



Sustainability Report **2011**

Acknowledgements

Sponsoring companies



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International association serving the nonwovens and related industries



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Who we are

We are the international association serving the nonwovens and related industries.

What we do

We provide a comprehensive range of services and supply our members with the information and data necessary for them to achieve their goals and enhance their performance.

Our sector

The nonwovens and related industries produce high-tech, engineered products made from natural and man-made fibres that are used across a wide range of applications and products essential to modern life.

Our mission

We aspire to provide leadership and create an environment beneficial to innovation and sustainable and profitable growth of the industry via the active promotion of sustainable development, consumer interests and transparency.

Our uniqueness

We are unique as a trade association, representing our entire sector value chain, from raw material suppliers to producers of finished products, machinery manufacturers and nonwoven producers.

Our definition of sustainability

We understand sustainability as the effort to integrate and balance the potentially competing expectations of the present generation and those of future generations. It is not a single, unchanging state, but a dynamic process which requires continuous improvement to strike a balance between the needs of the economy, society and the environment.

“EDANA is committed to providing a platform for its members to explore the opportunities of sustainable development.”

1 | Overview

Foreword from the Chairman



On our 40th anniversary, EDANA continues to view sustainability as key to our vision and strategy. Everything we do has an impact on our contribution to a sustainable future. In turn, the changes at hand throughout society, the economy and the environment have an impact on the way our industry does things now, and our approach to the future.

We represent our entire value chain and in addition to the traditional promotion and advocacy role of an international trade association, EDANA is committed to providing a platform for its members to explore the opportunities of sustainable development. We aim to share knowledge, experience and best practice across the vertically-integrated supply chain we represent in order to promote the sustainable contribution of our sector.

We recognise that the challenge of improving the sustainability profile of our products is an ongoing one. We continue to deliver on this challenge. We believe we can demonstrate an excellent record of improvement to-date. Innovation has delivered products that provide better performance, with reduced resource use and reduced environmental impact; all at an affordable price. Sustainability is, however, a continuous process of improvement and balance. By addressing all aspects of sustainability — social, environmental and economic — EDANA members are committed to improving the overall performance of our sector's products and helping to improve people's lives around the world.

In the context of its overall initiative to support its members in their efforts to make a contribution to a more sustainable industry, EDANA has sought a long term view through its Vision 2020 outlook. This has identified for us and for our members the key sustainability themes which will shape our world over the next decade and beyond. It demonstrates how central sustainability will be to that world and the vital nature of understanding its implications for everything we do. Our commitment to sustainability is reflected in our increased efforts to promote it within the sector, for example, by convening an expert panel from our membership, on waste.

Our objective remains to coordinate the sustainability-related activities of our Committees, Working Groups and Task Forces to assist our members through the promotion of “good sustainability practices” and effective communication. This report presents our recent progress towards the implementation of EDANA's sustainability strategy.

Jean-Marie Becker
Chairman of the Board



Message from the General Manager



The prospect of climate change and resource scarcity has focused many minds on sustainability and implies re-engineering the current production and consumption paradigm. Ultimately, this re-engineering presents an opportunity to create jobs and address social issues, but it will require contributions from a range of stakeholders – politicians, regulators and consumers amongst them, to bring about these changes. EDANA, on behalf of its members, intends to fully be a part of this effort.

The nonwovens and related industries are considered to be among the most sustainable industries in Europe. Pioneers in sector environmental management, we provide essential everyday products to society and are important contributors to economic wealth and competitiveness. The industry strives to be more efficient in its use of resources, to minimise its environmental impact and to encourage sustainable consumption.

Some environmental impacts ascribed to EDANA member companies and products can only improve significantly if there are other, broader changes in society. Key issues in this respect include the cost, demand and sourcing of raw materials, and transportation infrastructure. As a manufacturing industry, the main contributions that we can currently make lie in resource efficiency and energy saving during manufacture and in enabling our customers to use our products appropriately by promoting responsible use. The cooperation and solidarity of companies in a supply chain is pivotal in this respect. As a sector we need to clearly communicate the significant social and economic benefits of the products we produce, whilst acknowledging and addressing the environmental challenges we continue to meet. Members of EDANA therefore need to work together, both to generate efficiencies all along the manufacturing chain, and to spread the industry's positive messages.

Today, this position is reflected in EDANA's mission, which is to create an environment beneficial to sustainable and profitable growth of the industry through the active promotion of sustainable development, consumer interests and transparency. It is also reflected in our future. The nonwovens sector continues to be a fast growing, capital and technology intensive, high value-added industry and contributes significantly to the economy and its competitiveness. As a sector, we are committed to improving the life of millions of people by providing superior and innovative products while continuously striving for improvements in the sustainability profiles of our products. Now more than ever it is essential for EDANA to have a long term view of the future and to initiate appropriate future activities and responses as a sector.

Pierre Wiertz
General Manager

“Sustainability....implies re-engineering the current production and consumption paradigm.”

Sustainability highlights

Since we last reported in 2007, EDANA has continued to actively raise the awareness of its members on the main aspects of sustainability. We have promoted cooperation in the value chain through our events, working groups and training. EDANA is building a platform for the pursuit of sustainability and promoting the exchange of information to integrate sustainability in every aspect of our work as a sector. Our Vision 2020 outlook is a core element in our economic, environmental and social commitments for the future.

EDANA members are leading ambitious projects in the field of sustainability and for many of our companies, sustainability is already embedded as a guiding principle of the business.

Best practice:

Flushability Code of Practice for wet wipes	Addressed waste water management issues associated with the use of wipes. Promoting proper disposal of personal hygiene wet wipes using an on-pack symbol.
Code of Practice for tampons	Improved product stewardship – harmonisation of important information provided to users of tampons irrespective of the brand used.
Right for Hygiene website	Improved product stewardship – launched the website dedicated to the communication of benefits and standards of hygiene products and activities.
Product Life Cycle Assessments	Conducted life cycle assessments for baby wipes, industrial wipes and super absorbents.
Skin health benefits panel	Assessed the benefits of hygiene products on improved skin health by speaking to the experts – an example of the social contribution of nonwoven products.
Quality of life survey	Engaged with end users to assess the benefits our products provide to society.
Waste Panel 2011	Engaged with waste experts to identify ways for the industry to further take responsibility for its key end-of-life impact.
Training	Trained over 2,000 professionals to date on sustainability through our acclaimed courses.
Sustainability survey	Conducted a survey to further understand the sustainability priorities for our members.

Vision 2020

Putting sustainability at the core of our activities.	Commissioned a detailed assessment of the nonwovens industry to anticipate possible developments over the next 10 years.
EDANA Sustainability Charter	Established key principles to promote an even more sustainable industry.

About this report

This is a report of EDANA's role as a trade association and the actions we're taking to embed sustainability at the core of the nonwovens industry. It is our third Sustainability Report.

→ Scope

Building on the publication of our first Sustainability Report in 2005 and its update in 2007, we have sought to make this report more open and accessible. This includes the extension of the scope of reporting beyond absorbent hygiene products to include non-hygiene applications and covering the whole production value chain. The report highlights the balance between environmental considerations and the economic and social benefits of our industry.

→ Audience

Our intention is to reach out to as wide a group of stakeholders as possible by making this report open and accessible. We are particularly conscious, however, of the need to communicate clearly with our own membership around the sustainability agenda. We want all parts of our value chain to recognise and engage with the part they have to play in improving our performance overall. Similarly, our customer base, the retailers and ultimately our consumers, are a clear focus for our communication. We also recognise the vital role that government, regulators, NGOs and the media have in the debate on sustainability and we trust that the format and content of this report serve to promote understanding and discussion.

→ Data and content

Access to relevant data and information varies throughout our value chain. Historically, producers of absorbent hygiene products and personal care wipes have been more exposed to demands from customers and consumers in the field of sustainability. Consequently, levels of sustainability awareness and data availability are typically higher in the hygiene products supply chain than for other product categories in the nonwovens industry. This is the main reason why in this report we include more references to hygiene products. Nevertheless, companies across all product categories and parts of the value chain are making significant efforts to make their businesses more sustainable. Accordingly, this report includes a description of other activities, even if the reporting on non-hygiene applications is based on qualitative input rather than quantitative data. Addressing data availability for both hygiene applications and other product categories will be an ongoing priority to be addressed in future reporting.



2 | Our mission



Who we are

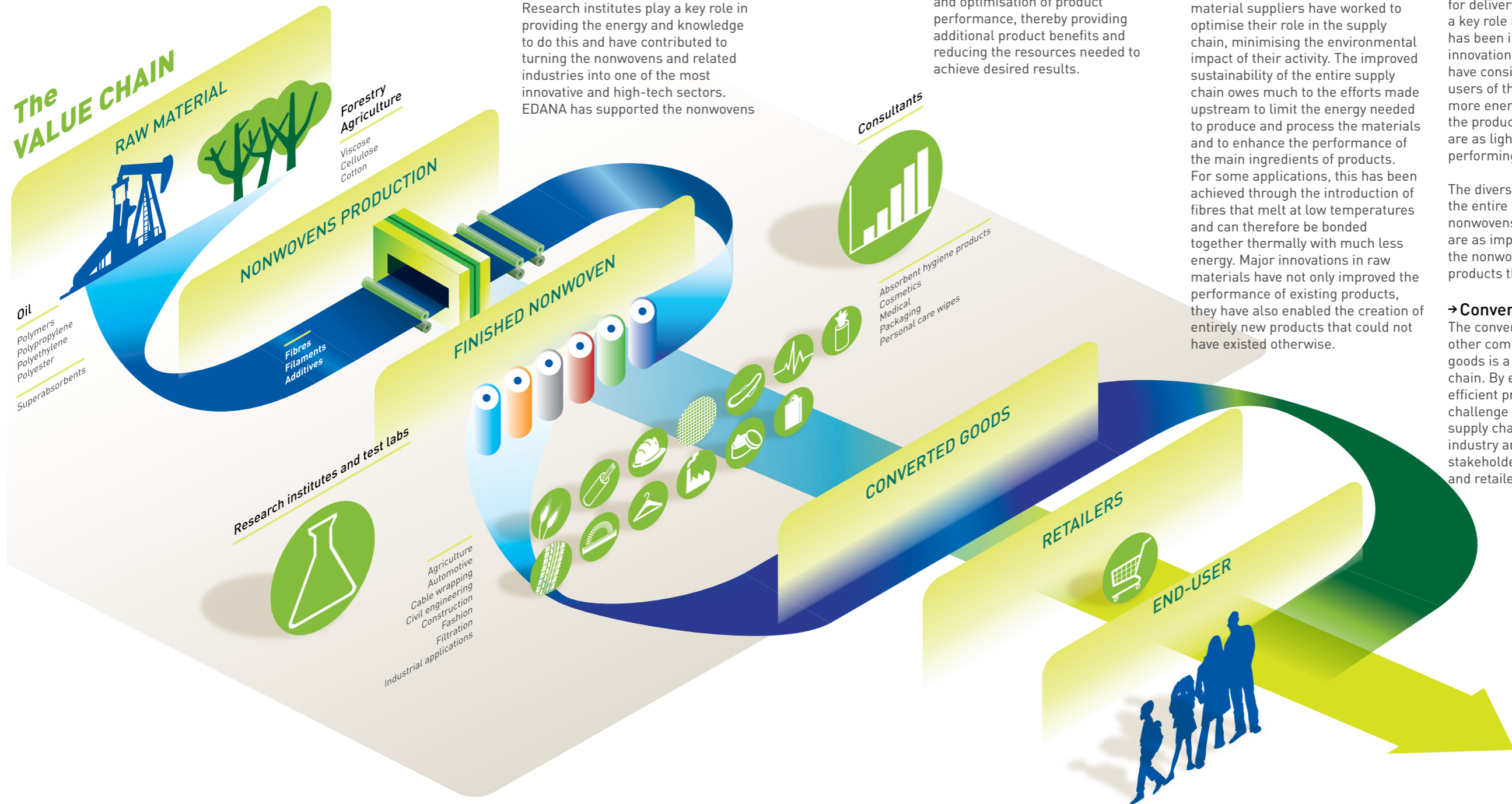
EDANA is an international association serving the nonwovens and related industries. As a trade association we are unique, as our membership reflects our entire value chain. Our role is to provide our members with a comprehensive range of services, information and data necessary to enhance their industry goals and performance. EDANA provides the nonwovens industry with vital issue management, advisory, lobbying, educational, networking and information-sharing services.

Our mission is to provide leadership for our membership via a global outlook and through active promotion of sustainability, consumer interests and transparency. We aim to create an environment that is beneficial for innovation and sustainable and profitable growth for the industry.

As the voice of nonwovens, we represent, protect and actively promote the common interests of nonwovens and their related industries throughout the world, with a particular focus on Europe, the Middle East and Africa.

Our members

Our diverse membership of more than 220 companies represents over 90% of the industry across the nonwovens value chain. This vertically integrated structure encompasses upstream suppliers, converters and producers.



→ Research institutes, test labs and consultants

The creation of innovative solutions and effort to do more with less requires innovation from industry. Research institutes play a key role in providing the energy and knowledge to do this and have contributed to turning the nonwovens and related industries into one of the most innovative and high-tech sectors. EDANA has supported the nonwovens

and related industries through the development of test methods to evaluate the performance of products. Test laboratories play an instrumental role in the assessment and optimisation of product performance, thereby providing additional product benefits and reducing the resources needed to achieve desired results.

→ Fibres, filaments, polymers and additives

Much work has been done by suppliers of the raw materials used in the final products. Raw material suppliers have worked to optimise their role in the supply chain, minimising the environmental impact of their activity. The improved sustainability of the entire supply chain owes much to the efforts made upstream to limit the energy needed to produce and process the materials and to enhance the performance of the main ingredients of products. For some applications, this has been achieved through the introduction of fibres that melt at low temperatures and can therefore be bonded together thermally with much less energy. Major innovations in raw materials have not only improved the performance of existing products, they have also enabled the creation of entirely new products that could not have existed otherwise.

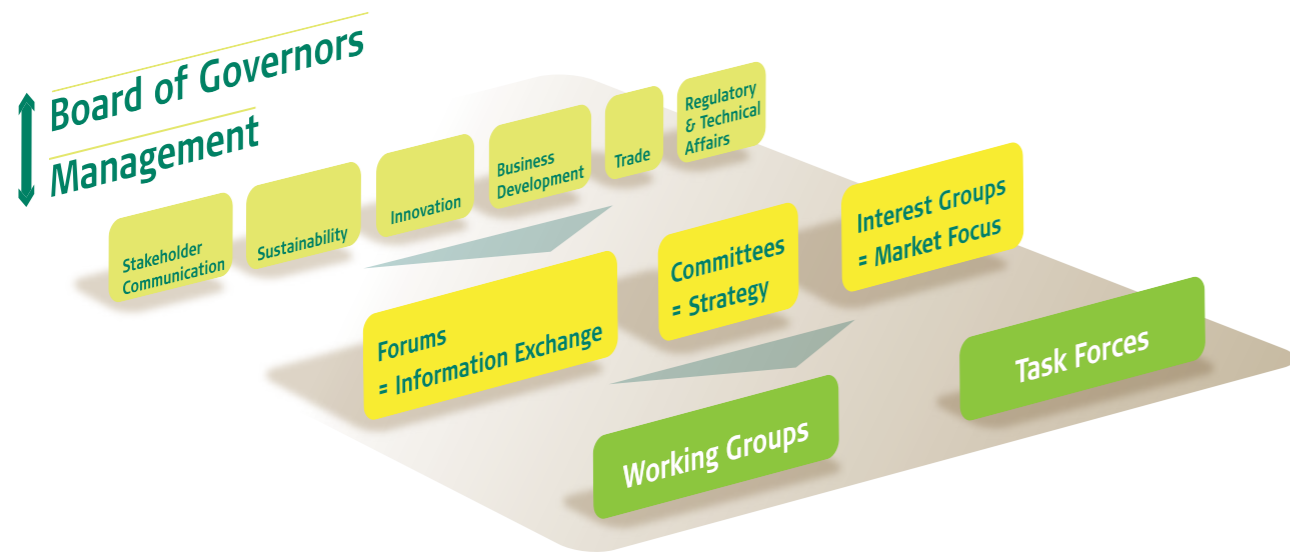
→ Machinery

The equipment used to produce nonwovens, films and other components, to convert them into finished goods and package them for delivery to the final user plays a key role in the supply chain, and has been instrumental in enabling innovation. Machinery producers have consistently worked with the users of their equipment to make it more energy efficient and to enable the production of materials that are as light as possible, while still performing the intended task.

The diversity and versatility of the entire supply chain for the nonwovens and related industries are as important as the properties of the nonwovens themselves and the products that are made of them.

→ Converters

The conversion of nonwovens and other components into finished goods is a critical part of the supply chain. By essence this is an energy efficient process. Converters face the challenge of being at the end of the supply chain, at the interface between industry and a wide range of other stakeholders, including consumers and retailers.



One of EDANA’s main intentions is to bring all of the companies – across each sector and all of the supply chain – up to the same level of commitment to sustainable practices.

Governance

EDANA has a Board of Governors whose members are elected at each Annual General Meeting. Governors are senior executives from member companies, broadly representing the various sectors of the nonwovens industry. The Board has responsibility for guiding EDANA’s work and approving its policies, priorities and programmes.

How we work

The diversity of interests in the value chain is reflected in the range of EDANA groups. In addition to horizontal forums open to all members, there are a number of sector-specific committees within the association, each pursuing their own clear objectives. This diversity provides opportunity for focus, information exchange, joint-industry initiatives and networking in a different and complementary form and setting to individual commercial relationships.

In addition to promoting the growth of the industry, the committee structure enables us to address key issues for the sector, including those related to sustainability. Often, committee responsibilities will overlap or complement each other, adding to the depth and diversity of the debate.

Facilitating exchange of information

→ Partnerships with other associations

Our members benefit from our associate membership or alliances and cooperation with a wide range of relevant trade associations from other sectors. We aim to broaden our relationships with each of these associations, further engaging their key representatives and making better use of their networks. EDANA has close ties with nonwoven associations and representative groups in Asia (Asia Nonwoven Fabrics Association, ANFA) and North America (Association of the Nonwovens Fabrics Industry, INDA).

Sustainability is a beneficiary of this collaborative approach with other trade associations and stakeholders. We maintain working relationships with organisations that either have

common interests due to an overlap in membership (e.g. European Cosmetics Association, Colipa, European Tissue Symposium, and Eucomed, representing the medical technology industry in Europe), or because they represent organisations that act upstream [European Man-made Fibres Association (Cirfs)] or downstream (EuroCommerce, the Retail Wholesale and International Trade representative in the EU) in the nonwovens value chain.

→ Training

EDANA enables companies in the nonwovens industry to keep abreast of developments in the manufacturing, conversion and applications of nonwovens.

Our longstanding training programme includes modules of direct relevance to sustainability. Through the training of over 2,000 professionals in the nonwovens and related industries, we have contributed to raising awareness and building a keen understanding of sustainability throughout the value chain.

EDANA also organises members-only workshops, aimed at equipping companies with the right information, know-how and practical help in key areas.

Our industry

Nonwovens are high-tech, engineered fabrics from various sources including agriculture and forest fibres such as cotton, viscose and pulp, as well as oil-based, man-made fibres. They are used across a wide range of applications and products in the home and the workplace. They are an innovative, versatile and indispensable part of modern life.

In combination with other materials or on their own, nonwovens are used in a wide range of consumer and industrial products with diverse

properties, including absorbent hygiene products, apparel, home furnishings, healthcare and surgical fabrics, construction, filtration, engineering, and wipes, to name but a few.

The nonwovens industry brings a wealth of advantages to people throughout the world. Diapers, incontinence products and feminine hygiene products benefit millions of people on a daily basis. Nonwoven surgical gowns and drapes help prevent infection in the operating theatre, while state-of-the-art short-use protective suits and masks protect against hazardous dusts and chemicals. Nonwoven filtration media improve water purification and indoor air quality, and with nonwoven oil sorbent products and geo-textiles we see the substantive environmental benefits of these versatile fabrics.

Specific functions of nonwovens include; absorbency, liquid repellence, resilience, stretch, softness, strength, flame retardancy, washability, cushioning, filtering, bacterial barrier and sterility. These properties are often combined to create fabrics suited for specific functions, while achieving a good balance between product use-life and cost. They can mimic the appearance, texture and strength of a woven fabric and can be as bulky as the thickest padding. The versatility of nonwovens means that they can provide innovative, cost-effective and sometimes unexpected answers to innumerable functional challenges.

Key applications of our industry

→ Absorbent Hygiene Products

Modern absorbent hygiene products (AHPs) have made an important contribution to the quality of life and skin health of millions of people. Users of AHPs (i.e. baby diapers, feminine hygiene products and adult incontinence products) benefit from the softness, smoothness, leakage prevention, strength and protection provided by nonwovens in combination with other materials such as pulp and superabsorbent polymers.

The absorbent hygiene products industry in Europe is committed to the concept of sustainability and works hard to make a positive contribution to all aspects of sustainability, be they social, environmental or economic. Since we began reporting on our sustainability performance as an industry in 2005 we have shown measurable improvements.

Pulp

Pulp is a renewable material that is an important part of both absorbent hygiene products and nonwovens. It is used in the core of absorbent hygiene products for the distribution of liquid. More information about the sustainable management of forests is available in the environmental section.

Superabsorbents

Superabsorbents (also known as superabsorbent polymers or SAP) consist of a material that absorbs many times its own weight in aqueous fluids. They can absorb up to 300 times their weight in water without releasing it. They are therefore an ideal material for use in products designed to absorb and retain fluids such as baby diapers, incontinence products, and feminine hygiene pads and liners.

Adhesives

In combination with nonwovens, specially designed adhesives, binders and closure systems have played an important role in the production of lighter and better performing products. This has allowed for a reduction in the amount of raw materials used and the amount of waste generated by the end-user.

Films

Films are typically made of polyethylene and used in baby diapers, feminine care products or incontinence products. Films are mostly used as an impervious barrier on the back of the product to prevent leakage. A major innovation in this field was the introduction of breathable films, which have the advantage of being impervious to liquids while allowing air and vapour through. This has greatly contributed to the prevention of skin conditions and increased the comfort of absorbent hygiene products thanks to reduced skin wetness.

Films have significantly contributed, and continue to contribute towards more sustainable products. Over time, film producers have continuously pursued production efficiencies, significantly reducing energy demand and production waste by optimising production processes. They have helped reduce the environmental impact of products, while improving their performance to enable the products to deliver more benefits to society.

→ Agriculture and horticulture

Nonwovens are used effectively for optimising the productivity of crops, gardens and greenhouses. Their protective nature means that the need for pesticides is reduced and manual labour is kept to a minimum.

The use of nonwoven crop covers on the land increases yields and improves the quality of the crops. Very



Courtesy of PGI Nonwovens

light, flexible sheets laid over seed beds create a microclimate in which the heat and humidity are controlled. The growth of plants is accelerated and they are protected from adverse weather conditions and vermin.

In capillary mat applications, nonwovens promote the healthy growth of flowers and vegetables in greenhouses by using soil-less growing methods.

→ Automotive

The use of nonwovens in automotive applications has increased substantially in recent years. Today more than 40 automotive parts are made with nonwoven fabrics, from trunk liners and carpets to air and fuel filters. By building in the essential properties which are necessary for good performance and safety, nonwovens help reduce the weight of the car, enhance the comfort and aesthetics and provide advanced insulation, fire retardancy and resistance to water, fuels, extremes of temperature and abrasion.

Nonwovens are easy to handle during assembly. They are tailor-made for their function and can be heat-formed, embossed, lined, coated and printed. In short they contribute to making cars safer, more attractive, longer-lasting, more cost-effective and more sustainable.

Due to their versatility and numerous benefits they are also widely used in the design and construction of other vehicles and transportation means –

aeroplanes, trains, boats, spacecraft and satellites.

→ Clothing, footwear and baggage

Nonwovens are a model material for the fashion industry. Used for many decades in hidden, support functions, such as interlinings and components of shoes and bags, today's designers use nonwovens as a creative and versatile new material.



The success of nonwovens is due to their versatility and the ability to engineer many different properties into them, such as shape retention, adaptation to the characteristics of the outer fabric and lightness in weight.

→ Construction

In the context of volatile oil prices and building regulation codes on fire resistance, nonwovens provide cost-effective and efficient solutions to building and construction challenges.

In this type of application, their durability, strength and insulation properties make nonwovens a material of choice, at the same time increasing performance and extending the lifespan of buildings.

Non-perforated, nonwoven polymeric housewrap material decreases air infiltration, resulting in increased energy efficiency and maximum moisture control, while at the same time providing savings for the builder and homeowner during installation and after-sale.

Nonwovens are also responding to the developments in both the flat and pitched roofing markets. More and more demanding building standards, energy-saving schemes and to some extent changing weather patterns are driving the need for breathable and impervious underlays for pitched roofs and an improved basis for bituminous membranes, both of which can best be served with versatile nonwovens.

The growth potential for nonwovens in the construction industry, as facings for plaster board, for increased thermal and sound insulation, for panels in cavity walls and for floor and wall coverings, is an indication of their success in building applications. They will have a significant part to play in the weather proofing and insulation of existing building stock.

→ Household

Nonwovens are used in a multitude of household applications ranging from cleaning and filtering to adding an aesthetic touch to the home. Used in bedrooms, kitchens, dining rooms and living rooms, high performance nonwovens can create comfortable, practical, hygienic and beautiful solutions for modern living.



Nonwovens in the home furnishing industry are evolving from use in traditional applications such as upholstery, floor coverings, underlay and blankets to innovative, smart solutions to improve and protect interiors.

→ Industrial

Nonwovens can offer a broad range of functions thanks to the different manufacturing processes, fibres and treatments. Because of this versatility nonwovens are used widely in many industrial markets.

→ Medical and Healthcare

Nonwovens are extensively used in the medical field and in protection against biological agents in other sectors. For example, they can be designed to deliver critical safety properties, such as protection against infections and diseases.



With today's multi-drug resistant strains of bacteria and viruses, nonwovens can help in the fight against cross-contamination and the spread of infection in a medical or surgical environment. Because they are used only once and incinerated after use, the need for handling is avoided and the spread of contaminants is minimised.

Nonwovens are also increasingly a major component in the design of "smart" wound care products.



→ Wipes

Nonwovens are the ideal material for personal care products. They combine strength and softness, hygiene and handiness. Over the past decade an increasingly diverse range of single-use personal hygiene wet wipes products has become available. The growth of markets for such products is evidence of their popularity with the public. The appeal of wet wipes in both consumer and healthcare markets is primarily one of convenience and ease of use. Busy lifestyles created by the combinations of job pressures, domestic duties and an overall faster pace of life, mean that many people find themselves pressed for time; wipes allow them to perform daily tasks in substantially less time. By modifying the base material and liquid types, manufacturers are able to tailor the physical properties of finished products to specific user needs.

Industrial wipes are used for a variety of applications in industry and institutions, including food service wipes, general industrial and specialty wipes, and medical wipes.



Courtesy of PGI Nonwovens

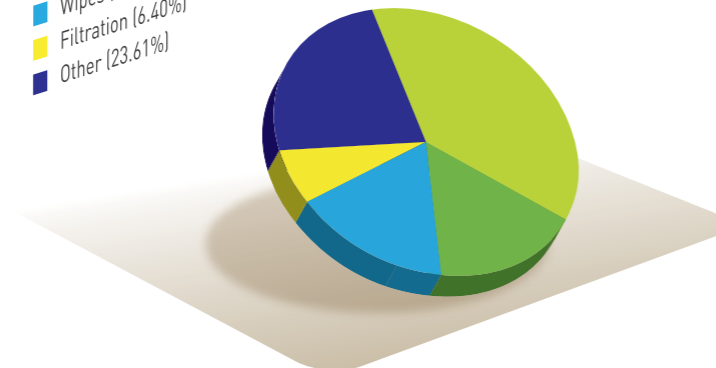
Key figures for the industry

The figures for Greater Europe (Western, Central and Eastern Europe, Turkey and CIS) showed that difficult economic conditions in recent years and the industry's effort to provide lighter-weight nonwovens (using less material) with the same function, the production of nonwovens in 2009 contracted in weight by 6.3% since 2008, with 1,609,819 tonnes of nonwovens produced in 2009. This was compared with the growth in the industry for 2008 of 1.2%. At a value of almost €1,020 million, that amounts to a significant contribution to the European economy. The value of nonwovens is multiplied when converted into products: the absorbent hygiene products sector alone generates revenues of over ten billion euros annually.

Nonwovens have shown resilience through the economic crisis.

Main nonwoven roll goods market segments based on volume (2009)

- Hygiene (37.29%)
- Construction (16.80%)
- Wipes (15.90%)
- Filtration (6.40%)
- Other (23.61%)



Source: EDANA

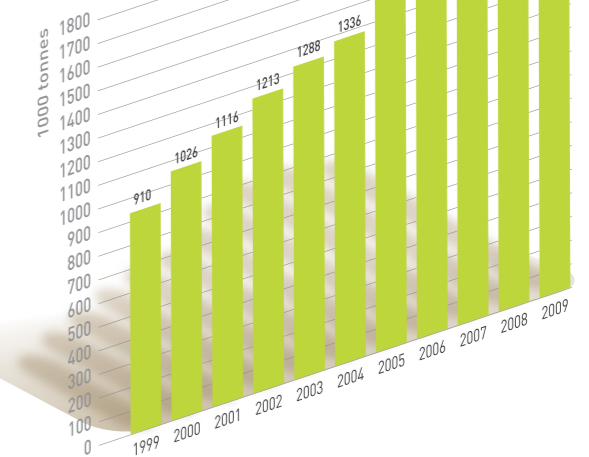
→ Employment

Although the nonwovens industry in Europe is very capital- and technology-intensive, it employs more than 26,000 people. If all downstream converting activities, such as the manufacture of absorbent hygiene products, protective and medical apparel and filters are counted, the industry directly provides over 100,000 jobs in the EU.

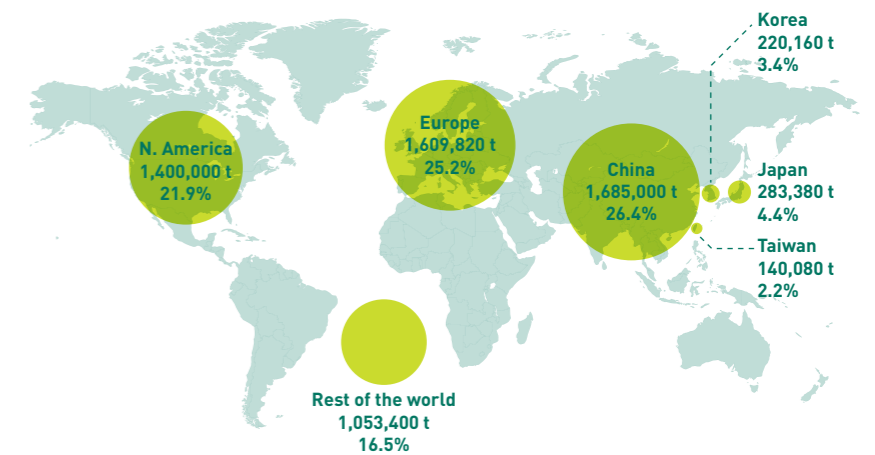
→ Challenges in an economic crisis

The European nonwovens industry faced unprecedented challenges in recent years, reflected in limited growth for most countries. Volatility in raw materials costs also put pressure on the entire supply chain. Flexibility became a coping mechanism for many EDANA member companies during the recent economic crisis; serving diverse markets in order to compensate for lack of demand elsewhere. The resulting trade balance remained strong, with the total tonnage of nonwovens exported by the EU27 still far exceeding that which is imported – in stark contrast to the many sectors.

Challenges in an economic crisis
Production of nonwovens in Europe



Production of nonwovens worldwide in 2009



Source: EDANA

3 | Our approach to sustainability



Strategy and governance

We define sustainability as an effort to integrate and balance the potentially competing expectations of the present generation with those of future generations.

It is not a single, unchanging state, but a dynamic process which requires continuous improvement.

The contribution of our nonwovens and related industries towards a more sustainable industry can be achieved by striking a balance between the needs of the economy, society and the environment.

In our view, the contribution of the nonwovens and related industries towards a more sustainable future is best understood by recognising the balance between the needs of society, the economy and the environment.

Our sustainability strategy has a number of strategic objectives. These include:

- Making efficient use of energy and raw materials across the whole life cycle of products while evaluating the increased use of renewable materials;

- Improving the communication of sustainability-related efforts by our industry regarding social, environmental and economic impacts of our sector;
- Promoting the reduction of environmental impacts through the use of life cycle assessment methodology;
- Providing a consistent position on key environmental issues and labelling schemes;
- Supporting groups of our members in conducting a number of case-studies in the main markets for nonwoven-based products;
- Demonstrating performance using specific examples of sustainable production as a way to encourage all our members to adopt such practices.

Vision 2020

The shifts in demographics and economic power, new technologies and the drive towards sustainability and enhanced health are some of the factors redefining customers and the marketplace – not least for the nonwovens and related industries.

EDANA strives to be ahead of the game, to help its members design their future with these changes in mind, instead of suffering the consequences.

In 2010 we commissioned the Copenhagen Institute for Futures Studies to carry out a detailed assessment of the nonwovens and related industry. As part of the assessment they developed a number of scenarios and associated recommendations for EDANA and its member companies over the next 10 years.

The big picture for nonwovens on the 2020 horizon centres on **globalisation, sustainability** and **innovation**.

Globalisation will likely see economic power shift eastward. Global markets in low- and middle-income countries will become the world's largest consumer markets, with an increase in the demand for all nonwoven-based products.

The development of information technologies worldwide and access to information will heighten global awareness of risks and favour customer-driven regulation. As a consequence, the increasingly global nonwovens market is likely to become polarised between high volume, low margin mass-produced products targeting the global middle class and increasingly tailored high-tech, lower volume, high margin products for customers in high-income countries.

Legislative changes and fragmented regulation across the world will require a balance between production and innovation to cater for different markets.

Sustainability has been a key concern over the past decade. EDANA member companies will need to anticipate new consumer attitudes, engage with NGOs and major retailers to identify new demands on the quality and safety of nonwoven products and materials.

Shifts in consumer preferences towards products that are recognised as sustainable will play an important role in future markets.

→ EDANA Groups

In recent years EDANA has organised itself to address sustainability via the creation of a number of new groups that have responsibility for aspects of the sustainability agenda.

- **The Board Working Group on Sustainability** translates strategic priorities into concrete objectives and actions.
- **The Environmental Evaluation Committee** provides technical expertise to other groups within EDANA when they work on sustainability-related projects.
- **The Sustainability and Environment Working Group** of the Hygiene Absorbent Products Committee manages projects specific to this product category.

Our Sustainability Charter

EDANA's Board approved a Charter of Sustainability that applies a number of principles to all its operations. We are now encouraging our member companies to endorse and support the Charter.

Our commitment is to promote sustainability through the integration of environmental, social and economic considerations into all aspects of our activities and policies and actively encourage employees to conduct their activities in an environmentally, socially and economically responsible manner. The full version of our Charter is available on our website.

Issues related to sustainability affect everything that we do – where we live and how we live, where we work and what we do, what we consume, what our open spaces look like, how we travel, how we view the communities within which we live and how we think about the future.



Key issues

The nonwovens industry and its applications continue to play a fundamental role in society. The results of our recent Vision 2020 study highlight the importance of our sector to health, hygiene and environmental challenges that will become increasingly acute over time.

We maintain a strong focus on the key issues that are most important to our industry and our stakeholders. Our assessment of materiality is based on a wide range of factors including developments in public

policy, political context, regulations, technology, media and NGO activities.

We recognise that the challenge of improving the sustainability profile of our products is ongoing. We continue to accept this challenge and believe we can demonstrate an excellent record of improvement to date.

Innovation has delivered products that deliver better performance, with reduced resource use and reduced environmental impact – all

at an affordable price. However, sustainability is not static; rather it is a continuous process of improvement and balance. By addressing all aspects of sustainability – social, environmental and economic – manufacturers are committed to improving the overall sustainability profile of nonwovens and related products and at the same time helping to improve people’s lives around the world.

The key sustainability issues for our sector and members are highlighted below:

Key issues

- | | |
|---------------|--|
| Social | <ul style="list-style-type: none"> • Health and hygiene • Quality of life and convenience • Product safety |
| Economic | <ul style="list-style-type: none"> • Responsible growth • Economic contribution • Economic value-add |
| Environmental | <ul style="list-style-type: none"> • Environmental stewardship • Efficient use of energy and other resources • Waste prevention and reduction |

Can there be a world without nonwovens?

Social impact

The use of nonwovens has increased substantially in recent years and their benefits are present in almost every aspect of modern life. Nonwovens provide a multitude of benefits both in hygiene and non-hygiene applications.

→ Health and hygiene

Over the past 50 years absorbent hygiene products such as baby diapers, incontinence products, feminine protection pads and personal care wipes have become essential features of modern day life in Europe and other developed markets. These products are so pervasive that they are now taken for granted by millions of people. Their increased use has been accompanied by dramatic improvements in skin health and hygiene; particularly in

the incidence of diaper dermatitis (nappy rash). The ability of modern absorbent hygiene products to reduce leakage has also been important in preventing contamination and the transmission of infectious diseases.

The absorbent hygiene products and wet wipes sector works hard to maintain the highest standards in product stewardship. It invests heavily in assuring the safety of its products, including research into the linkages between the use of absorbent hygiene products and skin health and general hygiene.

Manufacturers seek the input of independent experts in the fields of dermatology, paediatrics and incontinence on the health, hygiene, safety and sustainability attributes of single-use absorbent hygiene products.

Absorbent hygiene products and personal care wipes have an established safety profile and can therefore be used with absolute confidence to:

- enhance the quality of life of babies, parents, women, disabled people, older people and their carers;
- provide health and hygiene benefits such as drier skin, less diaper rash, reduced spread of infection and odour control;
- provide increased comfort and discretion;
- increase the independence, freedom of movement and dignity of their users.

Our products provide real benefits to millions of people every day.

Example 1:
Nonwovens and advanced wound care

Nonwoven dressings are increasingly used for wound care due to better absorbency and faster healing properties compared to traditional gauze-type materials. Nonwoven products do not adhere to wounds like gauze and can be left in place for longer periods, not only making them easier to remove but also promoting patient comfort, lowering infection rate and speeding up the healing process. They are particularly effective when dealing with wet wounds such as ulcers and burns.

Example 2:
Filtration

Most of the water you drink and the air you breathe undergoes some sort of filtration process. Efficient, high performance filters help protect the environment and improve our living conditions. As filtration media, nonwovens are increasingly replacing traditional cellulose- or fibreglass-based filters.

As one of the fastest growing segments in the nonwovens industry, filtration is characterised by the dozens of its end use areas and applications. Nonwovens can be engineered to meet exact specifications and stringent regulatory requirements for the filtration of air, liquid, gas and in myriad of other areas and are fast becoming the medium of choice for filtration.

Social benefit from water filtration

Water filtration technology is one of the ways of improving water quality and water safety. Technology from our members has been shown to be



very effective in reducing pathogens (virus, bacteria, cysts) and a wide range of inorganic contaminants from water at very high flow rates and very low pressure drop as compared to mechanical filter media having similar efficiency.

Filtration technology based on nonwovens can also reduce contamination from other organic and chemical compounds including chlorine, iodine, volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), organic acids and micro-contaminants such as trace pharmaceuticals, endocrine inhibitors and antibiotics.

The products are safe for use in treating drinking water, having passed NSF/ANSI Standard 42 for potable water contact. They can be used in an extremely broad range of applications to minimise water use, reduce the contaminant load from waste water discharge, improve the safety of drinking water as well as reduce energy use due to the very low operating pressure of filters.

→ Quality of life and convenience

The term quality of life is often used, but rarely defined. We define quality of life as those attributes people value in generating an overall sense of well-being, based on the ability to function within society, comfort, health considerations, self-esteem and convenience. Quality of life is integral to the social dimension of sustainability; a concept which seeks to achieve economic and social development through improvements in lifestyle and well-being, while conserving resources and protecting the environment.

Absorbent hygiene products and personal care wipes are an important

and essential feature of modern life. They deliver benefits which have a positive impact on the quality of life of millions of people everyday including comfort, hygiene, convenience, portability, reduction in household chores and skin health benefits. Whether it is as users or carers, men and women around the world rely on absorbent hygiene products and personal care wipes for convenience, comfort, discretion and hygiene. In addition to all the health and hygiene benefits of single-use absorbent hygiene products and personal care wipes, their main advantage lies in convenience. They can easily, discreetly, safely and hygienically be carried, used and disposed of by the consumer. Through innovation and the application of

state-of-the-art technology, these products are continually evolving to be more effective and more efficient, whilst reducing the use of natural resources and minimising waste production per unit.

The convenience offered by absorbent hygiene products and personal care wipes is now taken for granted and hardly anyone having enjoyed the benefits of these products would consider going without them. Convenience in today's world also means saving significant amounts of time compared to a world without our products, where constant washing and laundering would take up time that is now used in a more productive and enjoyable way.

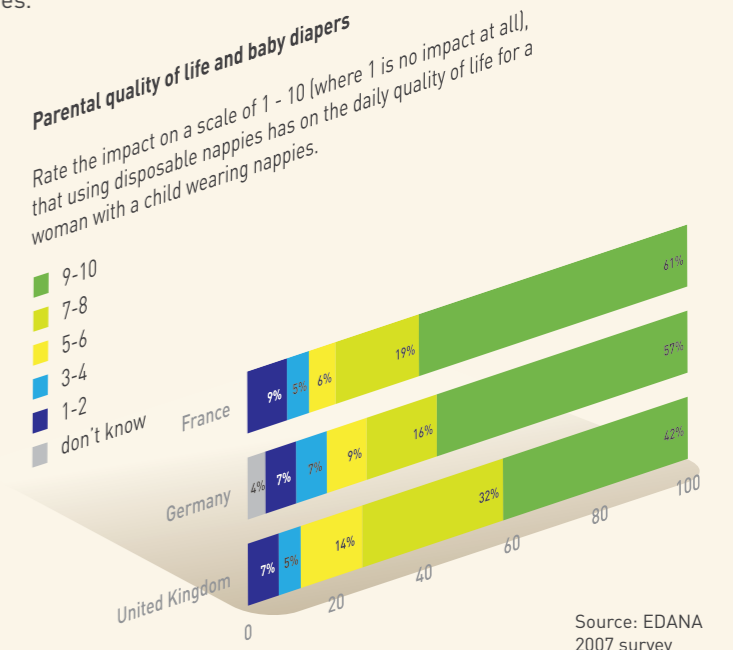
Example 3:
Parental quality of life

Single-use baby diapers and incontinence products have made an important contribution to the quality of life of millions of people. Single-use baby diapers have become the product of choice for over 95% of all families in Europe, contributing to social progress in terms of quality of life, comfort, convenience, reduction in household chores and skin health benefits.

In an opinion survey undertaken by the Louis Harris Research Group in Europe in 1997, respondents with children already identified single-use diapers as the second greatest improvement in contemporary life (the first being the automatic washing machine), compared with the generation that went before them. In another survey undertaken by industry in August 2007, which involved some 350 women with children under the age of 9 in France, Germany and the UK, 87% rated the impact of using single-use diapers as positive.

There can be little doubt that the convenience of single-use diapers is a huge benefit to busy parents in a world where time is an increasingly precious asset. They lessen the burden of domestic chores, freeing parents to spend more time on other activities in their family, social or economic lives.

Of the same population, between 72 and 89% rated highly the following quality of life attributes of single-use diapers; dryness, skin health, leakage, comfort and hygiene.



→ Non-hygiene applications

While the nonwovens sector is more commonly associated with the more visible hygiene-related applications, the range of its non-hygiene applications is even more extensive. In a world where concerns about air quality, insulation and lightweighting of products are becoming more acute, nonwovens provide a versatile solution.

Example 4: Construction

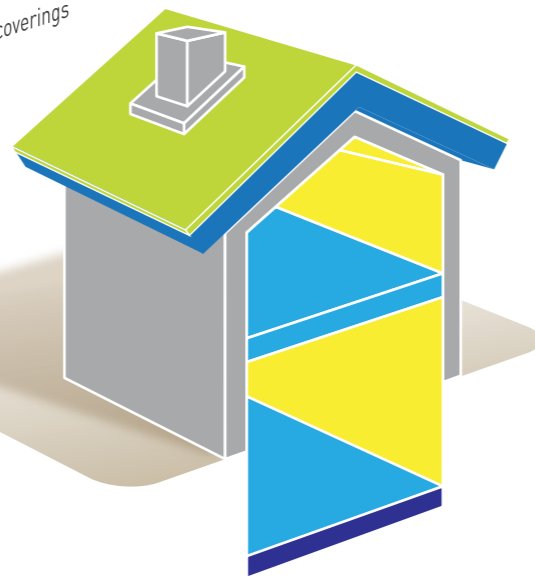
With increasing oil prices and more stringent building regulations on fire resistance and energy efficiency, nonwovens are providing cost-effective and efficient solutions to building and construction challenges.

Non-perforated, nonwoven polymeric housewrap material decreases air infiltration, resulting in increased

energy efficiency and maximum moisture control, while at the same time providing savings for the builder and homeowner during installation and after-sale. Housewrap developments such as translucency, which helps lower installation time and provides high strength, combined with no VOC (volatile organic compound) release in either production or application, satisfy ever more strict government sustainability programmes.

Application of nonwoven products in house construction

- Roofing
- Insulation
- Wallcovering + Ceilings coverings
- Floors
- Others



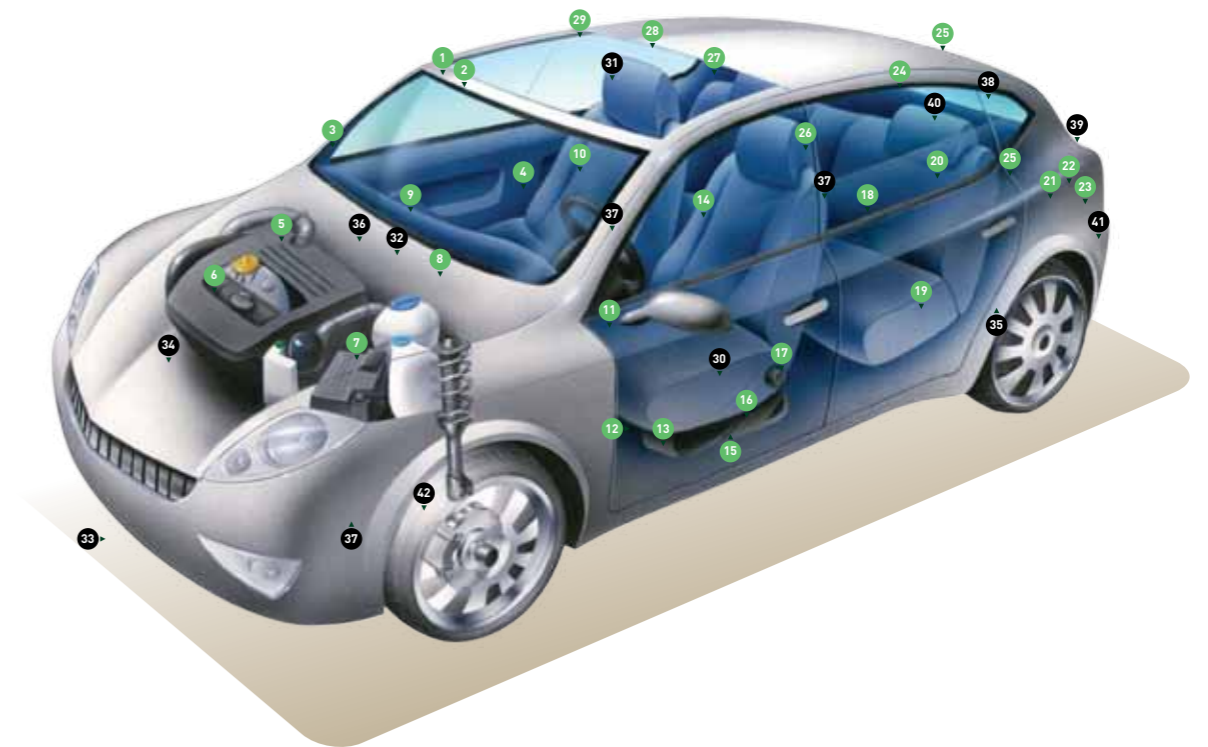
Example 5: Automotive

Today more than 40 automotive parts are made with nonwoven fabrics, from trunk liners and carpets to air and fuel filters.

Nonwovens help reduce the weight of the car, enhance the comfort and aesthetics and provide advanced insulation, fire retardancy and

resistance to water, fuels, extremes of temperature and abrasion.

They contribute to making cars safer, more attractive, longer-lasting, more cost-effective and more sustainable. Due to their versatility and numerous benefits they are also widely used in the design and construction of other vehicles and transportation means – aeroplanes, trains, boats, spacecraft and satellites.



- | | | | | | |
|----|----------------------------------|----|----------------------------------|---------------------------------------|------------------------------------|
| 1 | Covering material for sun-visors | 16 | Covering for seat belt anchorage | Acoustic absorber applications | |
| 2 | Padding for sun-visors | 17 | Covering for seat belt | 30 | Doors |
| 3 | A, B, C, column padding | 18 | Decorative fabric | 31 | Headliner |
| 4 | Door trim pads | 19 | Polyurethane coated backing | 32 | Inner & outer dashboard insulation |
| 5 | Fuel filters | 20 | Seat slip agents | 33 | Under engine shield |
| 6 | Oil filters | 21 | Boot (trunk) liners | 34 | Moulded bonnet liner |
| 7 | Battery separators | 22 | Moulded fuel tanks | 35 | Rear wheel arch liner |
| 8 | Cabin air filters | 23 | Bodywork parts | 36 | Cowl |
| 9 | Loudspeaker cover | 24 | Window frames | 37 | Pillar trim panels |
| 10 | Covering for moulded seats | 25 | Headliner facings | 38 | Parcel shelf |
| 11 | Transmission tunnel | 26 | Upholstery backing | 39 | Trunk trims |
| 12 | Carpet & carpet reinforcement | 27 | Loudspeaker housing | 40 | Rear seat strainer |
| 13 | Car mats | 28 | Sunroof | 41 | Air extractor |
| 14 | Vinyl backing for seat covers | 29 | Saloon roof | 42 | Wheel arch liners |
| 15 | Backing for tufted carpeting | | | | |

→ Product safety

The principle that our products must be safe for consumers, employees, and the environment is paramount within our industry. It guides our selection of raw materials, product design, manufacturing, consumer communications and considerations relevant to the disposal of our products. In order to ensure the safety of products:

- Raw materials are rigorously evaluated with the help of specialised laboratories for toxicological evaluation, skin compatibility (ability to induce allergy/irritation), stability and ageing tests;
- During product design, product integrity tests are undertaken to simulate in-use conditions where relevant;
- Finished products undergo inspection for absence of contamination and microbiological safety is ensured by quality assurance systems;
- Manufacturers carry out in-use testing to ensure dermatological compatibility.

As well as our industry’s voluntary commitment to product safety, we must comply with all appropriate legislation, technical standards, regulatory prescriptions and safety guidelines. Our industry does more than simply comply with the legal framework to ensure that our products are safe. In addition to our safety evaluation programmes, individual companies continuously monitor their products in use and any concerns consumers may have in using them. It is not unusual for major product changes or on the launch of new products, for independent experts to be consulted to ensure that all aspects of safety are considered and where appropriate, clinical tests may be performed.



Many EDANA members have systems in place to:

- Receive communications from consumers – usually using free phone numbers featured on product packages;
- Receive, investigate and take appropriate actions in response to consumer complaints;
- Answer enquiries from consumers and other stakeholders;
- Recall their products from the market in the event of a serious product quality or safety issue.



Courtesy of PGI Nonwovens



	Droplet	Grams
1 Droplet	●	< 6
2 Droplets	●●	6-9
3 Droplets	●●●	9-12
4 Droplets	●●●●	12-15
5 Droplets	●●●●●	15-18
6 Droplets	●●●●●●	18-21

Correlation of droplets with syngina absorbency values

Example 6:
Applying best practice

Code of Practice for tampons

As early as 1999 the producers of tampons took the initiative to publish a Code of Practice defining a series of best practices relating to tampons. Significant efforts were made by industry to help prevent menstrual toxic shock syndrome (TSS), a rare but serious illness.

Tampons have a long history of safe use that spans over 70 years, with millions of products in safe daily use worldwide. Tampons are made of well-proven materials that are

used in a variety of other everyday products. These materials have proven safety profiles. The raw materials are carefully selected for highest quality and undergo extensive safety evaluation before they are approved and used during manufacturing. Within the European Union, tampons must comply with the General Product Safety Directive that holds manufacturers responsible for providing consumers with products that are safe to use. In addition, tampon manufacturers in Europe follow the EU Tampon Code of Practice, or a national equivalent, which originated from a voluntary industry initiative, brokered by EDANA, to harmonise relevant

consumer information in all EU countries, irrespective of the tampon brand used. A key element of the code of practice is a droplet system that categorises the absorbency of tampons into six classes. Tampons are made under high quality production control standards including a series of checks and tests based on company quality assurance systems and user monitoring programmes. The harmonisation of communication of absorbency properties has enabled consumers to choose appropriate products, which avoids unnecessary waste.

Economic impact

→ Responsible growth of the industry

Although the nonwovens sector has fared better than many in the recent economic crisis due to the essential nature of its products, it was not entirely immune to the recession. Naturally, some sectors suffered more than others. The automotive and construction sectors, for example, were affected by multi-digit declines in demand. In contrast, the demand for nonwoven materials, which have become irreplaceable for personal care, health, cleaning, filtration and protective applications, remained robust.

Future trends such as population growth, the increasing spending power of the middle class in emerging economies and ageing populations in developed economies, suggest that the nonwovens industry is poised for significant growth in the future. Embedding principles of responsible growth in our industry will be essential to maintaining our licence to operate. Our industry has placed significant focus on developing sustainable and more environmentally friendly products as it looks to growth in markets in Asia and South America.

→ Economic value-add of nonwovens

If we consider for example absorbent hygiene products, the manufacturers of these products represented by EDANA make an important economic and social contribution to Europe. The sector:

- Employs over 100,000 people, about 20,000 of which are directly employed in the development, production and distribution of absorbent hygiene products;
- Generates a similar level of employment upstream within raw

materials supplier industries, not to mention those employed downstream in logistics and commercial operations;

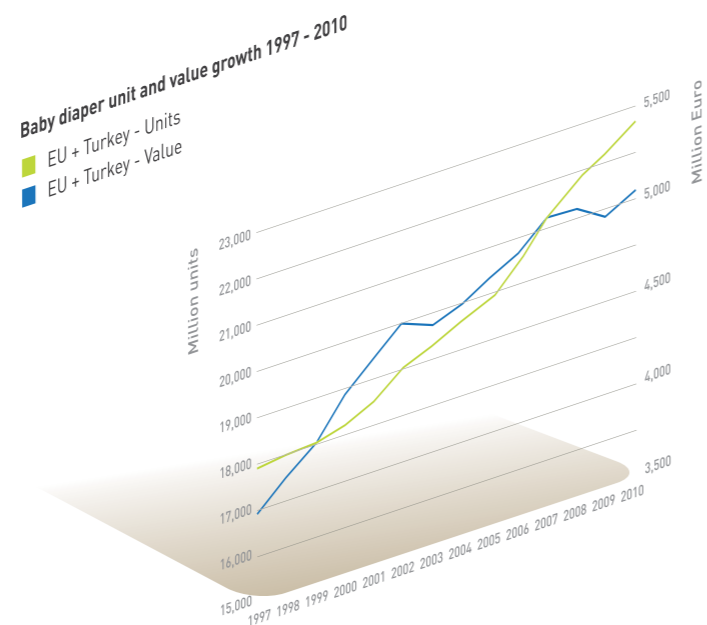
- Supports a network of suppliers and business partners researching and developing specialist equipment and materials, which in turn contribute to Europe's research capabilities and practical know-how;
- Invests in over 50 manufacturing and development facilities in some 20 countries in the region;
- Invests in new technology and infrastructure in the newly emerging economies of central and eastern Europe;
- Generates revenues of over ten billion euros annually.

Nonwovens and related products contribute positively to national economies. The provision of baby diapers, incontinence and feminine hygiene products contributes to the

number of people that can remain active in the workforce. These products, in addition to medical and filtration products for example, can have significant impacts on the development process in countries where basic needs are still not being met.

Similarly, the ability of a proportion of the elderly population to remain mobile and independent is promoted by the availability of incontinence products and limits expenditure on costly healthcare, welfare and support systems for this population.

New skills are needed for continued success, including a good understanding of sustainability. Increasingly this agenda will drive opportunity, creating new markets for products. This can contribute to a lower carbon, less resource-intensive outcome. Companies that recognise this early on and act to take advantage will be well-placed as the momentum gathers.



Source: EDANA

→ Contribution to economic development Impact on women and development

Example 7: Feminisation of the global workforce

The global expansion of trade, capital flows, and technology has resulted in increased formal and informal market opportunities for women, normally referred to as the feminisation of labour.

A 2006 study on women's general and reproductive health in global supply chains revealed that women between the ages of 18-25 comprise the vast majority of workers making products for export from emerging economies such as China and India to markets in developed countries. One of the most prevalent reproductive health issues among female workers are dysmenorrhea and improper menstrual hygiene.

Many women in the factories still use cloth products and the lack of personal hygiene including the use of cloth cuttings from factory floors was contributing to serious health complications. The key obstacles to more widespread use of single-use sanitary pads were availability and affordability. The use of sanitary napkins greatly improves the ability of female workers to continue to work and reduce infections. The role that absorbent hygiene products can play and the social responsibility of the nonwovens sector in improving female worker health and economic productivity is significant.

The corporate sector is seen as having a big role in tackling gender equity by creating jobs for women and equipping them with the necessary skills. However, in order to employ women, major health challenges that currently act as barriers to women's full and productive economic participation require attention. Menstrual hygiene is a major concern. These challenges are significant for poor women and their families in developing countries. These challenges impact not only their personal lives, but affect their workplace performance as well.

Provision of sanitary napkins has been associated with improved menstrual hygiene and reduction in reproductive tract infections and reducing absenteeism.

Understanding the impact of a world without nonwovens would involve considering the potential avoided cost of hours lost by women currently active in the workforce, if availability of high performance feminine hygiene products were limited or unavailable.

Source: Women's General & Reproductive Health in Global Supply Chains, BSR, 2006.

Example 8: Development goals focused on women and economic development

Education of girls and women in general has been a high priority for many Governments following the Millennium Development Goal (MDG) of promoting gender equality and empowering women.

There are a number of negative impacts that the lack of sanitary napkins and proper menstrual hygiene have on the lives of women and girls in developing countries. The main issues were girls failing to attend school during their menstruation, reproductive tract infections from poor menstrual hygiene, the social taboo surrounding the topic and the overall impact on the education of girls. In 2009 a pilot study carried out by the University of Oxford, researchers in Ghana tested a combination of providing sanitary towels and educating girls about menstruation and hygiene. After six months, the rate of absenteeism fell by more than half, from about 21% of school days to about 9%.

The girls were said to be able to concentrate better in school, were more confident and less embarrassed. This was particularly noticeable in rural locations where the availability of proper toilets or washing facilities are lower.



In addition to the overall improvement of quality of life and health and hygiene benefits, the ability for girls to stay on in school has a positive impact on girls' economic development and productivity as well as significantly lowering fertility rates, early marriages and infant mortality.

The study highlights the importance of sanitary products and hygiene in female education and development and is a key issue for policymakers, NGOs and manufacturers to address.

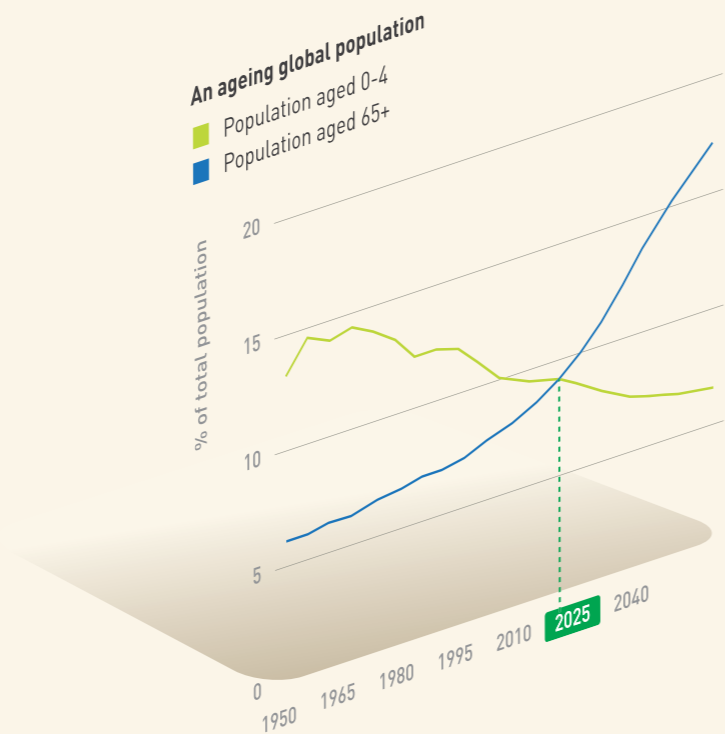
Source: ['Sanitary Care and Girls' Education in Ghana,' FT]

→ Ageing populations in Europe

Example 9:
Ageing populations in Europe – impact on demand for incontinence products versus working longer

The economic and social impact of Europe's ageing population will present countries with a greater and more sustained challenge than that from the current financial crisis, health policy experts have warned. In response, countries need to rethink their pension and employment policies and put the promotion of healthy ageing at the top of their agendas.

In recent years, the market for incontinence products has grown considerably with greater awareness of the benefits of incontinence products and reduction in the stigma regarding their use. They are an important tool in enabling people with incontinence problems to manage within their own homes rather than having to resort to nursing care. The prospect of more people having to work for longer periods will further increase the demand for incontinence products.



Source: EDANA Vision 2020



“At the age of 68, I am showing no signs of slowing down just yet.

My employer didn't want to let me go and with the new flexibility on retirement, I chose to carry on working. I am an avid walker and spend my weekends hiking or looking after my three energetic grandsons. Shortly after my 56th birthday, I noticed that I would accidentally wet myself with a small amount of urine when I coughed, sneezed, or did other strenuous tasks and had recently become more bothersome. I felt embarrassed about talking about it and I found myself going to the toilet at every given opportunity to avoid “accidents” in public. My doctor introduced me to the idea of using proper incontinence products rather than the sanitary napkins that I had been using as a substitute. I am now much more confident about being protected and can even hold out on going to the toilet “100 times” a day which allows me to carry on with my work and social life with minimum disruption.”

Environmental impact

Industries today face a challenge in reducing the use of natural resources and adapting to sustainable materials management. The use of natural resources has impacts on both the availability of the resources as well as, the potential negative impacts on quality of air, water and soil, human health and biodiversity.

Using a life cycle approach to identify and reduce negative impacts, the industry will be able to take on these challenges. EDANA's member companies have used life cycle assessment (LCA) for a long time, having conducted a first LCA in 1993 and published the report “The EDANA LCA Project – A Case Study” in 1995. With this report, a basis for the single-use baby diapers was established, and both baby diapers and incontinence products have now been subject to LCA trend analysis showing environmental improvements over the years (EDANA Sustainability Report 2007 – 2008).

By addressing environmental impacts across the product life cycle from extraction and production of raw materials to use and disposal avoids the shifting of environmental burdens when improvements are introduced in the different life cycle stages.

→ **Product stewardship**

One of the key aspects of EDANA's mission over its 40 years of existence has been to provide the nonwovens industry with harmonised test methods. These constitute a common technical language for all interested parties to refer to when dealing with all important product features. Knowledge of the regulatory requirements in various parts of the world and more importantly, supporting the dialogue between suppliers and their customers in the supply chain are vital in today's environment.

This is part of the product stewardship approach we encourage among our members.

Nonwovens and nonwoven-based products are used and almost universally accepted in a wide portfolio of applications such as hygiene, medical, personal protective equipment, packaging, agricultural, filtration, electrical and other industrial applications.

The high quality and safety expectations of these products by consumers and regulators, and the emergence of new and complex regulations across the globe, and new sustainability requirements have affected the market. Businesses with the best prospects for success will be those that can adapt fast and efficiently to these new requirements. It is essential now more than ever for the nonwovens industry to ensure a continuous supply of high-tech and innovative products that meet the highest quality and safety standards.

Environmental stewardship

As an industry, our environmental impact is relatively small, however we aim to further minimise the environmental impact of our manufacturing, distribution and administrative activities.

We take our responsibilities to reduce our environmental impact very seriously and use life cycle assessment techniques to assess the environmental impact of our products and processes so that actions can be taken to improve environmental performance at all stages of the production process. The average weight of a baby diaper has been reduced by over 44% since 1987.

Similar positive trends have been shown for incontinence and feminine care products. In addition to our own LCA activities, we work with

regulatory authorities to ensure that environmental standards are rigorous and meaningful; we measure our performance against external standards; and we work with others to help find new and innovative solutions to reducing waste in the community.



→ **Optimisation of resource use**

Nonwovens and related industries have a vested interest in making the most efficient use of energy and raw materials, whether the latter are renewable or fossil-based. Some of the raw materials used in our products include pulp, rayon (viscose), cotton and polymers from renewable and non-renewable resources. Companies have already been driven to change raw materials and energy sources for economic reasons and are regularly challenging the energy sources and raw materials they use and seeking to introduce new raw materials to reduce costs and deliver higher performance products and thereby optimise sustainability and eco-efficiency. In our value chain most of the environmental impact is located upstream i.e. in the production of polymers or forestry-based feedstock. The production and the conversion of nonwovens into finished goods have historically been energy efficient production steps.

The reusable versus single-use products debate

Single-use products are often assumed to be worse for the environment than their reusable counterparts. This is especially the case for baby diapers and baby wipes. However, recent life cycle assessments have demonstrated that the assumptions regarding single-use diapers and wipes are unfounded. When all impacts are taken into account, the impact on the environment for reusable and single-use products is different. While single-use products have a higher impact in terms of use of raw materials and waste, reusable products also have a significant impact due to the amount of water, detergents and energy required to wash and dry them.

As a consequence, it cannot be said that either is superior from an environmental perspective. The 2008 U.K. Environment Agency lifecycle assessment confirms that there is no significant difference between the potential environmental impact of cloth and single-use diapers. This means that consumers are free to choose the solution they prefer based on hygiene, convenience and product performance.

The use of wood pulp in absorbent hygiene products is a small part of total wood consumption. Paper products including newspaper, copy paper, household and hygiene paper consume about 15% of the total worldwide commercial wood production. Only a very small amount, less than 1%, is used globally for manufacturing single-use diapers, feminine care products and adult incontinence care products.

Members of EDANA are committed to supporting sustainable management of forests based on sound ecological science, social responsibility and economic viability. We encourage



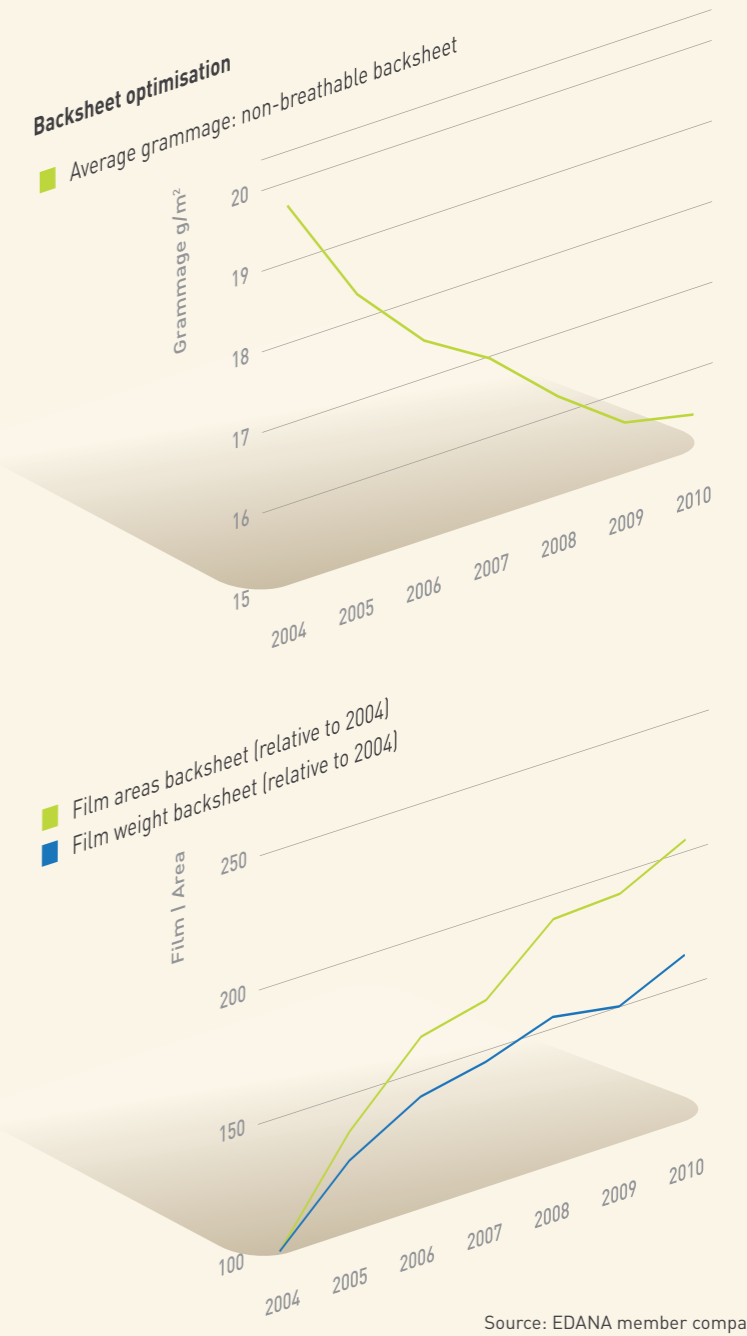
third party verification or certification of compliance with sustainable forestry practices when it contributes to improvement in practices.

We encourage the development of standards, performance measures, and a continual improvement in best practices for forest ecosystems. We recognise the benefits that methods employed by certification schemes bring to forest product companies, since most schemes create a formal organisational framework for the setting of goals and operations as a whole. However, we do not specify certification by any single organisation.

The absorbent hygiene product and personal care wipes industry will continue to monitor opportunities to use alternatives to fossil-based resources while at the same time continuing to reduce the amount of material in our products, which is the most effective way to minimise their environmental impact at the current time.

Example 10: Reducing the thickness of films made possible through step changes in technology offers significant gains for film producers and their customers.

In the case of one film producer, a reduction of 4 g/m² in film thickness resulted in annual savings of 8,000 m² of plastic, conserving natural resources and reducing annual emissions of CO₂ by 18,000 mt. In addition, 800 truck journeys are avoided and 192,000 litres of diesel are saved during raw material delivery and film transport. Reductions in thickness alone mean annual savings in raw material costs of €10 million for this client and its customers. Further savings for customers come from 'lighter' end products and an improved efficiency in processing, since rolls of film are significantly longer. This leads to fewer roll changes, reducing process waste and its financial impact, improving competitiveness and protecting jobs. Lighter products enable savings in packaging and logistics costs. Sustainability thus delivers both financial and ecological benefits.





Example 11:
Geotextiles

Tensile properties and longevity are of the utmost importance for geotextile products and their end use in construction projects. Through utilisation of new production technology developments for improving the properties in geotextiles it has, in recent years, been possible to reduce the weight of geotextile products by up to 10% while maintaining the required properties.



Example 12:
Acoustic products

Acoustic nonwovens are employed in areas as diverse as housing or automotive products. Recent innovations in the production of ultrafine fibres has made it possible to reduce the weight of nonwoven applications by up to 90% while retaining the equivalent acoustic insulation properties. In automotive applications this has the additional benefit of reducing the overall weight of the vehicle, and thereby assisting in fuel economy improvements.

→ Waste prevention and reduction

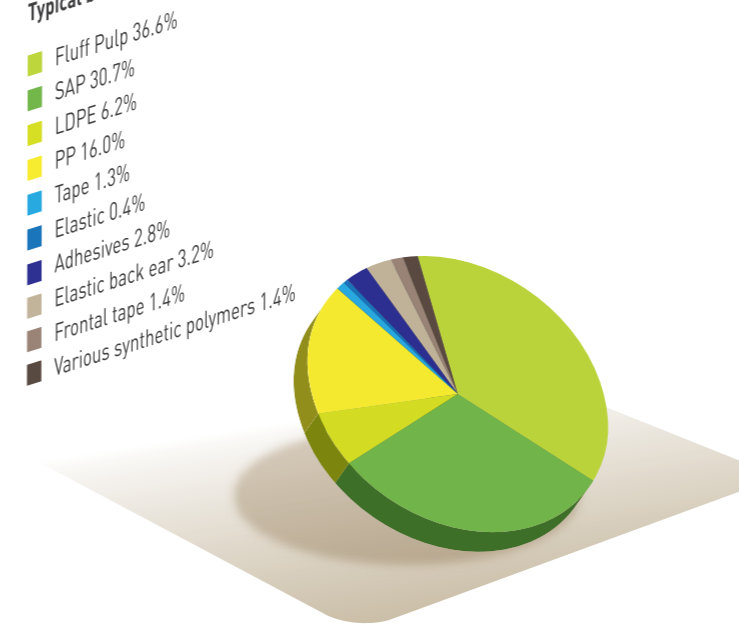
Many of the products from the nonwovens and related industries are single-use products. While these products provide essential benefits to their users, they also generate waste.

It is estimated that today in the European Union absorbent hygiene products (baby diapers, feminine care products and incontinence products) represent between 1.5% and 6.3% of municipal solid waste, depending on the degree of sorting and recycling achieved at national or regional level. These figures are based on the average weight of used products and the number of products sold in the European Union [Sources: UK LCA 2008, WRAP, Eurostat, Eionet].

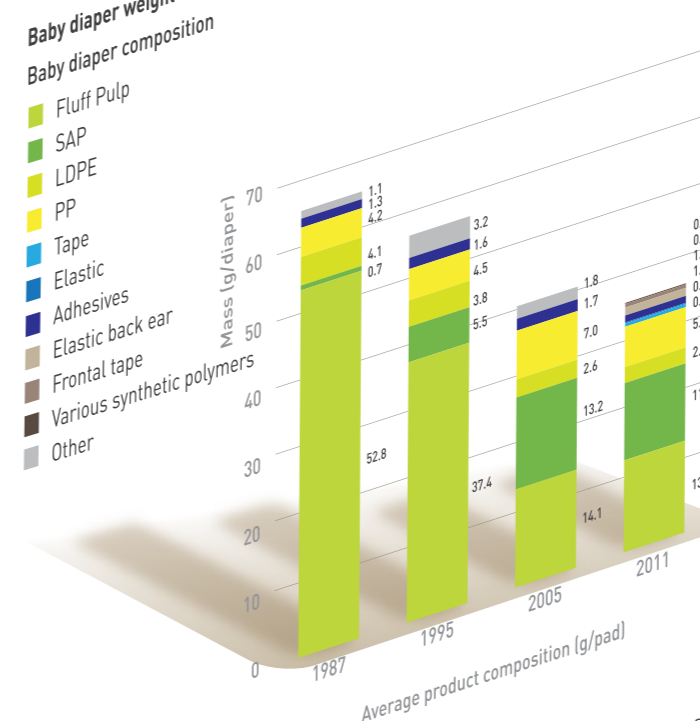
Throughout the value chain companies have made significant efforts to reduce the amount of waste generated during production and to limit the weight of products which in turn become waste. The example of absorbent hygiene products shows a drastic reduction of the average weight of products: over the last 25 years the weight of an average baby diaper has been reduced by more than 44%, from 65 grams in 1985 to 36 grams in 2009.

Much has been done and is still being done to improve environmental performance in the production and design of baby diapers and incontinence products. Today's products are made in such a way as to make prudent and efficient use of natural resources.

Typical baby diaper composition 2011



Baby diaper weight reduction and change in composition 1987-2011

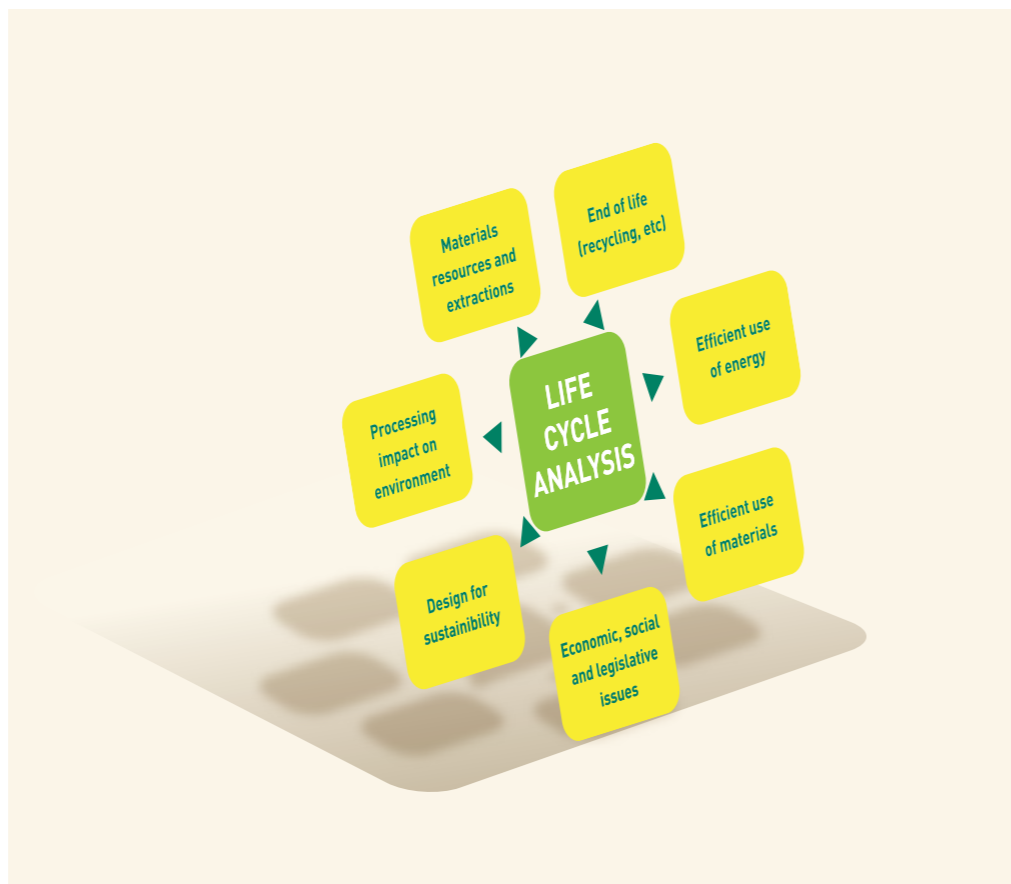


Source: EDANA

The nonwovens and related industries are conscious of the fact that waste is a key challenge that needs to be addressed in order for industry to be more sustainable, which is why efforts in the field of waste reduction are continuous, to even further reduce waste in the future. Given the fact that for every product there is a limit to how much its weight can be reduced, other possibilities are being explored, for instance the use of alternative raw materials, recycling, or compostable materials and innovative breakthroughs can bring further change with time.

Efforts to continuously reduce the weight of materials while increasing their level of performance is a key sustainability initiative. Over the years many products such as baby diapers or feminine hygiene products have become very light.

→ **Life cycle assessment (LCA)**
 EDANA continues to promote and support its members in using a life cycle approach to measure their environmental impacts and our most recent LCA study was carried out for baby wipes.



Example 13:
 Life cycle assessment of baby wipes

In 2010 EDANA coordinated a lifecycle assessment (LCA) for the major producers of baby wipes. The LCA compared baby wipes, washcloth and cotton balls, and shows that a single-use product does not necessarily have a worse impact on the environment than a reusable product.

The study shows a different environmental impact of baby wipes versus other cleaning methods, with no clear superiority on wash cloths and favourable results on the majority of indicators for the use of wipes vs cotton balls.

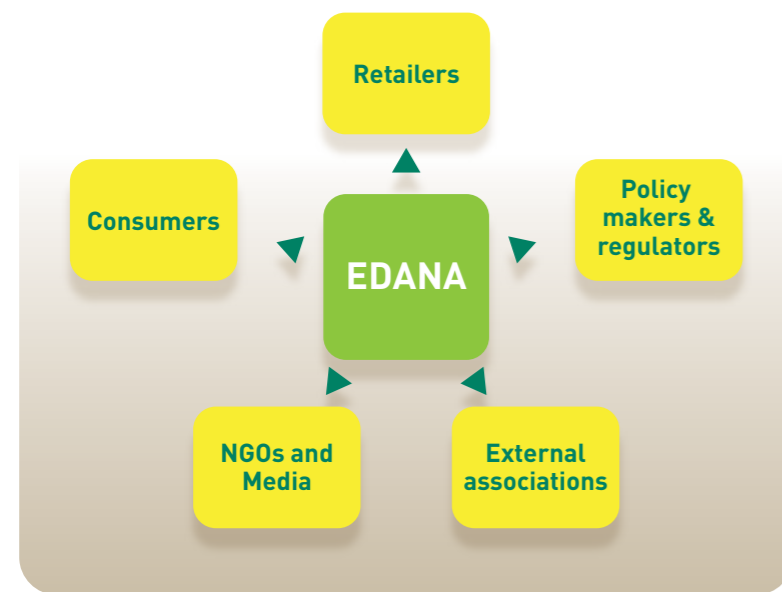
The LCA considered all environmental impacts throughout the life of each product across the European Union, from raw materials production to waste management. The study is inconclusive for the comparison between baby wipes and washcloths, with different environmental impacts driven by the amount and temperature of the water used with the washcloth, and how efficient the washing of the cloth is. Contrary to some popular opinions, the study shows that a single-use product does not generally have a worse impact on the environment than a reusable product.



Depending on the impact area considered, the impact of washcloths was either higher or lower than the impact of baby wipes. Observed at different stages of the life cycle, the environmental impact of baby wipes comes largely from the use of raw materials and the need to manage the waste at the end of the cycle. The results for washcloths however, depends almost entirely on how they are used: washcloths could have a lower impact than baby wipes if the quantity of warm water were reduced and the washing process optimised through better than average detergents and washing machines, not using electrical dryers and washing in full loads.

A complementary study on the use of washcloths showed that these users tend to use high amounts of warm water when cleaning the baby (an average of two litres per cleaning). To illustrate this, the study calculates that the water consumed to produce all baby wipes annually used in the EU is equivalent to the annual water consumption of 44,000 people. Replacing all baby wipes with washcloths would mean consuming 7.5 times more water, the equivalent of the annual water consumption of 328,000 people.

Engaging our stakeholders



Engaging with our stakeholders; our members, NGOs, media and policy bodies, is an integral part in enabling us to deliver value to our membership and continue to play our role as a trade association.

The nonwovens and related industries work with other industries and organisations in an open, proactive and transparent manner. This has enabled our industry to preventively address potential challenges, take responsibility and play an active role in solving social, economic or environmental issues. In the future we hope to begin direct engagement with retailers and key NGOs to further the sustainability agenda for our industry.

In the regulatory field, EDANA has been an active speaking partner at regional, national and international level on a wide range of legislation

and regulations impacting the nonwovens and related industries. For example, in the case of the European Union's Regulation on the Evaluation, Authorisation and restriction of Chemicals (REACH), our industry actively contributed to finding workable solutions for the effective implementation of the new regulation and is a recognised expert party of the European Chemicals Agency.

EDANA has also engaged in an ongoing dialogue with the Nordic Ecolabelling Board to ensure that the criteria used for awarding the Nordic Swan label are sound and balanced. The flushability of wipes was also a topic on which industry has made significant efforts to address issues related to wipes potentially causing problems in waste water management systems. This was done through active cooperation with

waste water treatment authorities, and producers of wipes took the initiative of developing test methods to ensure that only wipes that can be flushed without causing damage to waste water treatment facilities are marketed as such.

Our industry will continue to manage its impact on society, the economy and the environment in a proactive and forward-looking way, seeking to continue to increase its positive contribution while reducing any negative impacts. Some of our activities include a sustainability survey and a quality of life survey of end users.

→ Sustainability engagement survey

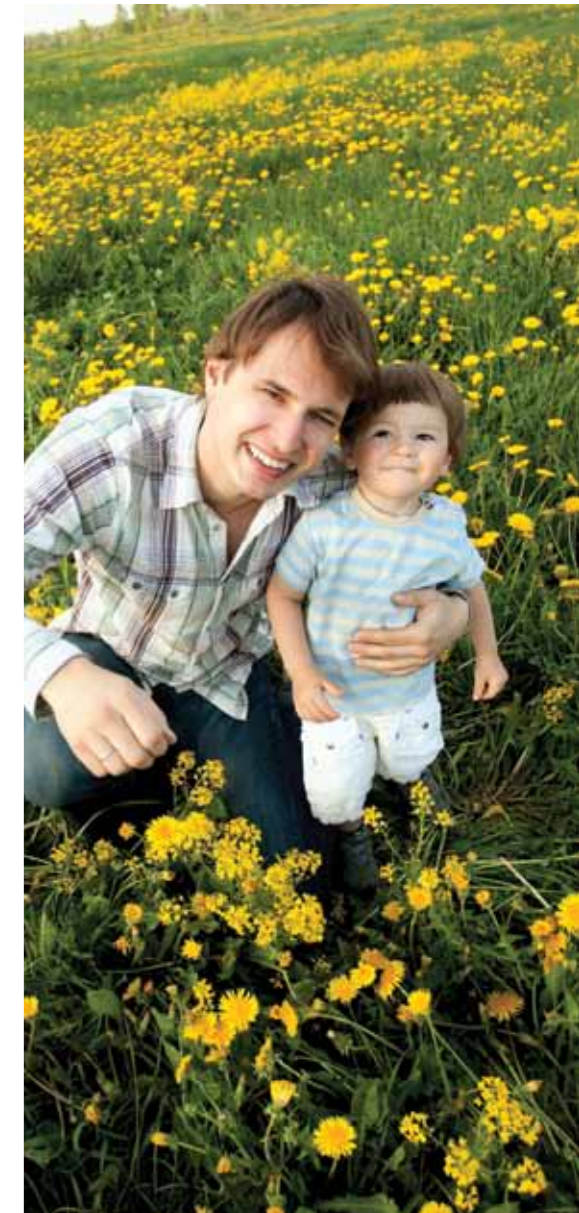
In 2009 EDANA conducted a detailed survey of its member companies to gain insight on the degree of commitment of our industry towards sustainability and set a baseline to measure future trends. The main findings are summarised as follows:

- In 76% of companies, the highest level of management is involved in sustainability activity and sustainability-related topics are frequently discussed in Board meetings;
- In 65% of companies, sustainability is taken into consideration in all aspects of product development and innovation;
- Sustainability is driven by customers for 58% of companies;
- 38% of companies publish a dedicated sustainability report, a further 22% plan to do so soon (48% report as part of annual report);
- 27% of sustainability reporting includes quantitative results and quantitative commitments for the future;
- A majority of companies are working towards a dedicated report with quantitative results and quantitative and forward-looking commitments;

- The main focus areas are raw materials sourcing, materials efficiency and energy efficiency;
- In terms of collection of aggregated data, the use of resources, energy and waste are well covered, while there is a relatively low level of reporting on recycling;
- 48.3% of companies have a sustainability strategy, 34.5% are developing one;
- 32% of companies work with suppliers to improve sustainability.

Many companies see sustainability activity as an opportunity to gain a competitive advantage, to create new business, improve their image and to motivate or attract employees. Sustainability is equally perceived as a risk, with high costs, the risk that efforts are not rewarded financially, potential over-regulation, a non-scientific approach of some stakeholders, conflicting or fragmented demands from different customers and finally an excessive focus on the environment as opposed to social and economic aspects.

We will repeat this survey in 2011, to allow us to compare results and assess our progress.



Our commitments for the future

We are committed to promoting a decision making culture that includes innovative practices to achieve social, economic and environmental objectives.

Future efforts and activities

The nonwovens and related value chain continues to work on making our industry even more sustainable. This work is conducted by individual companies working on their products and processes and at industry level in the framework of EDANA. It builds on a long-standing tradition of pioneering efforts in the field of life cycle assessments (LCA) and materials efficiency.

In this spirit, the industry is working towards the development and implementation of good sustainability practices, the collection of sustainability metrics, and a series of LCA to measure and where possible reduce the environmental impact of specific product categories.

In support of our sustainability strategy, we continue to support LCA for nonwovens and related products, and report on key sustainability indicators such as resource efficiency.

We are looking to develop guidance on good sustainability practices and to facilitate the sharing of sustainability related information in our industry. In addition, opportunities will be explored for the use of recycled fibres and polymers in nonwovens on the basis of existing studies and industry case studies, and when appropriate, member companies will be supported in increasing their recycled content and the recyclability of their finished products. We are also exploring the option of an LCA tool for companies to use in the evaluation of their environmental impacts.

→ Industry-wide effort

EDANA aims to leverage sustainability within the value chain and increase engagement with stakeholders. With the active support and involvement of its members, EDANA will lead the following efforts:

- Establishing and promoting a framework to help member companies include sustainable development considerations in corporate decision-making at all appropriate levels;
- Providing appropriate information and, if necessary, training, on sustainable development;
- Reporting on the sustainable development of our industry.

→ Key sustainability activities for the future

- Develop a proposed guidance document for sustainability questionnaires.
- Publish a communication document on all EDANA LCA projects.
- Identify and share best practices throughout the value chain allowing all members of EDANA to implement changes and become more sustainable.
- Give EDANA members access to a sustainability tool and create a universal benchmark for the value chain.
- Monitoring of sustainability-related legislation to spot potential legislative issues ahead of time.
- Guidance document for sustainability questionnaires to facilitate the efficient exchange of information within the value chain.

→ Waste panel 2011

EDANA is in the process of organising an expert panel on single-use hygiene products, to be held in 2011. This initiative was taken by producers of absorbent hygiene products and personal care wipes to:

- Proactively identify opportunities for industry to take further responsibility for waste generated;
- Gain insight on the current and future compatibility of absorbent hygiene products and wipes with major waste management technologies and identify areas for further improvement;
- Understand how our industry can contribute to the development of sustainable waste disposal in developing and emerging markets.

This waste panel is an example of how the nonwovens and related industries are proactively addressing sustainability related challenges.

→ Monitoring and reporting

Companies will in confidence submit information related to the sustainability of their activity to EDANA with a view for enabling detailed and representative reporting of aggregated data on the sustainability efforts and future commitment to the entire nonwovens and related value chain and the communication of achievements, efforts and decisions to industry and all relevant stakeholders.

Although the past couple of years have been challenging for the industry, EDANA remains committed to further raise our ambitions in the field of sustainability.



FOR MORE INFORMATION VISIT:

www.sustainability.edana.org

About the publisher:

EDANA is a leading association and voice of the nonwovens and related industries. It is Europe-based, has a global outlook and aspires to provide leadership. It aims to create an environment beneficial to innovation and sustainable and profitable growth of industry participants through dialogue with stakeholders and the active promotion of sustainable development, consumer interests and transparency.

EDANA represents, protects and actively promotes the common interests of the nonwovens and related industries and their suppliers and provides the umbrella under which industry-wide initiatives of a non-competitive nature can be undertaken.

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