Taghleef Industries

ENVIRONMENTAL REPORT 2021

—

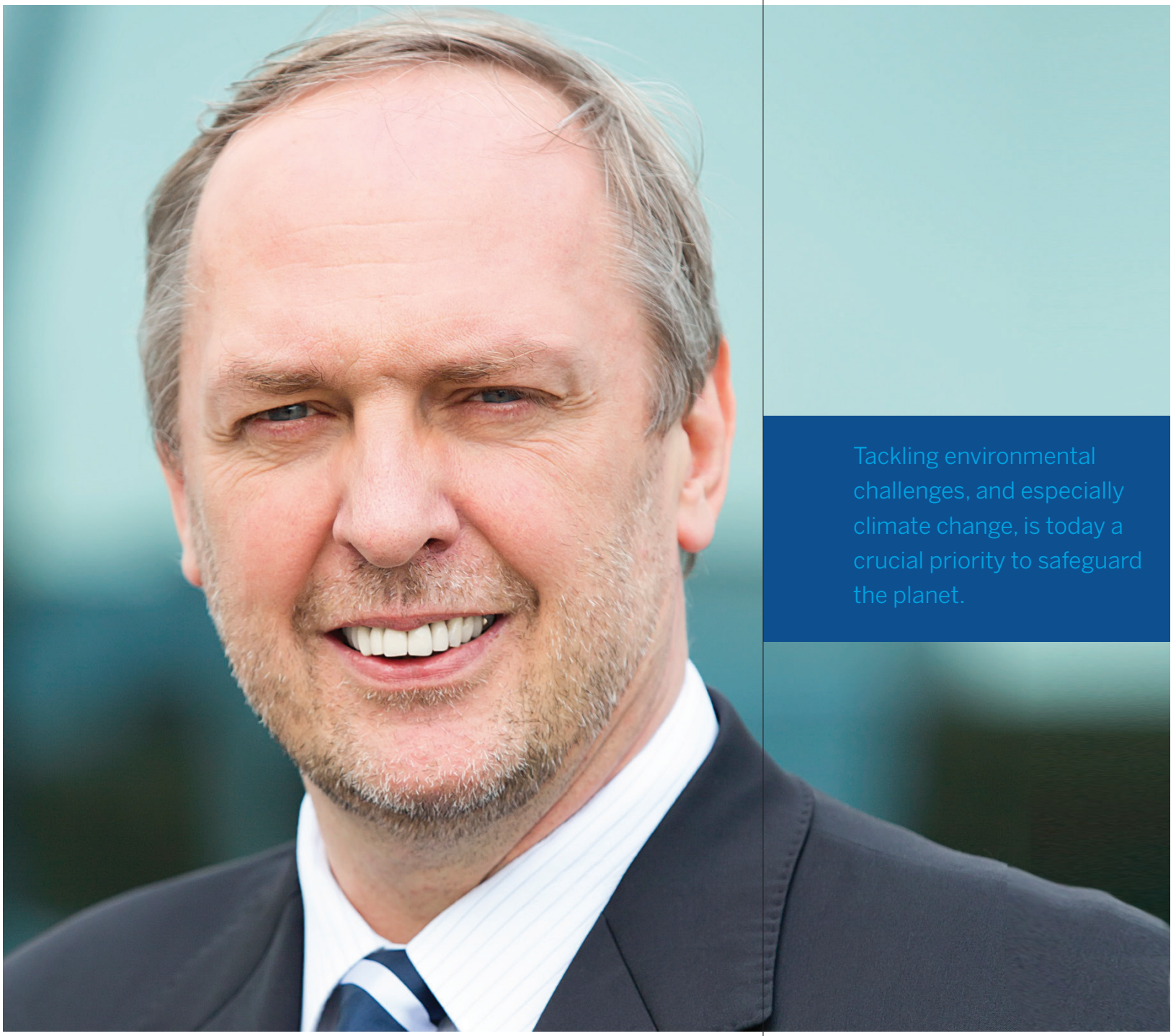
Taghleef Italian Site



Taghleef Industries

Contents

01	CEO Letter	4
02	Future Targets	8
03	Company Profile	14
04	Environmental Indicators	30
05	Previous Targets Achievement	44
06	Third Party Assessment	48
07	Glossary	52



Tackling environmental challenges, and especially climate change, is today a crucial priority to safeguard the planet.

1.0

CEO Letter

All over the world, more and more ambitious policies are being adopted to ensure a proper implementation of the required measures. The way was paved by the Paris Agreement, the first globally recognised agreement on climate change, in conjunction with the 17 UN Sustainable Development Goals, and their inclusion into international and national policies.

At the European Union level, the latest milestone is represented by the recent Green Deal, a commitment to particularly significant ambitions for our future.

In this context, it is clear how this is the direction where market efforts shall be directed. There is in fact a global call for corporate responsibility in this sense: it is no longer only about raising awareness, but about concrete action.

In the past years, several initiatives and schemes emerged, aimed at providing scientific and reliable support to companies' efforts, helping them

enhancing their ambition and defining concrete actions aimed at setting and fulfilling their targets.

The packaging sector embraced this urgency as well. Taghleef Industries Group will keep its leadership role, as one of the most prominent manufacturers of biaxially oriented polypropylene (BoPP), cast polypropylene (CPP) and biaxially oriented polylactic acid (BoPLA) films, primarily used for food packaging, in the world. We have the responsibility to be at the forefront of this movement, exploring new opportunities and innovative solutions. We have been studying this quick political and market evolution, and we want to maintain our position of innovative leaders by setting new goals. To do this, we will adopt the appropriate methodologies and adhere to the initiatives that better fit our profile.

Our engagement started a long time ago. We do believe that the first step was to know where we were starting from. For this reason, we decided to adopt reliable tools for the quantification of our impacts, according to a Monitoring, Reporting and Verification perspective.

That is why in 2000 we decided to implement our Environmental Management System, in accordance with ISO 14001, and to quantify our first organisation greenhouse gas inventory (ISO 14064-1) in 2009. In addition, in 2020 we developed the Carbon Footprint of Product Systematic Approach, or CFP SA, (ISO 14067), and we implemented the reporting of Greenhouse Gas emissions and removals for our site (ISO 14064-1). In the same year we obtained the ISCC PLUS certification (International Sustainability & Carbon Certification), ensuring that our raw materials are derived from biomass or from recycled materials.

These activities enriched our already solid integrated Management System, with the certifications for the Quality System (ISO 9001), Food Safety (BRC GS) and Health and Safety at the Workplace (ISO 45001).

In addition, from 2011 Taghleef Industries S.p.A. adopted the Ethic Code and Organisational Model, in accordance with the Italian Legislative Decree 231/2001 and subsequent modifications and integrations, supervised by the Supervisory Body.

The awareness we gained thanks to these tools allowed us to embark into impact reduction pathways, and to use the CFP SA to assess the impact of the products launched on the market.

Our driver is to provide more performing products, consuming less resources and



Our driver is to provide more performing products, consuming less resources and allowing to reduce waste, especially in the food sector, while preserving the highest quality standards.

allowing to reduce waste, especially in the food sector, while preserving the highest quality standards.

Today, we are aware of the rewarding results we achieved through the implementation of these measures, but we know that there is no end to improvements. Therefore, we keep exploring further solutions and implementing new tools and measures every day.

This second version of the Environmental Report of Taghleef Industries S.p.A. presents the previous targets already achieved and the future ones that we set, confirming the strategies in the pathway we undertook. In fact, we are now ready to extend them to the other production sites of our Group, boosting the virtuous circle of the outstanding outcomes that we achieved up to now.

Our commitment is to work together with all the actors of the value chain. We feel that a close collaboration with suppliers and customers is crucial to realise in the most effective way the market transition that we are urged to. This can only happen while keeping meeting customers' needs, strengthening business relations, and guaranteeing high quality services.



2.0
Future Targets

The following table presents all the updated targets. For each of them, the environmental aspect, and the objective in which the target is positioned is specified, together with the definition of an indicator useful for the assessment. In some cases, when the target is set as a reduction in comparison to the same value a reference year, the base year is indicated. Alternatively, if the target is set before, the absolute value is indicated. In addition, in the case that the target is to be met within a specific time, the expected year is indicated in the "deadline" column. If it must be fulfilled every year, the deadline is indicated as "yearly".

Successively, each target is described with more details.

FUTURE TARGETS

Environmental Aspect	Objective	Indicator	Reference Year	Target	Deadline
ENERGY	1. Minimization of total energy consumptions (electric + thermal energy)	Energy consumption/Total Jumbo rolls film extruded [toe/tonnes]	2010	-10%	Yearly
	2. Installation of a photovoltaic power plant	Installation of the plant	—	P*	2023
MATERIALS	3. Increase the Reprocessed Production Granules (RPG) from internal production material usage	RPG material consumption/Raw material consumption [%]	—	> 11 %	Yearly
	4. Increase the share of RPG material used as raw material	RPG material/Total plastic scraps [tonnes/tonne]	—	> 0.75 %	Yearly
WATER	5. Minimize the water consumption for Jumbo rolls film extruded and RPG production	Water consumption/Total Jumbo rolls film extruded, and RPG produced [m^3/tonnes]	—	< 2.46	Yearly
WASTE	6. Minimize the share of hazardous waste sent to landfill	Hazardous waste landfilled/Total waste produced [%]	—	< 0.2%	Yearly
	7. Minimize the share of total waste sent to landfill	Waste sent to landfill/Total waste produced [%]	—	< 1.5%	Yearly
	8. Minimize paper cardboard packaging used per unit produced	Paper cardboard packaging/Total Jumbo rolls film extruded [kg_waste/tonnes]	—	≤ 8% of the 2019 value obtained	Yearly
	9. Minimize wood packaging used per unit produced	Wood packaging/Total Jumbo rolls film extruded [kg_waste/tonnes]	—	≤ 17% of the 2017 value obtained	Yearly
	10. Minimize packaging composed of various materials used per unit produced	Packaging composed of various materials/Total Jumbo rolls film extruded [kg_waste/tonnes]	—	≤ 14% of the 2010 value obtained	Yearly
GHG EMISSIONS	11. Increase of CO_2 uptake	Size of the area afforested [m^2]	—	15.000 m^2	2025
	12. Enhance of the climatic impact assessments	Carbon Management tools implemented (CFP, CFO)	—	M*	—
PRODUCTS	13. Enhancement of products impact assessment	Development of studies to investigate the environmental impact of bio-based products and of products based on recycled and RPG materials	—	D*	2023

P* - Plant installation | M* - Maintenance and implementation of the tools | D* - Development of the studies

2.0
Future Targets

ENERGY

The previous target on energy consumption was to reduce by 15% the total **energy consumption** (electricity + thermal energy) compared to 2008 figures.

Although the levels of energy efficiency are already high, a new target is set to reduce by 10% the 2010 value of **toe/ tonne of Jumbo rolls film extruded**.

In addition, Taghleef Industries S.p.A. is committed to increase the generation through renewable energy by installing a **photovoltaic power plant** by 2023 on its property. The nominal power [kW] must still be defined.

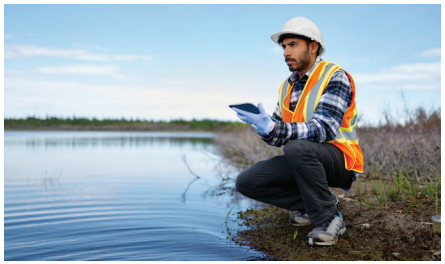
MATERIALS

A new indicator was defined, evaluate the ratio between the **RPG material usage on the total raw material consumption**. This allows for a more coherent evaluation, that promotes the increased use of scraps as raw materials. The target to be met for this indicator is **>11%**.

A second new indicator was introduced: calculate the ratio between the share of **regenerated material produced on the total plastic scraps produced**. This gives an added value to the scraps with a circular economy perspective, allowing to reuse them in the production process. The target to be met for this indicator is **>0.75%**.

WATER

The indicator assesses the **water consumptions** on the total amount of film produced. The increase in the production of regenerated material leads to a significant amount of water required for the process. Consequently, the former target remained valid: **<2.46 m³/tonne of film produced (Jumbo rolls film extruded, RPG material included).**



WASTE

Three main targets are defined for waste:

Share of hazardous waste sent to landfill on the total amount of waste produced. The target is set to **<0.2%**, considering that in the previous decade the indicator followed a decreasing trend, with a peak in 2018 due to some extraordinary works.
Amount of **waste sent to landfill on the total amount of produced waste**. The target set is **<1.5%**.

On top of these, new indicators have been defined with regards to the packaging waste:

Paper cardboard: the indicator monitors the amount of waste produced on the total film produced. The evolution of the production needs, translated into a more differentiated and customised production, involves a significant increase of the amount of packaging for raw materials. The goal is to limit this growth; the target set corresponds to a reduction of 8% if compared to 2019 levels.

Wood packaging: This indicator evaluates the amount of total waste disposed in the total film produced. The target set corresponds to a reduction of 16% from 2017 levels.

Packaging composed of various materials: in this case, the target set corresponds to a reduction of 14% from 2010.

GREENHOUSE GASES

There is a **15.000 m² area**, located close to the San Giorgio plant, that will be at the centre of an environmental and social project by 2025. The area will be **afforested** and will be **made available to the personnel** for an increased quality of the working conditions.



In addition, the **carbon management tools** developed until now (e.g. Product Carbon Footprint/CFP and Organization Carbon Footprint/CFO), will be maintained, improved and applied to realise GHG quantification studies.

PRODUCTS

The goal is to implement studies to investigate the climatic impact of our bio-based products and of products based on recycled and RPG materials by 2023.





3.0
Company Profile

3.1 Taghleef Industries Group

3.2 Dynamic Cycle™: *Ti*'s holistic approach to sustainability

3.3 reDESIGN™ for a Circular Economy

3.4 The Most Comprehensive Portfolio

3.5 Our Manufacturing Process

3.6 Value Chain

3.1

Taghleef Industries Group

Headquartered in Dubai, Taghleef Industries is part of the Al Ghurair Group. This family-owned conglomerate operates in strategic businesses such as real estate and shopping malls, manufacturing (packaging solutions and metals), and investments.

The Group was established in 2006, merging three companies' experience and power: Technopack based in Egypt, Al Khaleej Polypropylene Co. (AKPP) based in Oman, and Dubai Poly Film based in the United Arab Emirates (UAE).

During the following years, *Ti* expanded its presence globally through new mergers and acquisitions to meet the ever-increasing domestic and international market demands.

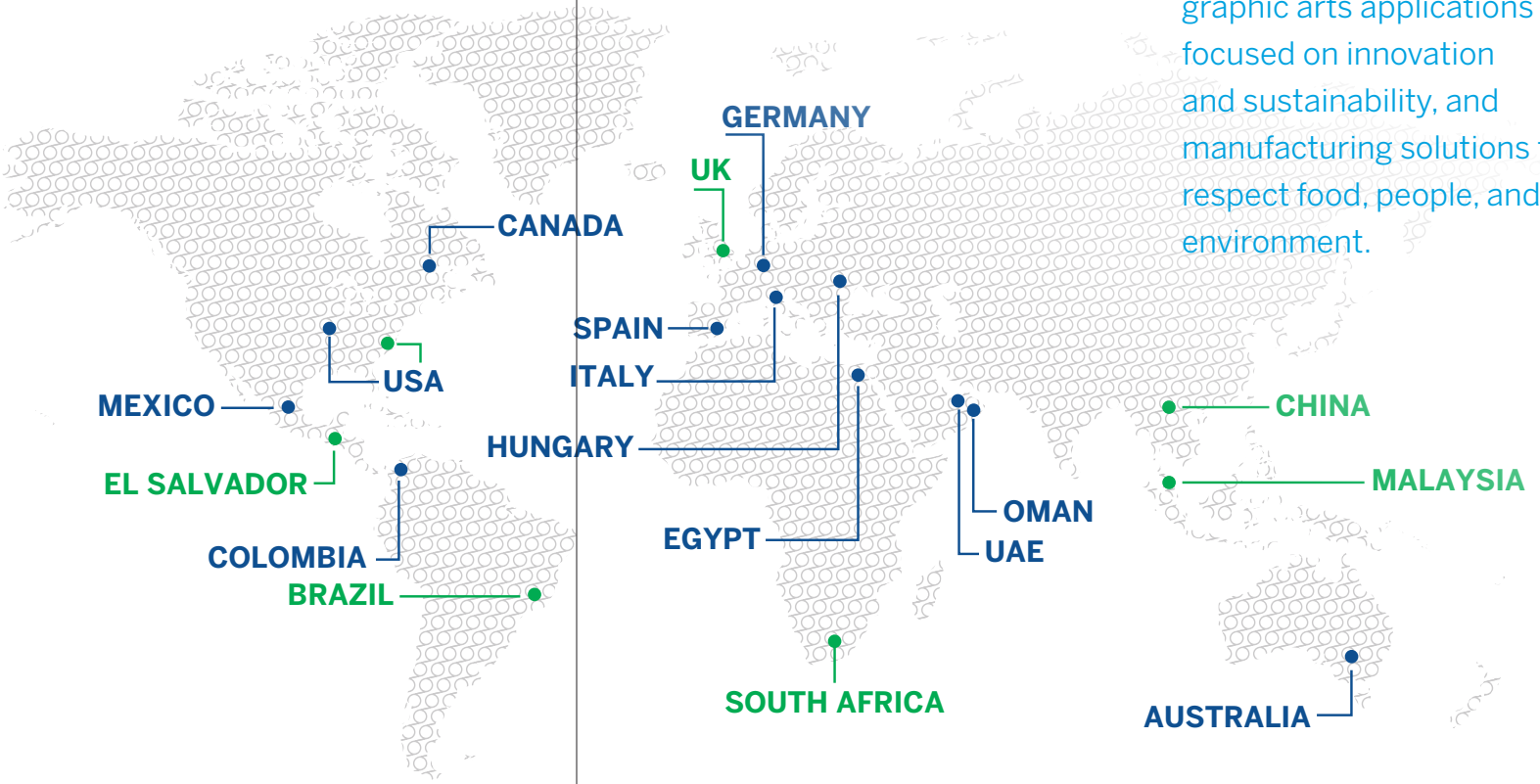
Currently, Taghleef Industries is present on six continents with 11 production sites located in the UAE, Oman, Egypt, Italy, Hungary, Spain, Australia, USA, Canada, Mexico, and Colombia. *Ti* also has distribution centres in Germany, UK, France, Portugal, South Africa, and El Salvador and representative offices in China, Malaysia, and India.

Established in

2006

Production sites

11



Taghleef Industries (*Ti*) is a global supplier of BOPP, BOPLA, and CPP films for flexible packaging, labelling, industrial, and graphic arts applications focused on innovation and sustainability, and manufacturing solutions that respect food, people, and the environment.

3.2

Dynamic Cycle™: *Ti*'s holistic approach to sustainability

With over 15 years of deep expertise since its foundation, Taghleef Industries is committed to developing innovative and valuable solutions to serve its partners and customers and promote a circular economy.

Taghleef solutions include films that help protect products, avoid food waste, improve safety and hygiene, facilitate recycling processes, and support a greener lifestyle.

Through Dynamic Cycle™, *Ti*'s holistic sustainability approach, the Group aims to look within and beyond the industry and to focus on developing products, processes, and technologies that positively impact people's daily lives with today and tomorrow in mind. It translates into strategic choices, advanced know-how, a focused investment strategy, and the most compliant portfolio.

DYNAMIC CYCLE™ INITIATIVES COVER FOUR MAIN PILLARS:

1.0 Commitment
2.0 Corporate Goals
3.0 Services
4.0 Solutions

With Dynamic Cycle™, Taghleef Industries aspires to set new standards and plan for generations ahead by developing new ways to contribute to creating a more sustainable future.

DYNAMIC CYCLE™
Together we Innovate for Future Generations

1.0

COMMITMENTS
Taghleef Industries is committed to closing the loop through internal circular economy projects and by collaborating with various external organizations which support different causes that contribute to our environment and society.

2.0

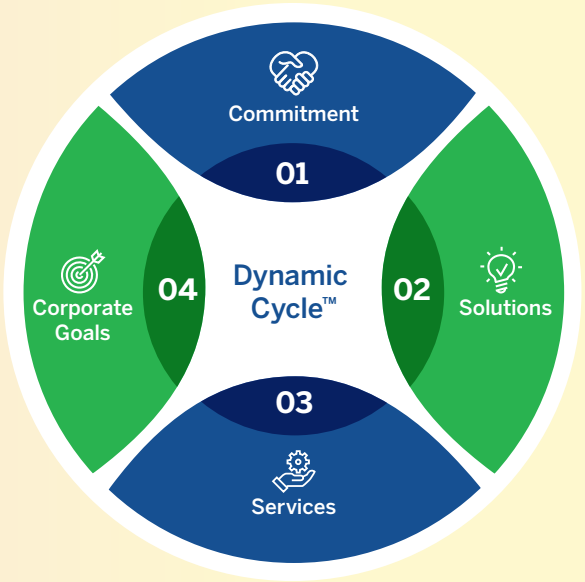
CORPORATE GOALS
Dynamic Cycle™'s approach to sustainability is holistic. *Ti* aims to demonstrate the importance of sustainability through and within the different aspects of the business.

3.0

SERVICES
Dynamic Cycle™ Services are value-added offerings that meet the customers' spoken and unspoken needs. *Ti*'s industrial expertise gives guidance and support to customers to arrive at the best possible solution for their requirements.

4.0

SOLUTIONS
Dynamic Cycle™ Solutions offer *Ti*'s customers access to the best range of existing sustainable and innovative film solutions in the market - from films that help protect products, avoid food waste, and improve hygiene, to films with low carbon footprint and recycled content. *Ti* is part of the solution.



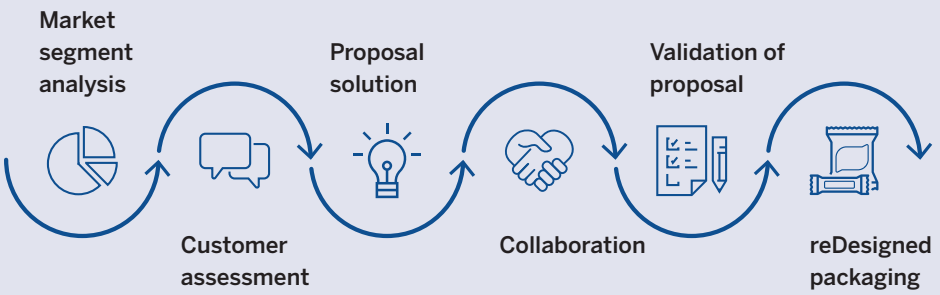
3.3
reDESIGN™ for a Circular Economy

Innovation and collaboration are at the core of *Ti*'s business. Customers are provided with a series of value-added services that Taghleef offers through partnership, expertise, and consultancy under the Dynamic Cycle™ initiative.

One of these is *Ti*'s unique reDESIGN™ approach - a tailor-fit service that facilitates the switch from traditional structures to innovative and sustainable packaging and labelling solutions that best fit the brand owners' needs in terms of packaging requirements.

With reDESIGN™ service, a wide range of films designed to be effective and safe during their lifecycle, with enhanced environmental performance and uncompromised inherent properties, become accessible to customers.

Dynamic Cycle™ Services also include providing independently verified product certifications and LCA studies that demonstrate the improved features of the films used.



3.4
The Most Comprehensive Portfolio

Although it plays a crucial role in product preservation and distribution, consumers often perceive packaging as an unnecessary waste of resources.

There is no doubt that over-engineered packaging makes no sense from an environmental point of view. Still, several studies have confirmed packaging is necessary and far better than no packaging (less waste, longer shelf life, more efficient distribution, to name a few advantages).

The challenge is to find the right balance between resources invested in packaging manufacturing and resources saved thanks to its performance. As a result of this challenge, the packaging industry is always looking at technologies to improve this balance in substrates, manufacturing, and packaging formats.

Taghleef Industries' solutions are designed with exceptional properties made for recycling, sustainable, and perfectly suitable for diverse applications.

FLEXIBLE PACKAGING FILMS

The portfolio of flexible packaging films offers both food and non-food products that meet international standards and withstand the most challenging shelf and storage needs. Designed with the consumer in mind, *Ti*'s **food packaging films** provide extended shelf life, protective barrier, lasting product freshness, enhanced package durability,

3.4

The Most Comprehensive Portfolio

(Continued)

high-speed packaging performance, and sustainability. The most common applications are snacks, bakery, confectionery, ice cream novelty, fresh-cut produce, and coffee.

For **non-food markets**, *Ti* supplies a wide range of films that deliver high performance and are used for household items, personal care products, pharmaceuticals, tobacco, tapes, media, and multi-wall bags.

EXTENDO® HIGH BARRIER FILMS

Ti's premium lightweight films, branded EXTENDO®, act as a protection against mineral oils, aroma, flavour, moisture, and oxygen.

With their high barrier feature and unique structural properties, EXTENDO® films offer an excellent alternative to traditional packaging and align with the Circular Economic principles.

Brand owners and retailers choose EXTENDO® to protect their food products with mono-material, chlorine-free and recyclable solution.

The most common applications are bakery, snacks, biscuits, dried fruits, coffee, confectionery, pet foods, cereals, and bars.

LABEL FILMS

Taghleef Industries supplies the labelling industry with solutions that are specially engineered for each demanding labelling technology.

Ti's **in-mold label films** enhance brand differentiation with the broadest range of finishes — from metallic and glossy to satin and orange peel. These films offer exceptional performance in printing, die-cutting, molding, conversion, stacking and destacking. The unique Titanium™ metallic films have been developed to deliver a high visual impact to the final product.

Taghleef's **pressure-sensitive label films** are available in coated and non-top coated versions and come in white, pearlized, metallic and transparent for a "no label" look. The proprietary topcoat has been designed with versatility and performance in mind, making the film an excellent choice for diverse label applications.

Furthermore, the Group supplies a selection of **roll-fed label films** in high-yield white voided, transparent, matte and metalized grades. Known for their ease of conversion and perfect clarity, they are suitable for all standard gluing systems and perform at high labelling speeds.

Ti's uniquely designed white voided and transparent **cut and stack label films** are replacing paper substrates.

These BOPP films for hot melt applications are available for roll-to-sheet offset printing. *Ti*'s cut and stack label films allow for consistent dispensability of pre-cut labels, thanks to its moisture and scratch resistance, excellent printability, and controlled properties.

SHAPE360® is Taghleef's brand identifying MD and TD shrink films. Thanks to their low density, the TD shrink sleeve label films' portfolio improves PET recycling systems' quality and efficiency, allowing for easier separation of printed label flakes from PET flakes.

***Ti*'s Specialty label films** are designed to over-laminate primary print substrates for wrap-around labels, pressure-sensitive face stock labels, and in-mold labels. These label films are characterized by tactile features, anti-bacterial properties, and finishes that add value to the final product. They are available in different thicknesses and are compatible with gravure, flexo, offset, UV, and digital print technologies.

TECHNICAL FILMS

Solutions for decorative overlays and graphic arts for unique markets and diverse industries.

DERPROSA™ FILMS FOR GRAPHIC ARTS

The unique range of Derprosa™ films for the graphic arts industry creates brand differentiation and meets consumer trends in markets for premium brands.

The Derprosa™ portfolio includes Soft Touch, Anti-Scratch and BacterStop lamination films. These films provide bold, multi-sensory experiences and are suitable for all existing printing and lamination technologies.

Graphic arts applications include exclusive bags, book covers, jackets, brochures, business cards, luxury folding cartons for perfumes, cosmetics, jewellery and spirits.

SYNDECOR®

SynDECOR® is a miter-foldable, water-resistant BOPP film that gives laminated panels beauty and durability with exceptional print clarity, adhesion and machinability.

These films offer a more sustainable option for delivering design flexibility,

3.4

The Most Comprehensive Portfolio

(Continued)

quality and longevity to decorative surfaces, especially in applications where board protection is critical.

Applications: Decorative surfaces, including cabinets, closets, moldings, ready-to-assemble (RTA) furniture, office furniture, shelving systems, store fixtures, case goods and wall panels.

BIOBASED SOLUTIONS

As an essential part of Taghleef's commitment to providing sustainable solutions that fit within the circular economy framework, *Ti*'s Dynamic Cycle™ solutions include two unique ranges of biobased solutions.

NATIVIA® PLA FILMS

Ti's biodegradable films are made from bio-based PLA resin, which is a renewable resource.

NATIVIA® bio-based films support sustainability in the flexible packaging industry and offer consumers the option to go green by choosing products that reduce post-consumer waste.

The product properties allow NATIVIA® films to be used across most food packaging sectors like fresh products, bakery, dairy, snacks, confectionery, grains, fresh-cut fruits and vegetables, frozen foods, ice cream and tea.

BIOBASED POLYPROPYLENE

Taghleef's biobased PP films and its NATIVIA® PLA films are sustainable packaging solutions representing a biobased alternative to films made from the conventional fossil-based feedstock.

Ti's biobased PP films are ISCC Plus certified and can be used in the same applications as the traditional grades made of fossil-based raw material, thus guaranteeing the same excellent technical performance and machinability.

Together with Taghleef's expertise and wide range of sustainable solutions, customers have access to innovations that serve the growing demand of consumers for a greener lifestyle and perform well, protect food and positively impact the environment.

reLIFE™: RECYCLED POLYPROPYLENE SOLUTIONS

reLIFE™ is Taghleef's inter-segment portfolio of recycled polypropylene solutions for various applications that bring new life to used materials. This includes packaging and labeling solutions with either PCR (chemically or mechanically recycled) content or RPG (reprocessed granules) in which *Ti*'s range of PCR-CHEM films are ISCC Plus Certified.

The reLIFE™ range is part of *Ti*'s continuous commitment to truly making a difference by reducing the quantity of plastic waste potentially ending up in the environment and saving limited fossil fuel resources. In addition to providing environmental benefits, they are suitable for most of the same applications as the traditional film grade, and they ensure the same technical performance.



Flexible Packaging films



Label films



Technical films

EXTENDO® HIGH BARRIER FILMS

NATIVIA® BIO-BASED FILMS

SHAPE 360® SHRINK FILMS

SynDECOR® AMAZING SURFACES

Derprosa Laminating films

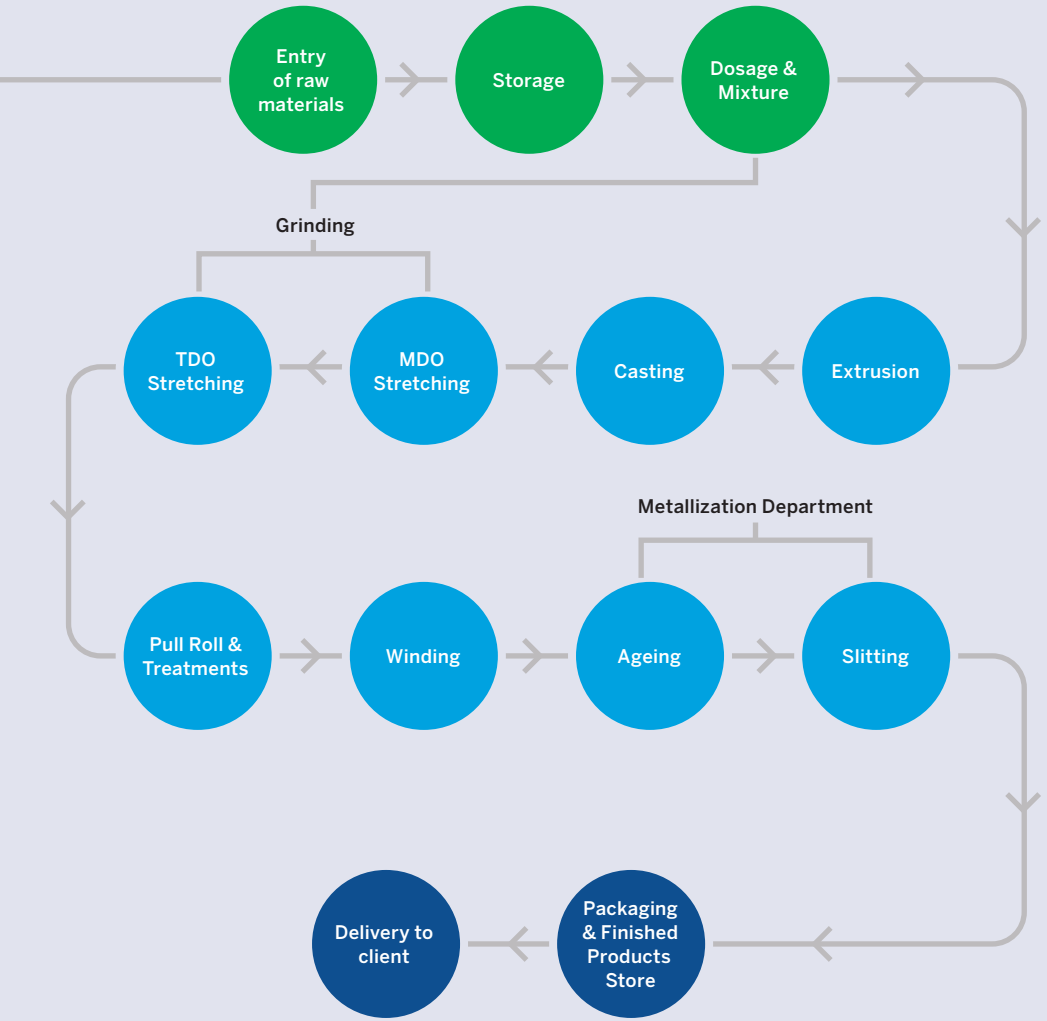
Titanium™ METALLIC IML FILM

reLIFE™ RECYCLED POLYPROPYLENE SOLUTIONS

3.5

Our Manufacturing Process

PRODUCTION PROCESS FLOWCHART



RAW MATERIALS

The products manufactured by Taghleef Industries S.p.A. derive mainly from two sources: polypropylene (PP) and polylactic acid (PLA). The first one is a thermoplastic polymer consisting of non-toxic molecules made up of only carbon and hydrogen atoms. The second one is a bioplastic obtained from corn starch or sugar cane that is 100% compostable.

During the manufacturing process, the use of highly concentrated additive masterbatches defines the film's specific characteristics. All raw materials used by Taghleef Industries S.p.A. comply with the National and European Union regulations, and most of these also fulfil the USA's Food Contact regulations.

EXTRUSION

Extrusion is the first stage of the transformation process. With the additives, polypropylene granules are appropriately measured, sent to a pre-mixer, and supplied to the extruders. They are melted and therefore extruded, forming a flat sheet that is stabilized thanks to an immediate cooling by contact with a chill-roll and immersion in a water bath and then dried of the remaining surface water. During the Machine Direction Orientation (MDO), the sheet is warmed up again and stretched longitudinally using rolls that rotate at different speeds. Afterward, the film is locked on the edges by clips and stretched transversely during the Transversal Direction Orientation process (TDO). The output film is now subject to an appropriate surface treatment (flame or corona treatment) to make the product printable and then winded into jumbo rolls, measuring 4 or 8 meters wide.

METALLIZATION

It is an additional process that the customer may require. It takes place on a high-vacuum system that deposits a thin layer of aluminium on one of the two surfaces of the film, improving its barrier effect. A slitter provides one or more by-product rolls stored in the finished products warehouse, awaiting shipping. The slitters' lateral scraps during the metalized roll slitting are stored in specific containers and destined for external sale.

REGRANULATION

Regranulation is a scrap reprocessing procedure. It is possible to obtain the granule, which is then stocked in unique silos and later reused during the extrusion process in variable percentages, depending on the product type. The scraps deriving from film break-offs (during the stretching process or the start-up of the extrusion lines), slitter scraps, grinding of jumbo rolls, or by-product rolls do not match the standards

3.5
Our Manufacturing Process
(Continued)

are all appropriately ground through grinding machines. The material derived from this process is then sent to an extrusion system. By material melting, it is possible to obtain the granule thanks to a specific regranulation machine.

The granule is then cooled in a water tank, dried, weighed, and sent for stocking to the extrusion line silos.

MAIN SLITTING, SECONDARY SLITTING AND PACKAGING

After an adequate seasoning period spent in a heated warehouse, the jumbo rolls are sent to the slitting area, where they are cut into multiple by-product rolls that comply with the client's order specifications.

When in need of additional processing, these rolls are sent to the secondary slitting before moving to the packaging area.



3.6
Value Chain

Taghleef Industries manufactures a semi finished product that does not reach consumers directly, but it is subject to further manufacturing by companies, known as converters, before being sold to the endusers that use it for the packaging of their products.



Thus, it is crucial to improve the communication between all the actors involved in the value chain, from Taghleef to the final consumers.

Taghleef Industry is highly engaged in this direction by sharing its commitments and targets with the public and with its partners.



4.0 Environmental Indicators

In this section, the most representative indicators monitored are presented, together with their performances over the period 2010-2019, and some considerations on the observed trends.

4.1 Production (Total Jumbo Rolls Extruded)

4.2 Energy

4.3 Materials

4.4 Water

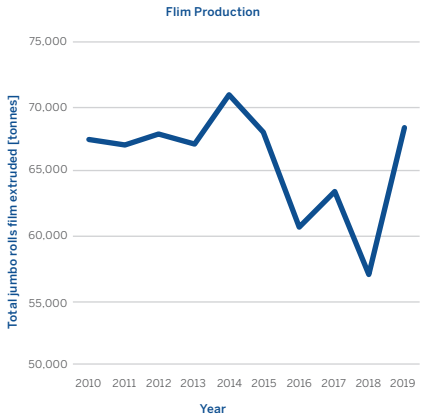
4.5 Waste

4.6 Air Emissions

4.7 GHG Emissions

4.1
Production (Total Jumbo Rolls Extruded)

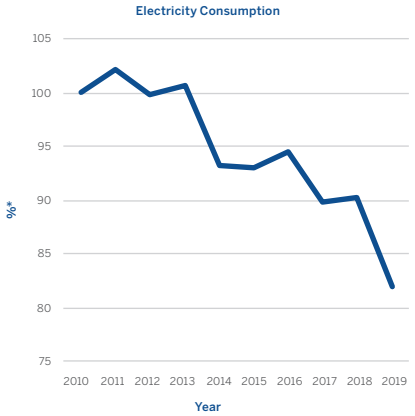
The total film production followed an irregular trend throughout the decade, linked mainly to market needs and to production mixes being orientated to product specialities with peaks in 2014 and in 2019. A lower production output was observed between 2016 and 2018, but this was connected to important investments that determined extended production downtime. Similarly, also the production mix is variable. The main product produced is BoPP film.



4.2
Energy

ELECTRICITY CONSUMPTION

Since 2010, we can count on an advanced level of energy efficiency. Nevertheless, the electricity consumptions were reduced in 2014 and 2019, thanks to the upgrade of our line E3.

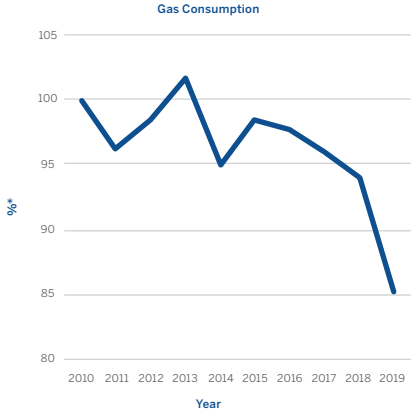


* The trend of electricity consumptions in % since 2010, considering 2010 as 100%.

GAS CONSUMPTION

Similarly, to what described for electricity, during the decade 2010-2019 the consumptions of gas followed a decreasing trend.

In 2013, a peak in the gas consumption can be observed. The variability in the gas use is a consequence of both the



* The trend of natural gas consumptions in % since 2010, considering 2010 as 100%

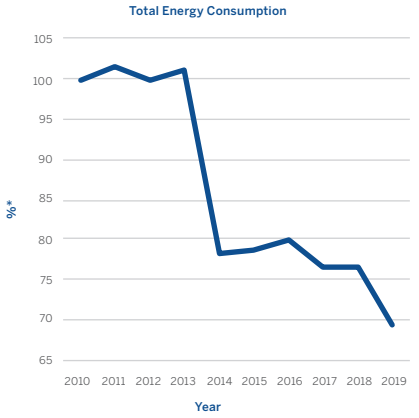
production volumes and the specific mix of products processed. In fact, different processes involve different amount of thermal energy (for example the flame treatment, required to achieve the characteristics of some types of final products, is more energy intensive than other processes).

Successively, a constant reduction of the gas consumed per tonne of film produced can be observed, especially in 2019, after the upgrade of the Line E3 and the upgrade of thermal stations.

TOTAL CONSUMPTION RATES EXPRESSED IN TOE

We are also interested in monitoring our total energy consumptions, as the sum of electricity and thermal energy, for which we set an additional stricter target.

A significant reduction of the energy intensity of production was achieved in 2014, a consequence of the improvements implemented and previously highlighted. Similarly, additional progresses were achieved from 2019.



* The trend of the total energy consumption rates expressed in TOE in % since 2010, considering 2010 as 100%

4.3
Materials

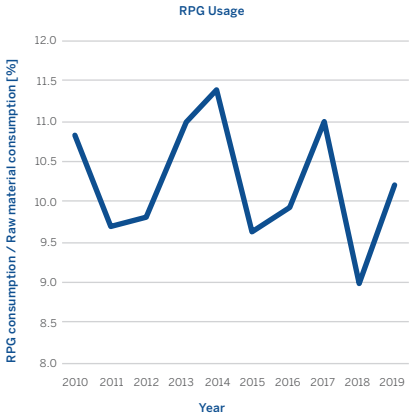
An important aspect for us is to evaluate how efficiently the recycled materials are recovered to produce new plastic products, involving a reduced consumption of natural resources. With this perspective, two main indicators are carefully monitored.

AMOUNT OF RPG MATERIAL USAGE ON THE TOTAL RAW MATERIAL CONSUMPTION

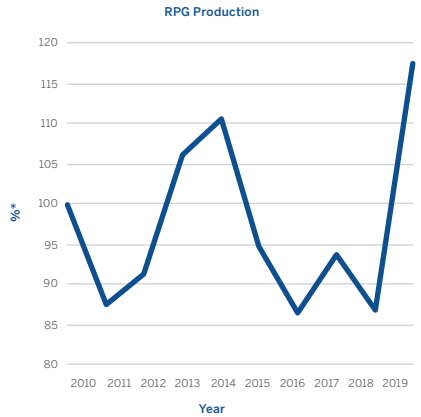
The first and the third graph reported below highlight the relevance of our activities.

These indicators allow to emphasize the relevance of our activities for reusing the scraps, that are regenerated within the production cycle.

It evaluates the percentage of the amount of regenerated material that is produced, compared to the total amount of raw materials consumed. This improves with the increase of RPG resin produced coming from the increase of production mixes and with the annual production capacity. The trend of this indicator is also connected to the market needs, and to the production mix requested by the clients.



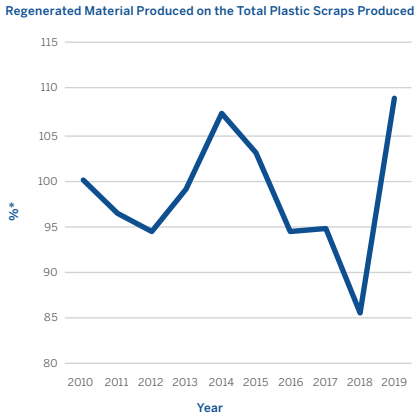
The graph below shows the trend of the RPG production over the years. An increase in the production of this material is a consequence of the increase of the total film production.



* The trend of the total amount of RPG produced expressed in % since 2010, considering 2010 as 100%

REGENERATED MATERIAL PRODUCED ON THE TOTAL PLASTIC SCRAPS PRODUCED

The regeneration of scraps allows to value them and to reuse them in the process, rethinking our process based on the principles of circular economy.

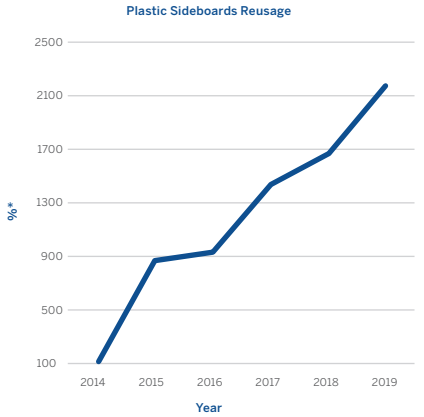


* The trend of the RPG material produced on the total scrap produced expressed in % since 2010, considering 2010 as 100%

PLASTIC SIDEBOARDS REUSAGE

In line with the concept of the Circular Economy and the best environmental practices adopted across Europe, in 2014 we introduced the use of plastic sideboards (produced with our plastic waste) in substitution of wood sideboards. This service enables to use less wood and promotes the reuse of these plastic sideboards after collecting them from our customers, prior to quality control and washing at high temperature.

The graph below shows the quantity of reused plastic sideboards used, and more specifically reused at least five times:

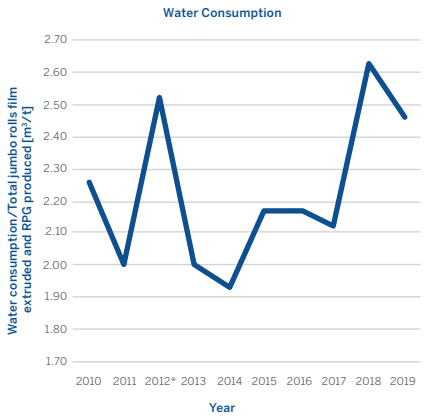


* The trend of the Plastic sideboards reusage expressed in % since 2014, considering 2014 as 100%

4.4
Water

WATER CONSUMPTION

As seen for energy, our water consumption is highly depending on the volumes of film we produce. In addition, it shall be highlighted that the regeneration process requires a significant use of water for the material cooling. Consequently, the increase of regenerated material production affects the performance of the water consumption indicator. This can be especially noticed in the second half of the decade, and after the installation of an additional machine for this process in 2014.



In 2018 and 2019, a perceptible increase in water use occurred. This behaviour is explained with the considerations made previously on the regenerated material, but also with the production reduction, leading to higher inefficiencies due to the growth in the number of products under development and the re-start of our E3 production line.

Another aspect worth mentioning is that we started using a new water treatment technology, installed in 2015, and that requires a higher consumption of water.

From 2012, our civil water consumption significantly decreased; while, on the contrary, the industrial consumptions increased.

EMISSIONS INTO WASTEWATER

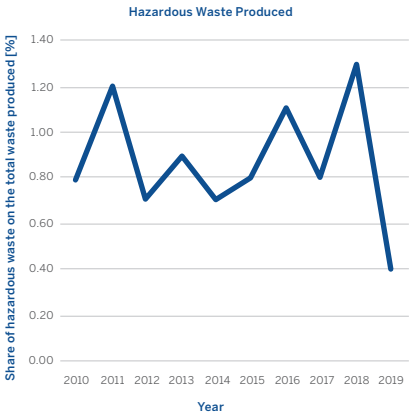
The emissions are constantly monitored, in specific the chlorides, B.O.D./C.O.D., Total Hydrocarbon, ... parameters meeting the law compliance requirements.

4.5
Waste

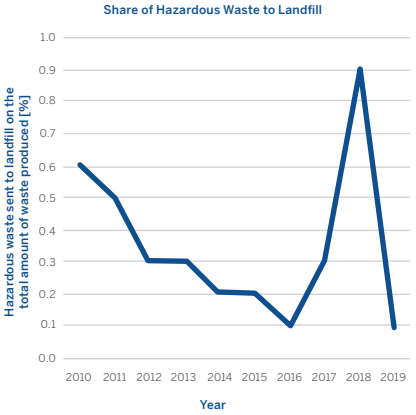
We are committed to continuously monitor and improve our performance with regards to the waste we produce. For this reason, we set several indicators that we consider crucial to analyse the fulfilment of our commitments.

PRODUCTION AND TREATMENT OF HAZARDOUS WASTE

An indicator to be monitored during the period was the **share of hazardous waste on the total produced waste**. The trend followed by this indicator is irregular because of investments made and innovations introduced in the plant. Three peaks can be identified in 2011, 2016 and 2018.



In 2016, the peak was due to a type of waste produced connected to an extraordinary disposal of special filters after some modifications in the plant were made. Other types of products were produced, due to the ordinary maintenance. In 2018, as mentioned, the E3 line was updated, involving the production of more waste than normal.



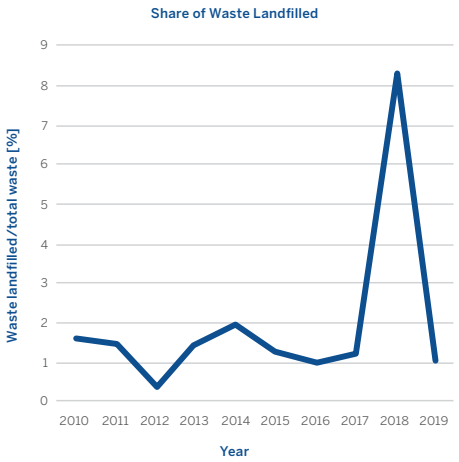
In parallel, it can be observed that the **share of hazardous waste sent to landfill on the total waste produced** has been significantly decreasing over the decade, besides the exceptions in 2018. This means that, although the amount of hazardous waste produced was not regular, according to external factors not under our control, we anyway managed to improve our performances by reducing the share of those sent to landfill.

4.5
Waste
(Continued)

WASTE SENT TO LANDFILL ON THE TOTAL AMOUNT OF WASTE PRODUCED

The amount of waste disposed over the decade appears to be significantly low, always below 2% of the total produced waste, thanks to our commitment in incentivising materials recovery instead of landfilling.

The only exception occurred in 2018, when a peak in the share of disposed waste was registered. This was mainly for a production reduction that occurred, and at the same time revamping works were realised for the line E3. In fact, the share of disposed waste fell again to 1%, in 2019.



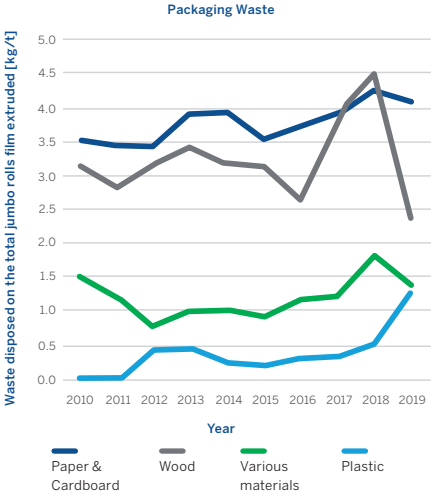
PACKAGING WASTE

Over the period 2010-2019, we also monitored the packaging waste, including paper and cardboard, wood, plastic, packaging composed of various materials.

The amount of **paper and cardboard from packaging** experienced an increase during the second half of the decade; in fact, the supply of raw materials is realized more and more through octabin packaging. In addition, as previously mentioned, the evolution of the production and market needs, led to a more differentiated and customised production, that therefore requires a significant increase of the amount of packaging for raw materials.

The amount of **packaging composed of various materials** has been increasing between 2015 and 2018 when, as noticed for the other types of packaging waste, the highest value was touched due to the E3 line works. From 2019, instead, a decreasing trend can be observed. Many raw materials, in fact, are not supplied anymore through containers, and the use of liners is less common. Moreover, compactors are not used anymore.

Conversely, according to the consideration made for the transportation of raw materials, an increase in the use

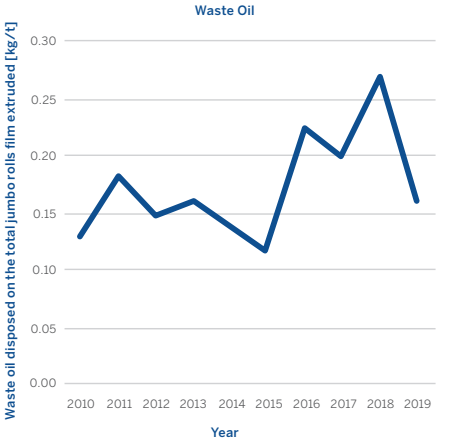


of **plastic for packaging** (see above) is observed during the last years of the decade.

Another indicator presented, namely **wood packaging**, presents an even more irregular behaviour, with an important peak in 2018, when the amount of wood from packaging raised up to 70% more than in 2016. This was due to the mentioned revamping works to the E3 line in 2018. The value drops in fact in 2019, after the conclusion of the revamping activities.

OIL WASTE

In conclusion, the disposal of **waste oil** per film produced was quite low during the assessed period, with a slight increase between 2016 and 2018, mainly for upgrade investments made to the lines, a new thermal power plant was installed and for an upgrade of the oils previously used which were substituted with more sustainable lubricants.



4.6
Air Emissions

No target has been set for this environmental aspect. In any case, it is constantly monitored to ensure that the law compliance is always maintained.

4.7
GHG Emissions

During the past decade, we extended our climate awareness, and we adopted the tools for the quantification of GHG emissions at both product and organization levels.

Taghleef was committed to introduce specific tools, activities still in progress, to permit in the future specific considerations and assessments aiming to reduce climate impacts of our products and/or develop sustainable packaging solutions.

Over the years, we have performed several Carbon Footprint of Product (CFP) analyses and Life Cycle Assessment (LCA) comparative studies, and together with the various investments made, these have allowed the reduction of our climate and environmental impact.

With regards to the products, Taghleef developed a Carbon Footprint of Product Systematic Approach (CFP SA), in accordance with the Annex C of the international standard ISO 14067. This implies the creation of a customized model to easily quantify the carbon footprint of all the products that we produce, throughout all their lifecycle, based on the Life Cycle Analysis methodology.



Here below are reported some CFP evaluations done, each one also considers the delivery of the film to different customers in Europe.

PRODUCT		TOTAL CFP (Kg CO_2e/U.D.)	UP-STREAM (Kg CO_2e/U.D.)	CORE (Kg CO_2e/U.D.)	DOWN-STREAM (Kg CO_2e/U.D.)
BoPP metallised film	ZSS 15 µm	4.10	3.21	0.76	0.13
BoPP transparent film	TSS 20 µm	3.22	2.40	0.76	0.05
EXTENDO® BoPP film	XTMH 30 µm	3.46	2.58	0.76	0.13
NATIVIA® BoPLA transparent film	NTSS 40 µm	5.22*	4.30	0.76	0.15
BoPP white voided film	LIX 50 µm	3.44	2.61	0.76	0.07

* The CFP value was calculated excluding the uptake benefit. Further information is available contacting Taghleef Industries S.p.A..

4.7

GHG Emissions

(Continued)

For what concerns the organization level, we developed a GHG inventory based on the international standard 14064-1. It consists in the quantification and categorization of direct and significant indirect emissions of the company.

In this sense we commit to keep using and improving the tools we developed.

The total 2018 annual GHG emissions at organization level, were 204.965 tons of CO_2 equivalent.

The direct GHG emissions and removals included in the category 1 according to ISO 14064-1, are 7.679 tCO_2e.

The indirect emissions from imported energy, corresponding to the category 2, are 38.289 tCO_2e.

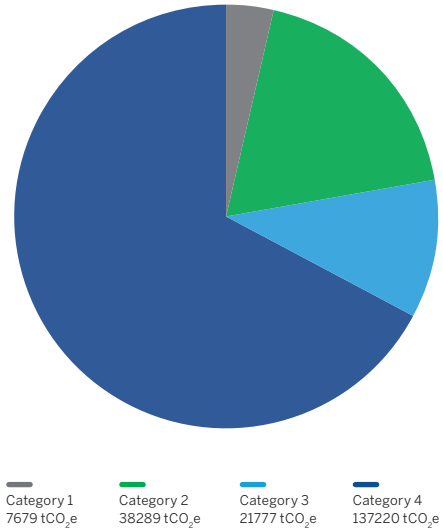
The indirect emissions left are those because of the organization's operations and activities.

Following the approach of the ISO standard, we identified them through an assessment, including only the most significant ones, which are:

Category 3: Indirect GHG emissions from transportation are 21.777 tCO_2e.

Category 4: Indirect GHG emissions from products used by an organization are 137.220 tCO_2e.

GHG Inventory Emissions







5.0
Previous Targets Achievement

In this section, the results of the former targets set for the 2010-2019 period are analysed. The main outcomes are summarized in the following table, and comments providing more details and considerations are reported below.

Comments

WASTE: REDUCE TO LESS THAN 50% THE AMOUNT OF REUSABLE PLASTIC WASTE.
The indicator evaluates the amount of plastic produced by Taghleef and sent to external recovery.

The target was to reduce by 50% this amount compared to 2008 values.

This target was not met. It shall be noted that the production volumes are variable, and this also involves differences in the waste production. In addition, the production portfolio has changed over time, and many new products have been developed: more specialties and less commodities. This involved an increase in the use of plastic for the packaging of raw materials, that was reflected in higher values for this indicator.

WASTE: REDUCE BY 5% THE TOTAL AMOUNT OF HAZARDOUS WASTE RECORDED IN 2008.
The indicator considers the share of hazardous waste produced on the total waste.

In this case, the target of reducing by 5% the share recorded in 2008 was met in 2019, but also throughout almost all the decade 2010-2019. It was slightly exceeded in 2011, 2016 and, in 2018 (when the value was especially high, up to 1.44%). The reasons for these three exceptional increases are described in the previous chapter dedicated to a deep dive on the indicators' behaviours.

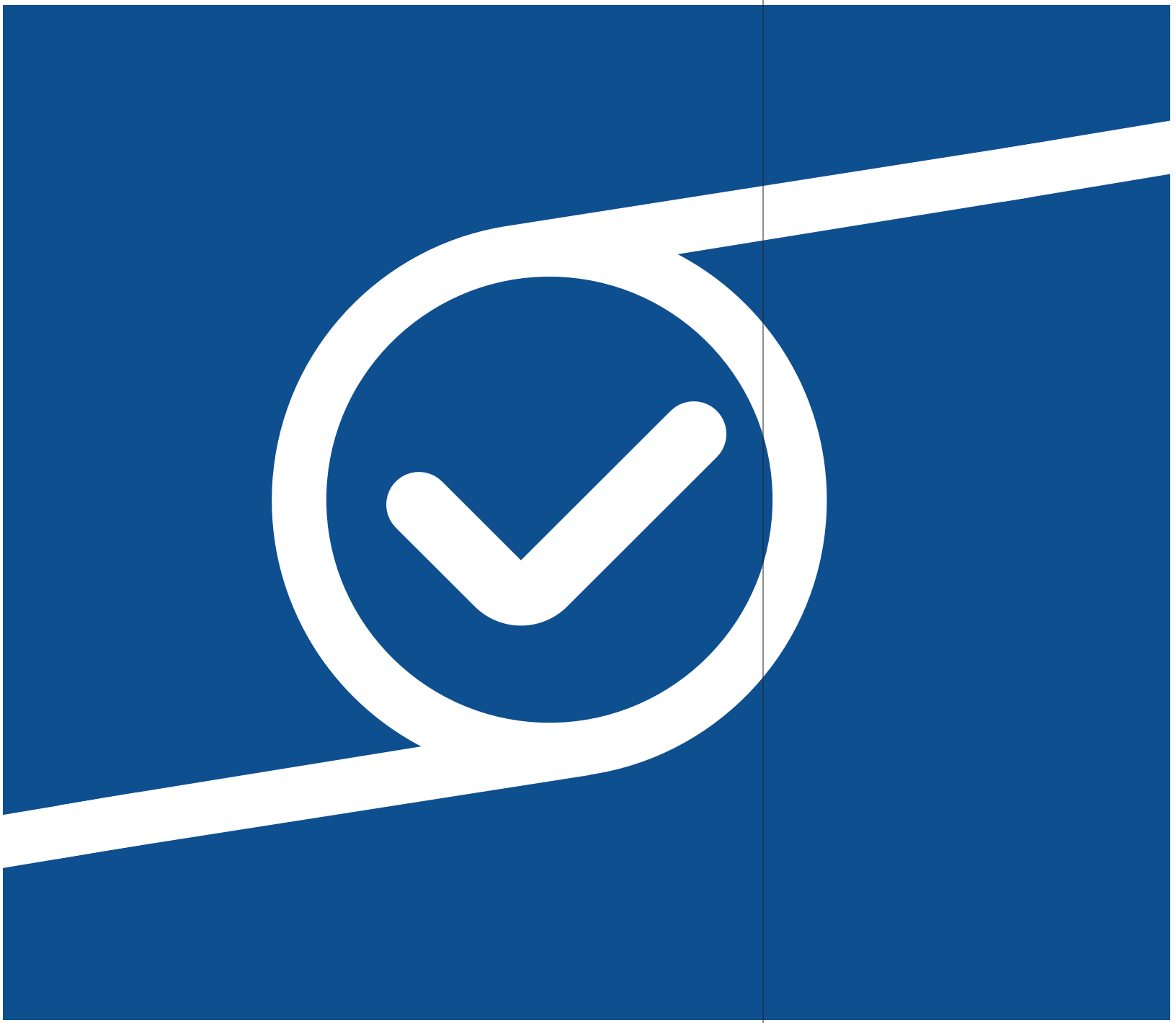
WASTE: NO TYPE OF WASTE MUST BE DISPOSED AS THE COMPANY'S AIM IS TO IDENTIFY A RECOVERY PATH FOR EACH OF THEM.
It was not possible to fulfil the target during the decade, since it was extremely ambitious, set to zero. In any case, the indicator always scored low values.

WATER: REDUCE THE CONSUMPTION OF WATER PER TONNE OF FILM PRODUCED BY 20% COMPARED TO 2008.
The target was not met in 2019, although during the decade the values were never constant. The reasons are described in the previous chapters.

ENERGY: REDUCE BY 15% THE ENERGY CONSUMED (IN T.O.E.) PER TONNE OF FILM PRODUCED IN 2008.
This indicator evaluates the total energy consumption (including both thermal and electric energy) per tonne of film produced every year. The target is to reduce by 15% this value compared to the one in 2008. This target was met in 2019, and more specifically it was met from 2014 onwards. This is due to energy efficiency measures previously described.

GHG: REDUCE BY 20% THE GHG EMISSION RATE RECORDED IN 2005.
This indicator evaluates the total GHG emissions from energy consumption (including both thermal and electric energy) per tonne of film produced.

The target is met thanks to various investments in technological upgrades made over the years, that led to a reduction of Taghleef energy consumption as previously explained.



6.0
Third Party Assessment

Taghleef Industries' Quality Management System (QMS) has always been focused on providing the packaging industry with outstanding products and services that comply with international standards.

6.0
Third Party Assessment
(Continued)

To pursue this objective and ensure continuous improvement, the company began to implement the certification schemes in 1994. All the certifications received were approved by a Worldwide recognized Certifications body: "Det Norske Veritas" (DNV) and Bureau Veritas.

Following this path, Taghleef Industries demonstrates its ability to manufacture a product that complies with statutory and regulatory requirements and is conform to all the applicable National and International laws.

CERTIFICATIONS OF THE MANAGEMENT SYSTEMS	*Ti* S.P.A.	CERTIFICATION BODY
ISO 9001:2015	Since 1995	Det Norske Veritas
ISO 14001:2015	Since 2000	
BRC GS Standard Edition 6*	Since 2004	
ISO 45001:2018	Since 2005	
ISCC Plus (Circular PP polymers and Biobased)	Since 2020	Bureau Veritas
ISO 14067:2018	Since 2020	
ISO 14064-1:2018	Since 2020	

* The HACCP method was integrated in the BRC GS standard.

Other important milestones implemented are the following:

Italian Legislative Decree No. 231/2001	Since 2011
LCA/CFP of BOPP and BOPLA films	Since 2011
Environmental Report	Since 2012
Registration on Programme Operator Carbon Footprint Italy See our product registration P-2020-0002 – Carbon Footprint Italy See our Organization registration O-2020-0003 – Carbon Footprint Italy	Since 2021
Development of "Multi-Purpose Films" PCR – Product Category Rules	Since 2021

7.0
Glossary

BRC STANDARD
BRC is the Global Standard for Packaging Materials. The Standard has been developed to specify the product safety, quality and operational criteria that must be in place within a packaging manufacturing organisation for it to fulfil its obligations regarding legal compliance. The Standard sets out the requirements for the manufacture of packaging materials that are used in the production of, and filling operations for, food, hygiene-sensitive consumer products, raw materials, and other consumer products.

CARBON FOOTPRINT OF A PRODUCT (CFP)
It is the sum of greenhouse gas emissions and removals in a product system, expressed as CO_2 equivalents and based on a life cycle assessment using the single impact category of climate change.

GREENHOUSE GASES (GHG)
Greenhouse gases are gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere and clouds.

HAZARD ANALYSIS AND CRITICAL CONTROL POINTS METHOD (HACCP METHOD)
The Hazard Analysis and Critical Control Points System identifies, evaluates and controls hazards which might result in consumers receiving harmful food products.

ISCC PLUS
ISCC – International Sustainability and Carbon Certification is a certification system that offers solutions for the implementation and certification of sustainable, deforestation-free and traceable supply chains of agricultural, forestry, waste and residue raw materials, non-bio renewables and recycled carbon materials and fuels. Under ISCC PLUS, all types of agricultural and forestry raw materials, waste and residues, non-bio renewables and recycled carbon materials and fuels are covered.

ISO 45001:2018
ISO 45001:2018 specifies requirements for an occupational health and safety (OH&S) management system, and gives guidance for its use, to enable organizations to provide safe and healthy workplaces by preventing work-related injury and ill health, as well as by proactively improving its OH&S performance.

ISO 9001:2015
ISO 9001:2015 is the standard that specifies the requirements for a quality management system when an organization: needs to demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, and aims to enhance customer satisfaction through the effective application of the system, including processes for improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements. All the requirements of this International Standard are generic and are intended to be applicable to any organization, regardless of its type or size, or the products and services or provides.

ISO 14001:2015
ISO 14001:2004 specifies the requirements for an environmental management system that an organization can use to enhance its environmental performance. This International Standard is intended for use by an organization seeking to manage its environmental performance. This international Standard is intended for use by an organization seeking to manage its environmental responsibilities in a systematic manner that contributes to the environmental pillar of sustainability.

ISO 14064-1:2018
ISO 14064-1 specifies principles and requirements at the organization level for the quantification and reporting of greenhouse has (GHG) emissions and removals. It includes requirements for the design, development, management, reporting and verification organization's GHG inventory.

ISO 14067:2018
ISO 14067 specifies principles, requirements and guidelines for the quantification and reporting of the carbon footprint of a product (CFP), in a manner consistent with International Standards on life cycle assessment (LCA).

ITALIAN LEGISLATIVE DECREE NO. 231/2001
The Italian Legislative Decree No.231/2001 issued on the 8th of June 2008 has introduced the discipline of the administrative responsibility of the firms on the basis of which these can be

7.0 Glossary
(Continued)

retained responsible, and consequently sanctioned, in relation to some offences committed or attempted in the interest or to the advantage of the firm, of the administrators or the employees. The responsibility of the Firm is excluded if it has adopted and efficiently actuated, before the commitment of the offence, organization, management and control models suitable to prevent these offences and has instituted an Organism to control the functioning and the observance of the models.

LIFE CYCLE ASSESSMENT (LCA)
Life Cycle Assessment is an examination of the environmental performance of products and services throughout all phases of their lifecycle: from the extraction of raw materials, to manufacturing, transportation and distribution phases, carrying on with use, re-use, maintenances stages and finally focussing on recycling and disposal. The methodology is based on the ISO 14040 series. Even if it analyses several phases, it usually does not include social impacts.

RPG REPROCESSED GRANULES
Reprocessed or regenerated granules from internal production.

TONNE(S) OF OIL EQUIVALENT (TOE)
Tonne(s) of oil equivalent is a normalized unit of energy. By convention it is equivalent to the approximate amount of energy that can be extracted from one tonne of crude oil. It is a standardized unit, assigned a net calorific value of 4.1868 kilojoules/kg and may be used to compare the energy from different sources.



/Ti_Films



/Ti_Films



/Ti_Films

Taghleef Industries

Updated by Ti Italy QSS on 02.11.2026

Ti Italy - Environmental Report Targets

We hereby summarize the results for each of the targets set in the present Environmental Report:

Environmental Aspect	Objective	Indicator	Target	2021 Results	2022 Results	2023 Results	2024 Results	2025 Results
Energy	1. Minimization of total energy consumptions (electric + thermal energy)	Energy consumption/Jumbo rolls film extruded [toe/tonne]	-10% reduction of the 2010 value obtained	**- 31 %**	**- 28 %**	**- 26 %**	**-24 %**	**-26%**
	2. Installation of a photovoltaic power plant	Installation of the plant	Plant installation within 2023	No	No	No	**Step 1**: **Coater roof - Completed.** Step 2: Ti I 2 Ground: Ongoing. Step 3 & 4: Varius Ti areas – under evaluation.	**Step 1**: Coater roof – **Activated on 01.2025.** **Step 2**: Ti I 2 Ground: **Completed** (will be activated on Q1 2026). Step 3 & 4: Varius Ti areas – under evaluation.
Materials	3. Increase the Reprocessed Production Granules (RPG) from internal production material usage	RPG material consumption/Raw material consumption [%]	> 11 %	10.97 %	10.40 %	**12.09 %**	10.35 %	10.23 %
	4. Increase the share of RPG material used as raw material	RPG material/Total plastic scraps [tonnes/tonne]	≥ 0.75	**0.89**	**0.81**	0.74	0.74	0.67 %
Water	5. Minimize the water consumption for Jumbo rolls film extruded and RPG production	Water consumption/Jumbo rolls film extruded, and RPG produced [m^3/tonne]	< 2.46	2.56	**2.38**	2.61	2.51	**2.40**
Waste	6. Minimize the share of hazardous waste sent to landfill	Hazardous waste landfilled/Total waste produced [%]	< 0.2 %	0.44 %	0.57 %	**0.17 %**	**0.17 %**	0.23 %
	7. Minimize the share of total waste sent to landfill	Waste sent to landfill/Total waste produced [%]	< 1.5%	2.38 %	5.28 %	11.75 %	12.54 %	10.51 %
	8. Minimize paper cardboard packaging used per unit produced	Paper cardboard packaging/Total Jumbo rolls film extruded [kg_waste/tonnes]	≤ 8% of the 2019 value obtained (Target < 3.75)	4.38 (+16.8 %)	4.50 (+20.0 %)	4.70 (+25.3 %)	4.98 (+32.8 %)	5.10 (+36.0 %)
	9. Minimize wood packaging used per unit produced	Wood packaging/Total Jumbo rolls film extruded [kg_waste/tonnes]	≤ 17% of the 2017 value obtained (Target < 3.25)	11.13 (+242 %)	7.91 (+ 143 %)	8.38 (+158 %)	9.58 (+195 %)	9.12 (+181 %)
	10. Minimize packaging composed of various materials used per unit produced	Packaging composed of various materials/Total Jumbo rolls film extruded [kg_waste/tonnes]	≤ 14% of the 2010 value obtained (Target < 1.3)	**1.20 (-7.7%)**	1.43 (+10.0 %)	1.60 (+23.1 %)	1.49 (+14.6 %)	1.73 (+ 33%)
GHG Emissions	11. Increase of CO_2 uptake	Size of the area afforested [m^2]	15.000 m^2 within 2025	No	No	No	See Point 2 above – substituted with solar panels investments.	See Point 2 above – substituted with solar panels investments
	12. Enhance of the climatic impact assessments	Carbon Management tools implemented (CFP, CFO)	Maintenance & Implementation of the tools	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Products	13. Enhancement of products impact assessment	Development of studies to investigate the environmental impact of: PP Bio-based/Bio- based/Bio-degradable products; Products based on PP recycled; RPG materials	Development of the studies within 2023	No	**Yes, for the Bio-based products and Products based on recycled materials.** The RPG assessment is under development.	**Yes, for the PP Bio-based / Bio-based / Bio-degradable products and Products based on recycled materials.**	**PP Bio-based/Bio - based/Bio-degradable products; Products based on PP recycled; RPG materials = Ongoing.**	**PP Bio-based/Bio - based/Bio-degradable products; Products based on PP recycled; RPG materials = Ongoing.**

Note:

Energy: the photovoltaic power plant has increased over the years.

Material: the relevant increase in our product specialties and the introduction of new secondary processes at the end of 2022 has led to a slight decrease in yields and in the use of regranulated materials; however, there are continuous efforts focused on improving machine efficiency.

Water: civil water consumption has increased due to the growth in company personnel, even if the quantities of extruded Jumbo roll films and RPG produced are similar of those of 2022. There are continuous efforts to optimize water consumption.

Waste: the increase in the quantity of waste produced is due to the growing request of coated films, more attention during cleaning activities and improvement works on some external areas of the plant. The targets will be reassessed once the lacquering process reaches a consolidated production level.

Taghleef Industries S.p.A.
Via E. Fermi, 46
33058 San Giorgio di Nogaro (UD) - Italy
Tel.: +39 0431 627 111
Fax: +39 0431 627 590
Email: staff@ti-films.com
www.ti-films.com



With the support of:

Aequilibria S.R.L. – SB
P.le Martiri delle Foibe, 5 - 30175 Venezia
Marghera (VE) - Italy
Tel: +39 041 8653238
Email: info@aequilibria.com
www.aequilibria.com