

ENVIRONMENTAL PRODUCT DECLARATION

of biostimulants, fertilizers and micronutrients organ minerals solid and liquid

EPD[®]



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“An EPD should provide current information, and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.”

EPDs within the same product category but from different programmes may not be comparable.”

ISO 14025 COMPLIANT

Valagro world

Valagro was born in Abruzzo and today brings the same passion for nature to the world from which its solutions for the care and nourishment of plants are born. Today our company can globally respond to the specific needs of the customer, needs that reflect new and growing needs, in a context of increasingly scarce and precious resources. This is why in Valagro we have decided to take on a challenge, to be able to bring development and well-being by using fewer resources, or rather produce more and better for world needs, using less land, less water, fewer technical means. To do this, we have placed research and innovation at the service of Nature, aware that taking care of the future means working together in respect of the environment and protecting everyone's health.

Today Valagro is a leading company in the production and marketing of Biostimulants and nutritional specialties, with 13 branches located all over the world. In addition to the Atessa production site and another plant in Italy, Valagro also has 2 plants in Norway, another 2 in India and a new plant in Pirassununga, Brazil.

A story of value

The history of Valagro began in the 80s with a distinctive value: the constant search for innovation, with respect for nature and ethics. These are the peculiarities that allowed the company to establish itself successfully in the Italian market during the eighties, successfully embarking on a path of consolidation of its presence in a growing number of countries around the world. During the 1990s, expertise, customer orientation and innovation allowed Valagro to open to the European market and to assert its presence in East and South America and subsequently in the United States.

International success

The new millennium opens with a process of industrial diversification made possible by important acquisitions which initially concern the bio-nutrients of the American Nutreco, specialized in special fertilizers, and the algae extracts supplied by the Norwegians Algae and Nordtang. Subsequently, Valagro acquired the English Maxicrop, with its subsidiaries in Australia and New Zealand, and the French Samabiol.

Subsequently, in 2015, with the acquisition of the Indian biotechnology company Sri Biotech Laboratories India Limited (now Valagro BioSciences), Valagro enters the new market segment of biocontrol and new technologies, such as fermentation, strengthening its presence in the subcontinent Asia and affirming its status as a global company in the field of biologicals.

These are the phases that accompany the consolidation of a widespread distribution network that reaches over 80 countries, where Valagro is present today with a top-level offer certified by the highest international authorities.

In October 2020, Syngenta acquired Valagro, an investment made since a shared scientific innovation base. Since the acquisition, both companies have worked closely together to serve farmers around the world, sharing their respective knowledge and leveraging their crucial capabilities to build a business dedicated to the world's leading biologicals.

In July 2023, Syngenta and Valagro announced the birth of the new brand.

At the heart of it all are our people who work to enable farmers to increase the productivity of their crops, while creating a sustainable future for people and the environment.



Company Information

Commitment to sustainability

Quality at Valagro is a daily commitment that involves every resource and influences every process. Valagro has followed a precise certification program over the years, adopting a global improvement system aimed at achieving the safety and well-being of workers, the quality of products and processes, and respect for the environment.

Valagro SpA production site in Italy

The Valagro plant consists of the following production plants: Solids packaging plant; Granular plant; Water-soluble plant, Chelated plant, Liquid plant and Microgranular plant.

In recent years, production policy has preferred particular formulations, oriented towards nutritional needs

Specific: Chelated micronutrients, for the prevention and treatment of chlorosis; Biostimulants, obtained from organic matrices of plant origin to optimize metabolic processes of plants; Foliar supplements, for different nutritional needs and phenological phases; fertilizers, mineral and organo-mineral, made with the purest raw materials with high concentration and granular fertilizers, for a correct supply of the most requested nutrients (NPK) in relation to the different seasonal times.

Valagro Manufacturing site in Brazil

The Valagro Manufacturing site in Brazil opens on May 31, 2017, located in Estrada Municipal Fernando Luiz Ladgraf (PNG-060), 700 Bairro Cantareira Pirassununga.

Equipped with two production lines for the production and packaging of Biostimulants and water-soluble fertilizers, the new plant covers an area of 30,000 m², can count on a maximum production capacity of 50,000 tons/year and a high storage capacity. Overall, in line with the search for ever greater sustainability, a founding value for Valagro, the Pirassununga plant was built following rigorous criteria that guarantee efficiency and eco-sustainability of the structure (reduction of energy consumption, reuse of rainwater, recycling management, control, and waste disposal).

Thanks to these characteristics, the Pirassununga plant, built with an investment of 10 million euros, today represents a strategic production and logistics base for the distribution of Valagro solutions not only in Brazil, but more widely in the South American market.

Valagro Biosciences Pvt Ltd in India

In September 2018, the name of the Indian subsidiary got converted from Sri Biotech Laboratories India Limited to Valagro Biosciences Limited and later, in July 2019, it was renamed as Valagro Biosciences Private Limited.

The production site is located in Sy.No. 1,2,3,16,17&18, Phase II, Pashamylaram(v), Patancheru(M), Medak Dist , T.S.

With its innovative GEA Power research and technology platform developed both in Italy and India (specifically for microbials), Valagro plans to expand globally its range of innovative and sustainable solutions, with "Passion for nature, belief in innovation, commitment to the future".

In February 2019, Valagro launched its new line of microbial-based solutions in Valagro's event for Future Farming, India entitled "The key role of Biologicals for Indian Agriculture", held at New Delhi in conjunction with the BioAg World Congress (18th - 20th February 2019) that gave important opportunity to showcase - together with leading experts and opinion leaders in the sector - Valagro's development prospects in the field of biologicals, prospects that are being actively pursued by the Group's Indian subsidiary, Valagro Biosciences, following its successful completion of compliance process with the Biological Diversity Act (2002) under the National Biodiversity Authority (NBA), to produce sustainable solutions for the Indian agricultural market.

In October 2020 Valagro entered the Syngenta group, a choice that arises from a mentality focused on attention to sustainability and scientific innovation shared by the two companies.

After the acquisition, Valagro e Syngenta have worked closely together in the service of farmers around the world, sharing knowledge and leveraging the respective know-how to position itself as a world leading company in the biologicals sector.

Infrastructure: Company has well developed manufacturing and research facility spread across 1.55 acres area with an annual production capacity of 50,000 MT of powder form, 50,000 KL in liquid form and 10,000 MT in granular form. It has well established Production facility that is divided into three areas, first area is to produce Plant Biostimulants that has main machineries like chemical reactors, spray driers, storage tanks, drum mixers etc.; second area is to produce Specialty Nutrients (WSFs), which is well equipped with equipment like Mixer blenders,

bucket elevator, on line processing & packing area, storage units etc., and third area is to produce Microbials that has equipments like 2 KL fermenters with SCADA online monitoring facilities, growth rooms with AHUs, formulation units, blenders, spray driers, downstream process instruments like online centrifuge, freeze drier etc. and associated infrastructure.

Products information

The products covered by the study are 12 Biostimulants, 1 water-soluble fertilizer and 1 micronutrient produced by VALAGRO in the year 2022. Some of the products may have the same formulation but be packaged differently and have a different trade name. Valagro's product range is very wide and includes more than 300 registered trade names; however, the products under study are composed of liquid and solid Biostimulants, micronutrients and fertilizers.

The products under study are part of the farm line, our innovative solutions are created to promote harvests of superior quantity and quality. Plants with firmer roots, which grow with greater vigor, capable of offering a stronger resistance even in hostile growth conditions; more productive plants, capable of giving fruit that ripens more quickly and is tastier on the palate.

These successes are attested by numerous agronomic tests and by a vast amount of data, collected in the four corners of the planet.

Successes obtained by using natural active substances, in full respect of the environment and to protect human health.

The main product lines in the Italian production site are Biostimulants, Biocontrol and water soluble and are produced in Atessa, via Cagliari 1, 66034 (CH).

The main product lines in Brazilian production site are: Biostimulants, Biocontrol and water soluble and are produced in Pirassununga, Estrada Municipal Fernando Luiz Ladgraf (PNG-060), 700 Bairro Cantareira.

The main product lines in Indian production site are: Inorganic Water-Soluble fertilizers (WSF), Organic Plant Biostimulants (PBS) and Microbials (Biofertilizers, PGPR Products and Microbial pesticides). All the products except microbial pesticides are developed through in-house research and innovation with GEA power technology Platform.

Italian Local Legislation

The products **Megafol** and **Viva** are organo-mineral liquid fertilizer;

The product **Master 20-20-20** is a compound solid inorga-



The products covered by the study are 12 Biostimulants, 1 water-soluble fertilizer and 1 micronutrient.



nic macronutrient fertilizer, NPK mineral fertilizer with micro-nutrients, 20-20-20;

The product **Ferrilene**, Iron EDDHSA CASn.84539 (CMC1: Virgin material substances and mixtures);

The product **Talete** is an Organo-mineral fertilizer NK 5 in suspension 5-0-6 with micronutrients;

The product **Retrosal**, straight liquid inorganic macronutrient fertilizer;

The product **Radifarm**, **Radifarm NF**, Organic nitrogenous NK 3-0-8 liquid fertilizer;

The product **YieldOn**, Organic nitrogenous NK 3-0-3 liquid fertilizer with microelements;

The product **Vap Full Scale Helena**, Organic nitrogenous NK 3-0-3 liquid fertilizer with microelements;

The product **Kendal**; Organo-mineral fertilizer NK 3.5-0-15.5 in suspension;

The product **Mc set**, liquid organo-mineral fertilizer K 3.5;

The product **Mc cream**, liquid organo-mineral fertilizer;

The product **Mc extra**, Organic nitrogenous fertilizer;

The product **Actiwave**, Organo-mineral NL 3-0-7 liquid fertilizer with Iron (Fe) and zinc (Zn);

Brazilian Local Legislation

In according to local regulation in Brazil, VIVA BR and MEGAFOL BR are fertilizers organ mineral CLASSE "A" (NORMATIVE INSTRUCTION N° 25 – NEW WORDING) “product that uses, in its production, raw materials generated in the activities agricultural, industrial, agro-industrial and commercial products, including those of plant origin, animal, industrial and agro-industrial sludge from wastewater treatment systems with use authorized by the environmental agency, waste of fruits, vegetables, legumes and remains of food generated in pre- and post-consumption segregated at the generating source and collected by

collection all of them free of sanitary waste, resulting in a product of safe use in agriculture”.

The product MASTER 20-2020 is a mixed mineral fertilizer, national legislation is not available, and we refer to the Italian Legislative Decree 75/2010. According to Italy regulation it's a NPK mineral fertilizer with micro-nutrients.

Indian Local Legislation

In according to local regulation in India, VIVA IN and MEGAFOL IN are Biostimulants and soil revitalizer (as indicated in the product label).

The product MASTER 20-2020 is 100% water soluble mixture fertilizers, national legislation is not available, and we refer to the Italian Legislative Decree 75/2010. According to Italy regulation it's a NPK mineral fertilizer with micro-nutrients (as indicated in the product label).

The following table shows the 3 products covered by the Environmental Declaration, while the columns show the parameters relating to the qualitative characteristics:

- NPK formulation matrix (%);
- TOC total organic carbon content (%);

On the other hand, the parameters for humic and fulvic carbon content C-HA+FA and the HR humification rate for Megafol, Master 20-20-20, Ferrilene, Talete, Retrosal, Radifarm, YieldOn, Vap Full Scale Helena, Kendal, Mc set, Mc cream, Mc extra products are not applicable. For the Viva and Actiwave product, these parameters are not reliable and can only be accurately analyzed within one of the raw materials used in the formulation.



Commercial name	Matrice N-P-K	TOC (%) *biological origin	Other parameters (%)
Megafof	3-0-8	9	-
Viva	3-0-8		0,02 Fe
Master 20-20-20	20-20-20	-	0,02 B; 0,005 Cu; 0,07 Fe; 0,03 Mn; 0,01 Zn
Ferrilene	0-0-0	-	6 Fe
Talete	5-0-6	7,5	0,2 Mn; 0,2 Zn
Retrosal	8,5-0-0	2	0,06 Cu; 1,5 Zn
RADIFARM, RADIFARM NF	3-0-8	10*	0,1 Zn
YieldOn (ABUNDIA)	3-0-3	10*	0,5 Mn; 0,5 Zn
VAP FULL SCALE HELENA	3-0-3	10*	0,5 Mn; 0,5 Zn
KENDAL	3,5-0-15,5	3	-
MC SET	0-0-0	10	1,5 Zn -0,5 B
MC CREAM	0-0-0	10*	1,5 Zn -0,5 B
MC EXTRA	1-0-20	30	0,3 Cu; 0,8 Zn
ACTIWAVE	3-0-7	12	0,5 Fe; 0,08 Zn

Tab. 1 - Products covered by the EPD and their characteristics.

Products composition

Megafof: Liquid formulation of plant extracts with minerals.

Viva: Liquid formulation of plant extracts with minerals.

Talete: Liquid formulation of plant extracts with minerals.

Radifarm, Radifarm NF: Liquid formulation of plant extracts with minerals.

YieldOn, ABUNDIA: Liquid formulation of plant extracts with minerals.

Kendal: Liquid formulation of protein hydrolysate with minerals.

VAP FULL SCALE HELENA: Liquid formulation of protein hydrolysate with minerals.

Actiwave: Liquid formulation of protein hydrolysate with minerals.

Mc set: Liquid formulation of plant extracts with minerals.

Mc cream: Liquid formulation of plant extracts with minerals.

Mc extra: Solid formulation of seaweed extract

Retrosal: Liquid formulation of minerals and organic matter.

Master 20-20-20: Solid mineral formulation of NPK macro-nutrients with micronutrients.

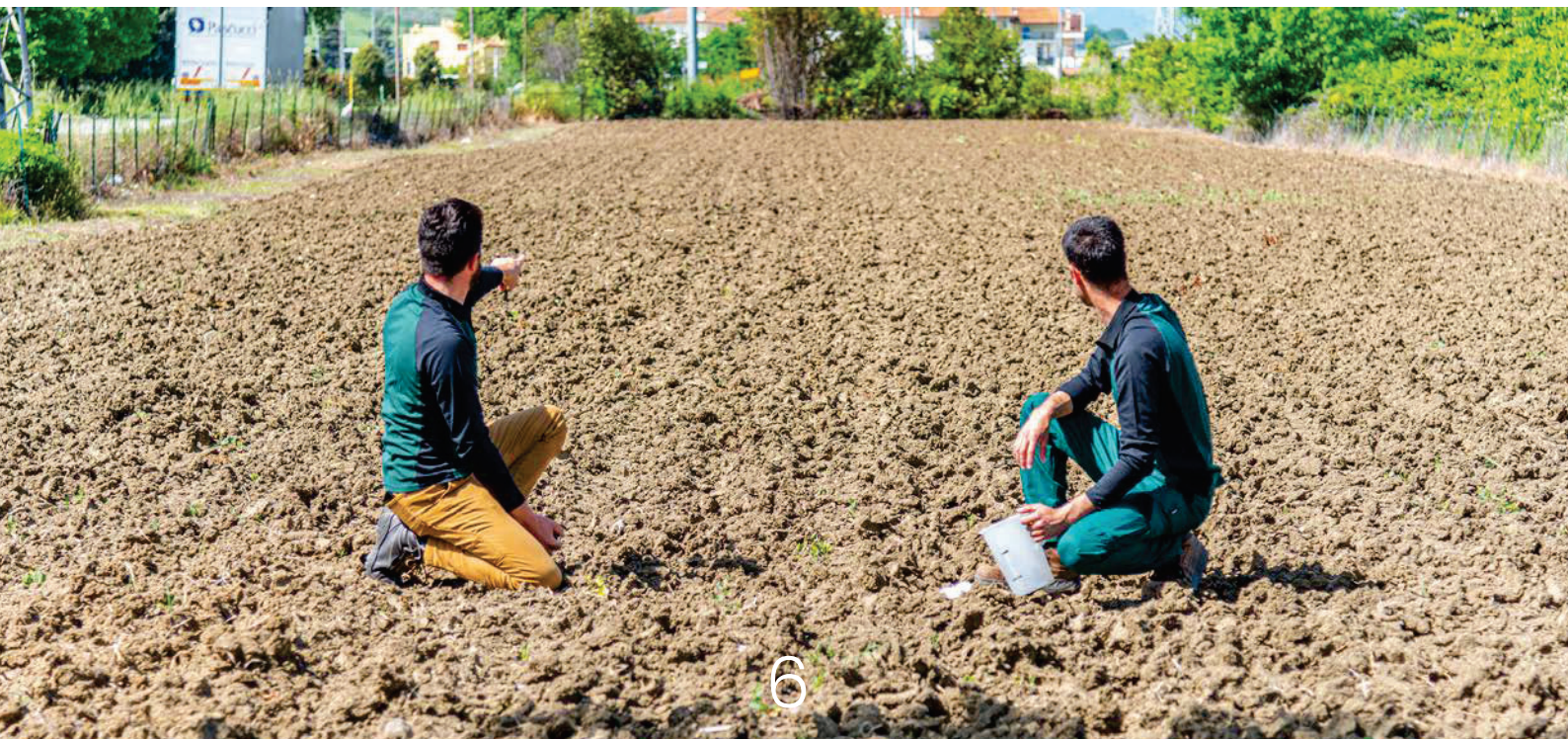
Ferrilene: Solid formulation of Iron chelated.

Packaging

The vast range of Valagro products includes both liquid and solid products and is expected to be distributed worldwide.

The liquid products are packaged in formats ranging from 500 ml to 1000 liters passing through the most common formats which are 1,5-,10- and 20-liter tanks; moreover, being also distributed in Anglo-Saxon countries, units of measurement such as gallons are also used. The packaging used is made of plastic (HD Polyethylene) and for the 1000-liter format there is also a metal frame.

The solid products are packaged in formats of 1,2,5,10,20,25, 500 and 1000 kg in packaging made of polyethylene and polypropylene.



EPD Declaration

Methodology

The methodology used for the analysis of the life cycle of the products covered by the declaration follows the ISO 14040:2021 and ISO 14044:2021 standards and has used the characterization factors indicated by environdec.com, Version 2.0. GWP100, EN 15804. Version: August 2021; AP, accumulated exceedance, EN 15804. Version: August 2021; EP, aquatic freshwater, EUTREND model, EN 15804. Version: August 2021; EP, aquatic marine, EUTREND model EN 15804. Version: August 2021; POCP, LOTOS-EU-ROS as applied in ReCiPe, EN 15804. Version: August 2021; EP, terrestrial, accumulated exceedance, EN 15804. Version: August 2021; ODP, EN 15804. Version: August 2021; ADP minerals & metals, EN 15804. Version: August 2021; ADP fossil resources, EN 15804. Version: August 2021; Water deprivation (Available water remaining (AWARE) method), EN 15804. The LCA methodology (Life Cycle Assessment). The study was conducted using the SIMAPRO (PRé Sustainability) software version 9.5.0.0. con Ecoinvent 3.9.1

For the preparation of the declaration and the study of the life cycle, the indications given in PCR 2010:20 "Mineral or Chemical fertilizers", version 3.0 DATE 2020-06-03, CPC Code 3461, 3462, 3463, 3464 and 3465 were followed.

Declared Unit

For all the solid products covered by the study, the declared unit is 1000 kg with the relative packaging.

Flowchart

The life cycle stages included within the system boundaries and the flow diagram are shown in the figure below.



System boundaries

The life cycle analysis was conducted in a spatial horizon that fixed the boundaries of the system by dividing them into three macro-categories:

Upstream module: contains all the processes upstream of the production phase, it analyzes the entire supply chain dedicated to the procurement of raw materials. The processes present in the Upstream Module are the production of raw materials, the production of packaging used to package the fertilizers;

Core module: studies all the production phases of Valagro fertilizers within the company boundaries. The processes included in the Core Module are the transport of MPs and packaging to the Valagro Biosciences Pvt Ltd- India site, the production processes of the fertilizers inside the Valagro plant, the emissions linked to the production processes;



Downstream module: analyzes the phases of Valagro products once they leave the corporate gate, i.e. distribution, use, end of life of the packaging. The processes included in the Downstream Module are the transport of Valagro Biosciences Pvt Ltd- India fertilizers in the country of use, the phase of use of the same and the management of the end of life of the packaging. About the management of waste deriving from the end of life of products, databases present at an international level have been used (OECD, EUROSTAT, UNSD and National Reports).

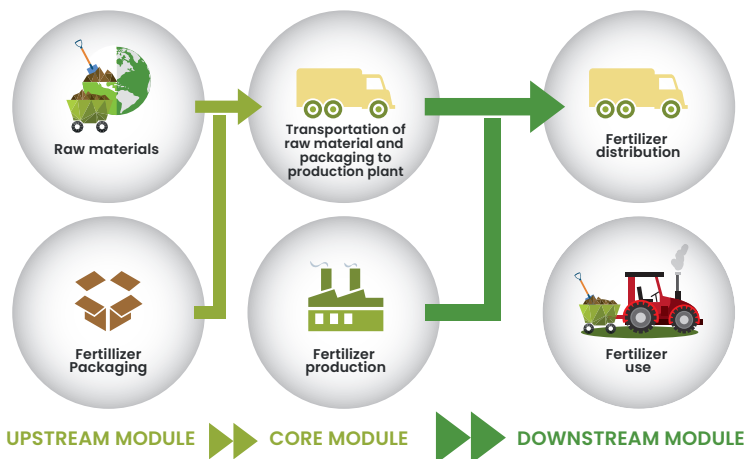


Fig. 1 - Fertilizer Life Cycle System Boundaries

At the Fertilizer Distribution Stage, we have considered every single shipment of the product (recorded by our systems), the Company in general only uses land transport by truck and by sea by ship, no other means of transport are used, and for each of these we have used specific distances by sea and by land calculated with GoogleMaps for distances by sea we have been taken information on routes and ports in the transport documents, each company used at different routes and the ones actually used have been considered.

For the distribution of the product, we can calculate the distances by land and sea from the addresses in the transport documents;

Specific consideration about transportation by land from Indian production site to final costumer

For transport process referred to finish products/raw materials we consider an average value after going through the following considerations:

Local regulation (in India) is inspired by the EUROCODE and the implementation tables timeline show that in 2010 India completed the implementation of EURO 3; All products produced in India are sold in India, less than 0.1% is exported to CHINA.

Transport, freight, lorry >32 metric ton, EURO3 {RER}| transport, freight, lorry >32 metric ton, EURO3 | Cut-off, U. is the process used on Simapro. The values of NOx emissions comparing Euro III and Bharat Stage III are identical, 5 g/kWh, so the most correct process to use is not EURO3 RoW but EURO 3 RER

Specific consideration about transportation by land from Brazilian production site to final costumer

For transport process referred to finish products/raw materials we consider an average value after going through the following considerations:

- Local regulation (in Brazil) is inspired by the EUROCODE and the implementation tables timeline show that in 2006 Brazil completed the implementation of EURO 3;
- Master 20-20-20,1x25kg packsize has been sold in Brazil for % of 64%, 25% in Mexico, 2% Uruguay and 10% Colombia, All Viva pack-size have been sold in Brazil excepting VIVA 1X10 (CHILE SYNGENTA) and All Megafol pack-size have been sold in Brazil.

The specific process in Simapro is: Transport, freight, lorry >32 metric ton, EURO3 {BR}| transport, freight, lorry >32 metric ton, EURO3 | Cut-off, U .

For sea freight, we consider the same Simapro process for all distributions in the world:

Transport, freight, sea, container ship {GLO}| transport, freight, sea, container ship | Cut-off, S

I am available should you have any question regarding the requested integrations.

Specific consideration about transportation from Italian production site to final costumer

- For transport process referred to finish products/raw materials we consider an average value after going through the following considerations:



The foliar application exploits the ability of plants to absorb water and the mineral salts dissolved in it through the epidermis and the stomata of the leaves.



Fertigation allows the distribution of fertilizers by means of irrigation water.

- The Euro 6 standard in Europe has been in force since 1 September 2014 for the homologation of new models, while it has become mandatory since 1 September 2015 for all newly registered cars;
- Most of the road transport from the Atessa production site reaches a European distribution perimeter.

The specific process in Simapro is: Transport, freight, lorry >32 metric ton, EURO5 {RER}| transport, freight, lorry >32 metric ton, EURO5 | Cut-off, S

For sea freight, we consider the same Simapro process for all distributions in the world:

Transport, freight, sea, container ship {GLO}| transport, freight, sea, container ship | Cut-off, S

I am available should you have any question regarding the requested integrations.

Data quality

For the core module, specific data collected in the field, at the Valagro Biosciences Pvt Ltd- India plant, were used; for the data relating to the Upstream Module, both specific data and generic data were used, based on the Ecoinvent 3.9.1 database, the packaging data was provided directly by the suppliers through specific data and generic data. As regards the data relating to the Downstream module, specific data on distances and generic data on the management of packaging at the end of its life were used. For the use phase, scenarios were modeled, and specific and generic data were used.

The data used refer to the year 2022.

Data on company production and product distribution refer to the year 2022.

The "proxy" data used refer to some of the ingredients of the formulations and do not exceed 10% of the total impact.

Uptake Index

Valagro has been producing solutions for plant nutrition for 40 years and is the world leader in the Biostimulants market. Since 2012, it has launched a process for calculating the environmental impacts related to the life cycle of its products. Over the course of almost 10 years, he has studied the issues related to GHG emissions from cultivation practices and the use of fertilizers and has been able to ascertain that Biostimulants and in general the foliar and fertigation applications of his products represent the most effective and efficient way for the absorption and for the best physiological regulation of plants. This document addresses the methodological and scientific issues related to the quantification of GHG emissions deriving from the use of Valagro solutions and presents the choices and reasons for the same related to the LCA modeling made in the EPD study of which the process certification phase has started.

Agronomic Efficiency Index (AEI) & Uptake Index (UI).
AEI index = $(\text{yeld nC} - \text{yeld 0C})/\text{nFU}$

UI index = $[\text{nutrient element up-taken from the cultivation in the fertilized option (kg/ha)} - \text{nutrient element ep-taken from the cultivation in the unfertilized option (kg/ha)}]/\text{nutrient unit (kg/ha)} * 100.$

The Company has undertaken to carry out agronomic tests but at the moment we do not have specific data available for AEI index and UI index.

A campaign of agronomic trials has been planned and as soon as they are available the results will be reported in the EPD declaration.

FOLIAR APPLICATION

Mechanic process

The foliar application of products (for the defense or nutrition of plants) is a technique of administration of technical means that exploits the ability of plants to absorb water and the mineral salts dissolved in it through the epidermis and the stomata of the leaves. The behavior of the plants and the effectiveness of the intervention varies according to various factors (plant species, age of the leaves, morphology and anatomy, phenological phase, substances used, spraying methods, etc.), in any case it must be considered that plants are naturally inclined to convey mineral nutrition through the roots, therefore the dosages applicable in foliar fertilization are much lower than those relating to ordinary fertilization, although they are very effective. The sprayed product is distributed as follows:

One part is applied to the "target" correctly;

- a part is superimposed on the previous one and is useless or even harmful to the crop;
- a part is lost on the ground;
- a part is lost due to drift (transport of the drops off target) or due to evaporation before reaching the target.

In the case of the application of foliar products, it is known that it is a practice used almost exclusively for the application of phytosanitary treatments. This does not mean that other products (fertilizers, micronutrients, etc.) have been associated with the defense of plants in foliar treatments for decades now, which integrate the defense with "tonics" useful periods of the vegetative phase or in cases of plant stress. For this reason, it was decided to allocate the foliar product application process to 50% (because the remainder is intended for crop care).

Therefore, in the case of Valagro and the EPD certification, it was decided to use the "Application of plant protection product by field sprayer, market for. Allocation def, S", and to use it at 50%. The unit of measure of the process is the surface area. An ad hoc process was therefore created called "Foliar Product application 1 liter - 1.2 kg product (200 liters of water - 2000m²)" in which the process "Application of plant protection product by field sprayer, market for. Allocation def, S".

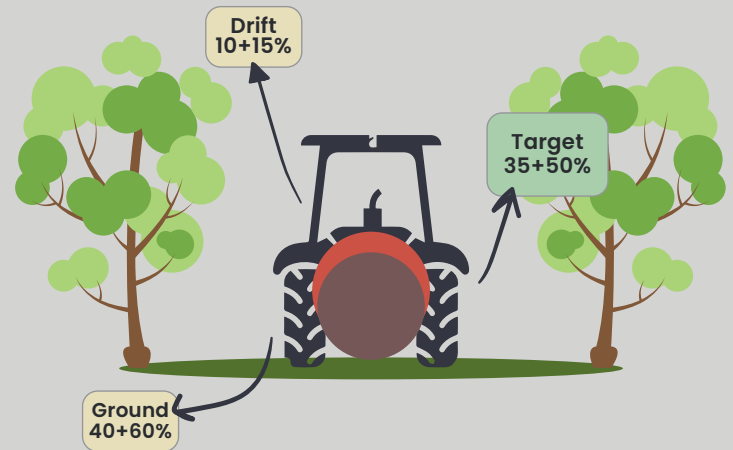
Based on what is reported in the 2020 catalog regarding the use of foliar products (in terms of kg/ha), it was decided to use the process by calibrating it on 1.2 kg of product (1 liter of liquid product) and using 2000 m² of the process "Application of plant protection product by field sprayer, market for. Allocation def, S" and inserting 100 liters of "Water, river, agri, IT" relating to the use of water in the process.

GHG emissions from fertilizers

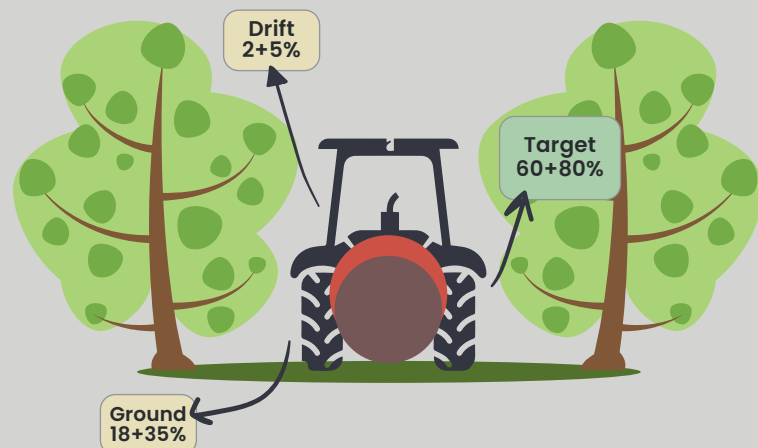
Based on the premises made, it can be asserted that the product that drifts and is therefore not readily absorbed by the plant or the soil varies between 5% and 15%. In this sense, wanting to take the worst route, the GHG emission referred to 15% of the Valagro product used in foliar spreading was evaluated.

Foliar application products are those contained in the latest product catalogue. The list consists of both liquid and solid products which vary over a range of nitrogen content from 0 to 15%. For many of these products, nitrogen is not present and therefore the resulting emissions will not even be calculated and expressed within the foliar application process. For the others, the values present in the table specific to the type of product were calculated and entered, following the calculation indications given in PCR (MINERAL OR CHEMICAL FERTILIZERS, PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463, 3464 & 3465).

Early vegetative stages



Full vegetative development



SOURCE: DRIFT EFFECT AND POSSIBLE REDUCTION OF AERIAL LOSSES IN THE DISTRIBUTION OF PESTICIDES. ORGANIZED BY ARPAT, THE REGIONAL AGENCY FOR THE ENVIRONMENTAL PROTECTION OF TUSCANY, AND THE DEPARTMENT OF AGRICULTURAL AND FORESTRY ENGINEERING (DIAF) - UNIVERSITY OF FLORENCE.



Of the products analyzed, only Megafol has a foliar application with the resulting emissions into the air and water:

Prodotto	Foliar (kg)	Total Seasonal Dose (kg/ha)	N % (Nitrogen)	Type	Physical state	Density (kg/L)	Unit Dose	DOSE (kg)	Tot. N gr.	Deriva (Arpat Toscana) (Def. Value 15%)	N (perdita) Deriva	Assimilation average value (PCR Fertilizer Pag 13-14)	Breakdown between the various components	NH3	NO	N2O	Norg	NH4+	NO3-	
Megafol	2	3	9	3	BS	L	1,22	1,22	2,5	0,03660	0,15000	0,00549	0,00038	0,00006	0,00009	0,00013	0,00021	0,00006	0,00010	0,00028

*The dose that is applied of the product is the same for different crops (tomato, cereals and vegetables) as described in the product catalog

FERTIGATION

Equipment used

Fertigation refers to an agricultural technique that allows the distribution of fertilizers by means of irrigation water. This methodology has gained greater popularity with the diffusion of micro-irrigation and/or drip irrigation, in fact, it is preferably applied with localized irrigation and/or sub-irrigation. It can also be done with other irrigation systems, but for a better distribution of the fertilizer the systems are preferred.

The distribution of fertilizers in water improves the absorption of nutrients by plants and at the same time makes the use of water more efficient. In practice, fertigation creates a synergistic effect between water and fertilizer. From what emerges from the dedicated literature, the efficiency of fertigation follows the efficiency of the irrigation systems; in this sense, to date, the application of Valagro fertilizing and Biostimulants products is carried out through drip micro-irrigation systems.

For the modeling of the following operating area, a specific process named FERTIGATION was created, within which the following main processes were considered:

1. Use of the water resource as a vector for transporting the fertilizer to the target plant. The fertigation system was created mainly for the need to irrigate the plant and only at a later stage is it used as a tool for the fertilization phase. The contribution of water that is used in case of simple irrigation or fertigation is the same, this means that the application of the product does not increase the amount of water necessary for the plant. (water and fertigation pipes are considered as infrastructure and therefore can be excluded according to the reference PCR)

2. Emissioni nell'aria di NH3;NO; N2O, sono stati considerati i flussi elementari in atmosfera per i quantitativi riportati in tabella alle colonne "T", "U", "V"
3. Emissioni to Norg water; NH4+;NO3- the elementary flows into the atmosphere were considered for the quantities shown in the table in columns "W", "X", "Y".

Emissions deriving from fertilizers

As mentioned in the previous point, reference was made to the irrigation efficiency process to also evaluate the quantity of fertilizer that can be absorbed by the plants. In this sense, the variables involved are many and are mainly connected to the type of soil, cultivation, fertigation system, etc. In any case, referring to what is reported by FAO (<https://www.fao.org/3/t7202e/t7202e08.htm>) it can be noted that irrigation systems basically have these efficiencies.

Irrigation methods	Field application efficiency
Surface irrigation (border, furrow, basin)	60%
Sprinkler irrigation	75%
Drip irrigation	90%

Tab. 2 - INDICATIVE VALUES OF THE FIELD APPLICATION EFFICIENCY (AEI)

The value used in the table for calculating efficiency and therefore the relative emission into the atmosphere is that of drip irrigation, i.e. 90%. Based on that data (10% losses) and referring to the emission coefficients reported in PCR, the quantity of elementary substances reported in columns "T", "U", "V", "W", "X", "Y" of the table "09_dose_uso_prodotto_valagro" was determined.

Of the products analysed, Ferrilene, Viva and Master 20-20-20 are applied by fertigation with the following resulting emissions:

Prodotto	Root (kg - Min)	Root (kg - Max)	Total Seasonal Dose (kg/ha)	N % (Nitrogen)	Type	Physical state	Density (kg/L)	Unit Dose	DOSE (kg)	Tot. N gr.	Loss 10% (Based on FAO report)	N (perdita) Deriva	Assimilation average value (PCR Fertilizer Pag 13-14)	Breakdown between the various components	NH3	NO	N2O	Norg	NH4+	NO3-
Viva	10	30	60	3	BS	L	1,24	1	20	0,03	10%	0,003	0,00021	0,00003	0,00005	0,00007	0,00012	0,00003	0,00005	0,00015
Ferrilene	5	30	45	0	MN	S	1,62	1,62	17,5	0	10%	0	0,00000	0,00000	0,00000	0,00000	0,00000	0,00000	0,00000	0,00000
MASTER 20-20-20	5	15	135	20	WSF	S	1	1	10	0,2	10%	0,02	0,00137	0,00023	0,00033	0,00049	0,00078	0,00023	0,00036	0,00101

*The mean dose was calculated as the average between the minimum and maximum dose of all crops (vegetables, fruits, cereals and flowers) as described in the product catalog.



Emissions deriving from micronutrient use

With reference to the use of micronutrients through fertigation (Fe, B, Ca, Mo, etc) it should be noted that in the modeling processes only the use of water is taken into consideration as a vector element for the transport of nutrients. The choice is motivated by the small quantities used (max 30 kg/ha) and by the frequency of application (once a season).

Information on the Reach Regulation

Information on compliance with Regulation (EC) N° 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

Ferrilene

Chemical Name: Acedite Acid, Oxo-, Sodium Salt, reaction products with ethylenediamine and hydroxybenzenesulfonic acid monosodium salt, iron sodium salts

Type: Substance

Composition: UVCB

Origin: Organic

EC Number: 283-042-4

CAS number: 84539-54-8

REACH registration number: 01-2119946570-37-0000.

VIVA, MEGAFOL, TALETE, RETROSAL, RADIFARM, RADIFARM NF, YIELDON, ABUNDIA, VAP FULL SCALE HELENA, KENDAL, MC SET, MC CREAM E ACTIWAVE

Tipo: blend

Information on the REACH regulation: All substances that enter the composition of the VIVA, MEGAFOL, TALETE, RETROSAL, RADIFARM, RADIFARM NF, YIELDON, ABUNDIA, VAP FULL SCALE HELENA, KENDAL, MC SET, MC CREA E ACTIWAVE formulation are registered or exempt from the REACH regulation.

MASTER 20-20-20

Tipo: blend

Information on the REACH regulation: All substances that enter the composition of the Master 20-20-20 formulation are registered or exempt from the REACH regulation.

MC EXTRA

Name: Ascophyllum nodosum, ext.

Type: Substance

Composition: UVCB

EC Number: 283-907-6

CAS Number: 84775-78-0

REACH registration number: 01-2119575389-21-0000.

THE POTENTIAL ENVIRONMENTAL IMPACTS OF VALAGRO PRODUCTS

(produced in Biosciences Pvt Ltd- Indian site, Valagro S.p.A in Atessa - Italian site and Valagro Manufacturing – Brazilian site)

Below are the tables that summarize the data (relating to 2022) for calculating the potential environmental impacts for the 12 liquid Biostimulants, 1 water-soluble fertilizer and 1 micronutrient solid.

All tables refer to 1000 kg.

For product formats packaged in more than one production site, the weighted average of the impacts was calculated.

Tab.1 - **ACTIWAVE**, packsize **15x1lt (FU=1t)**, produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3246,998	1600,991	166,183	1479,824
	Biogenic	kg CO ₂ eq	351,739	263,214	2,066	86,459
	Land use and land transformation	kg CO ₂ eq	0,283	0,017	0,069	0,197
	TOTAL	kg CO ₂ eq	3599,019	1864,222	168,318	1566,479
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			22,463	6,031	0,640	15,792
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,396	0,363	0,015	0,018
	Aquatic marine	kg N eq	10,696	3,649	0,198	6,849
	Aquatic terrestrial	mol N eq	90,177	14,912	2,099	73,166
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	26,267	4,770	0,853	20,644
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,010	0,009	0,000	0,000
	Fossil resources	MJ	44317,514	24762,636	2384,978	17169,900
Water deprivation potential (WDP)***		m ³ depriv.	705,830	660,661	12,559	32,610
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	4089,885	3940,846	74,056	74,983
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	4089,885	3940,846	74,056	74,983
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	47521,780	26706,820	2544,225	18270,735
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	47522,247	26707,287	2544,225	18270,735
Net fresh water use		m ³	31,273	28,451	0,421	2,401
Hazardous waste		kg	1,059	0,080	0,903	0,076
Non Hazardous waste		kg	1485,124	1052,287	178,723	254,114
Radioactive Waste		Kg	0,050	0,047	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.2 - **ACTIWAVE**, packsize 1x1000lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3036,742	1530,816	166,183	1339,744
	Biogenic	kg CO ₂ eq	220,582	217,036	2,066	1,481
	Land use and land transformation	kg CO ₂ eq	-0,672	-0,868	0,069	0,127
	TOTAL	kg CO ₂ eq	3256,652	1746,983	168,318	1341,351
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			19,662	5,914	0,640	13,109
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,358	0,328	0,015	0,015
	Aquatic marine	kg N eq	9,768	3,489	0,198	6,081
	Aquatic terrestrial	mol N eq	81,884	14,066	2,099	65,720
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	23,993	4,526	0,853	18,615
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,013	0,012	0,000	0,000
	Fossil resources	MJ	41965,522	23519,271	2384,978	16061,274
Water deprivation potential (WDP)***		m ³ depriv.	668,135	628,341	12,559	27,235
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	42633,657	24147,612	2397,536	16088,509
	Used as raw materials	MJ, net calorific value	2867,288	2727,684	74,056	65,547
	TOTAL	MJ, net calorific value	0,000	0,000	0,000	0,000
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	2867,288	2727,684	74,056	65,547
	Used as raw materials	MJ, net calorific value	45030,417	25394,205	2544,225	17091,987
	TOTAL	MJ, net calorific value	0,466	0,466	0,000	0,000
Net fresh water use		m ³	29,555	26,926	0,421	2,207
Hazardous waste		kg	1,051	0,077	0,903	0,070
Non Hazardous waste		kg	1359,067	1037,032	178,723	143,312
Radioactive Waste		Kg	0,042	0,040	0,001	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.3 - **ACTIWAVE**, packsize 1x20lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2971,583	1530,149	166,183	1275,250
	Biogenic	kg CO ₂ eq	237,574	232,554	2,066	2,955
	Land use and land transformation	kg CO ₂ eq	-0,584	-0,725	0,069	0,073
	TOTAL	kg CO ₂ eq	3208,573	1761,977	168,318	1278,278
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			17,238	5,702	0,640	10,895
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,356	0,329	0,015	0,013
	Aquatic marine	kg N eq	9,278	3,498	0,198	5,583
	Aquatic terrestrial	mol N eq	75,747	14,013	2,099	59,636
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	22,331	4,485	0,853	16,994
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,009	0,009	0,000	0,000
	Fossil resources	MJ	40983,595	23328,128	2384,978	15270,490
Water deprivation potential (WDP)***		m ³ depriv.	655,012	616,616	12,559	25,837
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3517,206	3381,465	74,056	61,685
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3517,206	3381,465	74,056	61,685
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	43963,745	25168,059	2544,225	16251,461
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	43964,211	25168,526	2544,225	16251,461
Net fresh water use		m ³	29,746	27,176	0,421	2,150
Hazardous waste		kg	1,046	0,077	0,903	0,067
Non Hazardous waste		kg	1438,131	1038,735	178,723	220,673
Radioactive Waste		Kg	0,047	0,045	0,001	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.4 - **ACTIWAVE**, packsize 20x1lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3196,066	1600,991	166,183	1428,893
	Biogenic	kg CO ₂ eq	353,135	263,214	2,066	87,855
	Land use and land transformation	kg CO ₂ eq	0,248	0,017	0,069	0,162
	TOTAL	kg CO ₂ eq	3549,449	1864,222	168,318	1516,909
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			19,920	6,031	0,640	13,249
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,398	0,363	0,015	0,021
	Aquatic marine	kg N eq	10,145	3,649	0,198	6,298
	Aquatic terrestrial	mol N eq	83,366	14,912	2,099	66,355
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	24,590	4,770	0,853	18,967
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,010	0,009	0,000	0,000
	Fossil resources	MJ	44337,818	24762,636	2384,978	17190,204
Water deprivation potential (WDP)***		m ³ depriv.	707,163	660,661	12,559	33,942
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	4098,865	3940,846	74,056	83,963
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	4098,865	3940,846	74,056	83,963
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	47543,404	26706,820	2544,225	18292,359
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	47543,870	26707,287	2544,225	18292,359
Net fresh water use		m ³	31,306	28,451	0,421	2,434
Hazardous waste		kg	1,061	0,080	0,903	0,077
Non Hazardous waste		kg	1619,893	1052,287	178,723	388,883
Radioactive Waste		Kg	0,050	0,047	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.5 - **ACTIWAVE**, packsize 2x10lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3085,780	1545,459	166,183	1374,138
	Biogenic	kg CO ₂ eq	319,963	249,683	2,066	68,214
	Land use and land transformation	kg CO ₂ eq	0,058	-0,154	0,069	0,142
	TOTAL	kg CO ₂ eq	3405,800	1794,988	168,318	1442,494
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			19,790	5,795	0,640	13,354
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,368	0,336	0,015	0,017
	Aquatic marine	kg N eq	10,012	3,590	0,198	6,225
	Aquatic terrestrial	mol N eq	82,995	14,424	2,099	66,472
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	24,323	4,586	0,853	18,885
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,009	0,009	0,000	0,000
	Fossil resources	MJ	42354,782	23490,987	2384,978	16478,818
Water deprivation potential (WDP)***		m ³ depriv.	678,836	636,726	12,559	29,552
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3785,110	3638,661	74,056	72,393
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3785,110	3638,661	74,056	72,393
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	45434,799	25354,609	2544,225	17535,965
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	45435,265	25355,075	2544,225	17535,965
Net fresh water use		m ³	30,385	27,675	0,421	2,289
Hazardous waste		kg	1,054	0,078	0,903	0,073
Non Hazardous waste		kg	1459,010	1042,550	178,723	237,737
Radioactive Waste		Kg	0,046	0,043	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.6 - **FERRILENE**, packsize 12x1kg (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3554,283	3157,040	257,050	140,193
	Biogenic	kg CO ₂ eq	213,789	114,892	3,485	95,412
	Land use and land transformation	kg CO ₂ eq	3,173	2,949	0,125	0,099
	TOTAL	kg CO ₂ eq	3771,245	3274,881	260,660	235,704
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			22,410	15,800	3,148	3,462
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,750	0,723	0,021	0,006
	Aquatic marine	kg N eq	4,864	3,069	0,804	0,992
	Aquatic terrestrial	mol N eq	48,381	29,933	8,816	9,631
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	15,754	10,363	2,722	2,669
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,022	0,021	0,000	0,000
	Fossil resources	MJ	60775,559	54487,447	4561,301	1726,811
Water deprivation potential (WDP)***		m ³ depriv.	2034,336	2011,535	17,058	5,743
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3573,517	3429,643	128,324	15,551
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3573,517	3429,643	128,324	15,551
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	65177,820	58413,688	4928,456	1835,675
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	65177,820	58413,688	4928,456	1835,675
Net fresh water use		m ³	51,157	50,388	0,562	0,208
Hazardous waste		kg	0,720	0,109	0,602	0,009
Non Hazardous waste		kg	836,866	515,330	126,986	194,551
Radioactive Waste		Kg	0,057	0,055	0,002	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,060	0,060	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.7 - **FERRILENE**, packsize 2x20LB (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3363,461	2967,294	257,050	139,116
	Biogenic	kg CO ₂ eq	190,623	105,662	3,485	81,475
	Land use and land transformation	kg CO ₂ eq	2,955	2,731	0,125	0,099
	TOTAL	kg CO ₂ eq	3557,039	3075,688	260,660	220,691
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			21,746	15,124	3,148	3,474
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,725	0,698	0,021	0,006
	Aquatic marine	kg N eq	4,596	2,847	0,804	0,946
	Aquatic terrestrial	mol N eq	46,185	27,703	8,816	9,665
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	14,809	9,416	2,722	2,671
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,021	0,021	0,000	0,000
	Fossil resources	MJ	57499,565	51212,737	4561,301	1725,527
Water deprivation potential (WDP)***		m ³ depriv.	1993,850	1971,249	17,058	5,543
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3314,451	3170,816	128,324	15,311
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3314,451	3170,816	128,324	15,311
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	61688,379	54925,597	4928,456	1834,326
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	61688,379	54925,597	4928,456	1834,326
Net fresh water use		m ³	50,164	49,398	0,562	0,204
Hazardous waste		kg	0,705	0,094	0,602	0,009
Non Hazardous waste		kg	610,611	316,176	126,986	167,450
Radioactive Waste		Kg	0,054	0,052	0,002	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,060	0,060	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.8 - **FERRILENE**, packsize 4x5kg (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3406,376	3009,997	257,050	139,329
	Biogenic	kg CO ₂ eq	203,185	105,496	3,485	94,203
	Land use and land transformation	kg CO ₂ eq	2,958	2,732	0,125	0,100
	TOTAL	kg CO ₂ eq	3612,519	3118,226	260,660	233,632
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			21,922	15,270	3,148	3,505
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,729	0,703	0,021	0,006
	Aquatic marine	kg N eq	4,672	2,890	0,804	0,978
	Aquatic terrestrial	mol N eq	46,739	28,175	8,816	9,748
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	15,045	9,623	2,722	2,700
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,021	0,021	0,000	0,000
	Fossil resources	MJ	58291,048	51985,815	4561,301	1743,932
Water deprivation potential (WDP)***		m ³ depriv.	2002,048	1979,440	17,058	5,550
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3234,152	3090,196	128,324	15,633
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	62531,055	55748,735	4928,456	1853,864
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	0,000	0,000	0,000	0,000
	Used as raw materials	MJ, net calorific value	62531,055	55748,735	4928,456	1853,864
	TOTAL	MJ, net calorific value	50,349	49,584	0,562	0,203
Net fresh water use		m ³	0,709	0,098	0,602	0,009
Hazardous waste		kg	51,058	49,682	1,164	0,212
Non Hazardous waste		kg	680,133	362,359	126,986	190,788
Radioactive Waste		Kg	0,055	0,053	0,002	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,060	0,060	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.9 - **FERRILENE**, packsize **8x5LB** (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3488,986	3088,291	257,050	143,645
	Biogenic	kg CO ₂ eq	227,306	129,492	3,485	94,329
	Land use and land transformation	kg CO ₂ eq	3,562	3,335	0,125	0,101
	TOTAL	kg CO ₂ eq	3719,854	3221,118	260,660	238,076
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			22,291	15,602	3,148	3,541
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,754	0,727	0,021	0,006
	Aquatic marine	kg N eq	4,827	3,045	0,804	0,978
	Aquatic terrestrial	mol N eq	47,937	29,266	8,816	9,855
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	15,456	10,009	2,722	2,725
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,022	0,021	0,000	0,000
	Fossil resources	MJ	59531,367	53208,544	4561,301	1761,523
Water deprivation potential (WDP)***		m ³ depriv.	2032,650	2009,738	17,058	5,854
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3807,104	3663,041	128,324	15,739
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3807,104	3663,041	128,324	15,739
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	63858,374	57057,313	4928,456	1872,605
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	63858,374	57057,313	4928,456	1872,605
Net fresh water use		m ³	51,274	50,498	0,562	0,214
Hazardous waste		kg	0,714	0,103	0,602	0,009
Non Hazardous waste		kg	746,067	420,311	126,986	198,770
Radioactive Waste		Kg	0,056	0,054	0,002	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,060	0,060	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.10 – **FERRILENE**, packsize 1x1102LB (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3181,709	2814,833	257,050	109,826
	Biogenic	kg CO ₂ eq	70,896	62,483	3,485	4,928
	Land use and land transformation	kg CO ₂ eq	1,869	1,666	0,125	0,078
	TOTAL	kg CO ₂ eq	3254,474	2878,981	260,660	114,832
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			20,331	14,483	3,148	2,701
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,678	0,653	0,021	0,004
	Aquatic marine	kg N eq	4,049	2,557	0,804	0,689
	Aquatic terrestrial	mol N eq	41,923	25,581	8,816	7,526
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	13,443	8,648	2,722	2,072
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,021	0,020	0,000	0,000
	Fossil resources	MJ	54783,306	48841,616	4561,301	1380,390
Water deprivation potential (WDP)***		m ³ depriv.	1936,998	1915,950	17,058	3,990
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2086,876	1946,501	128,324	12,052
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2086,876	1946,501	128,324	12,052
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	58786,302	52390,447	4928,456	1467,399
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	58786,302	52390,447	4928,456	1467,399
Net fresh water use		m ³	48,453	47,741	0,562	0,150
Hazardous waste		kg	0,693	0,083	0,602	0,007
Non Hazardous waste		kg	387,154	195,888	126,986	64,281
Radioactive Waste		Kg	0,052	0,050	0,002	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,060	0,060	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.II - **KENDAL**, packsize 20x1lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3269,143	1793,870	75,721	1399,553
	Biogenic	kg CO ₂ eq	281,579	196,497	1,955	83,126
	Land use and land transformation	kg CO ₂ eq	74,227	74,048	0,022	0,157
	TOTAL	kg CO ₂ eq	3624,949	2064,415	77,698	1482,836
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			21,228	6,879	0,244	14,105
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,444	0,417	0,009	0,017
	Aquatic marine	kg N eq	8,554	2,015	0,064	6,474
	Aquatic terrestrial	mol N eq	84,588	15,410	0,678	68,500
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	25,419	5,707	0,292	19,420
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,013	0,012	0,000	0,000
	Fossil resources	MJ	44216,134	26548,928	1059,676	16607,530
Water deprivation potential (WDP)***		m ³ depriv.	1147,966	1111,062	6,786	30,117
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3016,209	2872,999	71,239	71,970
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3016,209	2872,999	71,239	71,970
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	48226,769	29415,235	1138,739	17672,795
	Used as raw materials	MJ, net calorific value	0,373	0,373	0,000	0,000
	TOTAL	MJ, net calorific value	48226,769	29415,235	1138,739	17672,795
Net fresh water use		m ³	31,827	29,303	0,216	2,308
Hazardous waste		kg	1,326	0,096	1,156	0,073
Non Hazardous waste		kg	1950,520	1601,378	52,403	296,740
Radioactive Waste		Kg	0,048	0,046	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.12 - **KENDAL**, packsize **2x10lt** (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3737,102	2277,506	75,721	1383,876
	Biogenic	kg CO ₂ eq	381,937	326,053	1,955	53,929
	Land use and land transformation	kg CO ₂ eq	75,327	75,161	0,022	0,144
	TOTAL	kg CO ₂ eq	4194,367	2678,720	77,698	1437,949
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			22,408	8,956	0,244	13,208
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,712	0,685	0,009	0,018
	Aquatic marine	kg N eq	8,710	2,485	0,064	6,160
	Aquatic terrestrial	mol N eq	86,272	19,492	0,678	66,102
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	26,297	7,187	0,292	18,818
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,015	0,015	0,000	0,000
	Fossil resources	MJ	54138,316	36467,679	1059,676	16610,960
Water deprivation potential (WDP)***		m ³ depriv.	1292,924	1255,884	6,786	30,254
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	5499,776	5353,766	71,239	74,771
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	5499,776	5353,766	71,239	74,771
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	58718,772	39903,554	1138,739	17676,479
	Used as raw materials	MJ, net calorific value	0,373	0,373	0,000	0,000
	TOTAL	MJ, net calorific value	58719,145	39903,927	1138,739	17676,479
Net fresh water use		m ³	38,387	35,857	0,216	2,314
Hazardous waste		kg	1,343	0,113	1,156	0,074
Non Hazardous waste		kg	1998,099	1703,371	52,403	242,325
Radioactive Waste		Kg	0,095	0,092	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.13 - **KENDAL**, packsize 4x5lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3084,948	1753,319	75,721	1255,908
	Biogenic	kg CO ₂ eq	227,380	178,913	1,955	46,512
	Land use and land transformation	kg CO ₂ eq	73,828	73,751	0,022	0,055
	TOTAL	kg CO ₂ eq	3386,155	2005,983	77,698	1302,474
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			17,428	6,688	0,244	10,495
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,414	0,393	0,009	0,011
	Aquatic marine	kg N eq	7,473	1,946	0,064	5,463
	Aquatic terrestrial	mol N eq	74,081	14,940	0,678	58,463
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	22,509	5,559	0,292	16,658
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,013	0,012	0,000	0,000
	Fossil resources	MJ	41775,584	25870,096	1059,676	14845,811
Water deprivation potential (WDP)***		m ³ depriv.	1127,288	1095,750	6,786	24,752
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2568,244	2440,187	71,239	56,817
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2568,244	2440,187	71,239	56,817
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	45634,373	28695,586	1138,739	15800,048
	Used as raw materials	MJ, net calorific value	0,373	0,373	0,000	0,000
	TOTAL	MJ, net calorific value	45634,373	28695,586	1138,739	15800,048
Net fresh water use		m ³	30,973	28,647	0,216	2,111
Hazardous waste		kg	1,315	0,095	1,156	0,064
Non Hazardous waste		kg	1803,269	1591,024	52,403	159,842
Radioactive Waste		Kg	0,045	0,043	0,001	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.14 – **MC CREAM**, packsize 15x1lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	4919,497	3206,642	93,241	1619,614
	Biogenic	kg CO ₂ eq	247,979	143,483	1,496	103,001
	Land use and land transformation	kg CO ₂ eq	2,736	2,489	0,042	0,206
	TOTAL	kg CO ₂ eq	5170,212	3352,613	94,778	1722,820
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			28,983	10,999	0,985	16,999
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,397	0,369	0,008	0,020
	Aquatic marine	kg N eq	10,033	2,307	0,253	7,473
	Aquatic terrestrial	mol N eq	98,132	15,757	2,769	79,607
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	29,414	6,002	0,852	22,560
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,018	0,017	0,000	0,000
	Fossil resources	MJ	45444,931	25317,560	1265,873	18861,497
Water deprivation potential (WDP)***		m ³ depriv.	751,595	709,147	6,488	35,960
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3496,420	3360,286	54,477	81,658
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3496,420	3360,286	54,477	81,658
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	48638,443	27213,284	1354,107	20071,051
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	48638,443	27213,284	1354,107	20071,051
Net fresh water use		m ³	24,392	21,522	0,215	2,655
Hazardous waste		kg	1,052	0,091	0,878	0,083
Non Hazardous waste		kg	538,357	183,072	58,258	297,026
Radioactive Waste		Kg	0,026	0,024	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.15 – **MC CREAM**, packsize 1x1000lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	4771,429	3122,822	93,241	1555,366
	Biogenic	kg CO ₂ eq	91,580	88,325	1,496	1,759
	Land use and land transformation	kg CO ₂ eq	1,664	1,432	0,042	0,191
	TOTAL	kg CO ₂ eq	4864,673	3212,578	94,778	1557,316
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			28,331	10,858	0,985	16,488
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,354	0,327	0,008	0,019
	Aquatic marine	kg N eq	9,571	2,115	0,253	7,203
	Aquatic terrestrial	mol N eq	95,669	14,746	2,769	78,154
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	28,703	5,711	0,852	22,140
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,022	0,021	0,000	0,000
	Fossil resources	MJ	43699,587	23832,429	1265,873	18601,284
Water deprivation potential (WDP)***		m ³ depriv.	709,340	670,542	6,488	32,310
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2043,547	1911,232	54,477	77,838
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2043,547	1911,232	54,477	77,838
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	46793,695	25645,438	1354,107	19794,149
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	46793,695	25645,438	1354,107	19794,149
Net fresh water use		m ³	22,449	19,700	0,215	2,534
Hazardous waste		kg	1,048	0,088	0,878	0,082
Non Hazardous waste		kg	347,888	164,851	58,258	124,778
Radioactive Waste		Kg	0,017	0,015	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.16 – **MC CREAM**, packsize 20x1lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3196,066	1600,991	166,183	1428,893
	Biogenic	kg CO ₂ eq	353,135	263,214	2,066	87,855
	Land use and land transformation	kg CO ₂ eq	0,248	0,017	0,069	0,162
	TOTAL	kg CO ₂ eq	3549,449	1864,222	168,318	1516,909
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			19,920	6,031	0,640	13,249
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,398	0,363	0,015	0,021
	Aquatic marine	kg N eq	10,145	3,649	0,198	6,298
	Aquatic terrestrial	mol N eq	83,366	14,912	2,099	66,355
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	24,590	4,770	0,853	18,967
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,010	0,009	0,000	0,000
	Fossil resources	MJ	44337,818	24762,636	2384,978	17190,204
Water deprivation potential (WDP)***		m ³ depriv.	707,163	660,661	12,559	33,942
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	4098,865	3940,846	74,056	83,963
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	4098,865	3940,846	74,056	83,963
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	47543,404	26706,820	2544,225	18292,359
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	47543,870	26707,287	2544,225	18292,359
Net fresh water use		m ³	31,306	28,451	0,421	2,434
Hazardous waste		kg	1,061	0,080	0,903	0,077
Non Hazardous waste		kg	1619,893	1052,287	178,723	388,883
Radioactive Waste		Kg	0,050	0,047	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.17 - **MC CREAM**, packsize 2x10t (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	4729,118	3138,286	93,241	1497,591
	Biogenic	kg CO ₂ eq	185,991	127,195	1,496	57,301
	Land use and land transformation	kg CO ₂ eq	2,453	2,283	0,042	0,128
	TOTAL	kg CO ₂ eq	4917,562	3267,764	94,778	1555,019
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			24,741	10,710	0,985	13,046
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,364	0,336	0,008	0,019
	Aquatic marine	kg N eq	8,905	2,234	0,253	6,417
	Aquatic terrestrial	mol N eq	86,778	15,158	2,769	68,851
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	26,400	5,775	0,852	19,773
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,018	0,017	0,000	0,000
	Fossil resources	MJ	43082,925	23730,107	1265,873	18086,944
Water deprivation potential (WDP)***		m ³ depriv.	719,106	678,760	6,488	33,858
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3118,983	2981,798	54,477	82,709
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3118,983	2981,798	54,477	82,709
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	46126,475	25524,693	1354,107	19247,675
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	46126,475	25524,693	1354,107	19247,675
Net fresh water use		m ³	23,346	20,560	0,215	2,572
Hazardous waste		kg	1,047	0,089	0,878	0,081
Non Hazardous waste		kg	513,239	171,289	58,258	283,692
Radioactive Waste		Kg	0,021	0,019	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.18 – **MC EXTRA**, packsize **24x0,5kg (FU=1t)**, produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	5081,460	3352,252	346,033	1383,174
	Biogenic	kg CO ₂ eq	714,923	600,322	2,749	111,852
	Land use and land transformation	kg CO ₂ eq	3,105	2,877	0,156	0,071
	TOTAL	kg CO ₂ eq	5799,488	3955,452	348,939	1495,097
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			23,413	10,416	1,166	11,831
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,725	0,685	0,026	0,014
	Aquatic marine	kg N eq	16,619	10,096	0,396	6,127
	Aquatic terrestrial	mol N eq	98,847	29,383	4,187	65,276
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	30,485	10,008	1,778	18,699
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,016	0,015	0,001	0,000
	Fossil resources	MJ	73076,851	51324,209	5040,029	16712,613
Water deprivation potential (WDP)***		m ³ depriv.	624,080	571,339	24,833	27,908
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	6312,289	6149,462	96,734	66,094
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	6312,289	6149,462	96,734	66,094
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	78563,691	55413,705	5363,472	17786,514
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	78563,691	55413,705	5363,472	17786,514
Net fresh water use		m ³	54,232	51,022	0,850	2,359
Hazardous waste		kg	0,715	0,195	0,448	0,072
Non Hazardous waste		kg	3315,175	2668,803	427,721	218,652
Radioactive Waste		Kg	0,105	0,101	0,002	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.19- **MC EXTRA**, packsize **2x10kg (FU=1t)**, produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	5190,895	3347,271	346,033	1497,591
	Biogenic	kg CO ₂ eq	654,502	594,451	2,749	57,301
	Land use and land transformation	kg CO ₂ eq	3,023	2,739	0,156	0,128
	TOTAL	kg CO ₂ eq	5848,420	3944,462	348,939	1555,019
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			24,594	10,382	1,166	13,046
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,726	0,680	0,026	0,019
	Aquatic marine	kg N eq	16,887	10,074	0,396	6,417
	Aquatic terrestrial	mol N eq	102,315	29,276	4,187	68,851
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	31,532	9,981	1,778	19,773
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,016	0,015	0,001	0,000
	Fossil resources	MJ	74378,081	51251,108	5040,029	18086,944
Water deprivation potential (WDP)***		m ³ depriv.	623,689	564,998	24,833	33,858
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	6082,002	5902,559	96,734	82,709
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	6082,002	5902,559	96,734	82,709
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	79944,993	55333,846	5363,472	19247,675
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	79944,993	55333,846	5363,472	19247,675
Net fresh water use		m ³	54,263	50,841	0,850	2,572
Hazardous waste		kg	0,723	0,194	0,448	0,081
Non Hazardous waste		kg	3383,136	2671,723	427,721	283,692
Radioactive Waste		Kg	0,105	0,101	0,002	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.20 - **MC EXTRA**, packsize **42x0,3kg (FU=1t)**, produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	5644,063	3898,860	346,033	1399,170
	Biogenic	kg CO ₂ eq	790,053	631,158	2,749	156,146
	Land use and land transformation	kg CO ₂ eq	3,828	3,590	0,156	0,082
	TOTAL	kg CO ₂ eq	6437,945	4533,608	348,939	1555,398
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			25,707	12,365	1,166	12,176
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,799	0,758	0,026	0,014
	Aquatic marine	kg N eq	17,457	10,745	0,396	6,316
	Aquatic terrestrial	mol N eq	106,285	35,862	4,187	66,235
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	33,521	12,768	1,778	18,976
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,018	0,017	0,001	0,000
	Fossil resources	MJ	82778,177	60849,108	5040,029	16889,040
Water deprivation potential (WDP)***		m ³ depriv.	745,421	691,538	24,833	29,051
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	7322,250	7157,473	96,734	68,044
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	7322,250	7157,473	96,734	68,044
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	88896,705	65559,159	5363,472	17974,074
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	88896,705	65559,159	5363,472	17974,074
Net fresh water use		m ³	57,084	53,840	0,850	2,394
Hazardous waste		kg	0,758	0,237	0,448	0,073
Non Hazardous waste		kg	4031,363	3245,173	427,721	358,469
Radioactive Waste		Kg	0,112	0,109	0,002	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.21 - **MC EXTRA**, packsize 4x5kg (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	5251,017	3398,914	346,033	1506,070
	Biogenic	kg CO ₂ eq	632,335	598,655	2,749	30,932
	Land use and land transformation	kg CO ₂ eq	3,129	2,846	0,156	0,126
	TOTAL	kg CO ₂ eq	5886,481	4000,414	348,939	1537,128
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			23,791	10,572	1,166	12,053
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,737	0,689	0,026	0,023
	Aquatic marine	kg N eq	16,673	10,139	0,396	6,139
	Aquatic terrestrial	mol N eq	100,357	29,881	4,187	66,289
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	31,206	10,228	1,778	19,200
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,017	0,015	0,001	0,001
	Fossil resources	MJ	75718,349	52151,379	5040,029	18526,941
Water deprivation potential (WDP)***		m ³ depriv.	639,552	578,566	24,833	36,153
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	6150,239	5960,862	96,734	92,643
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	6150,239	5960,862	96,734	92,643
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	81373,037	56294,082	5363,472	19715,483
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	81373,037	56294,082	5363,472	19715,483
Net fresh water use		m ³	54,709	51,209	0,850	2,649
Hazardous waste		kg	0,730	0,198	0,448	0,084
Non Hazardous waste		kg	3463,617	2720,103	427,721	315,793
Radioactive Waste		Kg	0,106	0,102	0,002	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.22 – **MC EXTRA**, packsize **8x5LB** (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	5302,805	3477,207	346,033	1479,564
	Biogenic	kg CO ₂ eq	754,587	622,650	2,749	129,187
	Land use and land transformation	kg CO ₂ eq	3,747	3,449	0,156	0,142
	TOTAL	kg CO ₂ eq	6061,139	4103,306	348,939	1608,894
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			26,629	10,905	1,166	14,558
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,756	0,713	0,026	0,017
	Aquatic marine	kg N eq	17,492	10,294	0,396	6,802
	Aquatic terrestrial	mol N eq	107,983	30,972	4,187	72,823
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	33,128	10,614	1,778	20,737
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,017	0,015	0,001	0,000
	Fossil resources	MJ	76257,497	53374,108	5040,029	17843,360
Water deprivation potential (WDP)***		m ³ depriv.	664,617	608,864	24,833	30,920
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	6704,668	6533,708	96,734	74,226
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	6704,668	6533,708	96,734	74,226
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	81954,683	57602,659	5363,472	18988,551
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	81954,683	57602,659	5363,472	18988,551
Net fresh water use		m ³	55,451	52,123	0,850	2,478
Hazardous waste		kg	0,729	0,204	0,448	0,078
Non Hazardous waste		kg	3457,351	2778,055	427,721	251,575
Radioactive Waste		Kg	0,107	0,103	0,002	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.23 - **MC EXTRA**, packsize 12x1kg (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	5338,839	3523,853	346,033	1468,953
	Biogenic	kg CO ₂ eq	683,203	593,883	2,749	86,570
	Land use and land transformation	kg CO ₂ eq	2,984	2,708	0,156	0,120
	TOTAL	kg CO ₂ eq	6025,026	4120,444	348,939	1555,643
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			25,285	10,989	1,166	13,130
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,741	0,697	0,026	0,018
	Aquatic marine	kg N eq	17,205	10,251	0,396	6,558
	Aquatic terrestrial	mol N eq	104,453	31,273	4,187	68,993
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	32,409	10,862	1,778	19,769
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,017	0,016	0,001	0,000
	Fossil resources	MJ	77123,048	54325,541	5040,029	17757,479
Water deprivation potential (WDP)***		m ³ depriv.	652,725	595,654	24,833	32,238
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	6099,683	5925,325	96,734	77,624
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	6099,683	5925,325	96,734	77,624
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	82866,658	58605,850	5363,472	18897,336
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	82866,658	58605,850	5363,472	18897,336
Net fresh water use		m ³	54,911	51,550	0,850	2,511
Hazardous waste		kg	0,735	0,209	0,448	0,078
Non Hazardous waste		kg	3583,081	2867,251	427,721	288,109
Radioactive Waste		Kg	0,107	0,103	0,002	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.24 - **MC SET**, packsize 1x1000lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3566,575	1871,585	139,830	1555,160
	Biogenic	kg CO ₂ eq	180,617	177,020	1,837	1,759
	Land use and land transformation	kg CO ₂ eq	1,027	0,776	0,060	0,191
	TOTAL	kg CO ₂ eq	3748,218	2049,381	141,727	1557,110
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			22,900	5,627	0,785	16,488
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,338	0,306	0,012	0,019
	Aquatic marine	kg N eq	10,846	3,421	0,223	7,202
	Aquatic terrestrial	mol N eq	92,827	12,276	2,398	78,154
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	27,155	4,148	0,867	22,140
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	-0,011	-0,011	0,000	0,000
	Fossil resources	MJ	42169,648	21589,297	1979,298	18601,053
Water deprivation potential (WDP)***		m ³ depriv.	250,481	207,871	10,316	32,295
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2001,842	1857,840	66,168	77,834
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2001,842	1857,840	66,168	77,834
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	45204,159	23297,612	2112,643	19793,903
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	45204,159	23297,612	2112,643	19793,903
Net fresh water use		m ³	23,225	20,346	0,345	2,534
Hazardous waste		kg	1,034	0,070	0,882	0,082
Non Hazardous waste		kg	838,857	580,204	134,887	123,766
Radioactive Waste		Kg	0,032	0,030	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.25 - **MC SET**, packsize **1x265GAL** (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3484,378	1871,585	139,830	1472,962
	Biogenic	kg CO ₂ eq	180,467	177,020	1,837	1,609
	Land use and land transformation	kg CO ₂ eq	0,970	0,776	0,060	0,135
	TOTAL	kg CO ₂ eq	3665,815	2049,381	141,727	1474,706
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			20,735	5,627	0,785	14,322
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,335	0,306	0,012	0,016
	Aquatic marine	kg N eq	10,301	3,421	0,223	6,657
	Aquatic terrestrial	mol N eq	86,839	12,276	2,398	72,165
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	25,538	4,148	0,867	20,523
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	-0,011	-0,011	0,000	0,000
	Fossil resources	MJ	41278,149	21589,297	1979,298	17709,554
Water deprivation potential (WDP)***		m ³ depriv.	248,026	207,871	10,316	29,840
Primary energy resources - Renewable	Use as energy carrier	MJ, net calorific value	1995,467	1857,840	66,168	71,459
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1995,467	1857,840	66,168	71,459
Primary energy resources - Non-renewable	Use as energy carrier	MJ, net calorific value	44256,477	23297,612	2112,643	18846,222
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	44256,477	23297,612	2112,643	18846,222
Net fresh water use		m ³	23,131	20,346	0,345	2,440
Hazardous waste		kg	1,030	0,070	0,882	0,077
Non Hazardous waste		kg	833,321	580,204	134,887	118,230
Radioactive Waste		Kg	0,032	0,030	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** "The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator."

Tab.26 - **MC SET**, packsize 20x1lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3646,195	1946,400	139,830	1559,965
	Biogenic	kg CO ₂ eq	320,056	226,252	1,837	91,966
	Land use and land transformation	kg CO ₂ eq	1,956	1,720	0,060	0,177
	TOTAL	kg CO ₂ eq	3968,207	2174,372	141,727	1652,108
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			21,326	5,752	0,785	14,789
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,378	0,344	0,012	0,022
	Aquatic marine	kg N eq	10,808	3,592	0,223	6,993
	Aquatic terrestrial	mol N eq	89,264	13,178	2,398	73,688
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	26,387	4,408	0,867	21,112
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	-0,014	-0,015	0,000	0,000
	Fossil resources	MJ	43834,611	22914,868	1979,298	18940,445
Water deprivation potential (WDP)***		m ³ depriv.	289,029	242,328	10,316	36,385
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3307,635	3151,210	66,168	90,257
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3307,635	3151,210	66,168	90,257
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	46964,570	24697,012	2112,643	20154,914
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	46964,570	24697,012	2112,643	20154,914
Net fresh water use		m ³	24,977	21,972	0,345	2,661
Hazardous waste		kg	1,040	0,073	0,882	0,085
Non Hazardous waste		kg	1133,749	596,468	134,887	402,394
Radioactive Waste		Kg	0,041	0,038	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.27 - **MC SET**, packsize **2x10lt** (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3575,909	1886,883	139,830	1549,196
	Biogenic	kg CO ₂ eq	270,947	211,665	1,837	57,444
	Land use and land transformation	kg CO ₂ eq	1,742	1,536	0,060	0,147
	TOTAL	kg CO ₂ eq	3848,598	2100,083	141,727	1606,787
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			18,801	5,500	0,785	12,516
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,352	0,315	0,012	0,025
	Aquatic marine	kg N eq	10,045	3,528	0,223	6,295
	Aquatic terrestrial	mol N eq	82,686	12,651	2,398	67,637
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	24,685	4,210	0,867	19,609
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	-0,014	-0,015	0,000	0,001
	Fossil resources	MJ	42525,883	21553,821	1979,298	18992,764
Water deprivation potential (WDP)***		m ³ depriv.	265,663	216,664	10,316	38,683
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2965,939	2801,292	66,168	98,478
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2965,939	2801,292	66,168	98,478
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	45573,103	23249,695	2112,643	20210,765
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	45573,103	23249,695	2112,643	20210,765
Net fresh water use		m ³	24,220	21,140	0,345	2,736
Hazardous waste		kg	1,040	0,071	0,882	0,087
Non Hazardous waste		kg	1093,453	585,965	134,887	372,601
Radioactive Waste		Kg	0,036	0,033	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.28 - **MC SET**, packsize 1x200lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3557,353	1831,158	139,830	1586,365
	Biogenic	kg CO ₂ eq	185,768	182,083	1,837	1,848
	Land use and land transformation	kg CO ₂ eq	1,105	0,818	0,060	0,227
	TOTAL	kg CO ₂ eq	3744,227	2014,059	141,727	1588,440
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			23,887	5,226	0,785	17,876
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,319	0,287	0,012	0,020
	Aquatic marine	kg N eq	11,191	3,388	0,223	7,581
	Aquatic terrestrial	mol N eq	96,209	11,830	2,398	81,981
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	27,997	3,956	0,867	23,174
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	-0,014	-0,015	0,000	0,000
	Fossil resources	MJ	41708,586	20562,758	1979,298	19166,530
Water deprivation potential (WDP)***		m ³ depriv.	222,278	179,109	10,316	32,854
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2109,858	1961,934	66,168	81,755
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2109,858	1961,934	66,168	81,755
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	44691,793	22184,221	2112,643	20394,929
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	44691,793	22184,221	2112,643	20394,929
Net fresh water use		m ³	22,962	20,055	0,345	2,562
Hazardous waste		kg	1,035	0,068	0,882	0,085
Non Hazardous waste		kg	812,313	573,049	134,887	104,377
Radioactive Waste		Kg	0,034	0,031	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.29 - **MC SET**, packsize **2x2,5GAL** (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3511,011	1886,883	139,830	1484,298
	Biogenic	kg CO ₂ eq	272,724	211,665	1,837	59,221
	Land use and land transformation	kg CO ₂ eq	1,734	1,536	0,060	0,139
	TOTAL	kg CO ₂ eq	3785,469	2100,083	141,727	1543,658
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			20,734	5,500	0,785	14,449
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,344	0,315	0,012	0,017
	Aquatic marine	kg N eq	10,503	3,528	0,223	6,752
	Aquatic terrestrial	mol N eq	87,574	12,651	2,398	72,525
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	25,715	4,210	0,867	20,639
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	-0,014	-0,015	0,000	0,000
	Fossil resources	MJ	41315,479	21553,821	1979,298	17782,360
Water deprivation potential (WDP)***		m ³ depriv.	257,646	216,664	10,316	30,666
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2940,676	2801,292	66,168	73,215
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2940,676	2801,292	66,168	73,215
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	44286,037	23249,695	2112,643	18923,699
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	44286,037	23249,695	2112,643	18923,699
Net fresh water use		m ³	23,954	21,140	0,345	2,469
Hazardous waste		kg	1,031	0,071	0,882	0,078
Non Hazardous waste		kg	912,034	585,965	134,887	191,182
Radioactive Waste		Kg	0,036	0,033	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.30 - **MEGAFOL** packsize 1x265GAL (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1521,252	677,815	109,483	733,954
	Biogenic	kg CO ₂ eq	55,552	52,791	1,874	0,887
	Land use and land transformation	kg CO ₂ eq	0,742	0,597	0,040	0,105
	TOTAL	kg CO ₂ eq	1577,546	731,203	111,398	734,945
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			11,237	2,864	0,360	8,014
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,215	0,194	0,011	0,010
	Aquatic marine	kg N eq	4,376	0,857	0,108	3,411
	Aquatic terrestrial	mol N eq	44,154	6,093	1,141	36,920
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	13,480	2,571	0,489	10,420
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,010	0,009	0,000	0,000
	Fossil resources	MJ	23668,922	13353,961	1560,352	8754,610
Water deprivation potential (WDP)***		m ³ depriv.	500,599	475,747	8,874	15,978
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1002,461	896,080	67,674	38,707
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1002,461	896,080	67,674	38,707
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	25403,268	14418,986	1668,676	9315,606
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	25403,734	14419,452	1668,676	9315,606
Net fresh water use		m ³	15,585	14,104	0,291	1,190
Hazardous waste		kg	1,069	0,046	0,984	0,039
Non Hazardous waste		kg	946,631	726,638	105,433	114,559
Radioactive Waste		Kg	0,020	0,019	0,001	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.31 – **MEGAFOL** packsize **1x4200GAL** (FU=1t), produced in the Italian site, reference year 2020
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2155,582	995,139	439,627	720,817
	Biogenic	kg CO ₂ eq	96,813	83,992	11,953	0,867
	Land use and land transformation	kg CO ₂ eq	1,608	1,399	0,107	0,101
	TOTAL	kg CO ₂ eq	2254,003	1080,530	451,688	721,785
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			13,073	4,391	0,807	7,875
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,444	0,412	0,022	0,010
	Aquatic marine	kg N eq	5,283	1,711	0,220	3,352
	Aquatic terrestrial	mol N eq	48,571	9,736	2,307	36,528
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	14,719	3,387	1,020	10,312
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,009	0,008	0,000	0,000
	Fossil resources	MJ	28125,613	16332,927	3113,752	8678,933
Water deprivation potential (WDP)***		m ³ depriv.	843,694	811,523	16,912	15,260
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1427,321	1156,013	233,304	38,004
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1427,321	1156,013	233,304	38,004
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	30150,806	17593,250	3322,424	9235,132
	Used as raw materials	MJ, net calorific value	0,465	0,465	0,000	0,000
	TOTAL	MJ, net calorific value	30151,271	17593,715	3322,424	9235,132
Net fresh water use		m ³	27,543	25,689	0,687	1,168
Hazardous waste		kg	2,943	0,239	2,666	0,039
Non Hazardous waste		kg	993,429	841,365	117,298	34,766
Radioactive Waste		Kg	0,023	0,021	0,002	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	1,715	0,000	1,715	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.32 - **MEGAFOL** packsize 20x1lt (FU=1t), weighted average of the impacts of the Valagro site in Brazil and Italy
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1679,697	752,436	109,904	817,356
	Biogenic	kg CO ₂ eq	190,786	102,968	2,086	85,732
	Land use and land transformation	kg CO ₂ eq	2,078	1,653	0,135	0,290
	TOTAL	kg CO ₂ eq	1872,560	857,058	112,125	903,378
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			11,203	2,973	0,482	7,748
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,252	0,226	0,011	0,015
	Aquatic marine	kg N eq	4,836	1,062	0,140	3,634
	Aquatic terrestrial	mol N eq	45,866	7,044	1,487	37,335
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	14,092	2,820	0,573	10,699
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,006	0,005	0,000	0,000
	Fossil resources	MJ	25912,517	14468,396	1550,929	9893,192
Water deprivation potential (WDP)***		m ³ depriv.	523,894	492,252	8,962	22,680
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2331,796	2208,759	70,807	52,230
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2331,796	2208,759	70,807	52,230
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	27779,913	15593,451	1658,619	10527,843
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	27779,913	15593,451	1658,619	10527,843
Net fresh water use		m ³	18,155	15,799	0,500	1,856
Hazardous waste		kg	1,653	0,060	1,547	0,046
Non Hazardous waste		kg	1227,480	746,796	103,109	377,575
Radioactive Waste		Kg	0,028	0,026	0,001	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.33 - **MEGAFOL** packsize **2x10lt** (FU=1t), weighted average of the impacts of the Valagro site in India and Italy
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2482,934	1109,954	103,242	1269,739
	Biogenic	kg CO ₂ eq	204,683	122,902	0,490	81,290
	Land use and land transformation	kg CO ₂ eq	2,346	2,198	0,064	0,084
	TOTAL	kg CO ₂ eq	2689,963	1235,054	103,796	1351,113
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			17,507	4,959	1,866	10,683
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,479	0,458	0,006	0,015
	Aquatic marine	kg N eq	7,896	1,889	0,510	5,497
	Aquatic terrestrial	mol N eq	75,611	11,159	5,605	58,847
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	22,243	3,817	1,595	16,831
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,009	0,008	0,000	0,000
	Fossil resources	MJ	34601,856	17838,224	1408,194	15355,438
Water deprivation potential (WDP)***		m ³ depriv.	871,531	830,658	13,229	27,644
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1909,296	1823,580	17,622	68,094
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1909,296	1823,580	17,622	68,094
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	35742,830	18513,838	1413,794	15815,198
	Used as raw materials	MJ, net calorific value	1420,369	804,251	87,297	528,821
	TOTAL	MJ, net calorific value	1420,369	804,251	87,297	528,821
Net fresh water use		m ³	28,067	25,602	0,357	2,108
Hazardous waste		kg	1420,256	804,064	87,304	528,887
Non Hazardous waste		kg	1056,291	818,423	68,471	169,397
Radioactive Waste		Kg	0,079	0,024	0,052	0,004
Exported energy Thermal		MJ per energy carrier	63,951	38,656	5,516	19,780
Export energy Electricity		MJ per energy carrier	0,001	0,001	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.34 - **MEGAFOL** packsize 1x1000lt (FU=1t), weighted average of the impacts of the Valagro site in Brazil and Italy
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1627,021	688,929	109,744	828,349
	Biogenic	kg CO ₂ eq	58,760	55,058	2,002	1,700
	Land use and land transformation	kg CO ₂ eq	1,252	0,732	0,101	0,419
	TOTAL	kg CO ₂ eq	1687,034	744,719	111,847	830,469
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			12,629	2,932	0,440	9,257
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,223	0,198	0,011	0,014
	Aquatic marine	kg N eq	4,824	0,891	0,129	3,805
	Aquatic terrestrial	mol N eq	48,707	6,230	1,368	41,109
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	14,773	2,607	0,544	11,622
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,010	0,009	0,000	0,000
	Fossil resources	MJ	24938,469	13478,088	1553,956	9906,425
Water deprivation potential (WDP)***		m ³ depriv.	496,886	466,971	8,928	20,987
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1060,610	942,016	69,251	49,343
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1060,610	942,016	69,251	49,343
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	26755,627	14551,432	1661,846	10542,349
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	26755,627	14551,432	1661,846	10542,349
Net fresh water use		m ³	16,786	14,297	0,427	2,062
Hazardous waste		kg	1,453	0,054	1,354	0,045
Non Hazardous waste		kg	1005,791	732,196	103,903	169,692
Radioactive Waste		Kg	0,021	0,019	0,001	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.35 - **MEGAFOL** packsize **2x2,5GAL** (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1531,243	675,670	109,483	746,090
	Biogenic	kg CO ₂ eq	152,987	87,526	1,874	63,588
	Land use and land transformation	kg CO ₂ eq	1,546	1,396	0,040	0,110
	TOTAL	kg CO ₂ eq	1685,777	764,592	111,398	809,787
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			11,136	2,617	0,360	8,159
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,215	0,194	0,011	0,010
	Aquatic marine	kg N eq	4,578	0,956	0,108	3,514
	Aquatic terrestrial	mol N eq	44,796	6,327	1,141	37,327
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	13,605	2,570	0,489	10,547
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,005	0,005	0,000	0,000
	Fossil resources	MJ	23287,776	12889,768	1560,352	8837,656
Water deprivation potential (WDP)***		m ³ depriv.	502,315	476,458	8,874	16,983
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1949,143	1841,496	67,674	39,972
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1949,143	1841,496	67,674	39,972
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	24985,323	13912,700	1668,676	9403,947
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	24985,789	13913,167	1668,676	9403,947
Net fresh water use		m ³	16,247	14,734	0,291	1,222
Hazardous waste		kg	1,070	0,046	0,984	0,039
Non Hazardous waste		kg	1028,844	729,217	105,433	194,193
Radioactive Waste		Kg	0,023	0,021	0,001	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.36 - **MEGAFOL** packsize 12x1lt (FU=1t), produced in the Indian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2739,651	1331,001	102,897	1305,753
	Biogenic	kg CO ₂ eq	291,760	157,385	0,414	133,961
	Land use and land transformation	kg CO ₂ eq	3,071	2,923	0,065	0,083
	TOTAL	kg CO ₂ eq	3034,483	1491,310	103,377	1439,797
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			18,830	6,018	1,949	10,863
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,562	0,541	0,005	0,016
	Aquatic marine	kg N eq	8,591	2,187	0,532	5,872
	Aquatic terrestrial	mol N eq	79,495	13,520	5,851	60,124
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	23,446	4,578	1,657	17,212
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,009	0,009	0,000	0,000
	Fossil resources	MJ	38653,391	21563,615	1399,795	15689,981
Water deprivation potential (WDP)***		m ³ depriv.	935,605	892,838	13,469	29,298
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2491,126	2406,460	14,859	69,808
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2491,126	2406,460	14,859	69,808
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	41382,187	23196,573	1488,104	16697,511
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	41382,653	23197,038	1488,104	16697,511
Net fresh water use		m ³	31,031	28,397	0,376	2,257
Hazardous waste		kg	0,327	0,250	0,008	0,069
Non Hazardous waste		kg	1391,759	884,747	72,235	434,777
Radioactive Waste		Kg	0,027	0,026	0,000	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.37 - **MEGAFOL** packsize **40x250ml** (FU=1t), produced in the Indian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2805,094	1396,376	102,897	1305,820
	Biogenic	kg CO ₂ eq	223,914	142,473	0,414	81,027
	Land use and land transformation	kg CO ₂ eq	2,731	2,584	0,065	0,081
	TOTAL	kg CO ₂ eq	3031,739	1541,434	103,377	1386,929
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			19,070	6,273	1,949	10,848
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,569	0,549	0,005	0,015
	Aquatic marine	kg N eq	8,589	2,187	0,532	5,870
	Aquatic terrestrial	mol N eq	79,832	13,910	5,851	60,071
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	23,623	4,786	1,657	17,181
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,010	0,009	0,000	0,000
	Fossil resources	MJ	40575,643	23515,936	1399,795	15659,913
Water deprivation potential (WDP)***		m ³ depriv.	933,578	891,004	13,469	29,105
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2337,040	2253,186	14,859	68,995
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2337,040	2253,186	14,859	68,995
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	43440,367	25286,722	1488,104	16665,542
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	43440,833	25287,188	1488,104	16665,542
Net fresh water use		m ³	30,926	28,299	0,376	2,251
Hazardous waste		kg	0,328	0,251	0,008	0,069
Non Hazardous waste		kg	1384,695	885,051	72,235	427,409
Radioactive Waste		Kg	0,028	0,026	0,000	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.38 - **RADIFARM** packsize 20x1lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

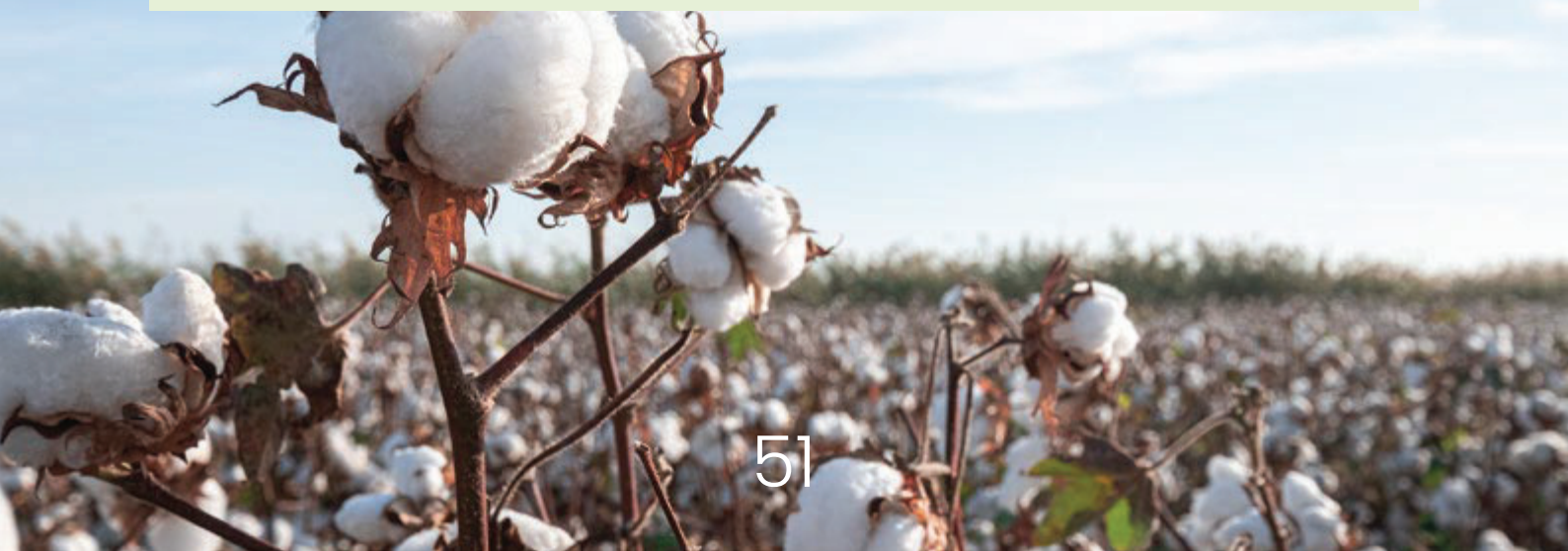
PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2344,709	1973,919	133,322	237,468
	Biogenic	kg CO ₂ eq	253,432	165,981	2,016	85,435
	Land use and land transformation	kg CO ₂ eq	2,794	2,626	0,053	0,115
	TOTAL	kg CO ₂ eq	2600,934	2142,525	135,392	323,017
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			11,389	7,532	0,610	3,248
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,522	0,499	0,013	0,010
	Aquatic marine	kg N eq	3,658	2,387	0,176	1,095
	Aquatic terrestrial	mol N eq	28,126	16,362	1,882	9,882
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	9,267	5,954	0,722	2,591
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,014	0,013	0,000	0,000
	Fossil resources	MJ	35257,563	30850,045	1893,154	2514,363
Water deprivation potential (WDP)***		m ³ depriv.	1210,708	1189,534	10,288	10,886
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	4289,539	4187,300	72,798	29,441
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	4289,539	4187,300	72,798	29,441
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	37854,399	33158,647	2022,675	2673,077
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	37854,399	33158,647	2022,675	2673,077
Net fresh water use		m ³	36,536	35,819	0,341	0,377
Hazardous waste		kg	1,104	0,089	1,000	0,014
Non Hazardous waste		kg	1517,801	1006,172	127,178	384,451
Radioactive Waste		Kg	0,059	0,058	0,001	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.39 – **RADIFARM NF** (RADIFARM sold in Columbia) packsize **20x1lt** (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2301,601	1973,919	133,322	194,360
	Biogenic	kg CO ₂ eq	257,879	165,981	2,016	89,882
	Land use and land transformation	kg CO ₂ eq	2,775	2,626	0,053	0,097
	TOTAL	kg CO ₂ eq	2562,255	2142,525	135,392	284,338
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			11,770	7,532	0,610	3,629
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,517	0,499	0,013	0,006
	Aquatic marine	kg N eq	3,723	2,387	0,176	1,159
	Aquatic terrestrial	mol N eq	28,965	16,362	1,882	10,720
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	9,353	5,954	0,722	2,677
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,014	0,013	0,000	0,000
	Fossil resources	MJ	34445,982	30850,045	1893,154	1702,783
Water deprivation potential (WDP)***		m ³ depriv.	1206,627	1189,534	10,288	6,805
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	4275,770	4187,300	72,798	15,672
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	4275,770	4187,300	72,798	15,672
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	36991,535	33158,647	2022,675	1810,214
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	36991,535	33158,647	2022,675	1810,214
Net fresh water use		m ³	36,398	35,819	0,341	0,238
Hazardous waste		kg	1,098	0,089	1,000	0,009
Non Hazardous waste		kg	1420,341	1006,172	127,178	286,990
Radioactive Waste		Kg	0,059	0,058	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”



Tab.40 - **RADIFARM** packsize 2x10lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2302,022	1916,496	133,322	252,204
	Biogenic	kg CO ₂ eq	285,834	153,880	2,016	129,937
	Land use and land transformation	kg CO ₂ eq	2,683	2,506	0,053	0,124
	TOTAL	kg CO ₂ eq	2590,539	2072,882	135,392	382,264
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			11,073	7,293	0,610	3,171
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,497	0,472	0,013	0,012
	Aquatic marine	kg N eq	3,557	2,334	0,176	1,047
	Aquatic terrestrial	mol N eq	27,516	15,887	1,882	9,747
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	9,106	5,768	0,722	2,617
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,014	0,013	0,000	0,000
	Fossil resources	MJ	34222,691	29482,570	1893,154	2846,968
Water deprivation potential (WDP)***		m ³ depriv.	1187,538	1164,715	10,288	12,536
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3994,044	3886,159	72,798	35,087
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3994,044	3886,159	72,798	35,087
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	36754,239	31704,851	2022,675	3026,714
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	36754,239	31704,851	2022,675	3026,714
Net fresh water use		m ³	35,813	35,038	0,341	0,435
Hazardous waste		kg	1,104	0,087	1,000	0,016
Non Hazardous waste		kg	1499,054	996,582	127,178	375,293
Radioactive Waste		Kg	0,055	0,053	0,001	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.41 - **RADIFARM** packsize **40x500ml** (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2829,231	2254,892	133,322	441,017
	Biogenic	kg CO ₂ eq	416,870	244,875	2,016	169,978
	Land use and land transformation	kg CO ₂ eq	4,034	3,804	0,053	0,177
	TOTAL	kg CO ₂ eq	3250,135	2503,571	135,392	611,172
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			15,982	8,745	0,610	6,627
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,661	0,639	0,013	0,010
	Aquatic marine	kg N eq	5,012	2,735	0,176	2,102
	Aquatic terrestrial	mol N eq	39,984	19,000	1,882	19,101
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	12,584	6,905	0,722	4,958
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,015	0,015	0,000	0,000
	Fossil resources	MJ	41950,122	37034,219	1893,154	3022,749
Water deprivation potential (WDP)***		m ³ depriv.	1339,604	1311,633	10,288	17,683
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	5923,884	5824,026	72,798	27,061
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	5923,884	5824,026	72,798	27,061
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	44973,786	39737,116	2022,675	3213,995
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	44973,786	39737,116	2022,675	3213,995
Net fresh water use		m ³	40,874	39,930	0,341	0,603
Hazardous waste		kg	1,116	0,100	1,000	0,015
Non Hazardous waste		kg	1769,968	1058,162	127,178	584,627
Radioactive Waste		Kg	0,080	0,078	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.44 - **RETROSAL** packsize 1x1000it (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2350,980	2138,571	68,379	144,030
	Biogenic	kg CO ₂ eq	59,376	57,574	1,449	0,354
	Land use and land transformation	kg CO ₂ eq	4,965	4,846	0,022	0,097
	TOTAL	kg CO ₂ eq	2415,322	2200,991	69,851	144,481
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			13,806	10,215	0,222	3,369
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,320	0,307	0,008	0,006
	Aquatic marine	kg N eq	2,487	1,560	0,063	0,864
	Aquatic terrestrial	mol N eq	39,076	29,029	0,663	9,384
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	7,176	4,313	0,285	2,578
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,025	0,025	0,000	0,000
	Fossil resources	MJ	21680,122	18996,742	963,312	1720,069
Water deprivation potential (WDP)***		m ³ depriv.	906,521	895,275	5,839	5,407
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2143,142	2076,405	52,428	14,310
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2143,142	2076,405	52,428	14,310
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	23493,219	20632,250	1032,494	1828,476
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	23493,219	20632,250	1032,494	1828,476
Net fresh water use		m ³	27,939	27,553	0,188	0,197
Hazardous waste		kg	0,958	0,073	0,876	0,009
Non Hazardous waste		kg	313,574	150,211	58,538	104,825
Radioactive Waste		Kg	0,015	0,014	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.45 - **RETROSAL** packsize 2x10t (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2297,029	2152,954	68,379	75,696
	Biogenic	kg CO ₂ eq	163,051	88,042	1,449	73,560
	Land use and land transformation	kg CO ₂ eq	5,595	5,522	0,022	0,050
	TOTAL	kg CO ₂ eq	2465,675	2246,517	69,851	149,307
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			12,005	10,123	0,222	1,660
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,326	0,315	0,008	0,003
	Aquatic marine	kg N eq	2,271	1,657	0,063	0,552
	Aquatic terrestrial	mol N eq	34,681	29,381	0,663	4,637
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	5,965	4,374	0,285	1,306
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,022	0,022	0,000	0,000
	Fossil resources	MJ	20847,487	18964,714	963,312	919,461
Water deprivation potential (WDP)***		m ³ depriv.	912,733	903,259	5,839	3,635
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2950,859	2889,289	52,428	9,142
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2950,859	2889,289	52,428	9,142
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	22600,132	20590,187	1032,494	977,451
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	22600,132	20590,187	1032,494	977,451
Net fresh water use		m ³	28,562	28,248	0,188	0,126
Hazardous waste		kg	0,955	0,074	0,876	0,005
Non Hazardous waste		kg	402,121	155,709	58,538	187,874
Radioactive Waste		Kg	0,018	0,017	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.46 - **RETROSAL** packsize 1x20lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2268,346	2125,223	68,379	74,743
	Biogenic	kg CO ₂ eq	143,043	67,885	1,449	73,708
	Land use and land transformation	kg CO ₂ eq	5,006	4,945	0,022	0,039
	TOTAL	kg CO ₂ eq	2416,394	2198,053	69,851	148,490
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			10,872	9,978	0,222	0,671
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,312	0,299	0,008	0,005
	Aquatic marine	kg N eq	1,936	1,557	0,063	0,316
	Aquatic terrestrial	mol N eq	31,573	28,897	0,663	2,013
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	5,202	4,250	0,285	0,667
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,022	0,022	0,000	0,000
	Fossil resources	MJ	20533,781	18576,359	963,312	994,110
Water deprivation potential (WDP)***		m ³ depriv.	893,074	882,087	5,839	5,148
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2820,421	2754,305	52,428	13,688
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2820,421	2754,305	52,428	13,688
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	22257,271	20167,866	1032,494	1056,911
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	22257,271	20167,866	1032,494	1056,911
Net fresh water use		m ³	27,960	27,599	0,188	0,173
Hazardous waste		kg	0,955	0,072	0,876	0,006
Non Hazardous waste		kg	441,034	149,171	58,538	233,325
Radioactive Waste		Kg	0,018	0,017	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.47 - **TALETE** packsize 15x1lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1884,427	1486,674	172,719	225,035
	Biogenic	kg CO ₂ eq	834,106	768,758	2,157	63,191
	Land use and land transformation	kg CO ₂ eq	2,259	2,040	0,072	0,148
	TOTAL	kg CO ₂ eq	2720,792	2257,472	174,947	288,373
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			12,562	6,483	0,649	5,431
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,574	0,551	0,015	0,008
	Aquatic marine	kg N eq	13,346	11,679	0,201	1,466
	Aquatic terrestrial	mol N eq	31,422	14,033	2,136	15,253
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	10,288	5,323	0,875	4,090
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,020	0,020	0,000	0,000
	Fossil resources	MJ	34530,519	29539,370	2480,598	2510,551
Water deprivation potential (WDP)***		m ³ depriv.	879,569	858,685	13,084	7,800
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3817,759	3719,480	77,342	20,938
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3817,759	3719,480	77,342	20,938
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	37137,883	31822,772	2646,289	2668,823
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	37138,350	31823,238	2646,289	2668,823
Net fresh water use		m ³	31,409	30,681	0,438	0,289
Hazardous waste		kg	1,036	0,090	0,933	0,013
Non Hazardous waste		kg	1434,517	1055,561	186,092	192,864
Radioactive Waste		Kg	0,049	0,048	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.48 - **TALETE** packsize 1x1000lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1679,526	1332,232	172,719	174,576
	Biogenic	kg CO ₂ eq	718,980	716,429	2,157	0,394
	Land use and land transformation	kg CO ₂ eq	1,250	1,059	0,072	0,119
	TOTAL	kg CO ₂ eq	2399,755	2049,720	174,947	175,089
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			11,047	6,062	0,649	4,336
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,519	0,497	0,015	0,006
	Aquatic marine	kg N eq	12,804	11,456	0,201	1,147
	Aquatic terrestrial	mol N eq	26,939	12,588	2,136	12,215
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	8,933	4,810	0,875	3,249
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,023	0,023	0,000	0,000
	Fossil resources	MJ	29982,611	25468,773	2480,598	2033,240
Water deprivation potential (WDP)***		m ³ depriv.	767,455	748,505	13,084	5,867
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2418,234	2324,701	77,342	16,191
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2418,234	2324,701	77,342	16,191
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	32289,546	27481,921	2646,289	2161,336
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	32290,012	27482,387	2646,289	2161,336
Net fresh water use		m ³	28,314	27,660	0,438	0,216
Hazardous waste		kg	1,030	0,086	0,933	0,010
Non Hazardous waste		kg	1357,630	1034,820	186,092	136,718
Radioactive Waste		Kg	0,039	0,037	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.49 - **TALETE** packsize **1x265 GAL(FU=1t)**, produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1685,582	1332,232	172,719	180,631
	Biogenic	kg CO ₂ eq	718,980	716,429	2,157	0,394
	Land use and land transformation	kg CO ₂ eq	1,250	1,059	0,072	0,119
	TOTAL	kg CO ₂ eq	2405,811	2049,720	174,947	181,144
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			11,047	6,062	0,649	4,336
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,519	0,497	0,015	0,006
	Aquatic marine	kg N eq	12,782	11,456	0,201	1,125
	Aquatic terrestrial	mol N eq	26,941	12,588	2,136	12,217
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	8,933	4,810	0,875	3,248
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,023	0,023	0,000	0,000
	Fossil resources	MJ	29979,186	25468,773	2480,598	2029,815
Water deprivation potential (WDP)***		m ³ depriv.	767,579	748,505	13,084	5,991
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2418,214	2324,701	77,342	16,171
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2418,214	2324,701	77,342	16,171
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	32285,929	27481,921	2646,289	2157,720
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	32286,395	27482,387	2646,289	2157,720
Net fresh water use		m ³	28,319	27,660	0,438	0,221
Hazardous waste		kg	1,030	0,086	0,933	0,010
Non Hazardous waste		kg	1333,994	1034,820	186,092	113,082
Radioactive Waste		Kg	0,039	0,037	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.50 - **TALETE** packsize 20x1lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1867,965	1405,830	172,719	289,416
	Biogenic	kg CO ₂ eq	857,852	764,860	2,157	90,836
	Land use and land transformation	kg CO ₂ eq	2,157	1,988	0,072	0,098
	TOTAL	kg CO ₂ eq	2727,974	2172,677	174,947	380,350
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			10,290	6,185	0,649	3,456
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,555	0,534	0,015	0,006
	Aquatic marine	kg N eq	12,916	11,624	0,201	1,091
	Aquatic terrestrial	mol N eq	25,472	13,475	2,136	9,861
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	8,582	5,065	0,875	2,641
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,020	0,019	0,000	0,000
	Fossil resources	MJ	30978,969	26772,791	2480,598	1725,581
Water deprivation potential (WDP)***		m ³ depriv.	807,853	782,402	13,084	12,367
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3690,990	3597,041	77,342	16,607
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3690,990	3597,041	77,342	16,607
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	33339,784	28858,566	2646,289	1834,929
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	33340,251	28859,032	2646,289	1834,929
Net fresh water use		m ³	30,112	29,259	0,438	0,414
Hazardous waste		kg	1,031	0,089	0,933	0,009
Non Hazardous waste		kg	1527,599	1050,819	186,092	290,688
Radioactive Waste		Kg	0,047	0,045	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.51 – **TALETE** packsize 2x10t (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1674,658	1359,591	172,719	142,348
	Biogenic	kg CO ₂ eq	835,966	755,772	2,157	78,037
	Land use and land transformation	kg CO ₂ eq	2,046	1,894	0,072	0,080
	TOTAL	kg CO ₂ eq	2512,669	2117,257	174,947	220,465
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			8,929	5,994	0,649	2,286
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,535	0,513	0,015	0,007
	Aquatic marine	kg N eq	12,516	11,581	0,201	0,733
	Aquatic terrestrial	mol N eq	21,889	13,095	2,136	6,658
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	7,628	4,913	0,875	1,840
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,020	0,019	0,000	0,000
	Fossil resources	MJ	29780,559	25634,927	2480,598	1665,034
Water deprivation potential (WDP)***		m ³ depriv.	781,016	760,994	13,084	6,938
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3451,766	3355,605	77,342	18,819
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3451,766	3355,605	77,342	18,819
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	32064,020	27647,617	2646,289	1770,114
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	32064,486	27648,083	2646,289	1770,114
Net fresh water use		m ³	29,310	28,630	0,438	0,242
Hazardous waste		kg	1,030	0,087	0,933	0,009
Non Hazardous waste		kg	1488,839	1043,586	186,092	259,160
Radioactive Waste		Kg	0,043	0,042	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.52 - **TALETE** packsize **2x2,5GAL** (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1675,576	1359,591	172,719	143,266
	Biogenic	kg CO ₂ eq	820,952	755,772	2,157	63,023
	Land use and land transformation	kg CO ₂ eq	2,051	1,894	0,072	0,085
	TOTAL	kg CO ₂ eq	2498,579	2117,257	174,947	206,375
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			9,653	5,994	0,649	3,011
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,533	0,513	0,015	0,005
	Aquatic marine	kg N eq	12,644	11,581	0,201	0,861
	Aquatic terrestrial	mol N eq	23,796	13,095	2,136	8,564
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	8,070	4,913	0,875	2,282
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,020	0,019	0,000	0,000
	Fossil resources	MJ	29622,907	25634,927	2480,598	1507,382
Water deprivation potential (WDP)***		m ³ depriv.	779,599	760,994	13,084	5,521
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3446,714	3355,605	77,342	13,767
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	3446,714	3355,605	77,342	13,767
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	31896,381	27647,617	2646,289	1602,475
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	31896,847	27648,083	2646,289	1602,475
Net fresh water use		m ³	29,267	28,630	0,438	0,199
Hazardous waste		kg	1,029	0,087	0,933	0,008
Non Hazardous waste		kg	1420,805	1043,586	186,092	191,127
Radioactive Waste		Kg	0,043	0,042	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.53 - **YieldON** packsize 1x1000lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3462,943	1920,095	102,256	1440,593
	Biogenic	kg CO ₂ eq	120,794	117,543	1,631	1,620
	Land use and land transformation	kg CO ₂ eq	0,898	0,775	0,040	0,083
	TOTAL	kg CO ₂ eq	3584,635	2038,412	103,927	1442,296
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			19,105	6,773	0,503	11,829
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,564	0,538	0,010	0,016
	Aquatic marine	kg N eq	9,097	2,895	0,142	6,060
	Aquatic terrestrial	mol N eq	81,083	14,008	1,524	65,551
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	23,842	4,559	0,570	18,713
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,082	0,081	0,000	0,000
	Fossil resources	MJ	39644,740	21057,296	1443,723	17143,722
Water deprivation potential (WDP)***		m ³ depriv.	607,403	568,854	7,938	30,611
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1610,850	1481,419	58,873	70,558
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1610,850	1481,419	58,873	70,558
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	42512,290	22724,182	1543,243	18244,864
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	42512,756	22724,649	1543,243	18244,864
Net fresh water use		m ³	24,595	21,888	0,262	2,445
Hazardous waste		kg	1,018	0,063	0,879	0,075
Non Hazardous waste		kg	617,731	357,669	94,058	166,003
Radioactive Waste		Kg	0,025	0,023	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.54 - **YieldON** packsize 1x20lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3626,285	1913,664	102,256	1610,365
	Biogenic	kg CO ₂ eq	138,836	132,571	1,631	4,633
	Land use and land transformation	kg CO ₂ eq	1,127	0,914	0,040	0,173
	TOTAL	kg CO ₂ eq	3766,247	2047,149	103,927	1615,171
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			20,012	6,521	0,503	12,988
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,573	0,535	0,010	0,028
	Aquatic marine	kg N eq	9,464	2,899	0,142	6,423
	Aquatic terrestrial	mol N eq	84,668	13,902	1,524	69,243
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	25,096	4,498	0,570	20,028
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,078	0,077	0,000	0,001
	Fossil resources	MJ	41923,683	20740,678	1443,723	19739,282
Water deprivation potential (WDP)***		m ³ depriv.	604,258	554,730	7,938	41,589
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2319,411	2152,292	58,873	108,246
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2319,411	2152,292	58,873	108,246
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	44911,407	22363,768	1543,243	21004,396
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	44911,873	22364,234	1543,243	21004,396
Net fresh water use		m ³	25,178	22,078	0,262	2,839
Hazardous waste		kg	1,033	0,063	0,879	0,091
Non Hazardous waste		kg	840,728	358,212	94,058	388,458
Radioactive Waste		Kg	0,030	0,027	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.55 - **YieldON** packsize 1x265GAL (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3505,929	1920,095	102,256	1483,579
	Biogenic	kg CO ₂ eq	120,784	117,543	1,631	1,609
	Land use and land transformation	kg CO ₂ eq	0,950	0,775	0,040	0,135
	TOTAL	kg CO ₂ eq	3627,662	2038,412	103,927	1485,323
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			21,676	6,773	0,503	14,400
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,564	0,538	0,010	0,016
	Aquatic marine	kg N eq	9,725	2,895	0,142	6,687
	Aquatic terrestrial	mol N eq	88,078	14,008	1,524	72,547
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	25,668	4,559	0,570	20,539
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,082	0,081	0,000	0,000
	Fossil resources	MJ	40210,573	21057,296	1443,723	17709,554
Water deprivation potential (WDP)***		m ³ depriv.	606,632	568,854	7,938	29,840
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1611,751	1481,419	58,873	71,459
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1611,751	1481,419	58,873	71,459
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	43113,647	22724,182	1543,243	18846,222
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	43114,114	22724,649	1543,243	18846,222
Net fresh water use		m ³	24,589	21,888	0,262	2,440
Hazardous waste		kg	1,020	0,063	0,879	0,077
Non Hazardous waste		kg	569,957	357,669	94,058	118,230
Radioactive Waste		Kg	0,025	0,023	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** "The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator."

Tab.56 - **YieldON** packsize **2x2,5GAL** (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3535,666	1937,624	102,256	1495,786
	Biogenic	kg CO ₂ eq	222,023	154,979	1,631	65,413
	Land use and land transformation	kg CO ₂ eq	1,784	1,605	0,040	0,139
	TOTAL	kg CO ₂ eq	3759,473	2094,208	103,927	1561,338
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			21,704	6,658	0,503	14,543
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,574	0,548	0,010	0,017
	Aquatic marine	kg N eq	9,948	3,014	0,142	6,792
	Aquatic terrestrial	mol N eq	88,916	14,439	1,524	72,953
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	25,873	4,633	0,570	20,670
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,078	0,078	0,000	0,000
	Fossil resources	MJ	40250,369	21014,941	1443,723	17791,705
Water deprivation potential (WDP)***		m ³ depriv.	617,259	578,567	7,938	30,753
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2614,063	2481,841	58,873	73,349
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2614,063	2481,841	58,873	73,349
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	43146,104	22669,223	1543,243	18933,638
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	43146,570	22669,689	1543,243	18933,638
Net fresh water use		m ³	25,473	22,739	0,262	2,472
Hazardous waste		kg	1,022	0,064	0,879	0,078
Non Hazardous waste		kg	658,960	364,397	94,058	200,505
Radioactive Waste		Kg	0,029	0,026	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.57 - **YieldON** packsize 2x10lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3490,069	1937,624	102,256	1450,190
	Biogenic	kg CO ₂ eq	232,331	154,979	1,631	75,721
	Land use and land transformation	kg CO ₂ eq	1,741	1,605	0,040	0,095
	TOTAL	kg CO ₂ eq	3724,141	2094,208	103,927	1526,006
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			19,456	6,658	0,503	12,295
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,574	0,548	0,010	0,017
	Aquatic marine	kg N eq	9,425	3,014	0,142	6,269
	Aquatic terrestrial	mol N eq	82,813	14,439	1,524	66,851
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	24,301	4,633	0,570	19,097
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,078	0,078	0,000	0,000
	Fossil resources	MJ	39824,247	21014,941	1443,723	17365,583
Water deprivation potential (WDP)***		m ³ depriv.	617,616	578,567	7,938	31,110
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2615,296	2481,841	58,873	74,582
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2615,296	2481,841	58,873	74,582
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	42693,237	22669,223	1543,243	18480,770
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	42693,703	22669,689	1543,243	18480,770
Net fresh water use		m ³	25,472	22,739	0,262	2,471
Hazardous waste		kg	1,020	0,064	0,879	0,076
Non Hazardous waste		kg	720,194	364,397	94,058	261,739
Radioactive Waste		Kg	0,029	0,026	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.58 - **Abundia (YieldON France)** packsize 1x20t (FU=1t),
 produced in the Italian site
 Impact category, resource use, waste, and output flows indicators

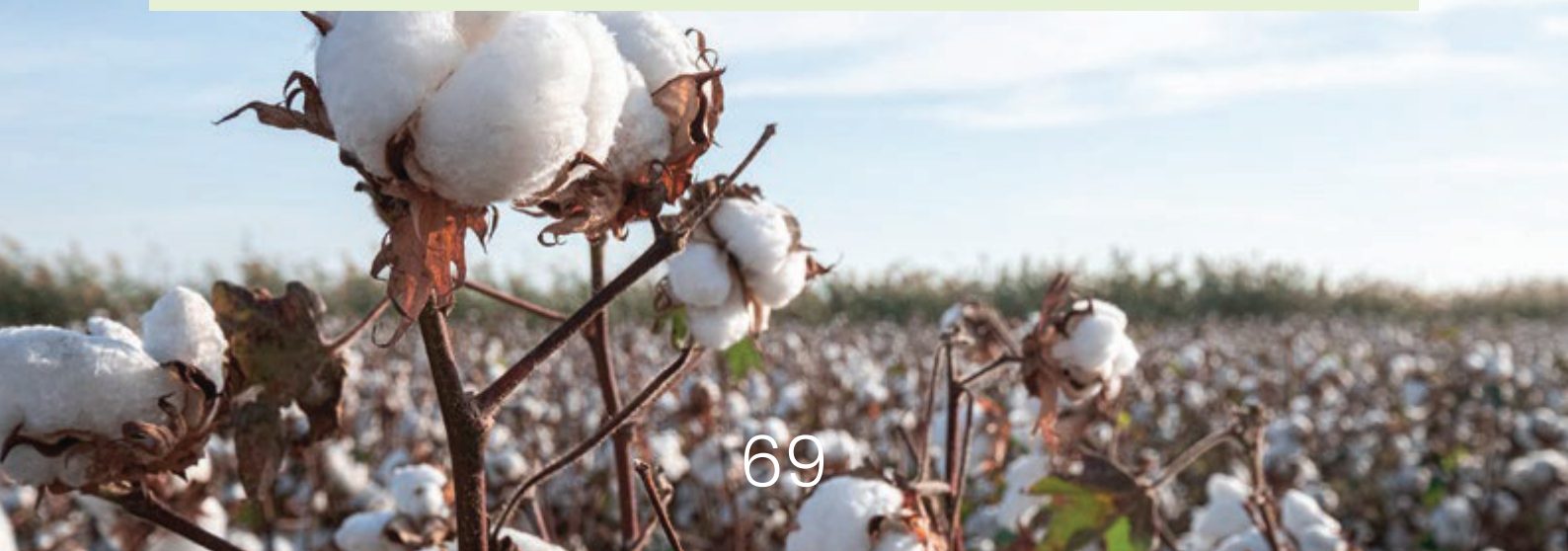
PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3531,992	1915,072	102,256	1514,664
	Biogenic	kg CO ₂ eq	159,572	133,106	1,631	24,835
	Land use and land transformation	kg CO ₂ eq	1,086	0,920	0,040	0,125
	TOTAL	kg CO ₂ eq	3692,649	2049,099	103,927	1539,624
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			19,153	6,528	0,503	12,121
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,567	0,535	0,010	0,022
	Aquatic marine	kg N eq	9,218	2,901	0,142	6,175
	Aquatic terrestrial	mol N eq	82,086	13,924	1,524	66,638
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	24,278	4,507	0,570	19,201
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,078	0,077	0,000	0,001
	Fossil resources	MJ	40702,537	20771,691	1443,723	18487,124
Water deprivation potential (WDP)***		m ³ depriv.	599,972	556,037	7,938	35,997
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2388,005	2237,108	58,873	92,024
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2388,005	2237,108	58,873	92,024
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	43613,424	22397,030	1543,243	19673,151
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	43613,890	22397,496	1543,243	19673,151
Net fresh water use		m ³	25,006	22,100	0,262	2,643
Hazardous waste		kg	1,026	0,063	0,879	0,084
Non Hazardous waste		kg	748,699	358,620	94,058	296,020
Radioactive Waste		Kg	0,030	0,027	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.59 - **Vap Full Scale Helena**, packsize 1x20t (FU=1t),
produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	3516,456	1926,391	101,997	1488,067
	Biogenic	kg CO ₂ eq	120,894	117,625	1,629	1,640
	Land use and land transformation	kg CO ₂ eq	0,956	0,778	0,040	0,138
	TOTAL	kg CO ₂ eq	3638,305	2044,794	103,667	1489,845
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			21,840	6,801	0,503	14,537
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,565	0,539	0,010	0,016
	Aquatic marine	kg N eq	9,764	2,900	0,142	6,722
	Aquatic terrestrial	mol N eq	88,515	14,064	1,520	72,930
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	25,801	4,586	0,569	20,647
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,082	0,081	0,000	0,000
	Fossil resources	MJ	40454,478	21249,314	1439,944	17765,219
Water deprivation potential (WDP)***		m ³ depriv.	611,225	573,447	7,920	29,858
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1615,777	1484,518	58,818	72,441
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1615,777	1484,518	58,818	72,441
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	43375,320	22930,678	1539,226	18905,416
	Used as raw materials	MJ, net calorific value	0,466	0,466	0,000	0,000
	TOTAL	MJ, net calorific value	43375,786	22931,144	1539,226	18905,416
Net fresh water use		m ³	24,705	21,999	0,261	2,444
Hazardous waste		kg	1,021	0,064	0,879	0,078
Non Hazardous waste		kg	570,117	358,078	93,727	118,313
Radioactive Waste		Kg	0,025	0,023	0,001	0,002
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”



Tab.60 - **VIVA** packsize 2x10lt (FU=1t), weighted average of the impacts of the Valagro site in India and Italy
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1000,249	781,804	98,264	120,181
	Biogenic	kg CO ₂ eq	165,791	93,433	1,170	71,188
	Land use and land transformation	kg CO ₂ eq	3,221	3,127	0,047	0,047
	TOTAL	kg CO ₂ eq	1169,261	878,363	99,482	191,415
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			5,636	3,451	1,031	1,154
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,314	0,301	0,008	0,005
	Aquatic marine	kg N eq	1,824	1,088	0,284	0,453
	Aquatic terrestrial	mol N eq	14,875	7,696	3,100	4,079
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	4,867	2,916	0,956	0,995
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,007	0,006	0,000	0,000
	Fossil resources	MJ	16796,968	14245,630	1367,243	1184,095
Water deprivation potential (WDP)***		m ³ depriv.	684,006	668,148	10,186	5,672
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2046,486	1988,341	42,273	15,872
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2046,486	1988,341	42,273	15,872
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	18121,505	15403,679	1458,942	1258,884
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	18121,505	15403,679	1458,942	1258,884
Net fresh water use		m ³	19,750	19,251	0,306	0,194
Hazardous waste		kg	0,683	0,124	0,551	0,007
Non Hazardous waste		kg	961,975	668,409	80,232	213,334
Radioactive Waste		Kg	0,022	0,021	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.61 – **VIVA** packsize 1x1000lt (FU=1t), weighted average of the impacts of the Valagro site in India and Italy
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1125,152	848,442	98,311	178,399
	Biogenic	kg CO ₂ eq	64,557	62,863	1,142	0,552
	Land use and land transformation	kg CO ₂ eq	2,630	2,507	0,048	0,075
	TOTAL	kg CO ₂ eq	1192,339	913,812	99,501	179,027
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			7,113	4,063	1,063	1,987
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,379	0,364	0,008	0,008
	Aquatic marine	kg N eq	1,986	1,087	0,293	0,606
	Aquatic terrestrial	mol N eq	17,825	8,147	3,196	6,481
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	5,818	3,187	0,981	1,650
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,012	0,011	0,000	0,000
	Fossil resources	MJ	18699,172	15561,269	1366,701	1771,202
Water deprivation potential (WDP)***		m ³ depriv.	556,474	538,000	10,300	8,174
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1359,424	1297,901	41,240	20,284
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1359,424	1297,901	41,240	20,284
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	20152,432	16811,258	1458,165	1883,009
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	20152,432	16811,258	1458,165	1883,009
Net fresh water use		m ³	17,537	16,952	0,308	0,277
Hazardous waste		kg	0,670	0,129	0,531	0,010
Non Hazardous waste		kg	954,692	680,645	79,822	194,225
Radioactive Waste		Kg	0,021	0,020	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.62 – **VIVA** packsize 1x20lt (FU=1t), weighted average of the impacts of the Valagro site in Brazil and Italy
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	885,410	621,099	99,454	164,857
	Biogenic	kg CO ₂ eq	73,652	67,229	2,830	3,594
	Land use and land transformation	kg CO ₂ eq	3,641	2,622	0,452	0,567
	TOTAL	kg CO ₂ eq	962,703	690,949	102,736	169,018
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			5,376	2,673	0,783	1,921
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,210	0,193	0,010	0,007
	Aquatic marine	kg N eq	1,544	0,701	0,215	0,628
	Aquatic terrestrial	mol N eq	14,230	5,783	2,315	6,132
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	4,750	2,431	0,751	1,567
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,006	0,005	0,000	0,000
	Fossil resources	MJ	15475,798	12379,933	1353,718	1742,148
Water deprivation potential (WDP)***		m ³ depriv.	634,903	617,177	8,529	9,196
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2080,829	1974,999	83,481	22,349
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2080,829	1974,999	83,481	22,349
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	16697,022	13392,769	1448,708	1855,545
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	16697,022	13392,769	1448,708	1855,545
Net fresh water use		m ³	20,847	18,139	1,175	1,534
Hazardous waste		kg	3,380	0,089	3,280	0,010
Non Hazardous waste		kg	936,002	626,404	83,787	225,811
Radioactive Waste		Kg	0,022	0,021	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.63 - **VIVA** packsize 1x265 GAL (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	883,624	632,989	97,305	153,329
	Biogenic	kg CO ₂ eq	55,081	53,040	1,746	0,295
	Land use and land transformation	kg CO ₂ eq	2,158	2,042	0,035	0,081
	TOTAL	kg CO ₂ eq	940,862	688,071	99,086	153,705
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			6,223	2,826	0,378	3,019
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,216	0,201	0,010	0,005
	Aquatic marine	kg N eq	1,606	0,682	0,109	0,815
	Aquatic terrestrial	mol N eq	15,768	5,712	1,155	8,901
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	5,186	2,516	0,466	2,205
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,010	0,009	0,000	0,000
	Fossil resources	MJ	16161,830	13355,992	1377,994	1427,844
Water deprivation potential (WDP)***		m ³ depriv.	748,041	735,516	7,887	4,638
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1364,181	1289,142	63,129	11,910
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1364,181	1289,142	63,129	11,910
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	17456,062	14463,798	1474,426	1517,838
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	17456,062	14463,798	1474,426	1517,838
Net fresh water use		m ³	19,423	18,998	0,258	0,167
Hazardous waste		kg	1,008	0,044	0,956	0,007
Non Hazardous waste		kg	842,169	642,090	88,513	111,566
Radioactive Waste		Kg	0,022	0,021	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.64- **VIVA** packsize 1x4200 GAL (FU=1t), produced in the Italian site, reference year 2020
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1143,139	591,313	411,648	140,177
	Biogenic	kg CO ₂ eq	63,287	51,666	11,345	0,276
	Land use and land transformation	kg CO ₂ eq	2,118	1,941	0,099	0,077
	TOTAL	kg CO ₂ eq	1208,543	644,920	423,093	140,530
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			5,987	2,291	0,815	2,880
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,183	0,158	0,020	0,005
	Aquatic marine	kg N eq	1,844	0,870	0,218	0,756
	Aquatic terrestrial	mol N eq	16,065	5,261	2,294	8,510
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	5,316	2,240	0,979	2,097
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,005	0,005	0,000	0,000
	Fossil resources	MJ	16120,196	11911,112	2856,920	1352,164
Water deprivation potential (WDP)***		m ³ depriv.	711,451	692,018	15,514	3,919
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1061,417	829,082	221,127	11,207
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1061,417	829,082	221,127	11,207
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	17408,366	12921,982	3049,024	1437,360
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	17408,366	12921,982	3049,024	1437,360
Net fresh water use		m ³	19,883	19,105	0,634	0,145
Hazardous waste		kg	2,603	0,044	2,553	0,007
Non Hazardous waste		kg	796,571	665,943	98,859	31,768
Radioactive Waste		Kg	0,022	0,020	0,002	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	1,669	0,000	1,669	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.65 - **VIVA** packsize **2x2,5 GAL (FU=1t)**, produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	891,145	629,158	97,305	164,682
	Biogenic	kg CO ₂ eq	150,858	87,036	1,746	62,076
	Land use and land transformation	kg CO ₂ eq	2,947	2,826	0,035	0,085
	TOTAL	kg CO ₂ eq	1044,950	719,021	99,086	226,843
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			6,102	2,571	0,378	3,153
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,215	0,200	0,010	0,005
	Aquatic marine	kg N eq	1,800	0,777	0,109	0,914
	Aquatic terrestrial	mol N eq	16,362	5,926	1,155	9,281
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	5,302	2,508	0,466	2,328
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,005	0,005	0,000	0,000
	Fossil resources	MJ	15744,414	12861,673	1377,994	1504,747
Water deprivation potential (WDP)***		m ³ depriv.	748,813	735,433	7,887	5,493
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2292,854	2215,991	63,129	13,734
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2292,854	2215,991	63,129	13,734
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	16999,521	13925,423	1474,426	1599,672
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	16999,521	13925,423	1474,426	1599,672
Net fresh water use		m ³	20,055	19,599	0,258	0,198
Hazardous waste		kg	1,009	0,044	0,956	0,008
Non Hazardous waste		kg	921,342	644,270	88,513	188,559
Radioactive Waste		Kg	0,024	0,023	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab 66 - **VIVA** packsize 20x1lt (FU=1t), produced in the Italian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1070,766	685,170	97,305	288,290
	Biogenic	kg CO ₂ eq	178,451	98,829	1,746	77,876
	Land use and land transformation	kg CO ₂ eq	3,101	2,943	0,035	0,122
	TOTAL	kg CO ₂ eq	1252,317	786,942	99,086	366,289
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			5,194	2,804	0,378	2,012
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,251	0,226	0,010	0,016
	Aquatic marine	kg N eq	1,701	0,829	0,109	0,763
	Aquatic terrestrial	mol N eq	14,199	6,390	1,155	6,655
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	5,112	2,690	0,466	1,957
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,006	0,005	0,000	0,001
	Fossil resources	MJ	18915,046	14195,768	1377,994	3341,284
Water deprivation potential (WDP)***		m ³ depriv.	784,198	759,638	7,887	16,673
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2618,945	2509,625	63,129	46,191
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2618,945	2509,625	63,129	46,191
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	20370,573	15343,727	1474,426	3552,420
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	20370,573	15343,727	1474,426	3552,420
Net fresh water use		m ³	21,190	20,361	0,258	0,571
Hazardous waste		kg	1,023	0,046	0,956	0,020
Non Hazardous waste		kg	1228,008	653,622	88,513	485,873
Radioactive Waste		Kg	0,029	0,028	0,001	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.67 - **VIVA** packsize 1x10lt (FU=1t), produced in the Brazilian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1126,670	663,868	105,589	357,213
	Biogenic	kg CO ₂ eq	108,773	72,465	5,932	30,377
	Land use and land transformation	kg CO ₂ eq	18,051	3,942	1,639	12,469
	TOTAL	kg CO ₂ eq	1253,494	740,275	113,160	400,059
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			7,479	3,344	1,935	2,201
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,242	0,206	0,009	0,026
	Aquatic marine	kg N eq	2,402	0,800	0,519	1,083
	Aquatic terrestrial	mol N eq	22,178	6,878	5,616	9,684
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	6,973	2,598	1,564	2,811
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,008	0,007	0,000	0,001
	Fossil resources	MJ	17814,470	11777,170	1284,908	4752,391
Water deprivation potential (WDP)***		m ³ depriv.	422,368	345,710	10,362	66,295
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2551,733	2313,622	142,046	96,065
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2551,733	2313,622	142,046	96,065
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	19248,075	12734,337	1375,820	5137,919
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	19248,075	12734,337	1375,820	5137,919
Net fresh water use		m ³	52,109	15,751	3,786	32,572
Hazardous waste		kg	10,147	0,222	9,894	0,032
Non Hazardous waste		kg	1302,306	591,918	70,342	640,046
Radioactive Waste		Kg	0,011	0,010	0,000	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.68 - **VIVA** packsize 4x5lt (FU=1t), produced in the Brazilian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	848,225	662,240	105,836	80,148
	Biogenic	kg CO ₂ eq	137,613	80,960	6,108	50,545
	Land use and land transformation	kg CO ₂ eq	7,583	4,246	1,657	1,680
	TOTAL	kg CO ₂ eq	993,421	747,446	113,601	132,373
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			5,779	3,337	1,937	0,505
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,224	0,211	0,009	0,004
	Aquatic marine	kg N eq	1,684	0,835	0,519	0,330
	Aquatic terrestrial	mol N eq	14,856	6,929	5,618	2,309
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	4,620	2,594	1,565	0,461
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,007	0,007	0,000	0,000
	Fossil resources	MJ	13655,303	11707,895	1287,947	659,462
Water deprivation potential (WDP)***		m ³ depriv.	374,704	354,629	10,414	9,661
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2376,533	2213,553	149,341	13,639
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2376,533	2213,553	149,341	13,639
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	14756,262	12664,523	1379,114	712,625
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	14756,262	12664,523	1379,114	712,625
Net fresh water use		m ³	24,240	16,029	3,805	4,406
Hazardous waste		kg	10,120	0,222	9,894	0,004
Non Hazardous waste		kg	879,095	592,413	70,378	216,304
Radioactive Waste		Kg	0,010	0,010	0,000	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.69 - **VIVA** packsize 12x1lt (FU=1t), produced in the Indian site
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	1398,441	1186,920	99,553	111,969
	Biogenic	kg CO ₂ eq	268,393	135,216	0,397	132,780
	Land use and land transformation	kg CO ₂ eq	4,316	4,219	0,063	0,034
	TOTAL	kg CO ₂ eq	1671,151	1326,354	100,013	244,783
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			8,128	5,576	1,907	0,645
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,516	0,506	0,005	0,005
	Aquatic marine	kg N eq	2,869	1,754	0,519	0,596
	Aquatic terrestrial	mol N eq	20,868	12,192	5,713	2,962
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	6,494	4,165	1,615	0,714
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,009	0,009	0,000	0,000
	Fossil resources	MJ	22022,209	19629,224	1352,803	1040,182
Water deprivation potential (WDP)***		m ³ depriv.	641,659	621,751	13,275	6,633
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2313,366	2282,838	14,261	16,268
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	2313,366	2282,838	14,261	16,268
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	23709,450	21165,363	1438,145	1105,942
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	23709,450	21165,363	1438,145	1105,942
Net fresh water use		m ³	20,772	20,189	0,370	0,213
Hazardous waste		kg	0,251	0,237	0,008	0,006
Non Hazardous waste		kg	1221,028	722,815	69,109	429,103
Radioactive Waste		Kg	0,022	0,022	0,000	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.70 - **MASTER 20-20-20** packsize 1x10kg (FU=1t), weighted average of the impacts of the Valagro site in India and Italy
Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2247,976	1610,838	148,901	488,237
	Biogenic	kg CO ₂ eq	48,892	43,336	0,997	4,559
	Land use and land transformation	kg CO ₂ eq	2,999	2,788	0,072	0,139
	TOTAL	kg CO ₂ eq	2299,867	1656,962	149,970	492,936
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			12,769	8,487	0,879	3,402
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,362	0,333	0,011	0,018
	Aquatic marine	kg N eq	2,927	1,488	0,267	1,173
	Aquatic terrestrial	mol N eq	42,048	25,694	2,874	13,480
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	9,113	5,562	1,028	2,523
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,022	0,021	0,000	0,001
	Fossil resources	MJ	29574,022	23520,161	2132,800	3921,061
Water deprivation potential (WDP)***		m ³ depriv.	198,297	170,298	10,012	17,988
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1466,899	1377,920	34,789	54,191
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1466,899	1377,920	34,789	54,191
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	31999,781	25562,465	2268,583	4168,733
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	31999,781	25562,465	2268,583	4168,733
Net fresh water use		m ³	33,118	32,149	0,345	0,624
Hazardous waste		kg	0,466	0,099	0,343	0,024
Non Hazardous waste		kg	3081,025	2546,124	174,666	360,234
Radioactive Waste		Kg	0,015	0,014	0,001	0,001
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”

Tab.71 - **MASTER 20-20-20** packsize 1x25kg (FU=1t), weighted average of the impacts of the Valagro site in India, Italy, and Brazil. Impact category, resource use, waste, and output flows indicators

PARAMETER		UNIT	TOTAL	UPSTREAM	CORE	DOWNSTREAM
Global warming potential (GWP)	Fossil	kg CO ₂ eq	2091,779	1568,387	144,038	379,353
	Biogenic	kg CO ₂ eq	74,142	46,158	1,731	26,253
	Land use and land transformation	kg CO ₂ eq	3,760	3,065	0,235	0,460
	TOTAL	kg CO ₂ eq	2169,681	1617,611	146,004	406,066
Ozone layer depletion (ODP)		kg CFC11 eq	0,000	0,000	0,000	0,000
Acidification potential (AP)			13,505	8,340	0,850	4,314
Eutrophication potential (EP)	Aquatic freshwater	kg P eq	0,335	0,319	0,011	0,005
	Aquatic marine	kg N eq	3,078	1,452	0,256	1,371
	Aquatic terrestrial	mol N eq	43,361	25,156	2,752	15,453
Photochemical oxidant creation potential (POCP)		kg NMVOC eq	8,971	5,338	0,983	2,650
Abiotic depletion potential (ADP)***	Metals and minerals	kg Sb eq	0,022	0,021	0,000	0,000
	Fossil resources	MJ	26216,015	22679,061	2046,653	1490,302
Water deprivation potential (WDP)***		m ³ depriv.	171,209	151,875	10,252	9,082
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1567,222	1495,549	56,729	14,944
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	1567,222	1495,549	56,729	14,944
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	28429,068	24664,076	2177,908	1587,084
	Used as raw materials	MJ, net calorific value	0,000	0,000	0,000	0,000
	TOTAL	MJ, net calorific value	28429,068	24664,076	2177,908	1587,084
Net fresh water use		m ³	35,034	33,118	0,678	1,239
Hazardous waste		kg	1,035	0,096	0,932	0,008
Non Hazardous waste		kg	2832,983	2489,197	167,130	176,656
Radioactive Waste		Kg	0,014	0,013	0,001	0,000
Exported energy Thermal		MJ per energy carrier	0,000	0,000	0,000	0,000
Export energy Electricity		MJ per energy carrier	0,000	0,000	0,000	0,000

*** “The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.”