

# SUSTAINABILITY REPORT

4<sup>th</sup> EDITION, 2015



 **edana**  
THE VOICE OF NONWOVENS

# TABLE OF CONTENTS

|   |           |  |  |
|---|-----------|--|--|
| <b>1. ACKNOWLEDGEMENTS</b>                                      | <b>3</b>  |  |  |
| <b>2. EXECUTIVE SUMMARY</b>                                     | <b>4</b>  |  |  |
| <b>3. ABOUT EDANA</b>   | <b>6</b>  |  |  |
| <b>4. FOREWORD FROM THE CHAIR</b>                               | <b>8</b>  |  |  |
| <b>5. A BIG CONTRIBUTION TO THE WORLD</b>                       | <b>10</b> |  |  |
| A. NONWOVEN FABRICS   | 12        |  |  |
| B. SUPERABSORBENT POLYMERS                                      |           |  |  |
| C. PULP   |           |  |  |
| D. ADHESIVES  |           |  |  |
| E. FILMS  | 13        |  |  |
| F. KEY SUPPLY CHAIN PARTNERS                                    |           |  |  |
| • Fibres, filaments, polymers and additives                     |           |  |  |
| • Converters  |           |  |  |
| • Machinery builders  |           |  |  |
| • Research institutes, test labs and consultants                |           |  |  |
| G. KEY APPLICATIONS   | 14        |  |  |
| • Comfort and convenience: Hygiene                              |           |  |  |
| • Kind to seeds and shoots: Agriculture                         |           |  |  |
| • Safe driving: Automotive                                      |           |  |  |
| • Keeping in shape: Interlinings                                |           |  |  |
| • For the bricks and mortar: Construction                       |           |  |  |
| • Home comforts: Household                                      | 15        |  |  |
| • In good health: Medical                                       |           |  |  |
| • Cleaner air and water: Filtration                             |           |  |  |
| • For busy lifestyles: Wipes                                    |           |  |  |
| • Structural stability: Geotextiles                             |           |  |  |
| <b>6. PROMOTING SUSTAINABILITY:<br/>ACTIVE ON ALL FRONTS</b>    | <b>16</b> |  |  |
| A. LIFE WITH NONWOVENS:<br>GETTING THE BENEFITS ACROSS          |           |  |  |
| B. SUSTAINABILITY ENGAGEMENT SURVEY                             | 22        |  |  |
| C. INDEX™ 14 EXPANDED   | 25        |  |  |
| D. SYMPOSIUM: CONSIDERING RENEWABLE<br>RAW MATERIALS            |           |  |  |
| E. GUIDANCE: EFFECTIVE ENVIRONMENTAL CLAIMS                     | 26        |  |  |
| F. EXPERT PANEL: CONSIDERING FUTURE<br>WASTE MANAGEMENT         | 27        |  |  |
| G. ENVIRONMENTAL PRODUCT DECLARATIONS                           | 28        |  |  |
| H. SUSTAINABILITY CERTIFICATION OF<br>ABACA FIBRES              | 29        |  |  |
| <b>7. LIFE CYCLE ASSESSMENTS</b>                                | <b>30</b> |  |  |
| <b>8. TAKING A LONG-TERM APPROACH</b>                           | <b>36</b> |  |  |
| A. EMPLOYMENT AND REVENUES:<br>ADDING VALUE FOR EUROPE          |           |  |  |
| B. FUTURE GROWTH: TAKING FULL RESPONSIBILITY                    | 37        |  |  |
| C. SUPPORTING FREE AND FAIR TRADE                               |           |  |  |
| D. HEALTHCARE BENEFITS: FIGHTING INFECTION                      | 38        |  |  |
| E. GUARANTEEING SAFE PRODUCTS                                   |           |  |  |
| F. TAKING A PRODUCT STEWARDSHIP APPROACH                        | 39        |  |  |
| G. A LEVEL PLAYING FIELD:<br>HARMONISING TEST METHODS WORLDWIDE | 40        |  |  |
| H. COMFORT AND CONVENIENCE:<br>QUALITY OF LIFE FOR ALL          |           |  |  |
| I. PREVENTING WASTE   | 41        |  |  |
| <b>9. DIRECT ENGAGEMENT:<br/>BEING PROACTIVE</b>                | <b>42</b> |  |  |
| <b>10. FUTURE INDUSTRY WIDE EFFORTS<br/>AND ACTIVITIES</b>      | <b>44</b> |  |  |
| <b>11. MESSAGE FROM THE<br/>GENERAL MANAGER</b>                 | <b>46</b> |  |  |

# 1. ACKNOWLEDGEMENTS

## Authors and contributors

EDANA would like to warmly thank the following member companies for their contribution to this report:



### Project coordination, text review and editing:

- Pierre Conrath (EDANA)
- Adrian Wilson, Nonwovens and Technical Textiles Specialist

### Production and design coordination:

- Abby Bailey (EDANA)
- Giovanna Merola (EDANA)

### Design:

Alligence Communications

### Published by EDANA

International association serving the nonwovens and related industries



## 2. EXECUTIVE SUMMARY

---

Since our last report in 2011, EDANA has been extremely proactive in addressing every aspect for the nonwovens and related industries in respect of the social, environmental and economic aspects of sustainability.

---

The recent completion of our major new study, "Life with Nonwovens", for example, draws attention to eight categories of durable product, and the essential contribution each makes to our 21<sup>st</sup> Century life.

The full-spectrum sustainability study was carried out with the support of EDANA member companies, and the internationally-respected consultancy Denkstatt. It involved the collection of important data for the total life cycle of the products concerned,

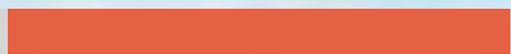
development of a comprehensive carbon footprint model, with economic data also compiled to allow cost calculations and comparisons.

The study also features striking infographics which will be deployed to show the benefits of these materials across to a wider, non-specialist global audience.

Meanwhile, EDANA's comprehensive Life Cycle Analysis projects have continued, with the latest proving that a significant weight

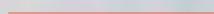
reduction has again been achieved for baby diapers over the past decade.

This, our 4<sup>th</sup> Sustainability Report, also details the many seminars, symposia, surveys, working groups and specialist committee meetings which have taken place in support of promoting the sustainability of our industry – in addition to governmental engagement and continuous dialogue with relevant third party organisations – over the past three years.



# 3 YEARS

OF EFFORTS TO DRIVE AND FOSTER  
SUSTAINABILITY IN OUR INDUSTRY



### 3. ABOUT EDANA

EDANA is the international association serving the nonwovens and related industries. Our diverse membership of more than 240 companies represents over 90% of the industry across the nonwovens value chain. This vertically-integrated structure encompasses upstream suppliers, converters and producers. As a trade association this makes us unique, since our membership reflects our entire value chain.

Over time, manufacturers of nonwovens and related products have pursued sustainability through production efficiencies, significantly reducing energy demand and production waste by optimising production processes.

EDANA and its members have a vested interest in making the most efficient use of energy and raw materials. Some of the raw materials employed in our products include pulp, rayon (viscose), cotton, recycled polymers and polymers from renewable and non-renewable resources. Companies have already been driven to change the quantity and type of 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. 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 of nonwovens and their conversion into finished goods have historically been energy efficient.

THE VOICE OF NONWOVENS

edana



## **Our vision and mission**

Our role is to provide our members with a comprehensive range of services and the information and data necessary to enhance their industry goals and performance. EDANA provides the nonwovens and related industries with vital issues management, lobbying, advisory, educational, networking and information-sharing services. 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 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.

## **Scope of this report**

Building on the publication of the third Sustainability Report in 2011 – which expanded beyond hygiene products to encompass all application areas and the entire value chain for nonwovens and related products – we have sought to further highlight the social, environmental and economic benefits of our industry.

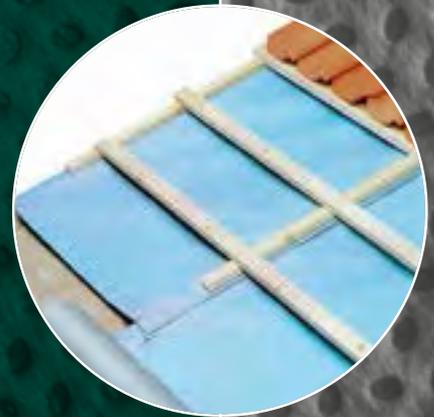
## **How we work**

EDANA is organised to address sustainability through a number of groups dedicated to addressing specific aspects of our industry's sustainability agenda.

With support from the Sustainability Committee to manage all projects related to sustainability, an annual Forum to share best practice and key developments between EDANA members, and support from the Board level with a group that translates strategic priorities into concrete actions, EDANA members have both excellent representation, and multiple chances to participate in setting the sustainability agenda for the industry.

# 4. FOREWORD FROM THE CHAIR

In everyday life, people are very likely to come into contact with nonwovens, either directly – through using products such as personal care wipes or baby diapers – or indirectly, since these materials find their way into the cabin air filters of cars, stabilisation layers under roads and the insulation envelopes of buildings, to name just three applications. With almost limitless potential, nonwovens really are the fabrics of the future!



# THE EFFICIENCY, VERSATILITY AND INNOVATION

OF THE NONWOVENS AND RELATED  
INDUSTRIES ARE THE BEST  
GUARANTEES OF CONTINUED GROWTH.

Sustainability is a continuous process – there is no such thing as a ‘sustainable nonwoven’, or indeed any other product – but our industry has delivered many solutions to make our products and processes more efficient throughout their lifecycle. In the wake of the hygiene sector, nonwovens in a wide variety of applications have contributed to cleaner air and water too.

Nonwovens can be used as more efficient alternatives to other materials in fields such as packaging, but also, for example, in vehicles – as lighter, more efficient and recyclable substitutes to metal or composite parts. Compostable nonwovens used in agricultural applications are another example. Such materials are solid enough to fulfil their roles and yet disappear when the job is done. The versatility of nonwovens lies in the wide choice of raw materials they can be made from, their precisely-engineered structures and the customised features they can be given to make them serious competitors for plastics, paper, textiles, glass, metals and materials. This is a guarantee that existing application areas will continue to grow and new markets will emerge thanks to the creativity of the companies in our industry.

I believe that sustainability is a driving force for innovation, especially when the three pillars of social, environmental and economic impacts are fully considered. Innovation may be driven by a desire for renewable resources, to reduce waste and ensure better lives, for a healthy planet and a dynamic economy for current and future generations. Nonwovens play a major part in so many daily lives, be it by providing

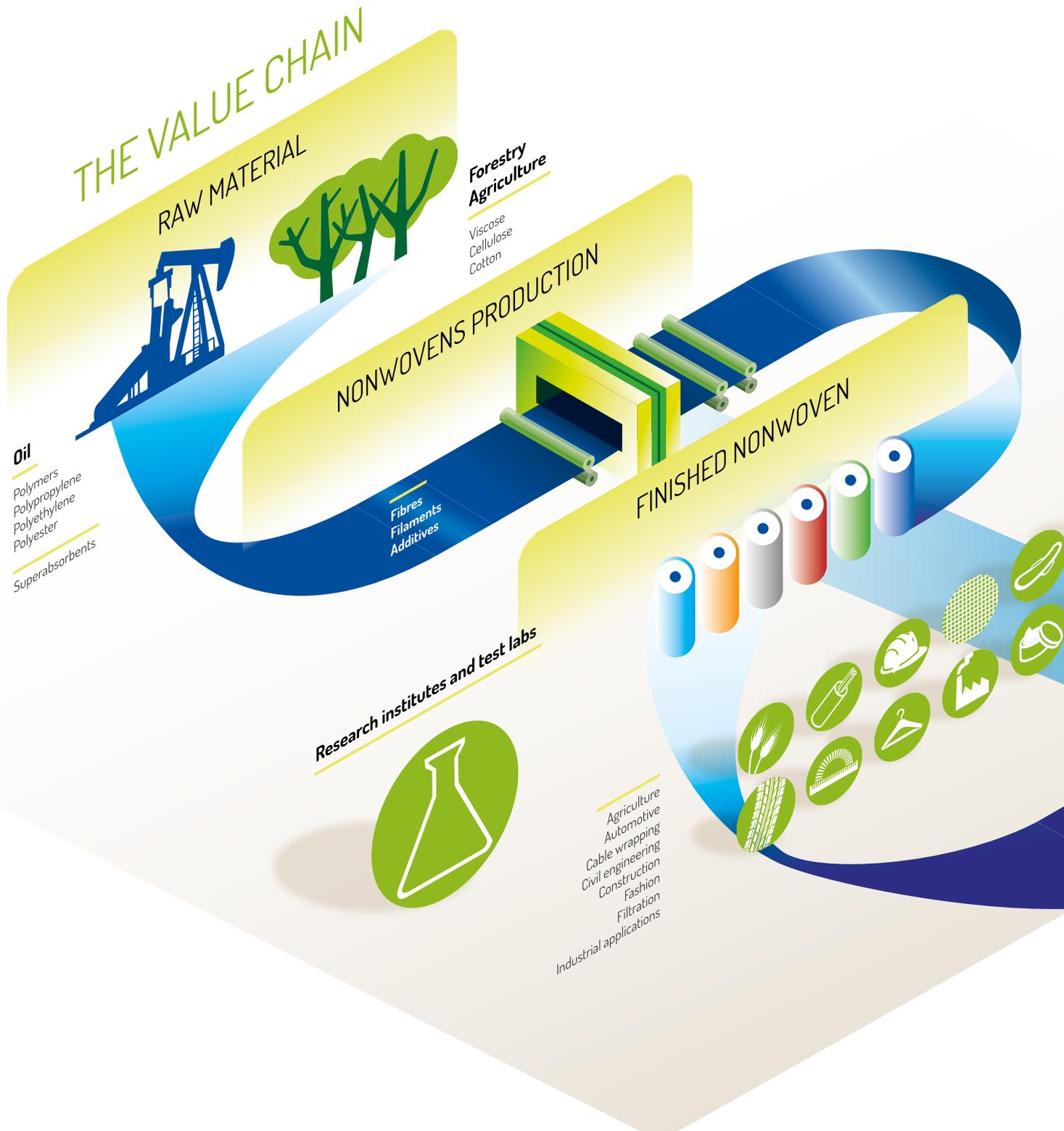
advanced convenience and comfort in hygiene, protecting patients and healthcare professionals during surgery, or ensuring that a road constructed today lasts for many years, so it is only natural that our challenge continues to be finding new and innovative ways to address the needs of society – today and tomorrow.



**Patricia Featherstone**  
Chair of the EDANA Board of Governors

# 5.

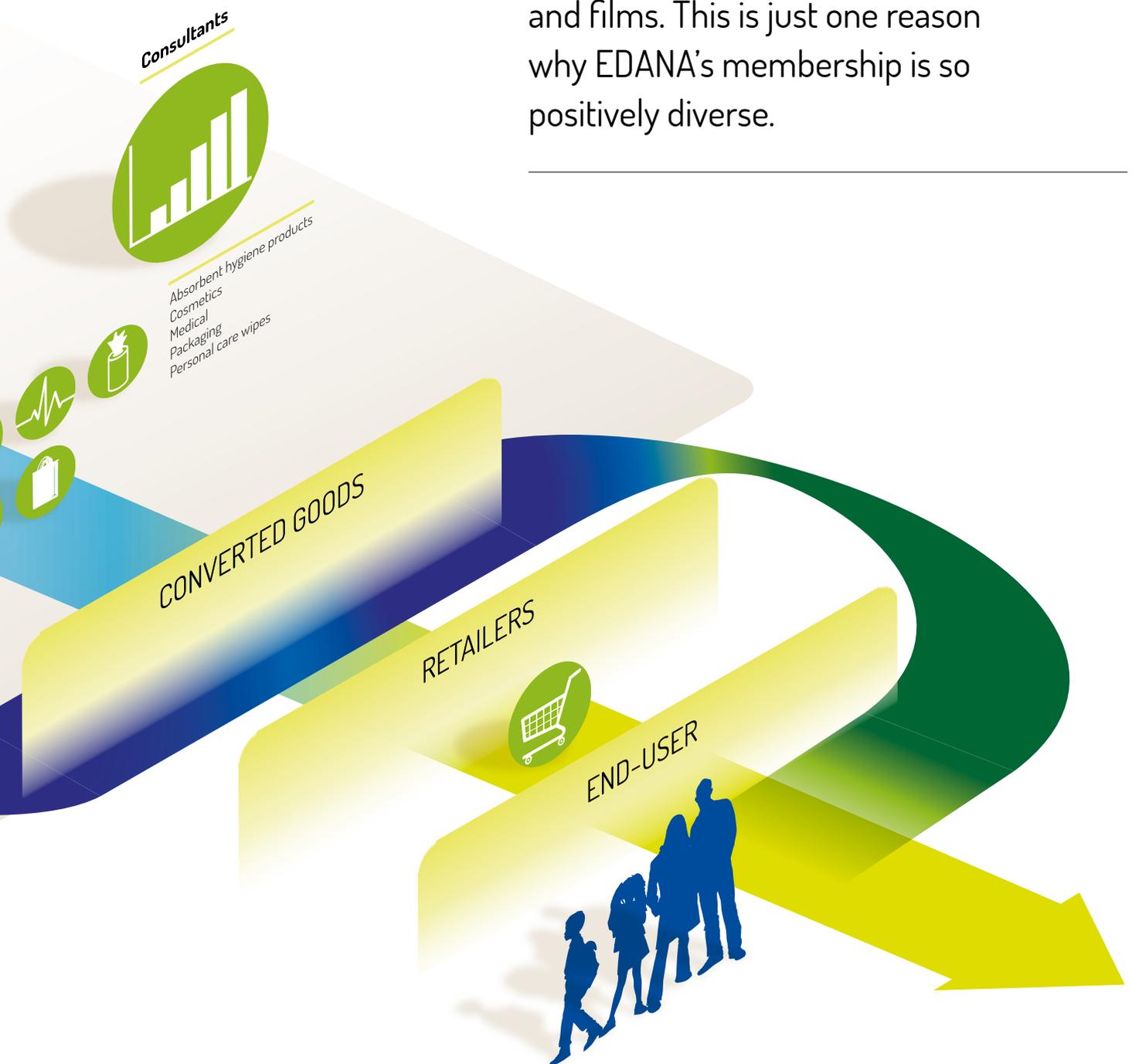
## A BIG CONTRIBUTION TO THE WORLD



---

While in certain application areas, nonwovens are employed as end-products by themselves, they are often used in combination with other materials. This is particularly the case for absorbent hygiene products, which are complex constructions of nonwovens, superabsorbent polymers, pulp, adhesives and films. This is just one reason why EDANA's membership is so positively diverse.

---



## A. NONWOVEN FABRICS

Nonwovens are high-tech, engineered fabrics made from both natural and oil-based, man-made fibres. They are employed in a wide range of consumer and industrial products in applications for both the home and the workplace, and have become a versatile and indispensable part of modern life.

Nonwovens and related products can be categorised as durable or single-use. Both categories address vastly different challenges in terms of product performance and sustainability. For example, a durable nonwoven used as a geotextile supporting a road or building, for which the key objective is to enable longer lasting infrastructure, is designed to last and perform over a very long time, after which it can still be recovered. A single-use product such as a baby diaper however has a completely different profile, as it is designed to perform once, for a relatively short time and to deliver its performance with a minimal impact in terms of raw material use and waste generated.

The specific functions of nonwovens include: absorbency, liquid repellence, resilience, stretch, softness, strength, flame retardancy, washability, cushioning, filtering, bacterial barrier and sterilisation. These properties are often combined to create fabrics suited for specific functions. They can rival the appearance, texture or strength of a woven fabric and be as bulky as the thickest padding. The versatility of nonwovens means they can often provide innovative, cost-effective and sometimes unexpected answers to many functional challenges.

## B. SUPERABSORBENT POLYMERS

Superabsorbents (also known as superabsorbent polymers or SAP) absorb many times their own weight in aqueous fluids; up to 300 times their weight in water without releasing it. They are therefore an



Nonwoven fabrics



Superabsorbent polyacrylate (SAP)

Photo courtesy of Evonik



Fluff pulp



Adhesives

ideal material for use in products designed to absorb and retain fluids such as baby diapers, incontinence products, and feminine hygiene pads and liners.

They play an important role in the continuous development of lighter and better performing products. Innovation allows for an ongoing reduction of the amount of raw materials used and the amount of waste generated by the end-user.

## C. PULP

Wood pulp is a renewable material and 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. Fluff pulp is often the main ingredient in airlaid nonwovens, found in wipes or food packaging for example. Airlaid nonwovens provide for better bulk, porosity, dry and wet strength, softness and water absorption properties compared with normal tissue paper. Fluff pulp used in nonwovens and related products is mainly sourced from sustainably managed forests. In the U.S., Finland and Sweden, the main suppliers of wood for fluff pulp, there are more trees today than 100 years ago, because forest owners typically plant more trees than they harvest.

## D. 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.

## E. 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.



Diapers



Polyethylene terephthalate

## F. KEY SUPPLY CHAIN PARTNERS

### Fibres, filaments, polymers and additives

Fibre producers and chemical 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.

For some applications, this has been achieved through the introduction of fibres that melt at low temperatures and can be bonded together thermally with much less energy. Natural fibres, recycled PET, and biomaterials are increasingly being employed where their selection makes sustainable sense. 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.

### Converters

The conversion of nonwovens and other components into finished goods is a critical part of the supply chain. By essence this is an



Machinery builders



Research institutes

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.

### Machinery builders

The equipment used to produce nonwovens, films and other components and 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 them more energy efficient and to enable the production of materials that are as light as possible, with maximum performance. 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.

### 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 making the nonwovens and related industries 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.

## G. KEY APPLICATIONS

### Comfort and convenience: Hygiene

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 the industry's sustainability performance in 2005, measurable improvements have been shown.

### Kind to seeds and shoots: Agriculture

Nonwovens are used effectively for optimising the productivity of crops, gardens and greenhouses. Their protective nature reduces the need for pesticides and keeps manual labour to a minimum. The use of nonwoven crop covers on the land increases yields and improves the quality of the crops. Light, flexible sheets laid over seed beds create a microclimate where heat and humidity are controlled. Plant growth 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.

### Safer motoring: 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



Hygiene products



Crop covers



Car seats



Floor underlay

filters. By incorporating 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 heatformed, embossed, lined, coated and printed. In short, they contribute to making cars safer, more attractive, longer-lasting, more cost-effective and more sustainable. They are also widely used in the design and construction of other vehicles including planes, trains, boats, spacecraft, and satellites.

### Keeping in shape: Interlinings

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.

Their success lies in their versatility and also 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.

### For the bricks and mortar: Construction

In the context of volatile oil prices and regulation for the energy efficiency of buildings, recyclability of construction materials, and fire resistance, nonwovens provide cost-effective solutions to building and construction challenges. In this type of application, durability, strength and insulation properties make nonwovens a material of choice, at the same time increasing performance and extending the lifespan of buildings. For example, non-perforated, nonwoven polymeric housewrap material decreases air infiltration, resulting in increased energy efficiency and maximum moisture control, providing savings for both the builder during installation, and the homeowner afterwards.

Nonwovens are also employed in both the flat and pitched roofing markets. Increasingly demanding building standards, energy-saving schemes and changing weather patterns are driving the need for breathable and impervious underlays for

pitched roofs and an improved base for bituminous membranes, both of which can best be served with versatile nonwovens. The growth potential for nonwovens in the construction industry includes their use as facings for plaster board for increased thermal and sound insulation, for panels in cavity walls, and for floor and wall coverings. They will have a significant part to play in the weather-proofing and insulation of existing building stock.

### Home comforts: 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 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 which improve and protect interiors.

### In good health: Medical

Nonwovens are extensively used in the medical field and in protection against biological agents in other sectors. They can be designed to deliver critical safety properties, such as protection against infections and diseases, for the benefit of both the healthcare professional and the patient.

With today's multi-drug resistant strains of bacteria and viruses, nonwovens are essential 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 and implantable devices.

### Cleaner air and water: Filtration

Efficient, high performance filters help protect the environment and improve living



Cleaning wipes



Infection prevention



Air filters



Geotextiles

conditions by delivering cleaner water and air to our communities, regardless of where they live. 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 dozens of end-use areas and applications. Nonwovens can be engineered to meet exact specifications and stringent regulatory requirements for the filtration of air, liquid and gas and in many cases are the medium of choice.

### For busy lifestyles: Wipes

Nonwoven wipes provide strength and softness, hygiene and convenience. Over the past decade an increasingly diverse range of personal hygiene wet wipes has become available. The appeal of single-use wet wipes in both the consumer and healthcare markets is primarily down to convenience and ease of use, and supported by their ability to clean the skin or environment, and then be disposed of – controlling bacteria, and providing a cleaner skin or home environment. By modifying the base material and liquid types, manufacturers are able to tailor the physical properties of finished products to specific user needs. Wipes are also used for a variety of applications in industry including food service and industrial and specialised cleaning operations.

### Structural stability: Geotextiles

Tensile properties and longevity are of the utmost importance for geotextile products and their 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 performance properties.

## 6. PROMOTING SUSTAINABILITY: ACTIVE ON ALL FRONTS

---

EDANA is promoting sustainability through the integration of environmental, social and economic considerations into all aspects of our policies and activities. In order to contribute to a more sustainable industry we acknowledge and consider the impact of our decisions and actions beyond the gates of companies and the borders of our supply chain, and recognise that continuous improvement is essential.

---



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 to society as a whole.

Diapers, incontinence and feminine hygiene products make a huge contribution to the comfort and convenience of good hygiene for 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 filter media can improve both the purity of water and air quality, while absorbent nonwovens help clean up oil spills and geotextiles make our roads last longer, and buildings perform better.

## A. LIFE WITH NONWOVENS: COMMUNICATING THE BENEFIT

In 2013 EDANA launched a full-spectrum sustainability study with the support of its member companies and Denkstatt, an internationally-respected consultancy in the field of sustainability headquartered in Vienna, Austria.

The 'Life with Nonwovens' study considers all three dimensions of sustainability via a series of case studies in different application sectors of nonwovens. For the selected case studies, important primary data for the total life cycle, including production, use, and end-of-life phases were collected, representative of European conditions.

A carbon footprint model was developed based on the case studies, and the calculations made cover the total life-cycle of production (including the production and delivery of raw materials and fuels), as well as effects in use and waste management. Emission data were calculated for production, use, and waste management per kg or m<sup>2</sup> of product made for each selected application.

Economic data was also collected and cost calculations made, and the social aspects of using nonwovens are described qualitatively.

Based on this study, EDANA has generated a series of infographics highlighting the benefits of nonwovens to society as a whole in each of the application areas covered in the Denkstatt Report:



AROUND **750 KM<sup>2</sup>**  
 OF GEOTEXTILE NONWOVENS  
 (THE EQUIVALENT OF MORE THAN  
 185,000 FOOTBALL FIELDS) ARE  
 MANUFACTURED AND SOLD EVERY  
 YEAR. 60% OF THIS IS USED IN THE  
 CONSTRUCTION OF ROADS.

## Geotextiles: Road construction

Nonwovens used in road construction mean a stronger road, which can be manufactured with fewer materials.

By letting water pass through the nonwoven layer, this keeps other materials from slipping away.

By being lighter, thinner and more resource-efficient than gravel, nonwoven geotextiles offer both an environmental benefit, and cost savings.

TODAY, WITH  
**70%** OF ROADS  
 CONSTRUCTED  
 USING NONWOVENS REPRESENTS



IF ALL NEW ROADS  
 IN THE E.U. WERE BUILT  
 WITH NONWOVENS,  
 THIS WOULD INCREASE TO



A SAVING OF  
**4.8 MILLION**  
 TONNES OF  
 CO<sub>2</sub> EQUIVALENTS



A SAVING OF  
**6.8 MILLION**  
 TONNES OF  
 CO<sub>2</sub> EQUIVALENTS

THIS EQUALS AROUND  
**22 BILLION KMS**  
 IN YOUR CAR.

YOU COULD DRIVE  
 AROUND THE  
 EARTH'S  
 EQUATOR  
 NEARLY  
**550,000**  
 TIMES!



OR A SAVING OF  
**32 BILLION KMS**  
 IN YOUR CAR.

YOU COULD DRIVE  
 AROUND THE  
 EARTH'S  
 EQUATOR  
 NEARLY  
**800,000**  
 TIMES!



THE BIGGEST IMPACT  
 COMES FROM THE **WEIGHT**  
 OF THESE MATERIALS.



GRAVEL  
**690KG/M<sup>2</sup>**

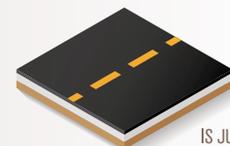
GRAVEL WEIGHS **690KG PER M<sup>2</sup>**  
 VERSUS **175G PER M<sup>2</sup>**  
 FOR NONWOVENS, MAKING  
 THEM ALMOST  
**4,000 TIMES**  
**LIGHTER!**



NONWOVENS  
**175G/M<sup>2</sup>**

FROM THEIR  
 MANUFACTURE  
 TO INSTALLATION, **1 M<sup>2</sup>**  
 OF GRAVEL TO COVER ROADS  
 TO A STANDARD THICKNESS  
**OF 30CM IS**  
 EQUIVALENT TO  
**11.2KG OF CO<sub>2</sub>**  
 WHILE EVERY  
 M<sup>2</sup> OF GEOTEXTILE  
**NONWOVEN**  
 IS EQUIVALENT  
 TO **0.6KG OF CO<sub>2</sub>**.

NEARLY  
**20 TIMES**  
 MORE EFFICIENT!



FOR COSTS, THIS  
 IS JUST AS IMPRESSIVE.  
 WITH A COST PER M<sup>2</sup> OF  
**BETWEEN €15 TO €30**  
 FOR GRAVEL AND  
 BETWEEN  
**€2 TO €3**  
 FOR GEOTEXTILE  
 NONWOVENS.  
 THIS MEANS A COST SAVING  
 USING NONWOVENS OF AN  
**AVERAGE 8.5 BILLION**  
 EUROS PER YEAR.  
 THAT'S NEARLY TWICE  
 THE G.D.P. OF  
 FIJI!



AROUND  
**1,840 MILLION M<sup>2</sup>**  
 OF NONWOVENS FOR CROP COVERS  
 (THE EQUIVALENT OF 40,000 TONNES)  
 ARE MANUFACTURED AND SOLD  
 EVERY YEAR.

### Crop covers

Nonwovens protect crops, which means more efficient agricultural production.

By increasing the production and limiting damage to crops, nonwovens ensure that what is grown in the field counts.

Two types of crop covers are used, to either protect the fruit or vegetable while it's growing on the field, or to protect the produce once it's been harvested.

Nonwoven crop covers can also be used again and again, making their use even more valuable.

Limiting exposure to frost, wind, rain, hail, and animals (both big and small), nonwovens offer protection for the produce and farmer alike.

IN GROWING STRAWBERRIES, A FARMER ONLY HAS TO SAVE **2%** OF THE VALUE OF THEIR CROP TO MAKE USING NONWOVEN CROP COVERS WORTHWHILE. THIS TRANSLATES TO A **SAVING OF €25 MILLION** PER YEAR OF STRAWBERRIES THAT WOULDN'T HAVE MADE IT TO MARKET, OR TO THE FARMER GROWING THEM.



AROUND **2%** OF THE AMOUNT OF TOTAL NONWOVEN CROP COVERS ARE USED TO COVER SUGAR BEET PILES. THAT IS, THE VEGETABLE ONCE IT'S BEEN HARVESTED. THIS EQUALS MORE THAN **9,000** FOOTBALL FIELDS!

BY COVERING THE SUGAR BEETS WHEN HARVESTED, FARMERS EARN **€54 MILLION** PER YEAR THAT WOULD OTHERWISE HAVE BEEN SPOILED!





WHEN **10%** OF THE HARVESTED SUGAR BEETS ARE PREVENTED FROM SPOILING, THIS SAVES **65,000 TONNES OF CO<sub>2</sub>** EQUIVALENT EMISSIONS. THIS EQUALS AROUND **300 MILLION KM** IN YOUR CAR. MEANING YOU COULD DRIVE AROUND THE EARTH'S EQUATOR ALMOST **7,500 TIMES**, OR A ROUND TRIP TO THE MOON **NEARLY 400 TIMES!**

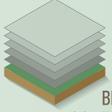




FOR THE ENVIRONMENTAL IMPACT OF THE PRODUCT, WITH AS FEW AS **2 USES**, THE **CO<sub>2</sub>** EQUIVALENT IMPACT OF THE CROP COVER FOR SUGAR BEETS IS EQUAL TO **11%** OF THE CROP'S IMPACT.




HARVEST PROTECTION COVERS ARE EVEN MORE EFFICIENT AS THEY ARE USED ON AVERAGE **5X** WHICH BRINGS THEIR CO<sub>2</sub> EQUIVALENT **DOWN TO 0.5%** OF THE CO<sub>2</sub> EQUIVALENT GENERATED WHEN GROWING THE CROP.



NONWOVENS ARE  
**USED IN 37  
 DIFFERENT  
 VEHICLE  
 COMPONENTS,**  
 A NUMBER SET TO FURTHER INCREASE

**Automotive:  
 Lightweight fabrics for vehicles**

Nonwovens are used in many parts of a car, including temperature and sound insulation, seating, liners for the roof and wheel arches, and linings and carpets throughout the vehicle.

Nonwovens replace heavier materials, meaning lighter cars which use less fuel, generating less greenhouse gas emissions. This leads to improved air quality, saving resources and better health for people.

More efficient production is also achieved with the use of recycled polyester in seating, flooring, linings and insulation, meaning a further reduction of the environmental impact of nonwovens and the cars they are used in.



NONWOVENS ARE  
**15% TO 30%  
 LIGHTER**  
 THAN THE TRADITIONAL  
 MATERIALS THEY REPLACE,  
 MAKING YOUR CAR  
 MORE THAN   
**2KG LIGHTER.**



LESS POLLUTION = BETTER HEALTH:  
 IF NONWOVENS WERE USED  
 IN ALL NEW CARS IN THE EU,  
 THIS WOULD RESULT IN  
**MORE THAN 2,000**  
 DISABILITY ADJUSTED  
 LIFE YEARS.

FOR AN AVERAGE  
 PASSENGER CAR, USING  
 NONWOVENS SAVES  
**55 KG CO<sub>2</sub>  
 EQUIVALENTS**  
 OVER ITS LIFETIME.



TWO THIRDS OF THIS  
 BENEFIT COMES FROM  
 THE USE OF THE CAR.  
 THAT IS FROM THE DAY  
 THAT YOU BEGIN DRIVING IT.



CARS USING NONWOVENS  
 IN ALL POSSIBLE  
 APPLICATIONS, FROM  
 INSULATION, TO LININGS  
**HAVE A BENEFIT OF  
 MORE THAN 30%  
 LESS IMPACT**  
 ON THE ENVIRONMENT.

EVERY YEAR ABOUT  
**13 MILLION NEW  
 PASSENGER CARS** ARE  
 REGISTERED IN THE EU.  
 IF THESE CARS WERE ALL  
 EQUIPPED WITH MODERN  
 NONWOVEN MATERIALS,



THIS EQUALS  
**3.7 BILLION KMS**  
 IN A MEDIUM-SIZED  
 PASSENGER CAR.

YOU COULD DRIVE TO THE  
 MOON AND BACK  
**MORE THAN  
 4,800  
 TIMES!**



ALTERNATIVELY,  
 THIS SAVING EQUALS  
 THE REDUCTION OF  
**250,000**  
 PASSENGER CARS   
 ON THE ROAD.   
 OR ENOUGH CARS TO  
 STRETCH THE LENGTH OF  
**ITALY**  
 FROM NORTH  
 TO SOUTH.



NONWOVEN FILTERS CONTRIBUTE TO

# MAKING VEHICLES MORE EFFICIENT

## Automotive filtration

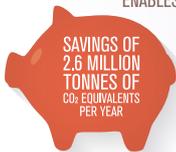
Nonwoven filters can be found in many applications in your car, including cleaning cabin air, fuel, motor oil and the engine air intake.

They are made of cellulosic pulp, polyester, glass fibres or a combination of all.

Nonwoven filters are more efficient to produce, smaller, lighter and don't need to be changed as often as other filters. Most of all, they make every kilometre you drive more efficient.

Without high performance nonwovens, many recent innovations to make cars cleaner and more efficient would not have been possible. Thanks to nonwovens, today's efficient motor technology means fuel savings and less pollution, contributing to cleaner air and better health for all people.

WITH 13 MILLION NEW CARS REGISTERED IN THE EU EACH YEAR, NONWOVEN FILTERS ENABLES...



SAVINGS OF 2.6 MILLION TONNES OF CO<sub>2</sub> EQUIVALENTS PER YEAR

THIS EQUALS 12 BILLION KMS IN A MEDIUM-SIZED PASSENGER CAR.

YOU COULD DRIVE TO THE MOON AND BACK MORE THAN 15,000 TIMES!



ALTERNATIVELY, THIS SAVING EQUALS THE REDUCTION OF

800,000

PASSENGER CARS ON THE ROAD.



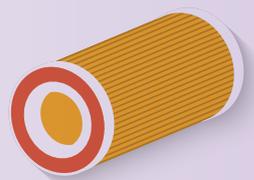
OR ENOUGH CARS TO LINE THE LENGTH OF



NONWOVEN FILTERS ENABLE ENVIRONMENTAL BENEFITS THAT ARE 6 TIMES HIGHER THAN THE ENVIRONMENTAL IMPACT REQUIRED TO PRODUCE AND DISPOSE OF THE FILTERS.

FOR AN AVERAGE CAR, USING NONWOVEN FILTERS FOR OIL, FUEL AND AIR CREATES A NET IMPROVEMENT OF 200KG CO<sub>2</sub> EQUIVALENTS OVER ITS LIFETIME.

THIS ALSO EQUALS 70 LITRES OF FUEL CONSUMED OVER THE LIFE OF EACH AND EVERY CAR.



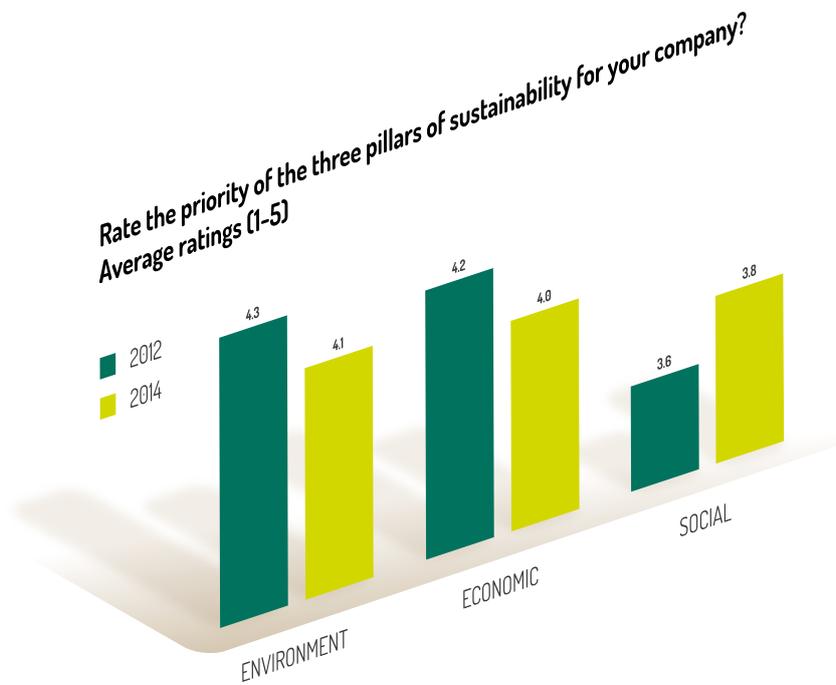
IN ALL, THIS MEANS A SOCIAL BENEFIT OF 12,700 DISABILITY ADJUSTED LIFE YEARS (DAILY) PER YEAR IN THE EU.





## B. EDANA SUSTAINABILITY SURVEY

Following the two previous sustainability engagement surveys conducted in 2009 and 2012, EDANA repeated this exercise in 2014 to report on trends among its member companies and better understand and deliver on needs and expectations in the field of sustainability. 61 companies responded to this survey, a marked increase from the previous editions. Respondents were spread across applications for nonwovens and related products and overall very representative of EDANA's total membership, with companies from all parts of the value chain.

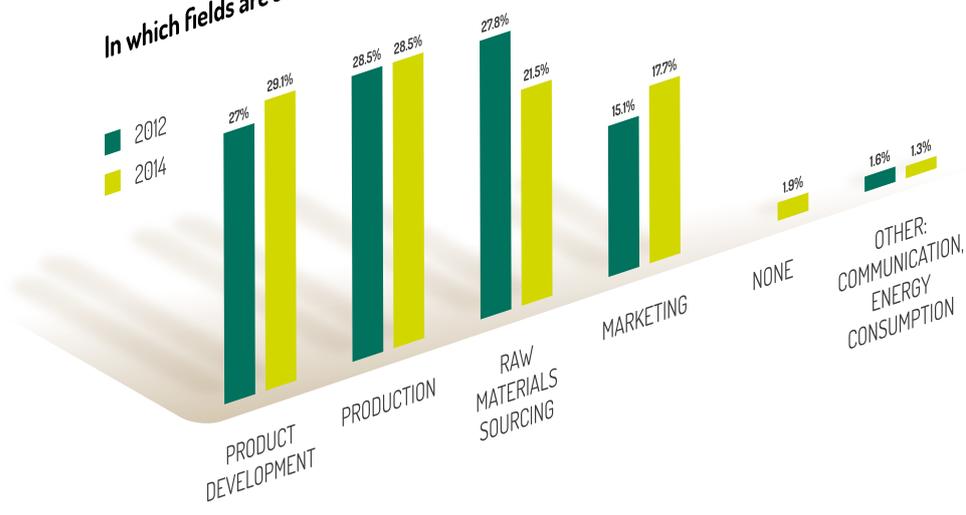


EDANA AND ITS MEMBER COMPANIES SEE  
**SOCIAL SUSTAINABILITY**  
 AS AN AREA OF INCREASED FOCUS  
 AND IMPORTANCE

The social pillar of sustainability has become more important in EDANA members' approach to sustainability. This can be explained by several factors, including a conscious decision by companies to emphasise social aspects in order to be closer to consumers by demonstrating their added value to society. Overall, a better balance between the various components of sustainability efforts could indicate that companies are taking sustainability to the next level, with a stronger integration in day-to-day operations and more communication, including through social media.

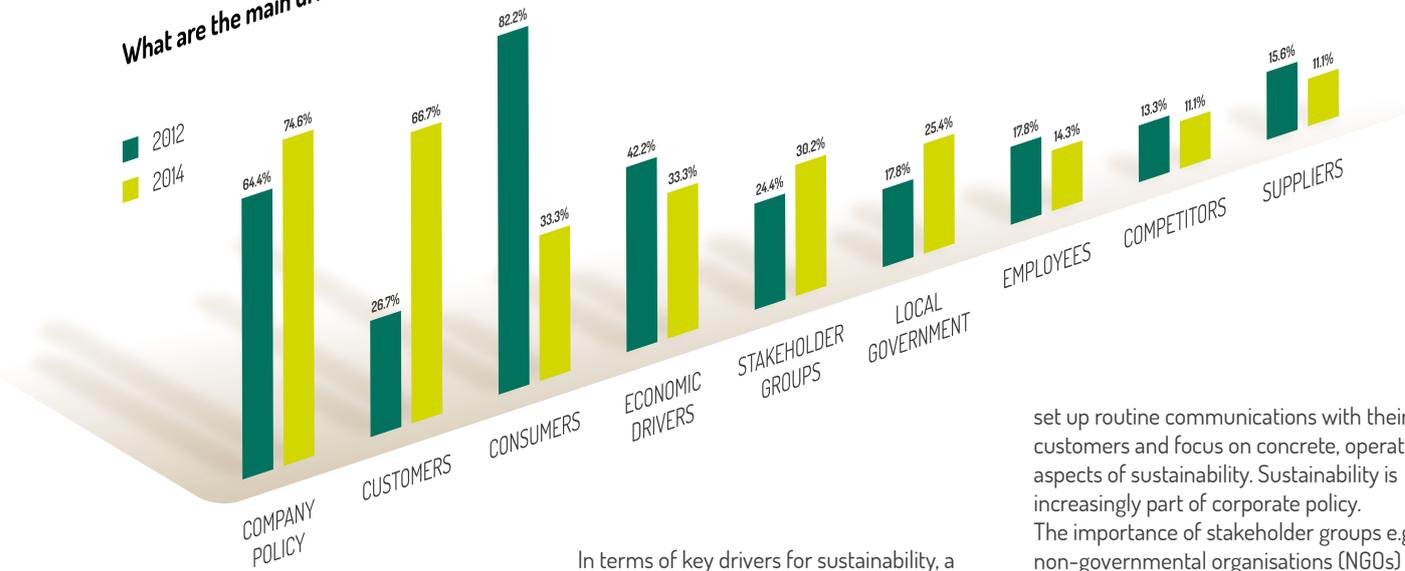
# SUSTAINABILITY IS PART OF ALL AREAS OF OPERATIONS IN MOST COMPANIES

In which fields are sustainability considerations a key part of decision-making?



Sustainability is now increasingly integrated in the full cycle of operations, from product development to marketing. This confirms that companies focus on efficiency in all aspects of a product and also indicates that from the early stages of product development the benefits of the product are evaluated so they can be leveraged in marketing and communication activities. A lesser emphasis on raw materials sourcing from a sustainability perspective is most likely due to the fact that companies have already made significant efforts to evaluate raw materials as this is a logical place to start when looking to make operations more efficient, and companies gradually move on to other functions such as production.

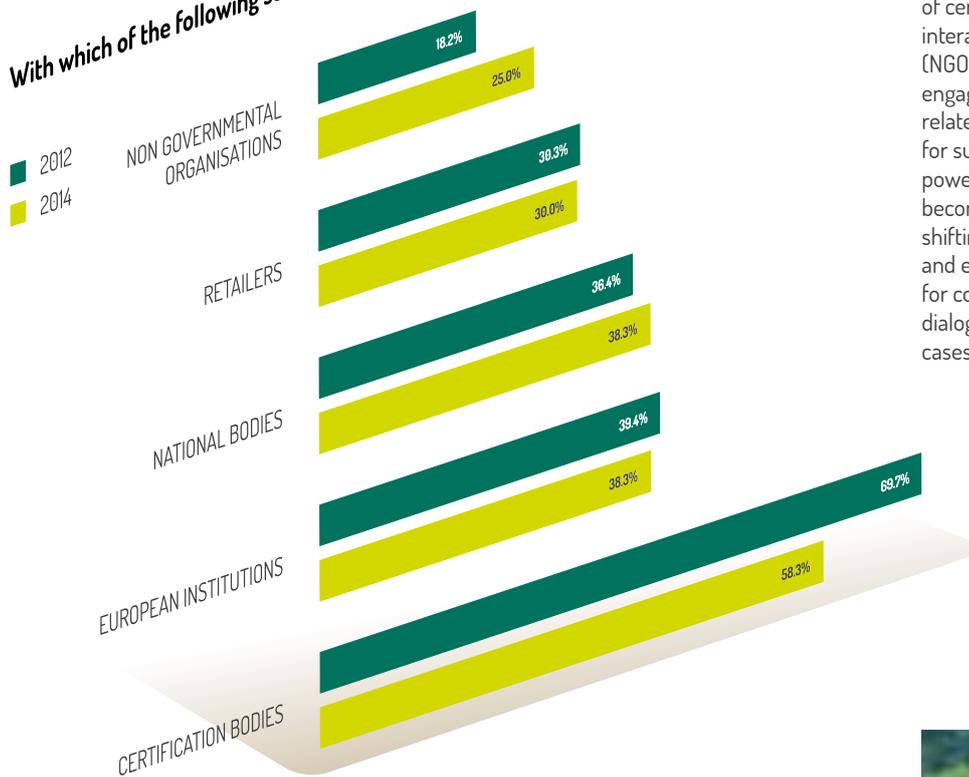
What are the main drivers for your sustainability activity?



In terms of key drivers for sustainability, a major shift can be observed from consumers to customers. This is partly due to a higher level of participation of companies operating higher up in the value chain, on a strictly business-to-business platform. However this also confirms that where companies were responding to a typically vague notion of popular demand for sustainability a few years ago, they have now

set up routine communications with their customers and focus on concrete, operation aspects of sustainability. Sustainability is increasingly part of corporate policy. The importance of stakeholder groups e.g. non-governmental organisations (NGOs) is growing as they are increasingly successful at using social media and traditional communication tools to mobilise consumers. Local government is increasingly aware of sustainability aspects, the implementation of environmental legislation at local level is more rigorous and sustainability aspects are increasingly integrated in public procurement policy.

## With which of the following stakeholders do you regularly engage on sustainability?



Certification bodies, although still the most frequently quoted as key sustainability stakeholders, seem to be less at the centre of the focus of companies, which is also normal as once certification is secured, management of new products and renewal of certificates require less frequent interaction. Non-governmental organisations (NGOs) and companies are increasing engaging in discussions on sustainability-related topics. As discussed earlier on drivers for sustainability, NGOs are increasingly powerful. In many cases they have also become more professional and pragmatic, shifting their approach away from extreme and emotional, which has made it possible for companies to engage in constructive dialogue and in an increasing number of cases establish partnerships.

## Challenges

EDANA members face a number of sustainability-related challenges, ranging from global factors impacting all industries to issues within the value chain and specific to nonwovens and related products. One of the main challenges is the lack of consistency of needs and expectations from one region to the next, but also the lack of harmonisation in terms of definitions, standards and regulations in the field of sustainability. Overall respondents felt that there are significant and growing constraints both external and from within the value chain, leading to challenging circumstances for companies.

## Opportunities

EDANA members see sustainability as an imperative to maintain the license for industry to operate within society. They also see sustainability as a driver of benefits for companies in itself (efficiencies) but also through positive synergies and indirect benefits such as new market opportunities, increased innovation, better perception of the company and more engagement with partners in the value chain.

The vast majority of examples given for social sustainability actions consist of 'traditional' activities related to the contribution of companies to local communities, or internal measures focused on employees. A few examples illustrate a recent trend for companies to innovate by using new products to address pressing issues and generate direct benefits for society, e.g. the provision of water filters where drinking water is not safe.

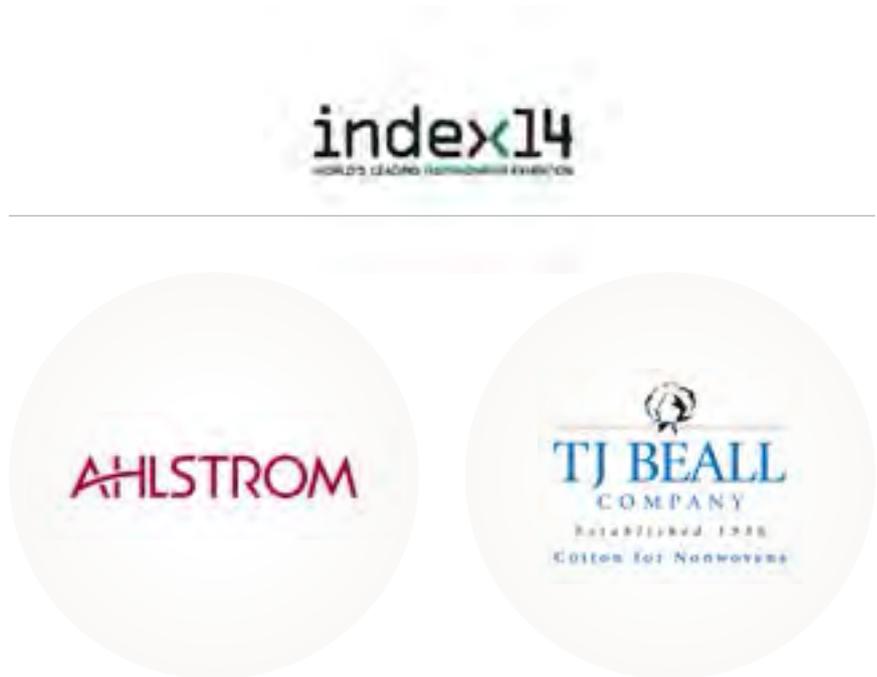


## C. INDEX™ 14 AWARDS EXPANDED

The INDEX™ Innovation Awards are staged every three years as part of EDANA's industry-leading global exhibition held in Geneva, Switzerland.

INDEX™ was held from April 8-11 2014 and the Innovation Awards have been expanded to include two categories which specifically recognise the sustainable achievements of our members – the most Sustainable Product, as well as the most Sustainable Process or Management Practice.

The winners of the 2014 edition were:



— **Ahlstrom**

with the Flow2Save™, a filter media created to save energy and take indoor air quality to the next level.

— **TJ Beall Company**

with True Cotton™, a non-scoured, non-bleached 100% natural greige cotton nonwoven for wound healing and hygienic product applications.

## D. SYMPOSIUM: CONSIDERING RENEWABLE RAW MATERIALS

EDANA's recent one-day symposium on the use of renewable raw materials in nonwovens and related products, was attended by 27 participants representing 18 EDANA member companies from 13 countries.

Speakers included a delegate from the European Commission who outlined the significance of the EU's Horizon 2020 and Bioeconomy Strategy.

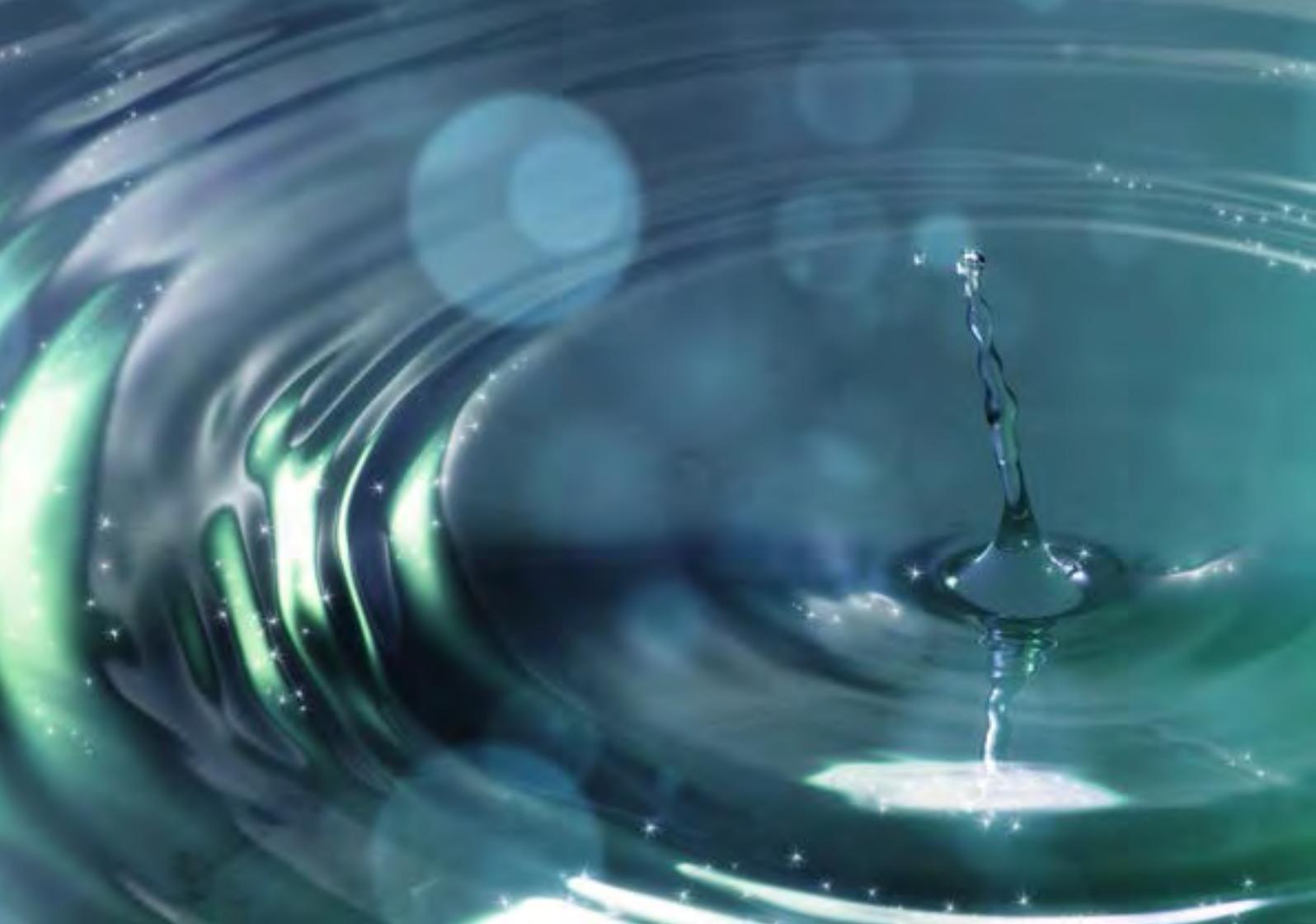
The development of the renewable raw materials industry in successive waves was outlined and further sourcing from non-food biomass is anticipated, in addition to the wider adoption of lignin-based chemistry.

The chemical and polymer industry's overall goal is to increase resource efficiency while reducing resource intensity, which suggests the use of sustainably-sourced renewable resources and low energy biotech processes wherever possible, but it will be largely up to industry to move things forward.

Pulp is an example of a renewable material where certification systems have been developed in order to assure that the management and sourcing of the raw material is performed in a sustainable way.

While still in its infancy, the bioplastics industry faces far more challenges to growth than the conventional plastics industry has ever experienced, and oil and gas are unlikely to be as scarce or expensive as previously assumed in the coming years, as a result of initiatives such as fracking, deep sea oil drilling, tar sands, shale gas etc.

A wide range of initiatives highlighting further opportunities for bio-based nonwovens and promoted by EDANA member companies were presented at the symposium.



## E. GUIDANCE: EFFECTIVE ENVIRONMENTAL CLAIMS

In June 2014 EDANA published its first Environmental Claims Guidelines, specifically designed for the nonwovens and related industries by a dedicated group of experts from member companies.

These demonstrate a commitment to applying the highest standards of responsibility, representing good business practice to be followed on a voluntary basis.

EDANA recognises the importance of responsible advertising and marketing on products as an essential way of informing customers and consumers about the characteristics and qualities of their products. As such, our member companies commit to ensuring that environmental claims:

- Comply with all relevant regulatory frameworks;
- Are sincere, truthful and not vague or misleading;
- Allow customers and consumers to make informed choices;
- Promote fair competition; and
- Aim to prevent claims that may be unfair or misleading.

The guidelines are aimed at providing useful information for those making self-declared claims in environmental statements, graphics or imagery (i.e. made without independent third-party certification), but also provide good practice for any type of claim including third party certification and labels.

The guidelines are designed as a living document and will be reviewed every two years.

## F. EXPERT PANEL: CONSIDERING FUTURE WASTE MANAGEMENT

The key aims of the recent two-day Right for Hygiene Expert Panel on Waste were to:

- Fully understand the future development of waste management methods and possible ways for absorbent hygiene products (AHPs) and wipes to accompany this development to reinforce efficiencies;
- Identify opportunities for industry to take further action to ensure sustainable management of waste;
- Gain insight into which are the key players our industry should partner with; and

- Gain insight on the current and future compatibility of AHPs and wipes with major waste management technologies and identify areas for further improvement.

An overview of the various AHPs and their properties revealed that over the past 25 years, the weight of an average baby diaper has been reduced by more than 44%. But at the same time, AHPs are becoming more visible in the waste stream due to increased sorting and collection of other materials and AHPs can also weigh up to five times their dry weight at disposal.

Perspectives on various waste disposal methods and their advantages and disadvantages from both countries within Europe and from across the globe were presented by specialists in this field.

The European Union's Landfill Directive was issued to member states in 1999, with the aim of preventing or reducing, as far

as possible, the negative effects on the environment from the landfilling of waste.

This legislation has had important implications for waste handling and disposal and incineration for energy recovery is emerging as the forerunner in available options within Europe although there are significant differences between countries.

There are also many good practices in developing countries, where waste from AHPs and wipes needs to be treated with lower technology compared to Europe. Answers could be found based on simple solutions and existing structures.

The panel concluded that there is a need to review the definition of sustainability for the AHP and wipes industries and that in future, it could play a role in the development of a detailed overview of waste management options.



DEFINING BOUNDARIES AND DESIGNING

# TOOLS TO EFFECTIVELY EVALUATE AND CERTIFY

SUSTAINABILITY

## G. ENVIRONMENTAL PRODUCT DECLARATIONS

Several members of EDANA actively use Environmental Product Declarations (EPD®) of the International EPD® System to determine and communicate the environmental impact of their products. A prerequisite for doing this is the existence

of Product Category Rules (PCR), which define the criteria and methodology employed to evaluate the environmental impact of a product.

These rules are developed through an open consensus-based stakeholder consultation, and are then reviewed by an expert Technical Committee. The PCR are used to manage environmental product declarations.



## H. SUSTAINABILITY CERTIFICATION OF ABACA FIBRES

EDANA has coordinated the drafting of PCR for absorbent hygiene products, ensuring that the approach used to determine their environmental impact in the framework of an environmental product declaration is realistic and science-based. In practice,

these rules have also been used in green public procurement or ecolabelling when establishing what are important parts of the life cycle for these types of products.

As a result of discussions initiated and co-ordinated by EDANA, member companies are now active in a cooperation with the Rainforest Alliance in the Philippines for the sustainable production of abaca fibre.

Abaca is a key raw material in the production of wetlaid nonwovens for teabags and widely grown in the Philippines. Pulp derived from the abaca plant provides a rapidly renewable source of fibre for high-quality paper. After harvesting, it renews itself up to eight times more quickly than most trees that are used for wood pulp and reduces the need for fertilizers.

The Rainforest Alliance is well recognised in the field of sustainable agriculture and a sustainable abaca certification scheme has now been established, following a series of training sessions with local farmers, cooperatives, exporters and traders to generate interest.

The creation of the certification scheme will greatly contribute to the growth of abaca as a resource for more sustainable materials and will also considerably stabilise the abaca fibre market. The rapid development of this new certification scheme is vital to ensure the future of abaca fibre as a raw material and a premium per kilo of certified products is now being granted by EDANA members.

One abaca production facility in the Philippines now supports the work of 100,000 farmers and their families. In addition to providing employment and fair compensation, it is also helping support the construction and renewal of community projects such as schools and clinics.



© John Washington / Wikimedia Commons / CC-BY-SA-4.0

# 7.

## LIFE CYCLE ASSESSMENTS

Members of EDANA were active very early in Life Cycle Assessment (LCA) studies – the first EDANA LCA workshop held in 1992 attracted over 100 delegates from more than 60 EDANA member companies.

The first EDANA LCA project started in June 1993, with 66 member companies participating. The single-use diaper was chosen as reference for the project since it involved the most EDANA members at the various stages of the value chain.

This initial project established:

- A common approach to LCA methodology;
- The adoption of a software system for calculations;
- The establishment of a database relevant to each company; and
- A baseline for each company to measure future product and process improvements.

The companies involved confirmed that what was crucial to the success of the LCA method was the ability to collect reliable data.

This required a major contribution from the suppliers in respect of all of the raw materials involved, which has subsequently been ratified and employed in the development of the advanced Supplier Standards which have been established by the major consumer companies in baby diapers and other products.

The result is that today there is a high degree of transparency within these supply chains and there is a deep and thorough knowledge within industry about the important environmental impacts of absorbent hygiene products.



EDANA AND ITS MEMBERS HAVE BEEN  
**PIONEERS IN  
LIFE CYCLE  
ASSESSMENTS  
SINCE 1992**

Other subsequent LCAs carried out by EDANA have included:

- An eco profile of polyester nonwovens for roofing membranes;
- Life cycle data for incontinence products;
- Waste management alternatives for diapers;
- A trend analysis of the environmental performance of baby diapers and incontinence products;
- A Life Cycle Assessment of superabsorbent polymer (SAP); and
- Further LCAs on both baby and industrial wipes.

EDANA has most recently conducted LCAs for both baby diapers and incontinence products, updating a previous 2005 LCA Trend Analysis. Both product categories show different developments in terms of product design with a reduced environmental impact.

For baby diapers, a larger weight decrease was observed. The type of incontinence products chosen in this second follow-up (all-in-one incontinence products) are influenced by test methods in public procurement policies and national reimbursement schemes, which make weight reduction a bigger challenge. However, for the full assortment of incontinence products on the market,

a wide variety of product types, such as light incontinence products, belted products and pant products ensures that the industry can provide products best suited for the intended purpose, resulting in an efficient use of resources.



## BABY DIAPERS

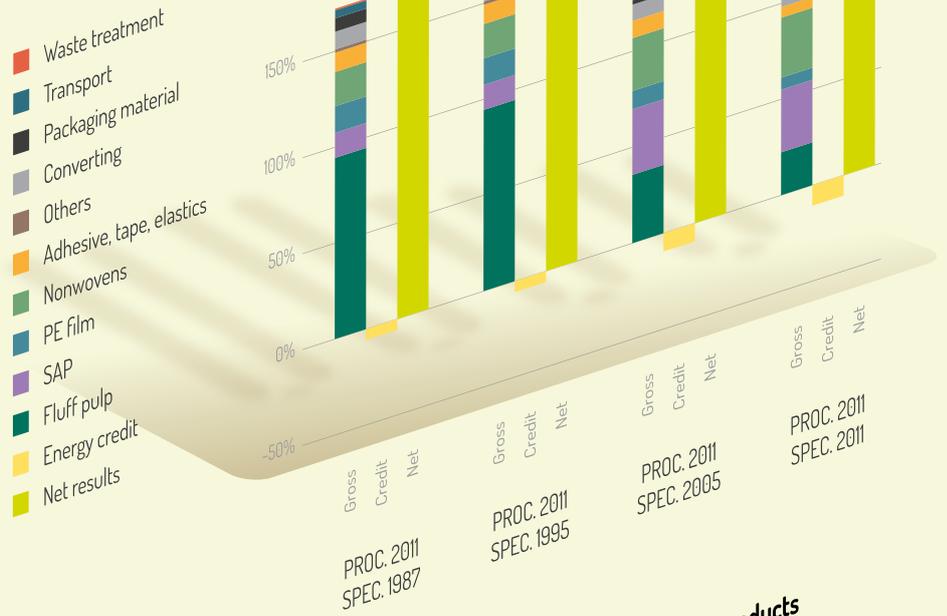
The latest EDANA LCA study on baby diaper products shows that the weight of an average baby diaper has been reduced by nearly 50%, from 65 grams in 1987 to just 33 grams in 2013. This has been

achieved through many changes in product design and the reduced use of pulp and PE (polyethylene) films. Consistent with previous diaper LCA studies, the production of raw materials is the key driver behind all

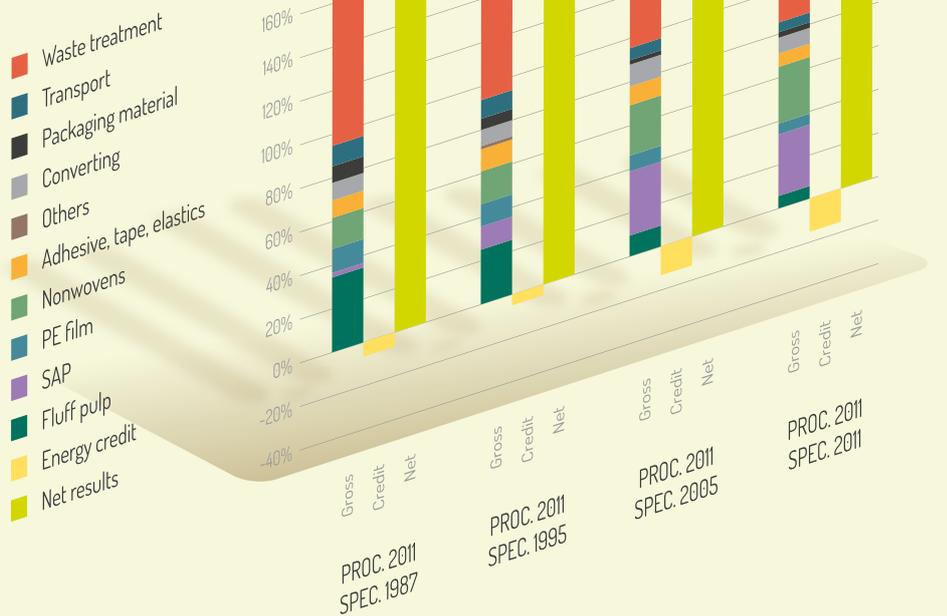
environmental indicators, making product weight reduction the method of choice to improve the environmental profile of products.

# LCA RESULTS FOR BABY DIAPERS

Total energy demand - analysing the change in composition of open diaper products

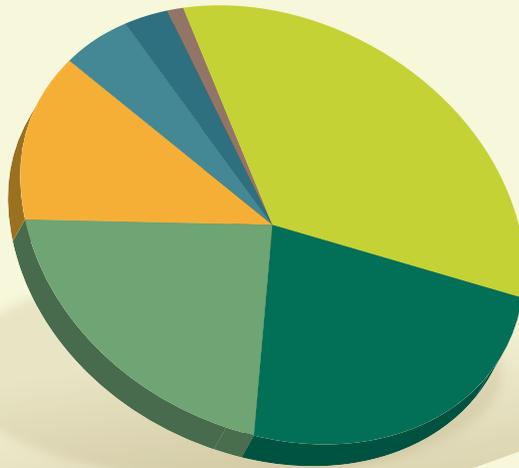


Global warming results - analysing the change in composition of open diaper products



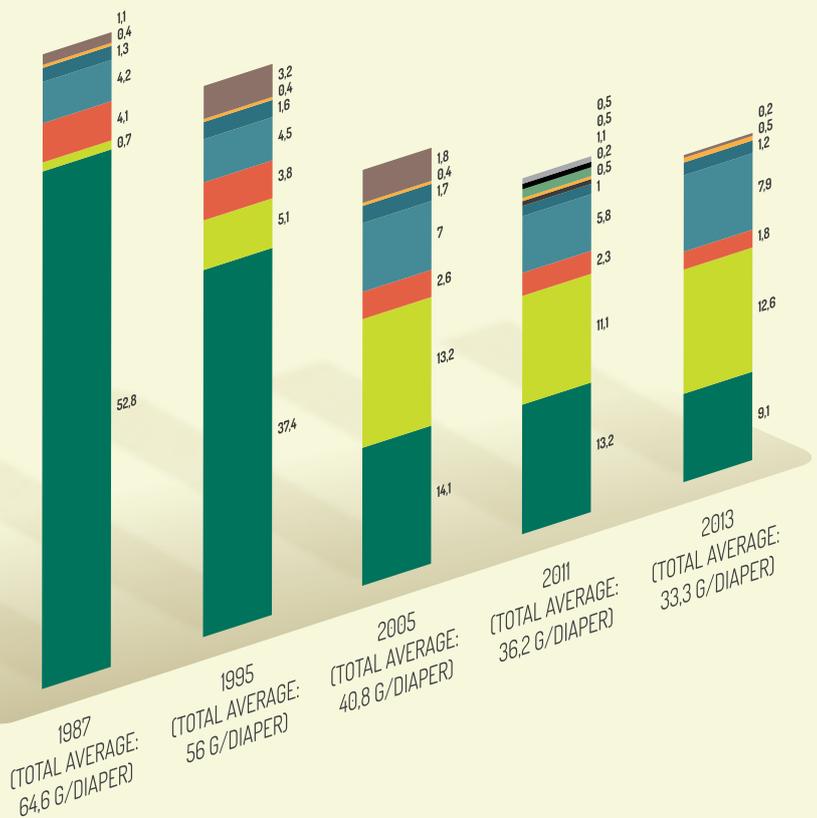
### 2013 Composition of an open baby diaper

- Superabsorbent polyacrylate (SAP) (33%)
- Fluff pulp (24%)
- Nonwovens (21%)
- Elastic & adhesive tape (13%)
- Polyethylene (PE) film (5%)
- Adhesive (3%)
- Other (1%)



### Baby Diaper Weight Reduction 1987-2013 Average product composition (g/diaper)

- Fluff pulp
- Superabsorbent polyacrylate (SAP)
- LDPE
- PP
- Adhesive
- Tape
- Elastic
- Elastic back ear
- Frontal tape
- Various synthetic polymers
- Other

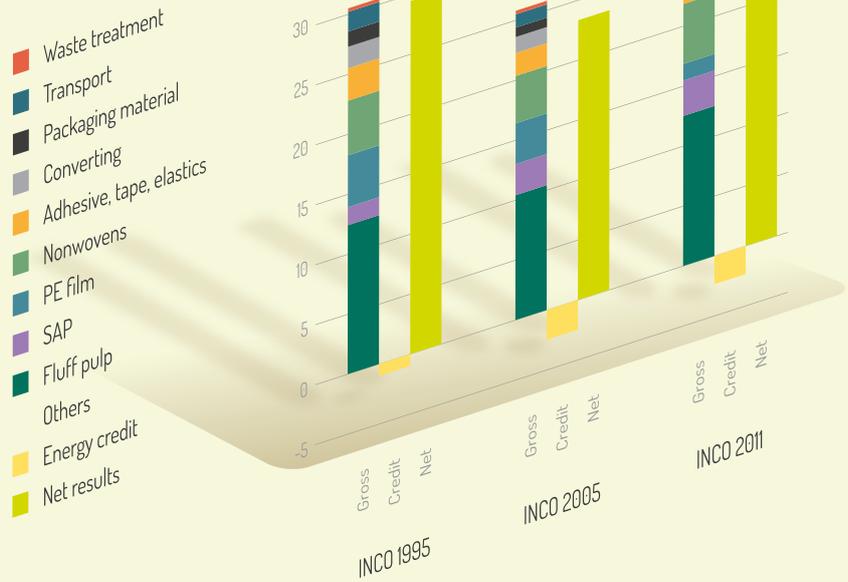


BETWEEN 1987 AND 2013 PRODUCERS OF BABY DIAPERS IN EUROPE ACHIEVED A

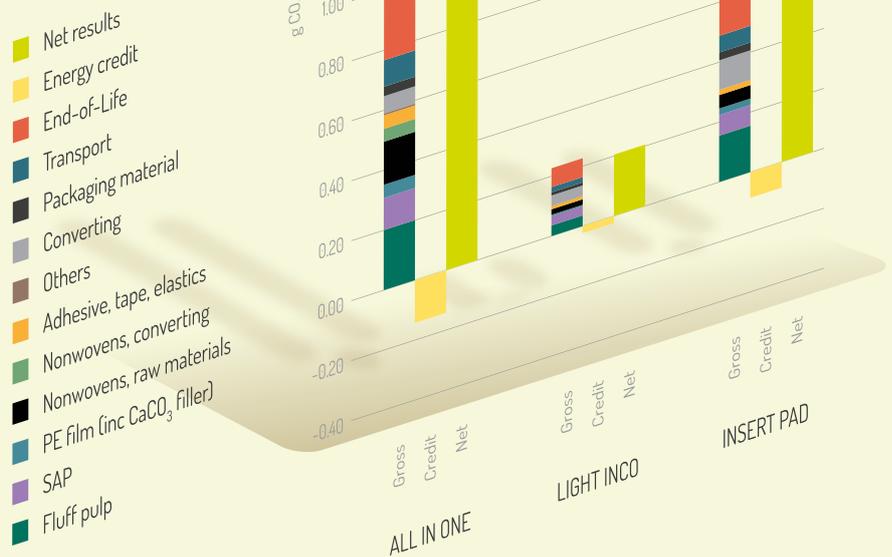
**REDUCTION  
IN WEIGHT OF  
NEARLY 50%**

# LCA RESULTS FOR INCONTINENCE PRODUCTS

Total cumulative energy demand trend for all-in-one incontinence products



Global warming results for the year 2011, all-in-one, light, and pad incontinence products (1 day's use)



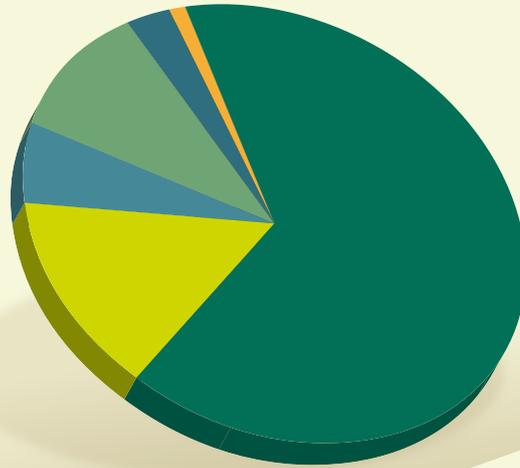
ALL-IN-ONE INCONTINENCE PRODUCTS SHOW A WEIGHT REDUCTION OF

12%

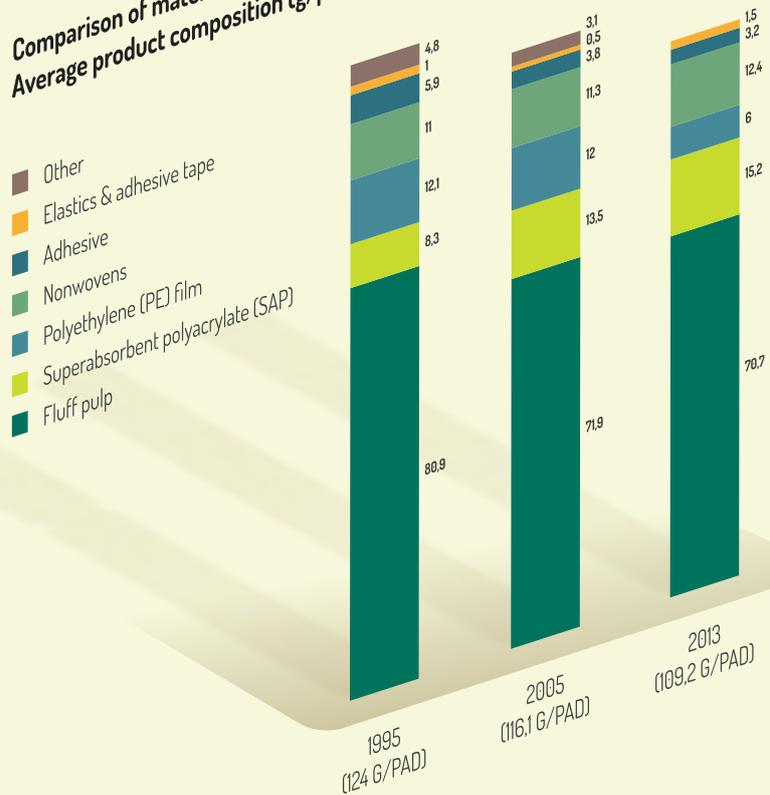
BETWEEN 1995 AND 2013

Composition of all in one incontinence product - 2013

- Fluff pulp (65%)
- Superabsorbent polyacrylate (SAP) (14%)
- Polyethylene (PE) film (6%)
- Nonwovens (11%)
- Adhesive (3%)
- Elastic and adhesive tape (1%)



Comparison of material composition for an all-in-one incontinence product  
Average product composition (g/pad)



The product weight reduction is achieved by the reduced use of pulp, PE film and other polymeric materials such as adhesives and fastening systems. To some extent, it is counterbalanced with an increase in use of nonwovens and superabsorbents. The superabsorbents added are needed to keep or even improve the absorption capacity when pulp is taken away.

Taking into account the combined effects of the various parameters, the improved environmental performance for the all-in-one product between 1995 and 2013 ranged between 10 and 72%.

# 8.

## TAKING A LONG-TERM APPROACH

### A. EMPLOYMENT AND REVENUE GENERATION: ADDING VALUE FOR EUROPE

In greater Europe (the EU27 plus Turkey and Russia), the nonwovens industry generated more than €6.3 billion in revenues in 2013 and provided direct employment to 24,000 people. The complete value chain surrounding nonwovens accounts for significantly more revenue generation and highly qualified jobs.

The nonwovens and related industries is also a growing sector. In 2013 the production of nonwovens in greater Europe increased by

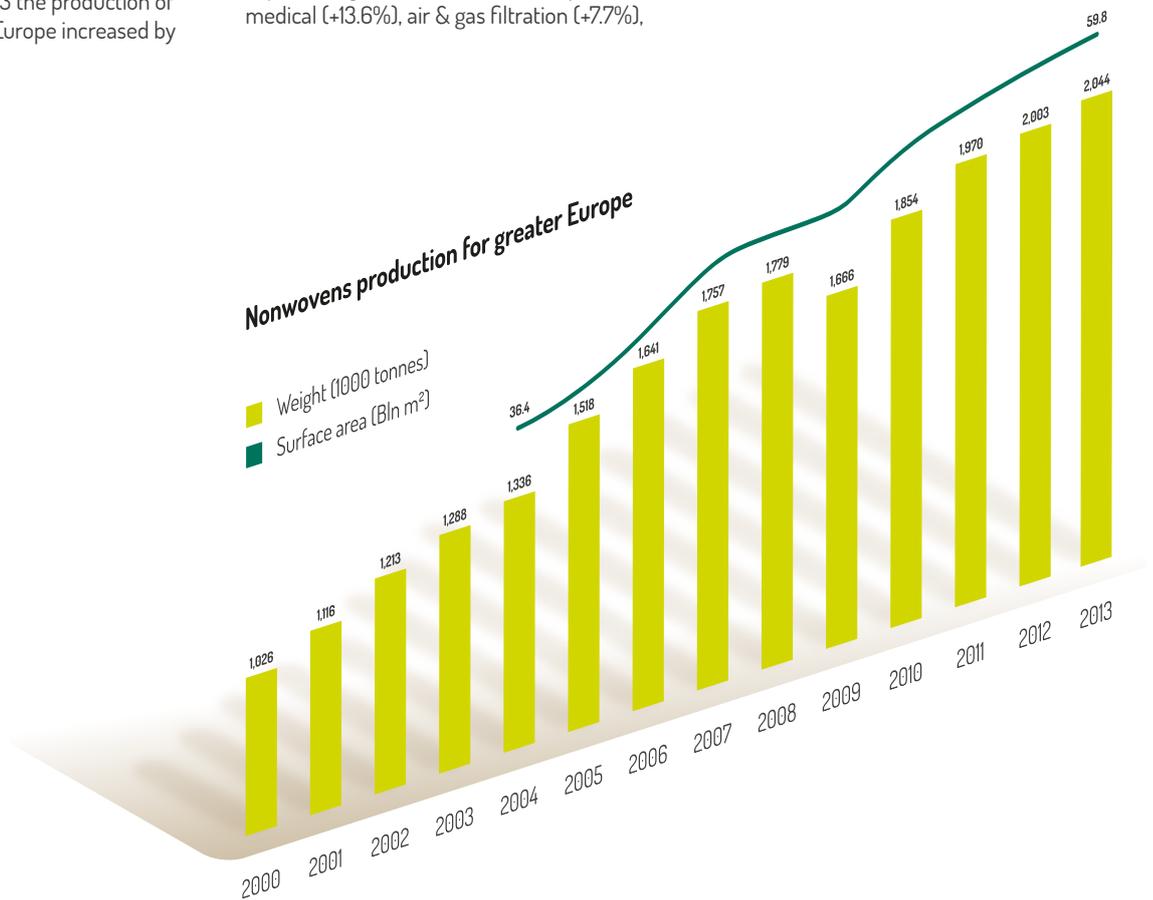
2.0% in volume, reaching 2,044,215 tonnes – over 76,000 40-tonne trucks of product. The production in the Commonwealth of Independent States (mainly Russia, Belarus and Ukraine) and Turkey continued to grow, respectively by +4.8% and +12.9%.

In 2013 several market segments recorded their best output ever, despite sometimes limited growth; including hygiene, wipes for personal care, automotive and floor coverings in 2013. The performance of these sectors more than compensated for a weak construction sector, negatively impacting sales of nonwovens in roofing, building, and civil engineering/underground applications.

The amount of nonwovens sold to the personal care wipes market showed one of the most important growth rates in 2013 (+12.4% in tonnes and +10.9% in surface area). Other positive evolutions, in percentage, were observed mainly in medical (+13.6%), air & gas filtration (+7.7%),

garments (+6.4%) and automotive (+4.1%). Negative developments were recorded in 2013 in shoe/leather goods (-14%) and interlinings (-10.6%). As of the 2013 statistics, a new category for the nonwoven used in Food & Beverage applications has been introduced in our market segmentation and has been estimated at more than 63,000 tonnes.

Nonwovens are becoming lighter and lighter: the production in surface area, which had increased already by 5.0% in 2011 and 3.1% in 2012, continued to grow faster than the output in weight; an increase of 2.9% to reach a level of 59,833 million in 2013. In 2013, the average grammage (weight per surface area) showed again a slight decrease, from around 34.44 g/m<sup>2</sup> in 2012 to 34.17 g/m<sup>2</sup>. 33.7% of the polyester used in nonwovens is recycled PET, amounting to 145,200 tonnes from a total of 431,400 tonnes.



BETWEEN 2005 AND 2013 THE PRODUCTION OF NONWOVENS FOR GREATER EUROPE HAS

**GROWN 3.8%  
IN WEIGHT  
AND 5.7% IN  
SURFACE AREA**



## B. FUTURE GROWTH: TAKING FULL RESPONSIBILITY

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 license to operate.

Our industry has placed significant focus on developing sustainable and more environmentally sound products as it looks to growth in markets in Asia and South America.

## C. SUPPORTING FREE AND FAIR TRADE

EDANA supports free and fair trade. As an industry we are in favour of removing obstacles to trade, whether they be tariff or non-tariff barriers such as technical specifications, standards or administrative procedures making it more difficult to import nonwovens or related products.

This doesn't mean we support the unilateral elimination of tariffs. We believe that free trade should result from alignment on the lowest tariff levels between two blocks, either spontaneously (which is uncommon), or through transparent negotiations between trading partners, as illustrated by the many trade negotiations between the European Union and numerous countries, including the US, Japan, and India to name just three.

We are very pleased to have reached consensus with our partners from Japan. With the EU-US and EU-Canada FTAs also liberalising trade in nonwovens and EU-India negotiations hopefully soon underway, our next big priorities are China and the Mercosur countries (Argentina, Brazil, Paraguay, Uruguay, and Venezuela) whose tariffs on nonwovens are still at unjustifiably high levels.

In addition to supporting such negotiations, EDANA also works in the field of product testing and standards and coordinates with its member companies in many markets to harmonise the way in which products are assessed and facilitate access to markets.



## D. HEALTHCARE BENEFITS: PREVENTING INFECTION

With every tenth patient in the EU said to be impacted by healthcare associated infections (HAIs), patient safety is a top priority for every hospital.

HAIs cause a significant negative impact on the lives of people, often causing patients to stay hospitalised for prolonged periods and suffer additional pain and discomfort. Beyond the human suffering caused, HAIs have a financial cost to the patient, to the healthcare institute and to national budgets.

According to the European Centre for Disease Prevention and Control, the direct cost of these infections is now €7 billion each year, of which €1.2 billion is attributable to surgical site infections. In orthopedic surgery, such an infection can prolong the hospital stay by two weeks, increasing health care costs by more than 300%.

Single-use nonwoven-based gowns and drapes are extremely effective tools in fighting HAIs.

During 2013 EDANA welcomed a new report prepared by the European Centre for Disease Prevention and Control making a number of recommendations for dealing with HAIs.

Experience has shown that in surgery single-use surgical barrier materials – gloves, gowns, drapes and masks – are a key factor in preventing the transfer of micro-organisms. Although in Europe the market penetration of single-use gowns and drapes has reached around 60-65% – taking

into account geographical differences – this is still significantly lower than in the USA. More has to be done to help increasing that penetration and thus contribute to efforts of better infection control to reduce HAIs.

The mission of EDANA's MEDECO (medical devices) Committee is therefore to promote the benefits of single-use nonwoven products to decision makers, influencers and end-users in surgery, wound management and infection control, and to promote high levels of product safety and quality in accordance with established quality standards.

The significance of disinfecting wipes and other nonwoven-based cleaning materials in fighting HAI's should also not be overlooked.

## E. GUARANTEEING SAFE PRODUCTS

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

- Raw materials are rigorously evaluated with the help of specialised laboratories for toxicological evaluation, skin compatibility, stability and ageing tests;
- During design, product integrity tests are undertaken to simulate in-use conditions;
- Finished products undergo inspection for absence of contamination and microbiological safety is ensured by quality assurance systems; and





## F. TAKING A PRODUCT STEWARDSHIP APPROACH

- Manufacturers carry out in-use testing to ensure dermatological compatibility.

In addition to our industry's voluntary commitment to product safety, we must comply with all appropriate legislation, technical standards, regulatory prescriptions and safety guidelines. But our industry does more than this. In addition to safety evaluation programmes, companies continuously monitor their products in use and any concerns consumers may have in using them. Experts are often consulted to ensure that all aspects of safety are considered when major product changes are being undertaken or on the launch of new products. Where appropriate, clinical tests may be performed.

One of the key aspects of EDANA's mission in over 40 years of existence has been to provide harmonised test methods. These constitute a common technical language for all parties to refer to when dealing with 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.

We encourage a product stewardship approach among our members. Nonwovens and nonwoven-based products are used and almost universally accepted in a wide portfolio of applications. High quality and safety expectations from consumers and regulators and the emergence of new and

complex regulations across the globe have affected the market.

Businesses with the best prospects for success will be those that can adapt quickly and efficiently to these new requirements. It is now more essential than ever for the nonwovens and related industries to ensure a continuous supply of high-tech and innovative products that meet the highest quality and safety standards.

EDANA supports the further reduction of the environmental impact of manufacturing, distribution and administrative activities. We employ Life Cycle Assessment (LCA) techniques so that actions can be taken to improve environmental performance at all stages of the production process. 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.

In order to improve the consistency and the accuracy of consumer information on baby diapers, EDANA drafted consumer testing guidelines. The overall objective is to achieve relevant and fair tests and reports through better communication between consumer testing organisations and manufacturers. The guidelines were developed by a task force of manufacturers of baby diapers and test laboratories.



## G. A LEVEL PLAYING FIELD: HARMONISING TEST METHODS WORLDWIDE

EDANA actively promotes the harmonisation of product test methods at global level. The most recent illustration of this effort is the acceptance by ISO to take the absorption before leakage method (WSP 354.0.R2) as a working item for the creation of a global standard to test adult incontinence products.

This is an important development for several reasons. Firstly, inconsistencies between test methods applied in various countries create barriers to trade, preventing our industry from generating value for the economy. Secondly, the use of an ISO test based on theoretical absorbency of the products (Rothwell Method ISO 11948-1) in order to qualify for reimbursement in national social security systems has led producers to make products that are heavier and less effective. The introduction of a method with a mannequin that is much closer to the actual use of the product will enable patients to benefit from thinner, lighter and more effective products that are also much more efficient and therefore generate a lower environmental burden as thousands of incontinence sufferers will be able to use fewer and lighter products. This will also generate social benefits as incontinence sufferers will enjoy more discreet and effective products allowing them to work and be socially active. Healthcare personnel will also benefit from the increased convenience and fewer changes will enable them to spend time on other activities rather than changing patients.

## H. COMFORT AND CONVENIENCE: QUALITY OF LIFE FOR ALL

The role played by nonwovens and related products in improving the quality of life cannot be stressed enough. They are all around us and their benefits are often taken for granted.

Single-use baby diapers have improved the quality of life for millions. As the product of choice for over 95% of all families in Europe, they contribute to social progress in terms of comfort, convenience, a reduction in household chores and skin health benefits.

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. In lessening the burden of domestic chores, they free parents to spend more time on other valuable family and social activities.

The use of sanitary napkins greatly improves the ability of female workers to continue to work and prevents infections. The provision of sanitary napkins has been associated with improved menstrual hygiene and a reduction in reproductive tract infections, in addition to reducing absenteeism.

In developing countries, 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 the growth and development of local communities, and their economic development and productivity.

In a context of ageing populations, incontinence products are an important tool in enabling those with incontinence problems to work and be active.

Nonwovens and related products are present in many other areas such as filtration, where they help provide clean air and safe drinking water, medical applications where they guarantee patient safety and prevent infection and contamination or agriculture and packaging, where nonwovens help prevent food from going to waste.



## I. PREVENTING WASTE

EDANA provides a platform for its members to communicate their efforts in the field of sustainability and to share best practices. By reducing the weight of the products and at the time increasing their performance, nonwovens and related products enable significant improvements in waste management. Thanks to lighter products, waste is prevented, and many nonwovens can be recycled and/or are made of recycled materials.

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. Today's products are designed to ensure the prudent and efficient use of natural resources.

Waste is a challenge at global level. Within the nonwovens and related industries, continuous efforts are made to reduce production waste and post-consumer waste through the reduction of the weight of the products while maintaining or increasing their performance.

Given the fact that for every product there is a limit to how far weight can be reduced, other possibilities are being explored, such as the use of alternative raw materials, compostable materials and recycling.



## 9. DIRECT ENGAGEMENT: BEING PROACTIVE

---

Parallel industries, NGOs, media and policy bodies are all integral to us delivering value, and our role as a trade association. EDANA and its members work with other industries and organisations in an open, proactive and transparent manner. This continues to enable potential challenges to be proactively addressed, responsibility to be taken where necessary, and an active role in solving social, economic or environmental issues to be played. We plan to continue direct engagement with retailers and key NGOs to further the sustainability agenda for our industry.

---

EDANA was actively involved in the development of the EU Ecolabel criteria for absorbent hygiene products. EDANA and its member companies throughout the hygiene value chain were able to ensure that the criteria retained for the ecolabel are science-based and realistic.

EDANA cooperates with The Sustainability Consortium (TSC), a multi-stakeholder platform uniting retailers, producers and other organisations throughout the supply chain in order to map the sustainability profile of most consumer products.

EDANA cooperated with Group'Hygiène, the French association representing absorbent hygiene products and tissue paper, to address the requirements made by the Grenelle framework legislation to establish reference documents for the calculation of environmental indicators for a large number of products.

As a result of this work, a reference document was adopted for single-use baby diapers, setting rules for the calculation of environmental information on products. If binding requirements are implemented, requiring companies to publish information on the environmental impact of the product in the future, the industry has ensured that the criteria used for baby diapers are realistic and scientifically sound.

One positive benefit has been that the French Environmental Agency has produced a fact sheet which draws similar conclusions to those made in a report compiled by WRAP (the UK charity organisation Waste and Resources Action Programme) following its LCA in 2008. Both France and the UK now support the position that there is absolutely no environmental benefit to be gained from using reusable hygienic products in place of single-use products.



## 10. FUTURE INDUSTRY- WIDE EFFORTS AND ACTIVITIES

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

The nonwovens and related value chains continue 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, EDANA and its member companies collect sustainability metrics and have conducted a series of LCAs to measure and where possible reduce the environmental impact of specific product categories. We continue to support LCAs for nonwovens and related products, and report on key sustainability indicators such as resource efficiency.



OUR INDUSTRY IS WORKING  
TOWARDS THE DEVELOPMENT AND  
IMPLEMENTATION OF

**GOOD  
SUSTAINABILITY  
PRACTICES**



EDANA is currently conducting or planning a number of activities in the field of sustainability:

- EDANA is in the process of reviewing and updating the Product Category Rules for absorbent hygiene products;
- In 2015 producers of Superabsorbent Polyacrylates will complete a Life Cycle Inventory for SAP;
- In 2016 EDANA will publish updated guidelines on environmental claims;
- In 2017 EDANA will again reward innovation in the field of sustainability through the INDEX Awards ceremony; and
- Based on topical developments, EDANA will hold workshops and when required launch new initiatives on waste management and renewable raw materials.

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:

- Establish and promote a framework to help member companies include sustainability considerations in corporate decision-making at all appropriate levels;
- Provide appropriate information and, if necessary, training, on sustainable development;
- Report on the sustainable development of our industry;
- Continue to identify and share best practices throughout the value chain allowing all members of EDANA to implement changes and become more sustainable; and
- Actively engage in policy discussions on sustainability-related legislation to be an active part of solving challenges related to sustainability.

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.

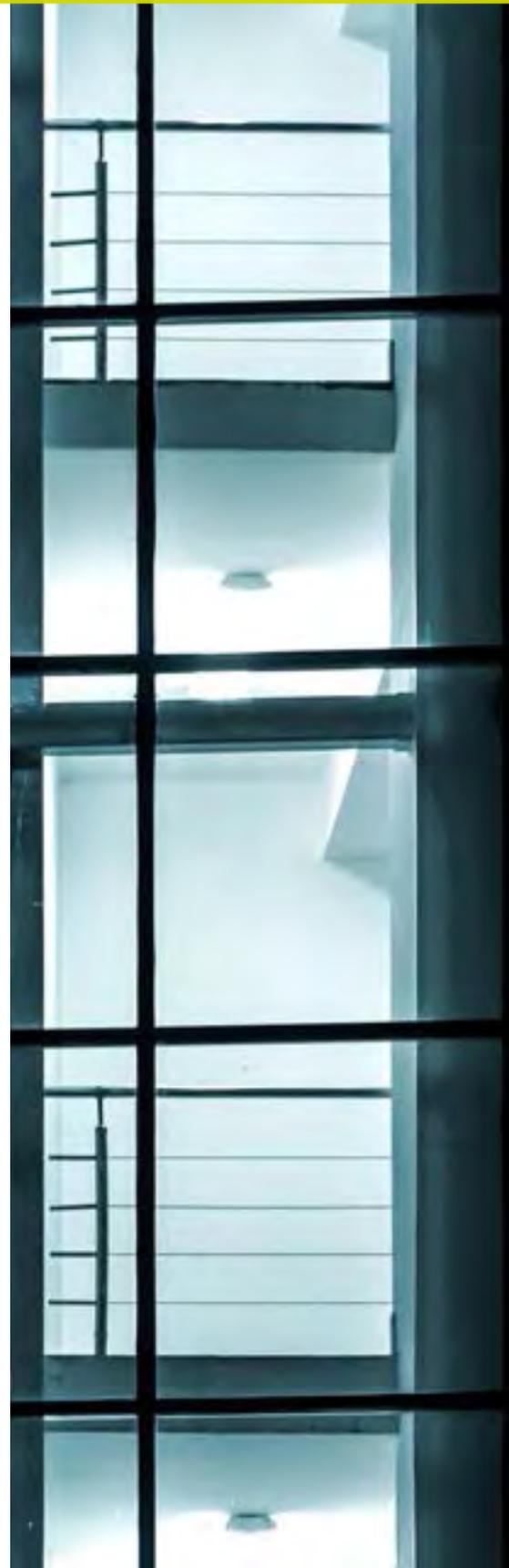
# 11.

## MESSAGE FROM THE GENERAL MANAGER

---

Nonwovens have sometimes been described as ‘technical fabrics’ or ‘engineered fabrics’, thanks to their ability to be able to be designed to hold or deliver any specific properties needed. For example a nonwoven material can offer strength and softness, have an outer layer that can easily be heat sealed while having a core that resists higher temperatures, or be easily treated, so that it can absorb water on one side, while repelling on another. Additionally, nonwovens can be made from a wealth of raw materials, meaning that the potential for their development is almost limitless. The hybridisation of nonwoven web-making or web-bonding processes — the almost infinite combination of different layers and fabric structuring techniques — have opened new avenues to nonwovens, including end-uses where properties of woven fabrics seem to be unmatched.

---





**Pierre Wiertz**  
General Manager, EDANA

The key to meeting expectations in the field of sustainability is to continue to support innovation and good practices and communicate the benefits of nonwovens and related products. This is something that has been done quite well for absorbent hygiene products and over the last few years we have started expanding this to all categories of nonwovens. There are many good stories to tell about the contribution of nonwovens to improving lives by enabling people to have homes that are better insulated, more efficient vehicles, cleaner air and water and convenient and efficient healthcare regimes. Our focus in the coming months and years will be to generate evidence of those benefits with hard figures, and effectively communicate these messages to customers of our industry and with help from our member companies.

EDANA members have taken proactive steps to integrate sustainability in their standard operating protocol and in their company culture, and they plan to make their efforts pay off directly by impacting their bottom line and profitability, and indirectly by enhancing their image and eventually creating opportunities to tap into new markets.

EDANA is in a position to provide added value and further support its member companies in their efforts by facilitating alignment on principles, definitions, positions and policies related to sustainability. On the basis of what is agreed by EDANA member companies, EDANA can make a difference by representing the entire industry towards key stakeholders (policy makers, NGOs, retailers etc.) and by further developing the awareness of all EDANA members of sustainability trends, data and tools especially through the supply chains.

## For more information visit:

[www.sustainability.edana.org](http://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.

Copyright and publication details – published in 2015



46, Avenue Herrmann-Debroux  
B-1160 Brussels, Belgium  
Tel: +32 2 734 93 10  
Fax: +32 2 733 35 18  
e-mail: [info@edana.org](mailto:info@edana.org)  
[www.edana.org](http://www.edana.org)