

ENVIRONMENTAL PRODUCT DECLARATION



Dinamica[®]

BY MIKO[®]
N A T U R A L C H O I C E

RECYCLED PET MICROFIBRE
FOR THE INTERNAL COVERINGS
FOR THE AUTOMOTIVE SECTOR



EPD PROCESS

The first EPD[®] Process certified
for non-woven fabrics.

REV. 2, 2015-04-16

REGISTRATION NR. S-P-00351

APPROVAL DATE: 16TH APRIL 2012

CPC CODE: 27922

PCR 2011:06, v. 2.0, 2014-05-16



1. COMPANY AND PRODUCT DESCRIPTION

1.1 THE GROUP

Miko S.r.l. was established in 1997 in Gorizia as a producer of non-woven fabrics for the furniture sector. Miko's core business is the production of **Dinamica® by Miko**, an ecological microfibre obtained from recycled PET fibres. In the past 10 years Miko has broadened its product range to respond to the demands of other areas of application including the automotive sector. Today, internal car coverings constitute the main sector of use for **Dinamica®**. In 2015, Miko was acquired by **Sage Automotive Interior**, one of the world's leading providers of automotive bodycloth with headquarters in South Carolina (U.S.).

1.2 THE PRODUCTION SITES

Miko's headquarters are in Gorizia, via Ressel 3. The whole process takes place at this exclusive site in Italy: transformation, dyeing and finishing of the raw support supplied by the Japanese partner Asahi Kasei, to obtain a product that meets the requirements of customers and the sector. The company is mainly active in



the following geographical areas: Europe, North and South America, Asia and Australia. The production of **Dinamica®** for the automotive sector is expanding rapidly, and currently accounts for 91% of Miko's production.



1.3 ENVIRONMENT AND RESPONSIBILITY

Environment



Over the years, Miko has demonstrated its constant and active commitment to preventing and minimizing the impacts of its processes and products on the environment, a commitment to which the adopted Environmental Policy bears witness.

Miko's attention to environmental issues is also confirmed by the certification of its Environmental Management System (EMS) in compliance with the standard **ISO 14001**, which systematically monitors the impact of the activities carried out in the various production phases and guarantees the conformity of the organisation to the standard. Miko's production processes are certified to **ISO 9001** and **ISO 16949**, underlining the conformity of its company processes to the most advanced quality assurance system applied in the automotive industry.

Since the year 2010, it has adopted an approach towards Life Cycle Thinking and credible communication of the environmental performance of its products. In this context, the strategic objectives pursued by Miko are:

- to communicate the environmental data of its products through EPD® certifications;
- to monitor the environmental impacts associated with the life cycle of products through LCA;
- to improve the environmental performance of products through eco-design, in synergy with the objectives of the environmental policy;
- to activate partnerships with its customers and suppliers in order to obtain information about the environmental performance of products during the various stages of the supply chain, and to evaluate opportunities for improvement;
- to provide guidance to stakeholders through specific initiatives, to raise external awareness and communication activities, and to train the employees on the most important environmental issues.

The EPD® certification of Dinamica® Auto and Auto Pure registered in April 2012 has laid the basis of a bigger project that was completed in May 2013 with the EPD® Process Certification. This certification gives Miko the possibility to internally handle the management of EPD® data involved in the verification procedure by itself and issue new EPDs for registration. This will lead to eco-design: products designed to be environmentally friendly.

The maintenance of the Environmental Certification requires a series of provisions which must be fulfilled by the organization: in particular, the activity includes the planning and monitoring of environmental aspects concerning emissions into the atmosphere, waste water, noise pollution, waste materials, energy, water resources, protection of the soil and subsoil, as well as the periodical communication of the results of these activities to the competent authorities. With the scope to improve the environmental performance of Miko, some actions were taken in the past years.

Starting from 2013, Miko has optimized the production cycles leading to a significant reduction of the consumption of energy, water and chemicals.

During 2014 Miko has reduced the consumption of process water by adopting an internal recirculation system of the part of water used for the washing phase. The company has also invested in revamping the treatment plant of process water which ensures a high level of purification and a reduction of the reagents used, by adopting the latest technology currently on the market.

These changes have helped to improve the environmental performance of Dinamica® as shown in the revision of this EPD®.

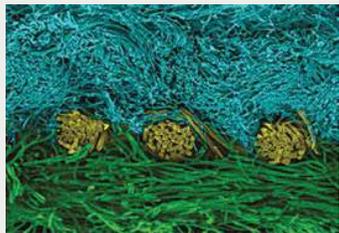
Responsibility

On July 26th 2013, the Board of Directors of Miko S.r.l. formally adopted the **Organization and Management Model** (Modello di Organizzazione e Gestione), pursuant to Legislative Decree no. 231/01 (Liability of legal persons), together with the relevant Code of Ethics and Conduct. This fundamental document is geared to ensure fairness and transparency in the conduct of business and

corporate activities, to protect its position and image, as well as the expectations of its stakeholders. Having implemented substantial changes in the production plants, during the course of 2014 the company applied to obtain the Environmental Authorization (AUA), pursuant to Legislative Decree n. 59/2013. At the end of 2014 Miko obtained the authorisation for atmospheric emissions, for the discharge of industrial wastewater and compliance with the provisions of the future acoustic zoning of the industrial area with a validity of 15 years.

During the second half of 2014 the company passed the inspection carried out by the competent ministerial body concerning the appropriate management of chemical substances and preparations within the meaning of European Regulations no. 1907/2006 and 1272/2008, respectively known as REACH and CLP. During 2014 the organisation has implemented a fire prevention and protection system – emergency management – technically upgrading its personnel and undergoing specific risk scenarios.

1.4 THE PRODUCT



Dinamica® is an ecological microfibre for the automotive sector. Its production process is similar to that used for paper recycling, in which no harmful chemical substances are used. The **recycled polyester** contained in **Dinamica®** derives from polyester fibres (T-shirts, fabrics, fibres) and PET (bottles, plastic, etc.). **Recycling polyester means**

reducing energy consumption and CO₂ emissions into the atmosphere by 80% compared to the traditional petrol-based polyester production process. Under the microscope, **Dinamica®** is composed of three layers: face, inner scrim and backing.

Submerged in a water solution, the inner scrim attracts small polyester fibres, which are suspended in the liquid, to both surfaces; these are compacted using a water-based needle punching process. The microfibre is then immersed in a water polyurethane bath, which, in contrast to normal production cycles, does not contain the solvents that are harmful to health and the environment. This process compacts the fibres,

making them elastic and resistant. During dyeing, the use of neutral, non-toxic colouring agents is a further guarantee of the product's naturalness and respect for health and the environment.

Miko guarantees eco-sustainability along the whole Dinamica® production cycle, ensuring a low level of polluting emissions and energy consumption during production. Finally, Dinamica® is designed for easy disposal, and is 100% recyclable at the end of its useful life. In the upholstery sector, conformity



to the Oeko-Tex® Standard 100 for product class I is a further guarantee of great quality and safety, certifying the microfibre for applications which come into direct contact with the skin.

Dinamica® for the automotive sector is available in **Auto** version, in which 2 of the 3 layers come from recycled

polyester. By changing the face layer it is possible to achieve another 3 types of variants: **Melange, and Silk**. But Miko's research has aimed to go one step further. Recently, the company started to work on the development of **Dinamica® Auto Pure**, a new car product which uses inner scrim obtained from recycled fibres. To complete the product range for automotive, there are Dinamica® Auto Stretch and Dinamica® Wide. Their stretchable structures allow to cover curved surfaces through industrial rather than handmade productions. In terms of technical performance, **Dinamica® Auto and Dinamica® Auto Pure** have the same nominal values, but the environmental performance results concerning the CO₂ emissions differ greatly, due to the percentage difference in recycled polyester content.

The technical characteristics of **Dinamica® Auto, Dinamica® Auto Pure, Dinamica® Auto Stretch and Dinamica® Wide** are given below.





Type of test	Test method	Unit	Auto/Auto Pure	Auto Stretch	Wide
Weight	DIN EN ISO 29073/1	g/m ²	300 +/- 30	300 +/- 30	265 +/- 30
Thickness	DIN EN ISO 5084	mm	1,10 +/- 0,10	1,10 +/- 0,10	1,05 +/- 0,12
Usable width	UNI EN 1773	mm	≥ 1400	≥ 1400	≥ 1600
Tensile strength	DIN EN ISO 13934/1	N	≥ 600	≥ 600	L ≥ 500 T ≥ 200
Tensile strength (after 2 h in water)	DIN EN ISO 13934/1	N	≥ 600	≥ 600	L ≥ 500 T ≥ 200
Tensile strength (after 3 cycles ISO 105 B06)	DIN EN ISO 13934/1	N	≥ 600	≥ 600	L ≥ 500 T ≥ 200
Breaking elongation at maximum force	DIN EN ISO 13934/1	%	≥ 30	≥ 35	≥ 30
Tear strength	DIN EN ISO 13937/2	N	≥ 15	≥ 15	≥ 15
Abrasion resistance with Martindale	DIN EN ISO 12947	Cycles	50.000	25.000	25.000
Abrasion resistance with Martindale (after 1 cycle ISO 105 B06)	DIN EN ISO 12947	Cycles	50.000	25.000	25.000
Color fastness to Light (Ci 4000, 3 cycles)	DIN EN ISO 105-B06(set of conditions n°3)	Grey scale ISO 105-A02	≥ 3/4	≥ 3/4	≥ 3/4
Color fastness to Rubbing	DIN EN ISO 105-X12	Grey scale ISO 105-A03	Dry ≥ 4 Wet >4 Dark Colour ≥ 3/4	Dry ≥ 4 Wet >4 Dark Colour ≥ 3/4	Dry ≥ 4 Wet >4 Dark Colour ≥ 3/4
Color fastness to perspiration (Alcaline)	DIN EN ISO 105-E04	Grey scale ISO 105-A02/03	Change in color: ≥4/5 Stain pes/co: ≥ 4	Change in color: ≥4/5 Stain pes/co: ≥ 4	Change in color: ≥4/5 Stain pes/co: ≥ 4
Color fastness to perspiration (Acid)	DIN EN ISO 105-E04	Grey scale ISO 105-A02/03	Change in color: ≥4/5 Stain pes/co: ≥ 4	Change in color: ≥4/5 Stain pes/co: ≥ 4	Change in color: ≥4/5 Stain pes/co: ≥ 4
Color fastness to Water	DIN EN ISO 105-E01	Grey scale ISO 105-A02/03	Change in color: ≥4/5 Stain pes/co: ≥ 4	Change in color: ≥4/5 Stain pes/co: ≥ 4	Change in color: ≥4/5 Stain pes/co: ≥ 4
Fogging	DIN 75201 (method A)	Fogging scale	≥ 70	≥ 70	≥ 70
The product meet the following flame retardant specification	FMW SS 302	Speed (mm/min.)	≤ 100	≤ 100	≤ 100

Tab.1.1 - Technical specification of the nonwoven Dinamica® Auto, Dinamica® Auto Pure, Dinamica® Auto Stretch and Dinamica® Wide.

1.5 PRODUCT COMPOSITION

Dinamica® Auto: 92% polyester e 8% polyurethane

Analyzing the percentage of polyester, we can make this distinction:

FACE: 100% recycled polyester microfiber 0,15d

INNER SCRIM: 100% polyester 150d

BACKING: 10% recycled polyester microfiber 0,15d and 90% polyester FR 0,50d

Dinamica® Auto Pure: 92% polyester e 8% polyurethane

Analyzing the percentage of polyester, we can make this distinction:

FACE: 100% recycled polyester microfiber 0,15d

INNER SCRIM: 100% **recycled** polyester 150d

BACKING: 10% recycled polyester microfiber 0,15d and 90% polyester FR 0,50d

Dinamica® Auto Stretch: 88% polyester e 12% polyurethane

Analyzing the percentage of polyester, we can make this distinction:

FACE: 100% recycled polyester microfiber 0,15d

INNER SCRIM: 100% **stretchable** polyester 150d

BACKING: 10% recycled polyester microfiber 0,15d and 90% polyester FR 0,50d

Dinamica® Auto Stretch is available in rolls of 1,42m width.

Dinamica® Auto Wide: 88% polyester e 12% polyurethane

Analyzing the percentage of polyester, we can make this distinction:

FACE: 100% recycled polyester microfiber 0,15d

INNER SCRIM: 100% **stretchable** polyester 150d

BACKING: 10% recycled polyester microfiber 0,15d and 90% polyester FR 0,50d

Dinamica® Wide is available in rolls of 1,60m width.

The recycled polyester comes from:

- Plastic Bottles (PET)
- Uniforms
- Clothing
- Banner for advertising
- Production waste



1.6 INFORMATION ON THE PHASES OF USE AND END-OF-LIFE MANAGEMENT

Dinamica® Auto and **Auto Pure** are microfibre used to cover seats, backrests, headrests, dashboards, rear parcel shelves, door panels and armrests. **Dinamica® Stretch** and **Wide** are suitable to cover headliners, pillars, sun visors and door panels. At the end of its life cycle, **Dinamica®** is disposed of in compliance with the directives concerning vehicles in the various countries of use and disposal. Miko is starting partnerships with some European car manufacturers interested in monitoring the life cycle of **Dinamica®** from cradle to grave. This study will allow us to understand the concrete impact of **Dinamica®** on the environment, but will also offer food for thought on the end-of-life management of non-woven fabrics. Some initial tests have shown that **Dinamica®** can be recycled, fully transformed in its appearance and reused inside cars as a filler.

1.7 ENVIRONMENTAL AWARDS

In the last years, Miko has received two important awards demonstrating an appreciation for its corporate philosophy and products by committees of experts in the environmental field.

- In July 2013, Miko won as National Champion in the European Business Awards. 17.000 companies entered the award but only 551 were selected among the best in Europe, including Miko thanks to the progress made within the company (turnover) and the environment (certification, advanced systems, innovative products).
- In March 2011, Miko won the first prize at the Italian Environmental Business Awards (Premio Impresa Ambiente) for the category Best Product of the year.



2. EVALUATION OF ENVIRONMENTAL PERFORMANCE

The environmental performance of Dinamica® has been assessed using the LCA (Life Cycle Assessment) analysis method, starting from the extraction of the raw materials up to the completion of the finished product.

The study was carried out in conformity with the ISO 14040 standards, following the Product Category Rules (PCR), approved by the technical committee of the International EPD System: PCR 2011:06 NONWOVENS FOR CLOTHING, PROTECTIVE CLOTHING AND UPHOLSTERY.

2.1 FUNCTIONAL UNIT

The functional unit is represented by 1 m² of Dinamica® non-woven fabric with a weight of:

- 330 g/m² for Dinamica® Auto, Auto Pure and Auto Stretch
- 295 g/m² for Dinamica® Wide

2.2 SYSTEM BOUNDARIES

The system boundaries, presented in Figure 2.1, include the Upstream Processes and the Core Processes of the non-woven Dinamica® fabric. The definition of the system boundaries complies with the rules laid down in the referenced PCR document.

The Upstream Processes include:

- Extraction and processing of the raw materials;
- Production of inputs for the production of the raw non-woven fabric;
- Production of chemicals for dyeing, finishing and water treatment;
- Production of packaging for the non-woven fabric and the finished product;
- Transport of waste for the production of recycled PET.



The Core Processes include:

- Production of raw non-woven fabric;
- Dyeing and finishing;
- Treatment of process waters;
- Transport of inputs for the production of raw non-woven fabric;
- Transport of chemicals for dyeing, finishing and water treatment;
- Transport of the raw non-woven fabric;
- Transport and treatment of waste produced in the various phases.

The treatments of the process waters and production waste are included in the system boundaries.

Due to the lack of reliable data, Use phase and End-of-life treatment are excluded from the system boundaries.

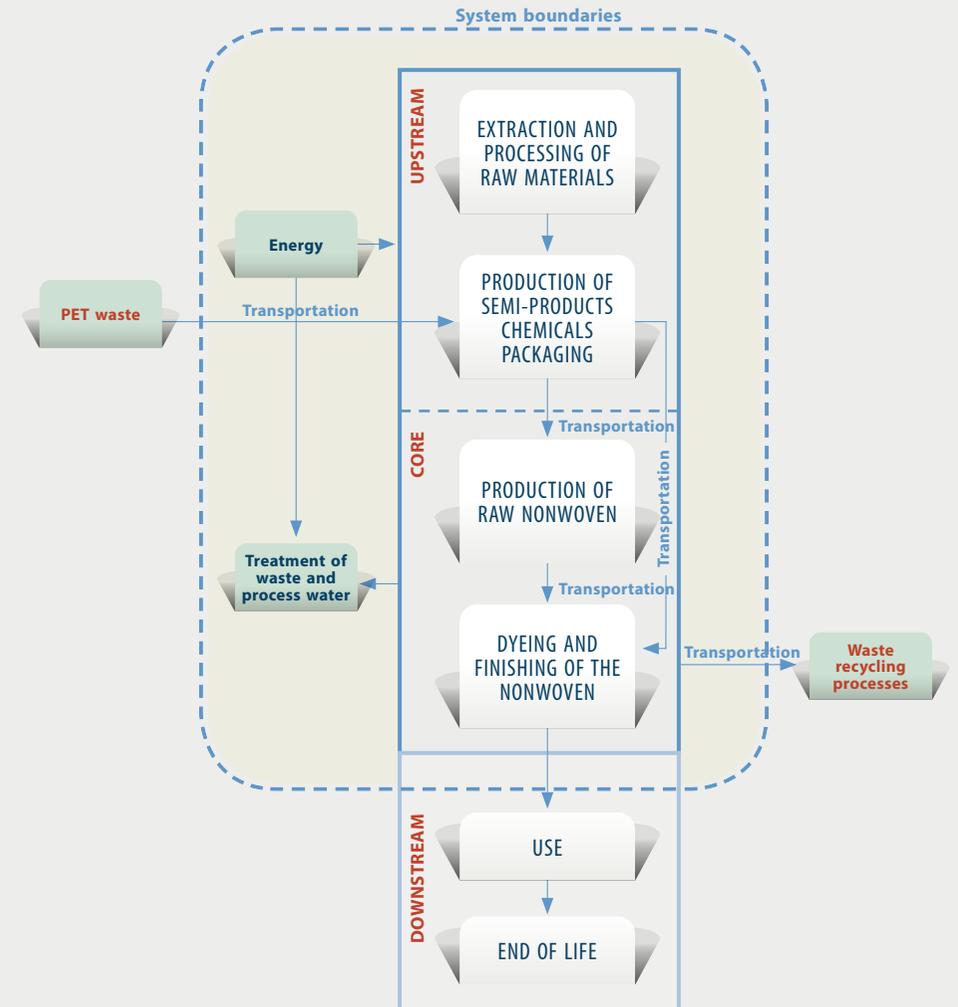


Fig 2.1 System boundaries

2.3 CUT-OFF RULES

Around 1% of the inventory data concerning the total inputs to the Core Processes was excluded, complying with the maximum percentages of exclusion laid down in the referenced PCR document.

2.4 DATA QUALITY

The data quality requirements considered in the study are those laid down in the referenced PCR document. In line with these rules, specific data taken directly from the production sites for the year 2014 were used, as well as secondary data taken from the Ecoinvent v.3.1 database.

2.5 ENVIRONMENTAL PROFILE OF THE PRODUCT

Here below are the environmental profiles of Dinamica® Auto, Dinamica® Auto Pure, Dinamica® Auto Stretch and Dinamica® Wide.

The data concern the production of 1 m² of non-woven fabric, divided into Upstream Processes and Core Processes. In the tables totals may not match because of rounded data.



2.5.1 ENVIRONMENTAL PROFILE DINAMICA® AUTO

Non-renewable energy resources

Energy resource	Unit	Upstream Processes	Core Processes	Total
Oil	g	222,41	164,23	386,63
Coal	g	292,67	676,93	969,60
Natural gas	g	206,32	748,77	955,10
Uranium	g	0,01	0,02	0,03

Non-renewable material resources

Material resource	Unit	Upstream Processes	Core Processes	Total
Gravel	g	150,89	865,00	1015,90
Sodium chloride	g	225,45	31,63	257,08
Calcite	g	63,84	147,22	211,06
Iron	g	31,73	67,25	98,98
Clay	g	21,05	63,85	84,90
Gangue, bauxite	g	19,72	35,59	55,32
Others	g	31,12	17,31	48,43

Renewable energy resources

Energy resource	Unit	Upstream Processes	Core Processes	Total
Hydroelectric	MJ	0,604	2,230	2,834
Biomass	MJ	1,407	0,864	2,270
Wind	MJ	0,058	0,257	0,315
Solar	MJ	0,000	1,569	1,569
Geothermal	MJ	0,078	0,931	1,010

Renewable material resources

Material resource	Unit	Upstream Processes	Core Processes	Total
Wood	g	8,44	0,00	8,44
Cardboard	g	43,56	0,00	43,56

Water consumption

	Unit	Upstream Processes	Core Processes	Total
Water*	litres	130,58	1109,04	1239,63

*34% of the consumption is represented by the cooling water used in industrial processes, in particular for those related to the production of electricity for which the energy mixes of the new ecoinvent 3.1 database have been used.

Environmental impact categories

Impact category	Unit	Upstream Processes	Core Processes	Total
Global warming	kg CO ₂ eq	1,41	4,22	5,63
Photochemical oxidation	kg C ₂ H ₄ eq	0,0005	0,0009	0,0014
Acidification	kg SO ₂ eq	0,0077	0,0176	0,0254
Eutrophication	kg PO ₄ ³⁻ eq	0,0021	0,0045	0,0066

OTHER ENVIRONMENTAL INDICATORS

Waste

Waste (Core Processes)	Unit	Non-hazardous
Recycling	g	21,99
Waste to energy	g	50,65
Landfill	g	97,78

Recycled material content per functional unit

147 g of recycled PET fibre is used to produce 1m² of Dinamica® Auto, corresponding to approximately 45% of the total product weight.

2.5.2 ENVIRONMENTAL PROFILE DINAMICA® AUTO PURE

Non-renewable energy resources

Energy resource	Unit	Upstream Processes	Core Processes	Total
Oil	g	159,09	164,23	323,32
Coal	g	265,73	676,93	942,66
Natural gas	g	164,68	748,77	913,45
Uranium	g	0,01	0,02	0,03

Non-renewable material resources

Material resource	Unit	Upstream Processes	Core Processes	Total
Gravel	g	138,53	865,00	1003,53
Sodium chloride	g	225,23	31,63	256,86
Calcite	g	61,37	147,22	208,59
Iron	g	30,76	67,25	98,01
Clay	g	16,60	63,85	80,45
Gangue, bauxite	g	17,25	35,59	52,84
Others	g	30,15	17,31	47,46

Renewable energy resources

Energy resource	Unit	Upstream Processes	Core Processes	Total
Hydroelectric	MJ	0,561	2,230	2,791
Biomass	MJ	1,337	0,864	2,201
Wind	MJ	0,051	0,257	0,308
Solar	MJ	0,000	1,569	1,569
Geothermal	MJ	0,082	0,931	1,014

Renewable material resources

Material resource	Unit	Upstream Processes	Core Processes	Total
Wood	g	8,44	0,00	8,44
Cardboard	g	43,56	0,00	43,56

Water consumption

	Unit	Upstream Processes	Core Processes	Total
Water*	litres	114,86	1109,04	1223,90

*34% of the consumption is represented by the cooling water used in industrial processes, in particular for those related to the production of electricity for which the energy mixes of the new ecoinvent 3.1 database have been used.



Environmental impact categories

Impact category	Unit	Upstream Processes	Core Processes	Total
Global warming	kg CO ₂ eq	1,22	4,22	5,45
Photochemical oxidation	kg C ₂ H ₄ eq	4,41E-04	9,12E-04	1,35E-03
Acidification	kg SO ₂ eq	0,0069	0,0176	0,0246
Eutrophication	kg PO ₄ ³⁻ eq	0,0018	0,0045	0,0064

OTHER ENVIRONMENTAL INDICATORS



Waste

Waste (Core Processes)	Unit	Non-hazardous
Recycling	g	21,99
Waste to energy	g	50,65
Landfill	g	97,78

Recycled material content per functional unit

240 g of recycled PET fibre is used to produce 1m² of Dinamica Auto® Pure, corresponding to approximately 72% of the total product weight.

The greater percentage of recycled PET used in Dinamica® Auto Pure leads to a reduction in CO₂ emissions of of 3.3% % compared to Dinamica® Auto. This equals 184g CO₂ eq. less for each square metre of non-woven fabric produced.

2.5.3 ENVIRONMENTAL PROFILE DINAMICA® AUTO STRETCH



Non-renewable energy resources

Energy resource	Unit	Upstream Processes	Core Processes	Total
Oil	g	240,32	187,09	427,42
Coal	g	311,02	784,84	1095,86
Natural gas	g	221,74	865,94	1087,68
Uranium	g	0,01	0,03	0,03



Non-renewable material resources

Material resource	Unit	Upstream Processes	Core Processes	Total
Gravel	g	160,60	1006,06	1166,66
Sodium chloride	g	255,89	36,52	292,41
Calcite	g	70,71	171,30	242,01
Iron	g	35,91	78,06	113,97
Clay	g	23,14	74,34	97,48
Gangue, bauxite	g	22,06	41,33	63,39
Others	g	34,61	20,09	54,69



Renewable energy resources

Energy resource	Unit	Upstream Processes	Core Processes	Total
Hydroelectric	MJ	0,641	2,585	3,225
Biomass	MJ	1,537	1,002	2,539
Wind	MJ	0,063	0,297	0,360
Solar	MJ	0,000	1,811	1,811
Geothermal	MJ	0,079	1,077	1,156

Renewable material resources

Material resource	Unit	Upstream Processes	Core Processes	Total
Wood	g	9,74	0,00	9,74
Cardboard	g	45,33	0,00	45,33

Water consumption

	Unit	Upstream Processes	Core Processes	Total
Water*	litres	139,47	1288,98	1428,46

*34% of the consumption is represented by the cooling water used in industrial processes, in particular for those related to the production of electricity for which the energy mixes of the new ecoinvent 3.1 database have been used.

Environmental impact categories

Impact category	Unit	Upstream Processes	Core Processes	Total
Global warming	kg CO ₂ eq	1,50	4,88	6,38
Photochemical oxidation	kg C ₂ H ₄ eq	5,26E-04	1,05E-03	1,57E-03
Acidification	kg SO ₂ eq	0,0082	0,0202	0,0284
Eutrophication	kg PO ₄ ³⁻ eq	0,0022	0,0052	0,0074

OTHER ENVIRONMENTAL INDICATORS

Waste

Waste (Core Processes)	Unit	Non-hazardous
Recycling	g	25,38
Waste to energy	g	58,61
Landfill	g	112,82

Recycled material content per functional unit

123 g of recycled PET fibre is used to produce 1m² of Dinamica® Auto Stretch, corresponding to approximately 37% of the total product weight.

2.5.4 ENVIRONMENTAL PROFILE DINAMICA® WIDE

Non-renewable energy resources

Energy resource	Unit	Upstream Processes	Core Processes	Total
Oil	g	210,54	165,67	376,21
Coal	g	271,24	695,71	966,95
Natural gas	g	193,88	767,58	961,45
Uranium	g	0,01	0,02	0,03

Non-renewable material resources

Material resource	Unit	Upstream Processes	Core Processes	Total
Gravel	g	141,73	891,91	1033,64
Sodium chloride	g	223,94	32,37	256,31
Calcite	g	62,34	151,87	214,21
Iron	g	31,79	69,20	100,99
Clay	g	20,41	65,91	86,31
Gangue, bauxite	g	19,49	36,64	56,14
Others	g	31,37	17,81	49,18

Renewable energy resources

Energy resource	Unit	Upstream Processes	Core Processes	Total
Hydroelectric	MJ	0,558	2,291	2,849
Biomass	MJ	1,385	0,888	2,273
Wind	MJ	0,055	0,263	0,318
Solar	MJ	0,000	1,605	1,605
Geothermal	MJ	0,069	0,955	1,024

Renewable material resources

Material resource	Unit	Upstream Processes	Core Processes	Total
Wood	g	8,64	0,00	8,64
Cardboard	g	43,82	0,00	43,82

Water consumption

	Unit	Upstream Processes	Core Processes	Total
Water*	litres	123,58	1142,73	1266,31

*34% of the consumption is represented by the cooling water used in industrial processes, in particular for those related to the production of electricity for which the energy mixes of the new ecoinvent 3.1 database have been used.



Environmental impact categories

Impact category	Unit	Upstream Processes	Core Processes	Total
Global warming	kg CO ₂ eq	1,31	4,32	5,63
Photochemical oxidation	kg C ₂ H ₄ eq	4,78E-04	9,29E-04	1,41E-03
Acidification	kg SO ₂ eq	0,0072	0,0179	0,0251
Eutrophication	kg PO ₄ ³⁻ eq	0,0019	0,0046	0,0066

OTHER ENVIRONMENTAL INDICATORS



Waste

Waste (Core Processes)	Unit	Non-hazardous
Recycling	g	22,49
Waste to energy	g	51,96
Landfill	g	100,00

Recycled material content per functional unit

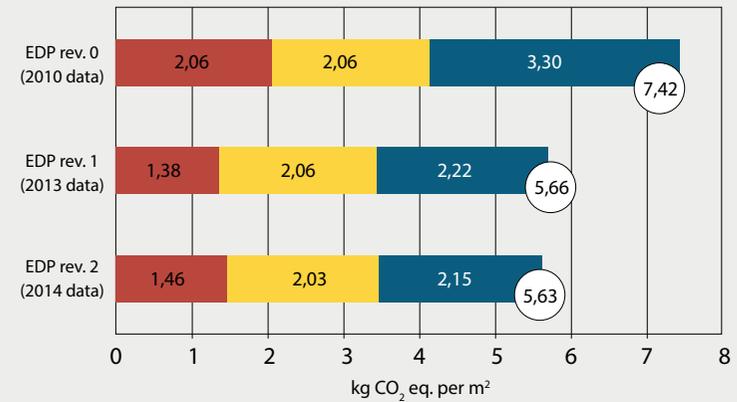
109 g of recycled PET fibre is used to produce 1m² of Dinamica® Wide corresponding to approximately 37% of the total product weight.

2.6 TREND OF THE CARBON FOOTPRINT

The following chart shows the trend of the Carbon Footprint data for Dinamica® Auto since the year 2010 (EPD® revision nr. 0). The scheme emphasizes the impact of the upstream processes and core processes done by Asahi Kasei (Japan) and Miko (Italy). The results refer to 1m² of microfibre.

The trend of the Carbon Footprint shows that the management of the EPD® Process has enabled MIKO to achieve an effective improvement of its environmental performance.

CARBON FOOTPRINT



UPSTREAM PROCESSES

Upstream processes include the extraction and processing of the raw materials, the production of all input materials for the raw non-woven, the dyeing, and finishing as well as for the production of packaging.

CORE PROCESSES – ASAHI KASEI

Core Processes carried out by Asahi Kasei include all the operations for the production of raw non-woven fabric.

CORE PROCESSES – MIKO

Core Processes carried out by Miko include all the operations for dyeing and finishing of the raw non-woven fabric which lead to Dinamica® final products.



3. ADDITIONAL INFORMATION

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The view of the PCR document was conducted by:	Technical Committee of the International EPD® System. Chair: Massimo Marino. Contact via info@environdec.com
PCR Moderator:	Paolo Simon Ostan
Independent verification of the declaration and data, according to ISO 14025:	<input type="checkbox"/> External <input checked="" type="checkbox"/> EPD Process Certification
Third party verifier:	SGS Italia S.p.A. via Caldera, 21 - 20129 - Milano Tel. +39 02.73931 Fax +39 02.70124630 www.it.sgs.com

For more information about the International EPD® System visit www.environdec.com. EPD within the same product category, but from different programs may not be comparable.

This EPD® is valid until: 16TH APRIL 2018

Differences from EPD® rev.1, March 2014

- Specific data for the year 2014 were used
- Environmental profile of the product is now compliant with the latest version of the PCR document
- Paragraph 1.3 was updated with information about Life Cycle Thinking approach, actions to improve the environmental performance of the company, and corporate responsibility

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