	6,22E-01

Weight dependence



LCA analysis: preliminary results

Results for Children's diapers

<i>Impact category</i>	<i>Total</i>	<i>Raw Materials</i>	<i>Supply</i>	<i>Production</i>	<i>Packaging</i>	<i>Delivery</i>	<i>End-of-life</i>
Eutrophication Potential (EP) [kg PO₄³⁻-Eq.]	1.4E-04	68%	0%	2%	2%	3%	25%
Photochemical Ozone Creation Potential (POCP) [kg Ethene-Eq.]	7.2E-05	91%	-1%	8%	4%	-9%	7%
Global Warming Potential (GWP) [kg CO₂-Eq.]	1.4E-01	69%	0%	7%	-1%	2%	23%
Acidification Potential (AP) [kg SO₂-Eq.]	6.1E-04	87%	0%	6%	3%	3%	2%
Primary Energy Demand [MJ]	4.9E+00	93%	0%	3%	3%	1%	0%

LCA analysis: preliminary results

*Comparison among the products:
Contribution of Raw materials to overall results*

	Diapers	Incontinence	Feminine care pads	Tampons	Breast pads
Eutrophication Potential (EP) [kg PO₄³⁻-Eq.]	68%	75%	77%	71%	78%
Photochemical Ozone Creation Potential (POCP) [kg Ethene-Eq.]	91%	92%	93%	90%	91%
Global Warming Potential (GWP) [kg CO₂-Eq.]	69%	67%	68%	65%	60%
Acidification Potential (AP) [kg SO₂-Eq.]	87%	75%	90%	85%	89%
Primary Energy Demand [MJ]	93%	92%	94%	90%	92%

Qualitatively similar results



LCA analysis: preliminary results

Comparison among the products – Contribution of EoL

	Diapers	Incontinence	Feminine care pads	Tampons	Breast pads
Eutrophication Potential (EP) [kg PO₄³⁻-Eq.]	25%	19%	18%	21%	16%
Photochemical Ozone Creation Potential (POCP) [kg Ethene-Eq.]	7%	6%	5%	7%	6%
Global Warming Potential (GWP) [kg CO₂-Eq.]	23%	25%	24%	24%	26%
Acidification Potential (AP) [kg SO₂-Eq.]	2%	1%	1%	1%	1%
Primary Energy Demand [MJ]	0%	6%	0%	0%	0%

Qualitatively similar results



LCA analysis: preliminary results

Comparison among the products – Contribution of other stages

	Supply	Production	Packaging	Delivery
Eutrophication Potential (EP) [kg PO ₄ ³⁻ -Eq.]	0%	2%	2% / 4%	2% / 3%
Photochemical Ozone Creation Potential (POCP) [kg Ethene-Eq.]	-1%	5% / 8%	3% / 8%	-9% / -6%
Global Warming Potential (GWP) [kg CO ₂ -Eq.]	0%	7% / 10%	-1% / 0%	2%
Acidification Potential (AP) [kg SO ₂ -Eq.]	0%	4% / 6%	2% / 4%	2% / 3%
Primary Energy Demand [MJ]	0%	3% / 4%	2% / 5%	1%

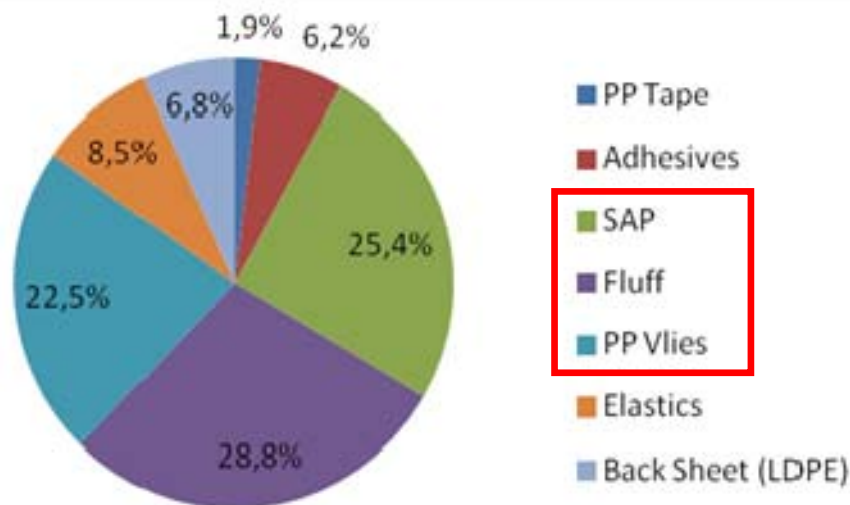
Qualitatively similar results



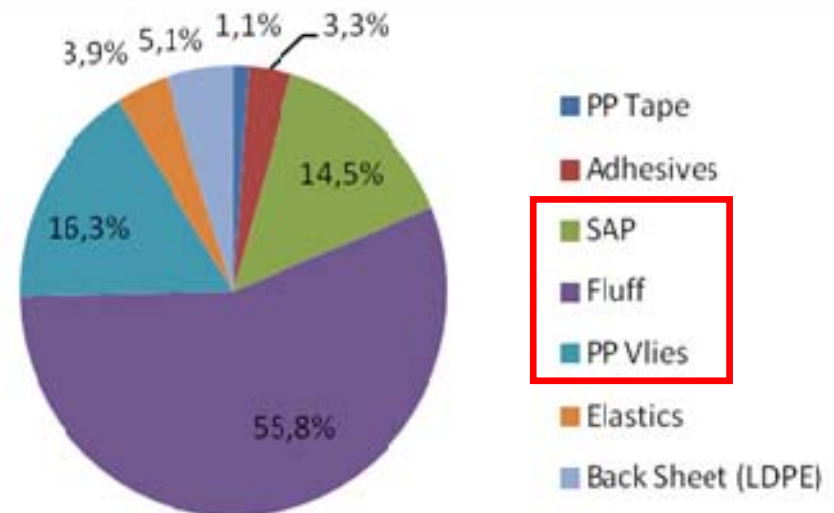
LCA analysis: preliminary results

Results for children's diapers - Focus on raw materials

GWP



PED



EP: 82% by cellulose

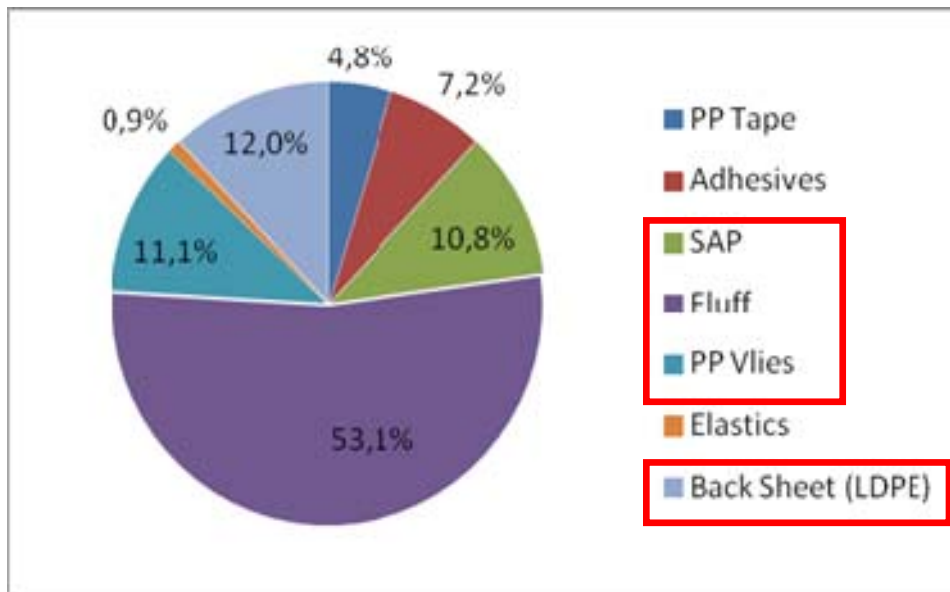
POCP: 53% by cellulose

AP: 70% by cellulose

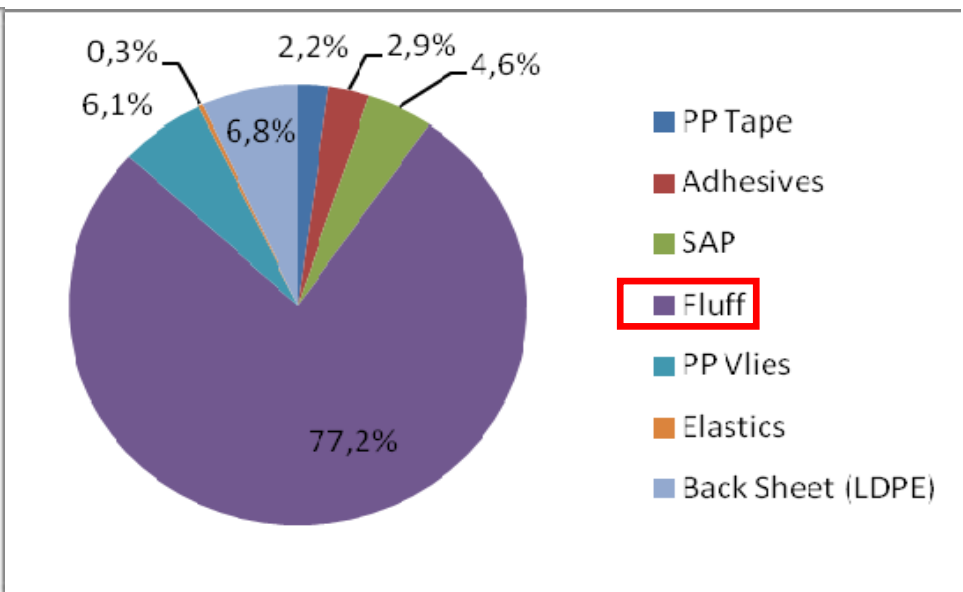
LCA analysis: preliminary results

Results for incontinence products - Focus on raw materials

GWP



PED



EP: 93.4% by cellulose

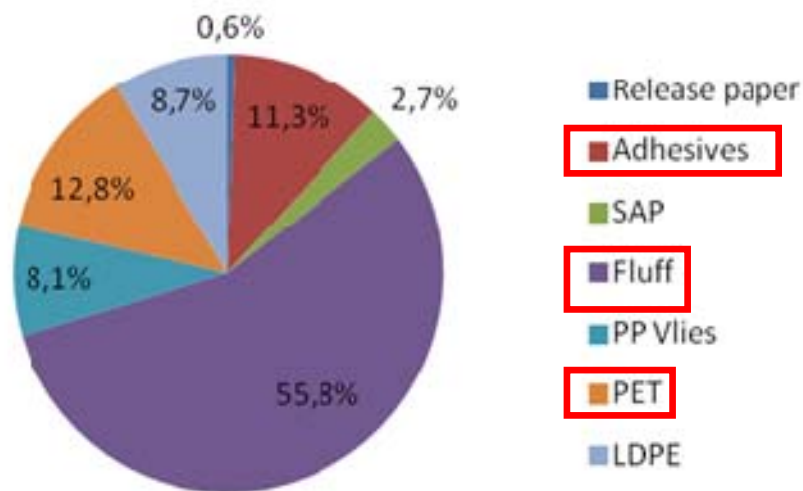
POCP: 70% by cellulose

AP: 86.3% by cellulose

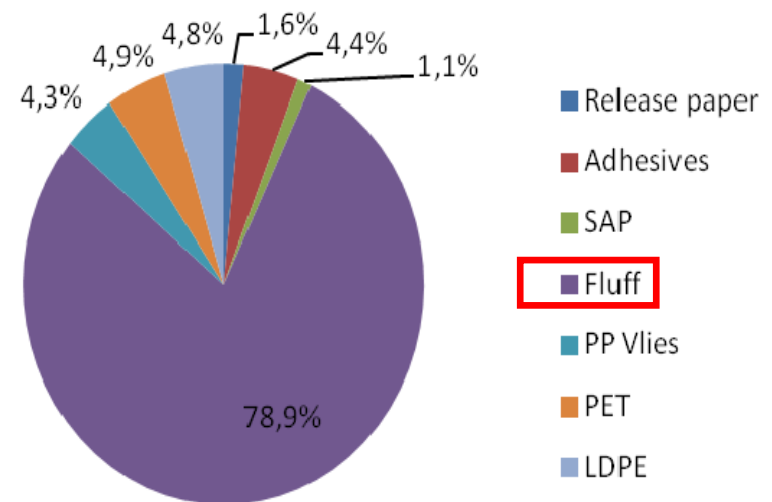
LCA analysis: preliminary results

Results for feminine care pads - Focus on raw materials

GWP



PED



EP: 93.9% by cellulose

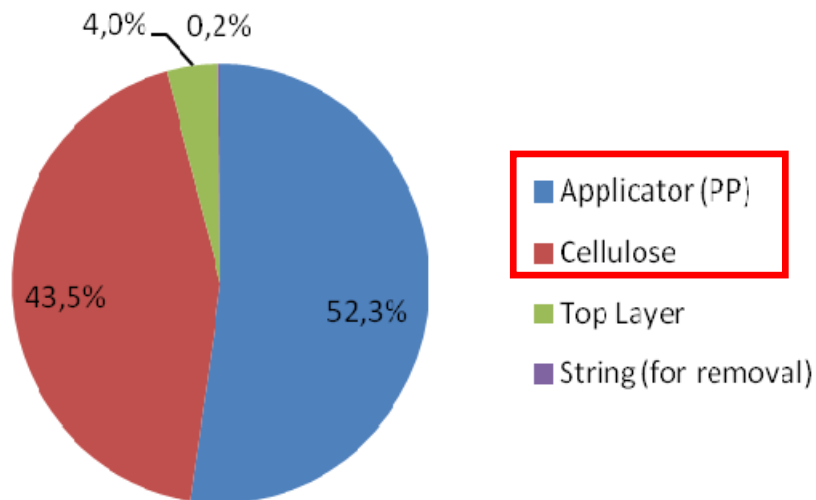
POCP: 69.4% by cellulose

AP: 88.1% by cellulose

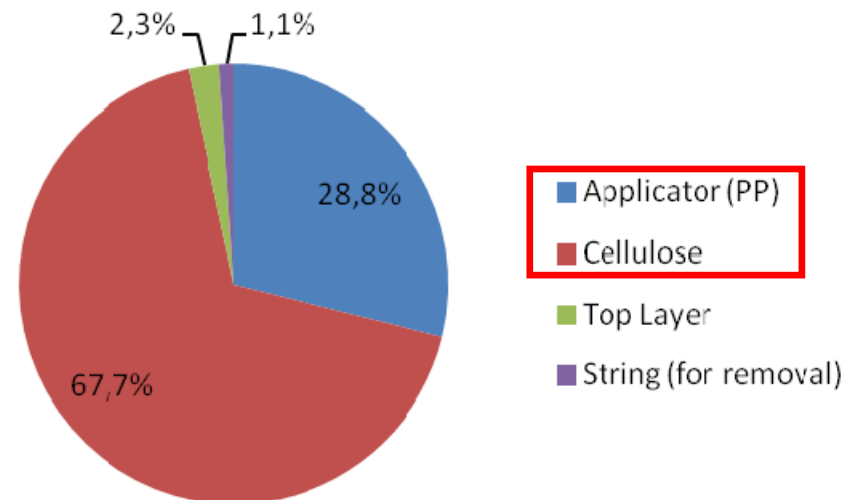
LCA analysis: preliminary results

Results for tampons - Focus on raw materials

GWP



PED



EP: 89.4% by cellulose

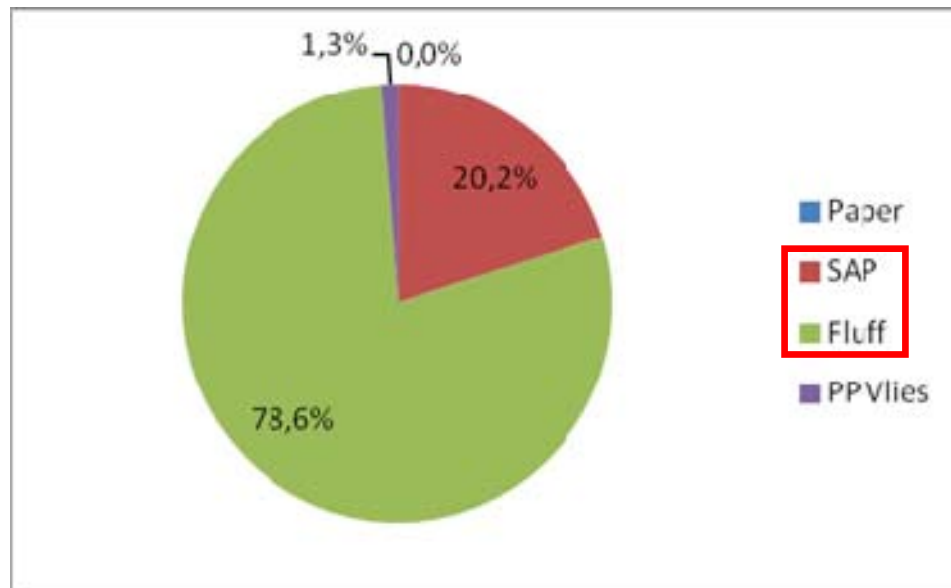
POCP: 75% by cellulose

AP: 78% by cellulose

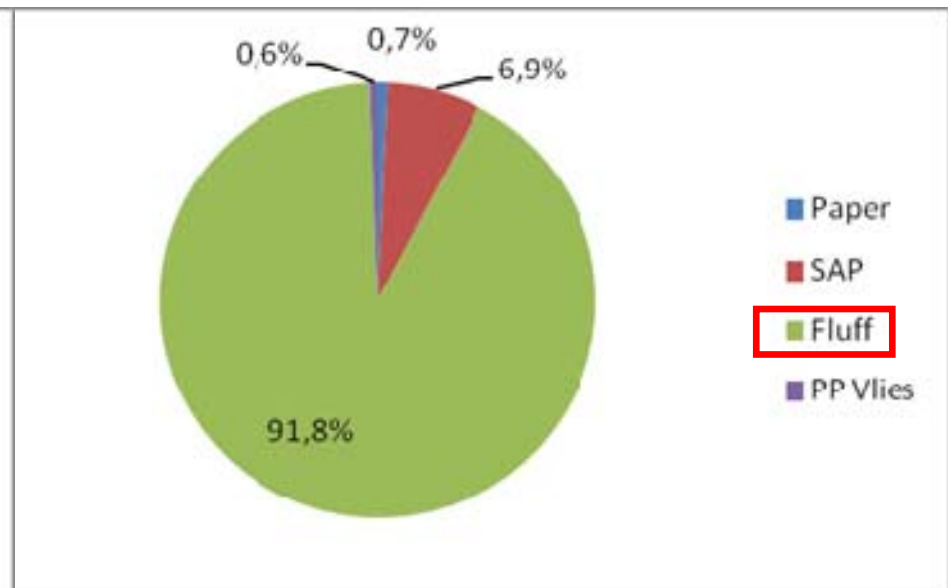
LCA analysis: preliminary results

Results for breast pads - Focus on raw materials

GWP



PED



EP: 96.2% by cellulose

POCP: 90.8% by cellulose

AP: 93.4% by cellulose

LCA analysis: preliminary results

Results for children's diapers - Focus on the production stage

	Energy	Water	Auxiliaries	Waste disposal
Eutrophication Potential (EP) [kg PO₄³⁻-Eq.]	60.9%	0.2%	0.1%	38.8%
Photochemical Ozone Creation Potential (POCP) [kg Ethene-Eq.]	37.0%	0.0%	0.2%	62.7%
Global Warming Potential (GWP) [kg CO₂-Eq.]	88.2%	0.1%	0.2%	11.4%
Acidification Potential (AP) [kg SO₂-Eq.]	98.7%	0.1%	0.2%	1.0%
Primary Energy Demand [MJ]	99.3%	0.1%	0.4%	0.2%

- Similar results between products
- POCP for tampons and breast pads: 94% by Energy and 6 % by Waste

LCA analysis: preliminary conclusions (I)

Based on the indicators preliminarily selected and on the data so far processed it results that:

- **Raw materials** are the main contributors to the life cycle impacts for all the sanitary products (contribution varies between 60% and 94%)
- **End-of-Life** can even be important with respect to GWP and EP
- Contribution from **packaging and transports** appears lower

Component	Children's diaper	Incontinence product	Feminine care pad	Tampon with applicator	Breast pad
Fluff pulp	x	x	x	x	x
SAP	x	x			x
PP Fleece	x	x	x		
PET film			x		
PE film	x	x	x		
PP Applicator				x	



LCA analysis: preliminary conclusions (II)

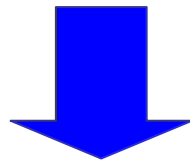
- 1. LCA model:** are inputs to the model appropriate?
- 2. Sensitivity analysis:** Which other indicators?
Which parameters to be changed?
- 3. Improvement options:** Which ones? Which best alternatives?
- 4. Environmental issues of concern** (e.g. raw materials, end of life): which aspects to be ruled?
Which initiatives to be promoted?
- 5. Any other issues?**



Hazardous substances

Sanitary products:

- **Direct contact** with skin or mucous membrane
- Used by consumers with potentially **weakened immune systems**
- Contact with liquids which could potentially lead to **leaching and leakage**
- Large variety of **materials** contained in sanitary products



To ensure that no **safety issues** occur





Hazardous substances

EU Ecolabel legislation (EC/66/2010) → **restrictions on the use of hazardous materials and substances (Art. 6.6)**

The EU Ecolabel may not be awarded to goods containing substances or preparations/mixtures meeting the criteria for classification as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction (CMR), in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures nor to goods containing substances referred to in Article 57 of Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency

Hazardous materials and substances can be classified through **hazard statements / risk phrases**





Hazardous substances

Derogations of specific substances are allowable in exceptional circumstances where inclusion would prevent take up of the EU Ecolabel or shift the environmental burden to other life cycle phases or impacts (Art. 6.7 of the EU Ecolabel regulation).

For specific categories of goods containing substances referred to in paragraph 6, and only in the event that it is not technically feasible to substitute them as such, or via the use of alternative materials or designs, or in the case of products which have a significantly higher overall environment performance compared with other goods of the same category, the Commission may adopt measures to grant derogations from paragraph 6. No derogation shall be given concerning substances that meet the criteria of Article 57 of Regulation (EC) No 1907/2006 and that are identified according to the procedure described in Article 59(1) of that Regulation, present in mixtures, in an article or in any homogeneous part of a complex article in concentrations higher than 0,1 % (weight by weight). Those measures, designed to amend non-essential elements of this Regulation, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 16(2).





Hazardous substances

- **NO substances or preparations classified as toxic, hazardous to the environment or CMR** according to the CLP Regulation
- **NO SVHCs** fulfil the criteria described in Article 57 of the REACH Regulation
- **Derogations possible only if** technically feasible and alternative material does not decrease the environmental performance significantly
- **No derogation** possible for substances meeting the criteria of Article 57 of REACH Regulation in concentrations exceeding 0.1% by weight
- **Possible requirement** for manufacturers: to provide a SDS reporting substances contained in products and components and relative concentrations
- **Required also for materials** used in the production of sanitary products for Nordic Swan



Hazard statement	Associated risk phrase(s)
H300 Fatal if swallowed	R28
H301 Toxic if swallowed	R25
H304 May be fatal if swallowed and enters airways	R65
H310 Fatal in contact with skin	R27
H311 Toxic in contact with skin	R24
H330 Fatal if inhaled	R23; R26
H331 Toxic if inhaled	R23
H340 May cause genetic defects	R46
H341 Suspected of causing genetic defects	R68
H350 May cause cancer	R45
H350i May cause cancer by inhalation	R49
H351 Suspected of causing cancer	R40
H360F May damage fertility	R60
H360D May damage the unborn child	R61
H360FD May damage fertility. May damage the unborn child	R60/61/60-61
H360Fd May damage fertility. Suspected of damaging the unborn child	R60/63
H360Df May damage the unborn child. Suspected of damaging fertility	R61/62
H361f Suspected of damaging fertility	R62
H361d Suspected of damaging the unborn child	R63
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.	R62-63
H362 May cause harm to breast-fed children	R64
H370 Causes damage to organs	R39/23/24/25/26/27/28
H371 May cause damage to organs	R68/20/21/22
H372 Causes damage to organs through prolonged or repeated exposure	R48/25/24/23
H373 May cause damage to organs through prolonged or repeated exposure	R48/20/21/22
H400 Very toxic to aquatic life	R50/50-53
H410 Very toxic to aquatic life with long-lasting effects	R50-53
H411 Toxic to aquatic life with long-lasting effects	R51-53
H412 Harmful to aquatic life with long-lasting effects	R52-53
H413 May cause long-lasting harmful effects to aquatic life	R53
EUH059 Hazardous to the ozone layer	R59
EUH029 Contact with water liberates toxic gas	R29
EUH031 Contact with acids liberates toxic gas	R31
EUH032 Contact with acids liberates very toxic gas	R32
EUH070 Toxic by eye contact	R39-41
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled	R42
H317: May cause allergic skin reaction	R43

Potential areas of risks in sanitary products (I)

Material	Purpose	Prolonged skin contact?	Potential substances of concern	Hazardous materials? (= BAN)	Derogation?
Cellulose (Fluff pulp)/ Viscose (Rayon)	Absorption of liquids in all the products	Yes for tampons	Debonding agents, softeners, bleaching process (chlorine), chlorine, dioxine, pesticides		
Cotton	Absorption of liquids in tampons	Yes	Bleaching process, chlorine, dioxine, pesticides		
Superabsorbent polymer	Absorption and retention of liquids	No	Sodium acrylate; other water-soluble extracts		
Plastic materials	Product shell	Yes	Additives (e.g. flame retardants); halogen-based polymers; phthalates		
Elastics	Retaining product shape and fitting	Possible	Solvents (e.g. Dimethylacetamide)		
Siliconised paper	Protection of adhesive product area	No	Siloxanes fulfilling criteria for classifications according to the EC Regulation 1272/2008 (e.g. octamethyl cyclotetrasiloxane or decamethyl cyclopentasiloxane)		
Glues and adhesives	Fixation of product layers or different product parts or fixation of product on clothing	Possible	Solvents, chemicals such as phthalates, colophony resin, formaldehyde		
Inks and dyes	Product design and labelling	Not during normal use	Solvents, heavy metals or toxic coloring agents such as azo dyes that can release aromatic amines that are carcinogenic		

Potential areas of risks in sanitary products (II)

Material	Purpose	Prolonged skin contact?	Potential substances of concern	Hazardous materials? (= BAN)	Derogation?
Nanomaterials	Not intentionally added	Potentially possible	Potential presence of trace materials or nano-structures (e.g. micelles)		
Odour control substances	Consumer satisfaction, odour control	Yes	Various substances can control odours (e.g. SAP, perfumes, fragrances, activated charcoal). Perfumes and fragrances to comply with IFRA (International Fragrance Association) 2009 guidelines		
Lotions and skin care preparations	Consumer satisfaction, protection against skin irritation in baby diapers, menstrual pads and incontinence products	Yes	Mainly petrolatum and stearyl alcohol from Aloe. Other minor ingredients Safety tested for all the products		
biocides	Control of microorganisms and odour	Potentially possible	No biocides apparently used		
Others	Not intentionally added	Potentially possible	Impurities of many substances (even SVHC)		





Hazardous substances

The list of materials and substances of concern under **discussion**:

- Which **substances contained in sanitary products or used** during the manufacture stage?
- In which **materials/components? How much?**
- Which substances could be **avoided**?
- Which substances could need to be **derogated**?
- Which **tests, standards and procedures** for composition analysis and reporting?





Development of EU Ecolabel Criteria for Sanitary Products

Session 5: Identification of criteria areas

1st Ad-hoc Working Group Meeting
8th June 2012, Seville

Joint Research Centre, Institute for Prospective Technological Studies





Content

- General approach
- Identification of criteria areas
- **Criteria area 1:** Ensuring the technical performance of the product
- **Criteria area 2:** Limiting the use of hazardous substances
- **Criteria area 3:** Sustainable production, supply and consumption of materials
- **Criteria area 4:** Reducing the impact due to the end of life
- **Criteria area 5:** Monitoring and improving the environmental performance of the product
- **Criteria area 6:** Increasing the responsibility of the manufacturers
- **Outlook** on criteria



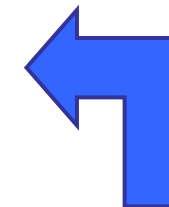
General approach

Stage 1. Identification of criteria areas

Stage 2. Discussion and screening

- Potential relevance
- Technical feasibility
- Motivation to collaboration of manufacturers

Stage 3. Draft criteria



**Where
we are...**





Identification of criteria areas

Based on:

- **Criteria trends**
- Analysis of **legislative background, other labels and standards**
- **Market and technical analysis**
- **Stakeholders** feedback
- **Practical aspects**





Criteria trends

Criteria options:

- **Single- vs. multi-criteria**
- **Qualitative vs. quantitative criteria**
- **Single phase focus vs. cradle-to-grave perspective**
- **Setting cut-off threshold vs. scoring based approach**

Stakeholders general preference

Two main trends:

- The adoption of a **full life cycle perspective**
- The incorporation of **all the dimensions of sustainability** (environment, society, economy)





Stakeholders feedback (I)

Criteria should:

- Be **voluntary**
- Promote **innovation**
- Define the desired **direction for improvement**, but not the means to get there.
- Deliver **meaningful environmental improvements** based on a holistic approach
- Be **Transparent**
- Be **Non-discriminatory**
- Be **Truthful**
- Be **Based on Sound Science**
- Be **Verifiable**
- Be **Meaningful**



Stakeholders feedback (II)

Criteria areas to be discussed:

- **Lower raw material use** (high performance absorption cores);
- **Use of “greener” raw materials** (e.g. from renewable sources, biodegradable/compostable) and **materials not harmful to the environment**;
- **Use of pulp from sustainably managed forests** (e.g. certified by SFI, PEFC or FSC);
- **Improved logistics** (e.g. high compression packaging);
- **Environmentally friendlier packaging materials**;
- **Reduced energy use, emissions and waste production during manufacture**;
- **Improved waste treatment** (divert from landfill).





Market and technical analysis

LCA preliminary results:

- **Raw materials** are the main contributors to the life cycle impacts for all the sanitary products (contribution varies between 60% and 94%)
- **End-of-Life** can even be important with respect to GWP and EP
- Contribution from **packaging, production and transports** appears lower

Component	Children's diaper	Incontinence product	Feminine care pad	Tampon with applicator	Breast pad
Fluff pulp	x	x	x	x	x
SAP	x	x			x
PP Fleece	x	x	x		
PET film			x		
PE film	x	x	x		
PP Applicator				x	

Main materials raw from LCA

Market relevance of incontinence products





Analysis of legislative background, other labels and standards

EU Ecolabel legislation (EC/66/2010) → **restrictions on the use of hazardous materials and substances (Art. 6.6)**

Welfare of animals and avoidance of tests on them?

Technical standards for **product performance** measurement

Integration of single issues covered within **other schemes:**

- EDANA
- Nordic Swan
- SEMCO
- EPD





Criteria areas

Criteria area 1: Ensuring the technical performance of the product

Criteria area 2: Limiting the use of hazardous substances

Criteria area 3: Sustainable production, supply and consumption of materials

Criteria area 4: Reducing the impact due to the end of life

Criteria area 5: Monitoring and improving the environmental performance of the product

Criteria area 6: Increasing the responsibility of the manufacturers



Criteria area 1: Ensuring the technical performance of the product

- **Fitness for use and quality criteria** of fundamental importance
- The worse the quality/performance the higher the consumption (Potentially)
- **Which parameters and which standards?**



Parameter	Baby diapers	Incontinence products	Feminine hygiene pads	Tampons	Breast pads
Absorption		WSP 354.1		WSP 350.1	
Absorption	Free Swelling Capacity	Free Swelling Capacity			
Breathability					
Fit and comfort	P&G method?				
Leakage protection I	in-use test (questionnaire)				
Leakage protection II	Courtray Labservice: "Absorption before leakage" test (with mannequins)				
Leakage protection III	P&G: Speed of absorption OR acquisition time?				
Overall performance	in-use test (questionnaire)				
Retention	Centrifuge Retention Capacity	Centrifuge Retention Capacity			
Health issues		ISO 10993-series			
Skin protection	P&G method?				
Skin dryness I	Clinical skin hydration measurements using "trans- epidermal water loss" measurements (TEWL)				
Skin dryness II	in-use test (questionnaire)				
Skin dryness III	Rewet Method				
Others (e.g. odour control?)					

Which the most relevant?
Possible to fill the gap(s)?



Criteria area 2: Limiting the use of hazardous substances

From Art. 6.6 of EU Ecolabel Regulation:

1. Horizontal ban based on H-statements / R-phrases
2. Derogation request

Criterion x.1 - Hazardous substances and mixtures

*According to the Article 6(6) of the Regulation No 66/2010 on EU Ecolabel, **the product or any part of it** thereof shall **not contain substances or mixtures** meeting the criteria for classification with the **hazard classes or categories** specified below nor shall it contain substances referred to in **Article 57 of REACH** Regulation (EC) No 1907/2006.*

Hazard statement	Associated risk phrase(s)
H300 Fatal if swallowed	R28
H301 Toxic if swallowed	R25
H304 May be fatal if swallowed and enters airways	R65
H310 Fatal in contact with skin	R27
H311 Toxic in contact with skin	R24
H330 Fatal if inhaled	R23; R26
H331 Toxic if inhaled	R23
H340 May cause genetic defects	R46
H341 Suspected of causing genetic defects	R68
H350 May cause cancer	R45
H350i May cause cancer by inhalation	R49
H351 Suspected of causing cancer	R40
H360F May damage fertility	R60
H360D May damage the unborn child	R61
H360FD May damage fertility. May damage the unborn child	R60/61/60-61
H360Fd May damage fertility. Suspected of damaging the unborn child	R60/63
H360Df May damage the unborn child. Suspected of damaging fertility	R61/62
H361f Suspected of damaging fertility	R62
H361d Suspected of damaging the unborn child	R63
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.	R62-63
H362 May cause harm to breast-fed children	R64
H370 Causes damage to organs	R39/23/24/25/26/27/28
H371 May cause damage to organs	R68/20/21/22
H372 Causes damage to organs through prolonged or repeated exposure	R48/25/24/23
H373 May cause damage to organs through prolonged or repeated exposure	R48/20/21/22
H400 Very toxic to aquatic life	R50/50-53
H410 Very toxic to aquatic life with long-lasting effects	R50-53
H411 Toxic to aquatic life with long-lasting effects	R51-53
H412 Harmful to aquatic life with long-lasting effects	R52-53
H413 May cause long-lasting harmful effects to aquatic life	R53
EUH059 Hazardous to the ozone layer	R59
EUH029 Contact with water liberates toxic gas	R29
EUH031 Contact with acids liberates toxic gas	R31
EUH032 Contact with acids liberates very toxic gas	R32
EUH070 Toxic by eye contact	R39-41
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled	R42
H317: May cause allergic skin reaction	R43



*The use of substances or mixtures which **upon processing** change their properties (e.g. become no longer bioavailable, undergo chemical modification) in a way that the **identified hazard no longer applies** are **exempted** from the above requirement.*

*Concentration limits for substances or mixtures meeting the criteria for classification with the above mentioned hazard classes or categories, and for substances meeting the criteria of Article 57 (a), (b) or (c) of REACH, shall not exceed the **generic or specific concentration limits** determined in accordance with the Article 10 of CLP Regulation No1272/2008. If specific concentration limits are determined they should prevail against the generic ones.*

*Concentration limits for substances meeting criteria of **Article 57** (d), (e) or (f) of Regulation (EC) No 1907/2006 shall not exceed **0.1% weight by weight**.*





Assessment and verification:

Concentration limits shall be specified in the Safety Data Sheets according to Article 31 of REACH Regulation 1907/2006.

In case of mixtures:

The applicant shall provide a **declaration of compliance** with this criterion, together with a **list of ingredients and related Safety Data Sheets** according to Annex II of the REACH regulation (EC) No 1907/2006 for the product as well as for all substances or mixtures listed in the formulation(s).

In case of articles:

The applicant shall provide a **declaration of compliance** with this criterion, together with related documentation, such as **declarations of compliance signed by the material suppliers** and copies of relevant **Safety Data Sheets for substances or mixtures**.



Criterion x.2 - Substances listed in accordance with article 59(10) of REACH

*According to Article 6(7) of Regulation No 66/2010 on the EU Ecolabel, **no derogation** from the exclusion in Article 6(6) shall be given concerning substances identified as **substances of very high concern and included in the list** foreseen in Article 59 of REACH, present in mixtures, in an article or in any homogenous part of a complex article in **concentrations higher than 0.1%. Specific concentration limits** determined in accordance with Article 10 of CLP Regulation No1272/2008 shall apply in case it is lower than 0.1%.*





Assessment and verification:

*The **list of substances identified as substances of very high concern** and included in the candidate list in accordance with Article 59 of REACH can be found here:*

[*http://echa.europa.eu/web/guest/candidate-list-table*](http://echa.europa.eu/web/guest/candidate-list-table)

Reference to the list shall be made on the date of application.

***Concentration limits shall be specified** in the Safety Data Sheets according to Article 31 of REACH Regulation 1907/2006.*





*The following **substances/uses** of substances are specifically **derogated** from this requirement.*

list of substances and materials derogated

Request for **derogation** should come with **quantitative information** providing solid evidence that **alternatives do not exist** that at the same time:

1. are **safer** with respect to the inherent hazards properties of chemicals
2. ensure an **adequate level of protection** of human health and the environment
3. are **present** in a sufficient number of products

Potential areas of risks in sanitary products (I)

Material	Purpose	Prolonged skin contact?	Potential substances of concern	Hazardous materials? (= BAN)	Derogation?
Cellulose (Fluff pulp)/ Viscose (Rayon)	Absorption of liquids in all the products	Yes for tampons	Debonding agents, softeners, bleaching process (chlorine), chlorine, dioxine, pesticides		
Cotton	Absorption of liquids in tampons	Yes	Bleaching process, chlorine, dioxine, pesticides		
Superabsorbent polymer	Absorption and retention of liquids	No	Sodium acrylate; other water-soluble extracts		
Plastic materials	Product shell	Yes	Additives (e.g. flame retardants); halogen-based polymers; phthalates		
Elastics	Retaining product shape and fitting	Possible	Solvents (e.g. Dimethylacetamide)		
Siliconised paper	Protection of adhesive product area	No	Siloxanes fulfilling criteria for classifications according to the EC Regulation 1272/2008 (e.g. octamethyl cyclotetrasiloxane or decamethyl cyclopentasiloxane)		
Glues and adhesives	Fixation of product layers or different product parts or fixation of product on clothing	Possible	Solvents, chemicals such as phthalates, colophony resin, formaldehyde		
Inks and dyes	Product design and labelling	Not during normal use	Solvents, heavy metals or toxic coloring agents such as azo colors		

Potential areas of risks in sanitary products (II)

Material	Purpose	Prolonged skin contact?	Potential substances of concern	Hazardous materials? (= BAN)	Derogation?
Nanomaterials	Not intentionally added	Potentially possible	Potential presence of trace materials or nano-structures (e.g. micelles)		
Odour control substances	Consumer satisfaction, odour control	Yes	Various substances can control odours (e.g. SAP, perfumes, fragrances, activated charcoal). Perfumes and fragrances to comply with IFRA (International Fragrance Association) 2009 guidelines		
Lotions and skin care preparations	Consumer satisfaction, protection against skin irritation in baby diapers, menstrual pads and incontinence products	Yes	Mainly petrolatum and stearyl alcohol from Aloe. Other minor ingredients Safety tested for all the products		
biocides	Control of microorganisms and odour	Potentially possible	No biocides apparently used		
Others	Not intentionally added	Potentially possible	Impurities of many substances (even SVHC)		





Hazardous substances

The list of materials and substances of concern under **discussion**:

- Which **substances contained in sanitary products or used** during the manufacture stage?
- In which **materials/components? How much?**
- Which substances could be **avoided**?
- Which substances could need to be **derogated**?
- Which **tests, standards and procedures** for composition analysis and reporting?





Specific points for discussion (I)

1. Approach: horizontal ban → derogation

What is stakeholders feedback on this approach?

What is the expected impact for applicants?

How these criteria could be improved?

2. List of H-statements / R-phrases

Is the presented list considered appropriate for this product group? Should some phrases be added/removed?

Which database(s) on chemical properties should we refer on?

<http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory>

Hazard statement	Associated risk phrase(s)
H300 Fatal if swallowed	R28
H301 Toxic if swallowed	R25
H304 May be fatal if swallowed and enters airways	R65
H310 Fatal in contact with skin	R27
H311 Toxic in contact with skin	R24
H330 Fatal if inhaled	R23; R26
H331 Toxic if inhaled	R23
H340 May cause genetic defects	R46
H341 Suspected of causing genetic defects	R68
H350 May cause cancer	R45
H350i May cause cancer by inhalation	R49
H351 Suspected of causing cancer	R40
H360F May damage fertility	R60
H360D May damage the unborn child	R61
H360FD May damage fertility. May damage the unborn child	R60/61/60-61
H360Fd May damage fertility. Suspected of damaging the unborn child	R60/63
H360Df May damage the unborn child. Suspected of damaging fertility	R61/62
H361f Suspected of damaging fertility	R62
H361d Suspected of damaging the unborn child	R63
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.	R62-63
H362 May cause harm to breast-fed children	R64
H370 Causes damage to organs	R39/23/24/25/26/27/28
H371 May cause damage to organs	R68/20/21/22
H372 Causes damage to organs through prolonged or repeated exposure	R48/25/24/23
H373 May cause damage to organs through prolonged or repeated exposure	R48/20/21/22
H400 Very toxic to aquatic life	R50/50-53
H410 Very toxic to aquatic life with long-lasting effects	R50-53
H411 Toxic to aquatic life with long-lasting effects	R51-53
H412 Harmful to aquatic life with long-lasting effects	R52-53
H413 May cause long-lasting harmful effects to aquatic life	R53
EUH059 Hazardous to the ozone layer	R59
EUH029 Contact with water liberates toxic gas	R29
EUH031 Contact with acids liberates toxic gas	R31
EUH032 Contact with acids liberates very toxic gas	R32
EUH070 Toxic by eye contact	R39-41
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled	R42
H317: May cause allergic skin reaction	R43



Specific points for discussion (II)

3. Concentration thresholds

Trace quantities of hazardous substances are likely to be present in sanitary products

It may be appropriate:

- A. to set specific **limit values for component/materials** rather than for the whole product
- B. to **decrease the 0.1 % threshold**, at least for some substances (e.g. to 0.01%)

Should reference made on "component/material" and definition provided?

Which values for the weight threshold are more appropriate?



Specific points for discussion (III)

4. Derogation request

Quantitative information providing solid evidence that **alternatives do not exist** that at the same time: 1. are **less hazardous**; 2. ensure an **adequate level of protection**; 3. are **present** in a sufficient number of products

Could stakeholders kindly provide their feedback on substances of potential concern and on the pieces of information requested?

5. Substances classified according to art. 57 of REACH

Should we refer to SVHC list or to ALL potential PBT/vPvB substances?

Is the 0.1% threshold reference appropriate or should be decreased as discussed in point 3?



Specific points for discussion (IV)

6. Test procedures and reporting

Which **tests, standards and procedures** for composition analysis and reporting?

7. Integration of other criteria into this horizontal approach

e.g. flame retardants, biocides, phthalates and other hazardous substances

Pros: simplifying the criteria document

Cons: more difficult to distinguish between different uses and properties of substances.





Biocides

Carcinogenic, mutagenic and reprotoxic additives

Colophony (Rosin)

Flame retardants

Fragrances

Lotions

Medicaments

Nanomaterials

Odour control substances

Substances that may cause sensitisation (R43)

...

**Which criteria could be absorbed within this horizontal approach?
Which specific substances/properties should be rather be handled separately?**





Criteria area 3: Sustainable production, supply and consumption of materials

Raw materials are the main contributors to the life cycle impacts for all the sanitary products (contribution varies between 60% and 94%)

Main materials: preliminary results from LCA

Component	Children's diaper	Incontinence product	Feminine care pad	Tampon with applicator	Breast pad
Fluff pulp	x	x	x	x	x
SAP	x	x			x
PP Fleece	x	x	x		
PET film			x		
PE film	x	x	x		
PP Applicator				x	



Aspects of relevance:

- Sourcing
- Production
- LCA performance
- Hazardous materials (horizontal approach?)

Main materials:

- Fluff pulp / Cellulose
- Viscose
- Cotton ?
- Plastic materials and polymers

Others (less relevance):

- Adhesives
- Dyes and inks
- Silicon
- Packaging

Which issues/parameters to address and how?

Technical alternatives/improvement options?

Fluff pulp / Cellulose

Sourcing:

- FSC or PEFC certification for all materials based on wood/biomass
- No use of recycled fibres?
- Promoting better alternatives

Production:

- No use of chlorine-based bleaching systems
- No visual whitening agents added
- Setting thresholds on energy use and emissions (e.g. AOX, COD, P to water; S, NOx to air)
- Promoting best technologies

LCA:

- Environmental performance declaration; Screening of suppliers; Thresholds (discussed even later)

Hazardous materials:

- Reduced content of hazardous materials (covered with the horizontal approach?) ???

Which issues/parameters to address and how?

Technical alternatives/improvement options?

Viscose

Sourcing:

- FSC or PEFC certification for all materials based on wood/biomass
- No use of recycled fibres?
- Promoting better alternatives

Production:

- No use of chlorine-based bleaching systems
- No visual whitening agents added
- Setting thresholds on energy use and emissions (e.g. COD, sulphur and zinc)
- Promoting best technologies

LCA:

- Environmental performance declaration; Screening of suppliers; Thresholds (discussed even later)

Hazardous materials:

- Reduced content of hazardous materials (covered with the horizontal approach?) ???

Which issues/parameters to address and how?

Technical alternatives/improvement options?

Cotton

Sourcing:

- % content of organic fibres **OR** limitation in the use of land, water, energy, pesticides, fertilizers, ...
- No use of recycled fibres?
- Promoting better alternatives

Production:

- No use of chlorine-based bleaching systems
- No visual whitening agents added
- Setting thresholds on energy use and emissions
- Promoting best technologies

LCA:

- Environmental performance declaration; Screening of suppliers; Thresholds (discussed even later)

Hazardous materials:

- Reduced content of biocides (covered with the horizontal approach?)
???

Which issues/parameters to address and how? Technical alternatives/improvement options?

European
Commission

Plastic materials and polymers

Sourcing:

- Setting share of renewable sources for polymers **AND/OR** for total amount of sanitary products
- Promoting recycled materials?
- Promoting better alternatives

Production:

- No visual whitening agents added
- Setting thresholds on energy use and emissions
- Promoting best technologies

LCA:

- Environmental performance declaration; Screening of suppliers; Thresholds (discussed even later)

Hazardous materials:

- No use of phthalates, halogenated polymers organostannic compounds; Reduced content of residual monomers and water-soluble extracts in SAP; lead, cadmium, mercury, hexavalent chrome and attendant impurities (covered with the horizontal approach?) ???

Which issues/parameters to address and how?

Technical alternatives/improvement options?

Adhesives

Hazardous materials:

- No phthalates, colophony resin or formaldehyde used (covered with the horizontal approach?)

Dyes and inks

Hazardous materials:

- No hazardous dyes and inks used (covered with the horizontal approach?)

Silicon

Production:

- Employees must be protected from solvents
- No siloxane in silicon treatment process

Hazardous materials:

- Covered with the horizontal approach?

Which issues/parameters to address and how?

Technical alternatives/improvement options?

Packaging materials

Sourcing:

- Paper and cardboard from return pulp, unbleached pulp or pulp without chlorine gas.
- Recycled plastics

Production:

- Setting thresholds on energy use and emissions
- Promoting best technologies

LCA:

- Environmental performance declaration; Screening of suppliers; Thresholds (discussed even later)



Resource efficiency

Production

- Applying eco-design principle in order to save resources (e.g. selecting better materials and limiting the amounts used)
- Setting production efficiency improvement goals

LCA

- Setting PCRs, reference data and environmental thresholds

Which issues/parameters to address and how?

Technical alternatives/improvement options?





Criteria area 4: Reducing the impact due to the end of life

Actions:

1. Reduce waste
2. Divert from landfill

Possible options:

- Setting limits for production waste as % of final product
- Informing consumers on best after-use practices
- Design for recycle/resource efficiency
- Increasing compostability and biodegradability

Which options could be followed?

Further suggestions?

Criteria area 5: Monitoring and improving the environmental performance of the product

Base option:

- **Define methods, data and tools** (simplified vs. more detailed approach)
- **Calculate the environmental performance of the product** (**only materials or whole product life cycle? Which indicators?**)
- **Declare the performance**

More ambitious options:

- A. Commit on improving the performance** (e.g. by x% after x years)
- B. Setting environmental thresholds** (statistical information needed)

Which options could be followed? Any further suggestion?

Based on EPD, **Indicators** could be, for instance:

- Non-renewable energy consumption
- Non-renewable material resource consumption
- POCP
- Reduced Acidification Potential per kg of sanitary product
- Reduced Eutrophication Potential per kg of sanitary product
- Reduced GWP per kg of sanitary product
- Renewable energy consumption
- Renewable material resource consumption



Criteria area 6: Increasing the responsibility of the manufacturers

- **Sustainability of the production site:** Producer certified EMAS/ISO14001; CSR (e.g. SO 26000); Energy Management System (e.g. ISO 50001) or others of relevance
- **Workplace safety:** Producer certified for Occupational Health and Safety Management System (e.g. BS OHSAS 18001)
- **Respect for animals:** Statement of non-involvement in animal testing
- **Public information:** Public disclosure of environmental policy and targets; Consumer education through web tools
- **Box 2 of the Ecolabel** shall indicate that the product: *has high quality; minimises the content of hazardous materials; minimises the environmental impacts through the life cycle*

Which options could be followed? Any further suggestion?



Outlook on Criteria



#	<i>Criteria area</i>	<i>Description</i>	<i>Issues for discussion</i>
1	Ensuring the technical performance of the product	Fitness for use and quality , e.g. <ul style="list-style-type: none"> - absorption capacity; - leakage protection; - skin dryness - others 	a) Which performance criteria are relevant for the products within the scope? b) Which relevant test standards should be applied to the products within the scope?
2	Limiting the use of hazardous/ individual substances	Ban/Derogation for: <ul style="list-style-type: none"> - Additives for non-wovens - Biocidal substances - Carcinogenic, mutagenic and reprotoxic additives - Colophony (Rosin) - Dyes and inks - Flame retardants - Fragrances - Heavy metals (in plastic materials) - Lotions - Medicaments - Nanomaterials - Odour control substances - Phthalates, colophony resin or formaldehyde (in additives) - Phthalates, residual monomers (in polymers) - siloxanes (silicon treatment) - Substances that may cause sensitisation (R43) - Water-soluble extracts (SAP) - Other substances classifiable as hazardous according to CLP 	a) Reference databases for chemicals? b) Concentration thresholds in products/components c) Information request for derogation d) Testing procedures and reporting (e.g. SDS for the product)

#	Criteria area	Description	Issues for discussion
3	Sustainable production, supply and consumption of materials	<p>Possible criteria:</p> <ul style="list-style-type: none"> - sustainable sourcing (e.g. content of organic fibres in cotton production; FSC, PEFC certification; use of recycled fibre/materials; content of renewable sources) - Sustainable production (e.g. energy, water and material consumption and efficiency; emissions to water and air; waste production) - Applying eco-design principles in order to save resources (e.g. selecting better materials and limiting the amounts to be used) - Setting production efficiency improvement goals 	<ul style="list-style-type: none"> a) Which materials? b) Which issues are most relevant? c) How to address them? d) Can suitable thresholds be defined?
4	Reducing end-of-life impacts	<p>Possible criteria:</p> <ul style="list-style-type: none"> - Diversion of waste from landfill - Setting limit amount of production waste as % of final product - Informing consumers on best practices - Design for recycle/resource efficiency - Increasing compostability and biodegradability 	<ul style="list-style-type: none"> a) Which issues are most relevant? b) How can relevant issues be addressed most appropriately? c) Can suitable thresholds be defined?



#	Criteria area	Description	Issues for discussion
5	Monitoring and improving the environmental performance of sanitary products	<p>Possible criteria:</p> <ul style="list-style-type: none"> - LCA-based environmental performance declarations - Commitment on improvement - Environmental thresholds 	<ul style="list-style-type: none"> a) Which issues are most relevant? b) Focus on main materials or whole product life cycle? b) Which indicators? c) Methods and tools? d) How to commit effectively on improvement? e) Can suitable thresholds be defined?
6	Increasing responsibility of manufacturers	<p>Possible criteria:</p> <p>producer certification according to management systems (e.g. EMAS/ISO 14001, OHSAS 18001, CSR - ISO 26000, Energy - ISO 50001)</p> <ul style="list-style-type: none"> - producer publicly discloses environmental policy and targets - pro-active consumer education - statement of non-involvement in animal testing <p>Information carried by the EU Ecolabel:</p> <p><i>Box 2 of the Ecolabel shall indicate that the product: has high quality; minimises the content of hazardous materials; minimises the environmental impacts through the life cycle</i></p>	<ul style="list-style-type: none"> a) Which issues are most relevant? b) How can the issue be defined better?