ENVIRONMENTAL STATEMENT 2021

Kao

KIREI

MAKING LIFE BEAUTIFUL

ENVIRONMENTAL STATEMENT OF KAO CORPORATION, S.A.U.

HEALTH, SAFETY & ENVIRONMENT DEPARTMENT (HSE DPT.).

This Environmental Statement document is drafted based on Regulation (EC) No 1221/2009 of the European Parliament and of the Council, of 25 November 2009, whereby organisations are allowed to participate on a voluntary basis in a community eco-management and audit scheme (EMAS), and based on Commission Regulation (EU) 2018/2026, amending Annex IV to Regulation (EC) No 1221/2009.
The publication of Commission Regulation (EU) 2018/2026 involved the adaptation of the content of this environmental statement to the requirements introduced by same.
Regarding the 10 Sectoral Reference Documents (SRDs) that are available (10) on the EMAS website[1] to date, none of them are applicable to Kao Corporation, S.A.U. However, the content of these documents is analysed to incorporate those aspects that may add value to our environmental statement and that make it possible to improve the environmental impacts of the activity.
All the information provided in this Environmental Declaration is objective and based on the data obtained from the internal and external control processes that are carried out by the Organisation and verified by the competent institutions.
This Environmental Statement encompasses all the activities conducted by Kao Corporation, S.A.U. at the centres of Barberà del Vallès, Mollet del Vallès and Olesa de Montserrat. These activities are the design, production and sale of surfactant agents (anionic, non-ionic, cationic, and amphoteric, isolated or in mixtures), polymers, fatty amines, aromas, fragrances and toner.
This document has been fully validated by AENOR (see verification date in section 11, page 78).

Environmental Declaration 2021
25 de October de 2022

[1] https://ec.europa.eu/environment/emas/emas_publications/sectoral_reference_documents_en.htm.
Retail trade, tourism, food and beverage manufacturing, car manufacturing, electrical and electronic equipment manufacturing, public administration, agriculture, waste management, manufacture of fabricated metal products and telecommunications; as well as the best practice document related to construction.

MARIA JOSÉ BERMEJO
KCSA President

JOSEP SADURNÍ
KCSA VP of Operations

OLGA FERRER
HSE Manager

MARGARITA GRACIA
Environmental Specialist

1. INTRODUCTION AND PURPOSE OF THE **ENVIRONMENTAL DECLARATION**

DEAR READERS,

It is a pleasure to be able to once again present the information regarding the environmental performance of Kao Corporation, S.A.U. (KCSA).

2021 has been a complex year, during which, thanks to the dedication and resilience of our team and the collaboration of our stakeholders, we have successfully faced each one of the challenges that have arisen, such as the instability of supplies, the disruption of global logistics and the sharp increase in the prices of raw materials, natural gas, waste and transport.

From a regulatory point of view, in 2021 the industry's contribution to sustainable development intensified, with broader obligations, increasingly restrictive limit values and the exercise of more comprehensive reporting and transparency.

In terms of environmental management, for Kao 2021 is the year that begins the 2021-2030 cycle, in which Kao's values and principles are being consolidated and we are strengthening our ESG strategy focused on designing activities and products that contribute to the well-being of all people, sustainable growth and protection of the planet.

Within this context, the Kao group has defined its mission to create a "Kirei" future. The Japanese word "Kirei" describes something that is clean, well-ordered and beautiful, and this corporate philosophy leads us to persevere in our goal of becoming an indispensable company for achieving the sustainable growth of society and industry, as stated in the corporate motto "Sustainability as the only path".

Our objectives for the 2021-2030 period are aligned with the Sustainable Development Goals (SDGs) and the strategic lines of the European Union, therefore promoting the principles of caution, prevention and correction and focusing on the areas of greatest concern, such as decarbonization and the circular economy through the efficient use of resources. We tackle them with determination, aware of our strengths and weaknesses, and with the peace of mind of having a human team that is highly committed to continuous improvement.

To continue advancing, active collaboration with many different entities, companies, municipalities, universities and other stakeholders is essential, which is why we appreciate any ideas or contributions you send to us via email at corpcom@kao.es , indicating "2021 Environmental Statement" as the subject.

MARIA JOSÉ BERMEJO
KCSA President

2. CONTEXT OF THE ORGANIZATION

In early 2017, for the first time, an analysis of the organization's external and internal context was conducted and documented. This analysis is reviewed annually. Regarding the external factors, we analyse the possible impact by the social, political, legal, regulatory, financial, technological and economic situation surrounding the company on achieving the environmental objectives. The sustainability policy and the strategic line to be followed are therefore linked to the United Nation's Sustainable Development Goals (SDGs), as well as the 10 Principles of the UN Global Compact. The company carries out actions aimed at learning about and committing to the SDGs: training employees and managers and assuming corporate commitments in terms of the SDGs and communicating these commitments to stakeholders (for example, through this statement), as well as carrying out awareness actions throughout the supply chain. Regarding the internal factors, the possible impact is analysed in terms of the issues related with the activities, products and services, strategic direction, culture and qualifications. The results help to analyse the risks and opportunities for the purpose of ensuring that the RPMS (Risk Prevention Management System) can achieve its expected results in terms of preventing or reducing the undesired effects and achieve continuous improvement.

2.1 WHO WE ARE

2.1.1 HISTORIC EVOLUTION

Kao Corporation is a Japanese multinational whose head offices are based in Japan and whose strategic units are distributed worldwide to ensure operational coverage.

Most of the products manufactured by Kao worldwide are the so-called "daily use consumer goods" for end consumers (personal hygiene products, cosmetics, detergents and food products). These products are manufactured at factories outside Spain, mainly in Asia, America and Europe (Germany). In Europe, more specifically in Spain, chemical products are developed and manufactured for industry, by supplying companies that use our end product to prepare their own product. In 2017 the group purchased Spanish ink manufacturing company Chimigraf to become Kao Chimigraf.

The Kao Corporation is a member of the Japan Responsible Care Council (JRCC), in conjunction with another 109 companies that produce chemical substances. The Health, Safety and Environment Directives became particularly relevant for the Worldwide Corporation in 1995, when working targets were set for all operational units and the Safety and Environment strategies were financially strengthened.

Kao Corporation, S.A.U. works in parallel with the parent company and promotes its own strategies in the area of Safety and the Environment, while taking into account Spain's situational framework (legislation, technology, etc.). It also works in line with the group, following the corporate strategies and policies defined by Japan and actively committing itself to the protection and conservation of the environment through the Responsible Care program managed by the Federation of the Spanish Chemical Industry (FEIQUE), of which the company has been a member since 1993.

Kao Corporation, S.A.U.

Kao Corporation, S.A.U. was founded in Spain in 1970 through the acquisition of 50% of Sinorgan, S.A., a company in Mollet del Vallès engaged in the manufacture of fatty amines. In 1978, Kao Corporation purchased all of Molins i Puigarnau, S.A. (Olesa de Montserrat), engaged in the manufacture of industrial chemicals (surfactants), basically those used in the detergent, cosmetic, textile and fertiliser industries. Considerable investments were made throughout this period, initially to increase production capacity (which doubled between 1980 and 1990) and later to improve safety at facilities and, finally, to improve the automation level of the Mollet del Vallès and Olesa de Montserrat factories.

In 1987, Kao Corporation, S.A.U. launched a diversification plan to definitively consolidate its presence in Spain. In October 1988, the third production centre was opened in Barberà del Vallès, now the location of the Company's European Headquarters, giving a new impetus to its research laboratories. The Floppy Disk and CD (Info-Systems) factory facilities were

located in this centre, but subsequently closed in 1999 and were replaced by the current Toner production lines.
In 2013 Kao purchased land from Hormigones Uniland, S.L. at Olesa de Montserrat, which allowed improving the security of the facility and in turn enabled upgrading the installations of this centre.
In 2016 the hydrogenation installations were scrapped at the Mollet del Vallès plant for the purpose of housing the ink production warehouse of company Kao Chimigraf in 2017. While this activity is excluded from the EMAS scope, it does have an effect on the company's indicators due to being incorporated in the Integrated Environmental Authorisation of Kao Corporation, S.A.U.
In 2019, a regenerative thermal oxidizer was installed in the Olesa de Montserrat centre for the treatment of waste gases from aroma processes in order to improve their treatment and reduce the environmental impact. On the other hand, at the Mollet del Vallès centre, aroma plant IV was built, where the fatty acid distillation, nitrilation and alkylation plant was previously located, whose facilities were previously dismantled, in order to increase lactone production.
In 2021, the nitrilation plants at the Mollet del Vallès centre were dismantled and, in Olesa de Montserrat, there was a substantial change in order to expand the production capacity of the MDJ aroma with the construction of a new plant.

2.1.2 KAO'S ESG STRATEGY: "KIREI LIFESTYLE PLAN"

In 2016, Kao adopted a long-term vision of what we sought to achieve by 2030. Together with this, it established the Kirei Lifestyle Plan, an ambitious direction in ESG, with specific areas of focus. The plan includes Kao's ESG Vision and Kao's ESG Commitments and Actions, our strategy for realizing the Vision.
Kao's ESG vision is based on the concept that our ESG activities are designed to help people around the world live more sustainably and designed to benefit society in general and the Earth.
Our value of heading down the right path is presented as the basis of our ESG activities and represents one of founder Tomiro Nagase's core principles: "Good fortune only comes to those who work diligently and behave with integrity."
The activities of the Kirei Lifestyle Plan present Kao's Commitments and Actions in ESG. It consists in three pillars related to people's lifestyles:
— "Making my daily life more beautiful",
— "Making well thought-out decisions for society" and
— "Making the world healthier and cleaner".
For each pillar, actions are established for the priority issues, as well as our 2030 Commitments: our ambitious objectives to be achieved by 2030. Medium- and short-term objectives have also been established to facilitate the monitoring of effective and reliable activities. Evolution of Kao's commitment to the environment
Kao believes firmly in the need for its business to be managed in an ecologically responsible way, with a management style capable of tackling issues as important as global warming, scarcity of resources and the loss of biodiversity. Therefore, in June 2009, Kao introduced the "Eco together" programme, which focuses on the life cycle of Kao products, from the supply of materials and manufacturing to distribution, sales, use and final disposal. This programme is based on cooperation with suppliers, consumers and other stakeholders and its objectives are to decrease CO_2 emissions and water consumption, manage chemical substances and protect biodiversity.

These areas of action are maintained for the objectives defined in the Kirei Lifestyle Plan.
To achieve substantial reductions in emissions of CO_2 and in water consumption, the company has committed itself to eco-innovation and the development of new environmental technologies. In June 2011, at the headquarters located in Tokyo, a new research centre was opened for these purposes: the Eco-Technology Research Center (ETRC).
As a result of its efforts in administering water resources, Kao was acknowledged as a global leader and was included in the CDP list in 2016.
CDP is an international, non-profit organization that provides a global system for companies, cities, states and regions to measure, disclose, administer and share vital information about their environmental performance. CDP is the first provider of climate research for investors, and it works to motivate companies to disclose their impacts on the environment and natural resources and to take measures that reduce them.
Kao is one of the seven companies – among 250 that were evaluated – that obtained the maximum number of points in the Forest 500 list that is prepared by the Global Canopy Programme, which analyses the fact that agents in the world have comprehensive policies for protecting tropical forests.
In 2015, Kao Corporation, S.A.U. was recognised by the European Commission for maintaining the EMAS record for ten consecutive years. This recognition is a testament of the company's commitment towards environmental issues.
In 2010, Kao Corporation, S.A.U. (Spain) began applying the "eco together" programme by adapting the plant's objectives, therefore setting a target of reducing energy consumption by 30%, water consumption by 30% and waste generated by 30% with respect to 2010. All these targets are to be met by 2020.
At the end of this 10-year period, a new 10-year period begins under the Kirei Lifestyle Plan, whose strategic lines are those initiated in the previous period with more demanding objectives.

Thirsty business: Why water is vital to climate action
2016 Annual Report of Corporate Water Disclosure

2.1.3 LIFE CYCLE ASSESSMENT (LCA)

During 2020, a new version of the Product Safety policy was revised and edited and is currently in the approval phase. Consequently, version 2 of the Management System for Product Safety (SGSP) Manual is being drawn up and is in the draft phase. In this second version, numerous aspects related to the Life Cycle Analysis have been taken into account. Thus, the commitment to carry out sustainable management is explicitly stated regarding the life cycle of the chemical products that are purchased, handled and placed on the market in terms not only safety but also protection of health and the environment. The scope of Product Safety covers the handling and use of products throughout their life cycles and on which Kao Corporation, S.A.U. may have a direct effect: from the research and development phase to the subsequent phases of manufacturing, marketing and distribution in most cases. Product Safety in the usage and recycling phases and during its elimination, if applicable, is based on the promoting of good practices.

On this base, improvement points are defined each year related with the Life Cycle Assessment. During 2021, the following activities were carried out:

— We sent our customers duly updated SDSs with all exposure scenarios designed to promote safe use throughout the life cycle of our products.
— Creation and training of a team to implement life cycle analysis in order to determine the carbon footprint of KCE products, including those of Kao Corporation, S.A.U.
— Implementation of a computer program that incorporates databases which facilitate and allow the calculation and determination of the carbon footprint, the water footprint and other impacts.
— Calculation of the carbon footprint of some products manufactured at KCE to begin the project.

We are thereby contributing to the making of a sustainable society by helping to achieve the objective of minimizing the adverse risks that chemicals pose to human health and the environment.

MOST NOTEWORTHY ACTIONS SINCE 1977

1977
Introduction to clean fuels: replacing fuel oil with Natural gas

1983
Creation of the Safety and Environmental Service

1984
First study on the quality of groundwater

1985
Physicochemical treatment of the waste water at the Mollet del Vallès centre

1989
Physicochemical treatment of the waste water at the Olesa de Montserrat centre

1990
Biological treatment through percolation of waste water in Olesa de Montserrat

1991
Installation of the first electric cogeneration plant in Mollet del Vallès

1992
First soil-quality analysis

1996
Implementation of the DuPont security system - STOP PROGRAMME

2001
Membrane-based biological treatment of HCA waste water at Mollet del Vallès

2002
Environmental Authorisation (Mollet del Vallès and Olesa de Montserrat) and Environmental Licence (Barberà del Vallès)

2003
ISO 14001 certification: Environmental management systems. Requirements with guidance for use

2004
OHSAS 18001 certification: Occupational health and safety management system

2005
EMAS European Register

2010
Fitting of the percolator filter in the waste water treatment process at the Mollet del Vallès centre

2011
Environmental Risks Analysis (ARMA) of the Mollet del Vallès and Olesa de Montserrat centres

2012
Environmental Risks Analysis (ARMA) of the Barberà del Vallès centre

Introduction and set-up of the KAIZEN philosophy in the productive structure

2013
Study to reuse waste water at the Olesa de Montserrat centre

Drafting and implementation of the Crisis Communication Manual. Establishing and activation of the Crisis Committee

Implementation of the Energy Management System in accordance with ISO 50001

2014
ISO 50001 certification: Energy management systems

Creation of Action Learning groups: Sustainability of the Central Building and waste reduction

2015
Basic soil report for Olesa de Montserrat for renewing the Environmental Authorisation

Integrated environmental inspection (Mollet del Vallès and Olesa de Montserrat) Acknowledgement certificate for being in the European EMAS registry for 10 years

2016
Environmental Risks Analysis Update (ERAU) of the Olesa de Montserrat centre

New edition of the Risk Prevention Management System to adapt it to the requirements of ISO 14001:2015

Discontinuance of the cogeneration plant and the fatty acid and glycerine production activity at the Mollet del Vallès centre

2017
Building and commissioning of an ink manufacturing building at Mollet del Vallès

Basic soil report for Mollet del Vallès resulting from a request for a substantial change and partial cancellation of the activity Participation in the removal of American cane near the Llobregat river in the municipality of Abrera

Renewal (or review) of the Environmental Authorisation of the Olesa de Montserrat Centre

2018
Inventory and evaluation of the conservation of biodiversity at the three establishments. Drafting of the first edition of the Biodiversity Policy

Environmental Risks Analysis Update (ERAU) of the Barberà del Vallès centre

Certification of the Risk Prevention Management System in accordance with the requirements of ISO 14001:2015

2019
Implementation of a regenerative thermal oxidizer (RTO) the Olesa de Montserrat centre

Construction of an aromas (lactone) production plant and installation at the Mollet del Vallès centre

2020
Certification of the Risk Prevention Management System in accordance with the requirements of ISO 45001:2018

Implementation of measures for the prevention of COVID-19 that have allowed the regular development of the activity

Replacement of the F-1301 boiler with a higher capacity and higher performance boiler (FB-1302) in Mollet del Vallès

2021
Dismantling of the nitrilation plants in Mollet del Vallès

Installation of photovoltaic panels at the Olesa de Montserrat centre (commissioning in February 2022)

[2] Outside the scope of the EMAS certification.

2.2 WHAT WE DO AND WHERE WE ARE

2.2.1 PRODUCTIVE ACTIVITIES (SPANISH NATIONAL CLASSIFICATION OF ECONOMIC ACTIVITIES – CNAE 20.41)

Chemical Division

This division manufactures and markets "intermediate" chemical products for industrial application, such as surfactants (anionic, non-ionic, cationic, and amphoteric), their blends and polymers, which are produced at the Olesa de Montserrat and Mollet del Vallès centres.

Aromas Division

Chemical Aromas: This business division markets chemical products manufactured at the Olesa de Montserrat and Mollet del Vallès production centres, and which are used in the formulation of flavours and fragrances for use in cosmetics, fine perfumery, detergents, household and industrial products.

Fragrances: This unit prepares the formulations and blends of fragrances for industrial use, cosmetics and household products.

Imaging Materials Division

This division manufactures and markets resins and electrostatic agents (Toner) for professional digital printers through particle mixing, milling and classifying processes. The Olesa de Montserrat Centre performs part of the process integrated at the Barberà del Vallès Centre. In this same division, Kao Chimigraf produces inks at the Mollet del Vallès centre, which is located outside the scope of the EMAS certification. The following is a list of product families manufactured at our installations, bearing in mind that other products are included under these generic titles.

OLESA DE MONTSERRAT CENTRE

URFACTANT AGENTS

- Anionic: EMAL
- Non-ionic:
  - FINDET family
  - AMIET family
  - AMIDET family
- Cationic:
  - TETRANYL families
- Amphoterics:
  - OXIDET family
  - BETADET family
- Blends:
  - DANOX families

POLYMERS

- Polyester resins for toner

CHEMICAL PRODUCTS FOR AROMAS AND FRAGRANCES

- Methyl Dihydro Jasmonate
- Ambroxan, Boisambrene Forte
- Composition of aromas

MOLLET DEL VALLÈS CENTRE

CATIONIC SURFACTANT AGENTS

- Softening agents
  - QUARTAMIN and TETRANYL families
  - AKYPO, ALFANOX, CELLESH, ASFIER, FOSFODET, GRIPPER families
- Flotation agents
  - DANOX FL family
- Agents for fertilisers
  - SK-FERT family

CHEMICAL PRODUCTS FOR AROMAS AND FRAGRANCES

- LACTONE family
- ALDEHYDE family

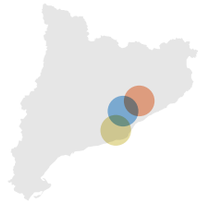
INKS[2]

BARBERÀ DEL VALLÈS CENTRE

- Toner

2.2.2 PRODUCTION CENTRES IDENTIFICATION DETAILS

2.2.2.1 GEOGRAPHICAL SITUATION AND LOCATION



OLESA DE MONTSERRAT CENTRE

Polígono Industrial Can Vinyals
Ctra. de la Puda s/n
Olesa de Montserrat

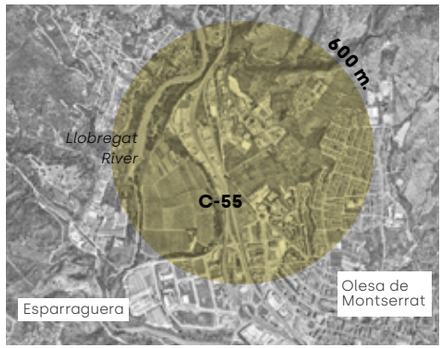
22% Surface busy

Surface area of the centre: 103,303 m²
Land occupation: 22,633 m²

The centre is close to two municipalities:
Olesa de Montserrat:
24,152 population
250 m distance
Esparraguera:
22,358 population
1.900 m distance

UTM Coordinates
X 407,420
Y 4,601,140

The height above sea level in the industrial estate varies between 108 m and 134 m.



The first houses belonging to the town of Olesa de Montserrat, to the South-east of the site, are located at a distance of approximately 600 m. There are also a few scattered homes in the surrounding area, such as the El Mas residential complex, less than 200 m to the North, and Can Vinyals, less than 200 m to the West.

Nearby natural elements
— The Llobregat River, which runs from North to South on the Western side of the installations.
— The Creu de Beca stream, to the North of the site.

The protected aquifer of La Cubeta de Abrera.
— PEIN (Area of Natural Interest) –Montserrat, 1 km away.

Neighbouring Infrastructures
— Barcelona-Martorell-Manresa railroad, running parallel, to the West of the facilities.
— The regional C-55 road from Abrera to Manresa, which runs parallel to the aforementioned railroad.
— B-120 Highway, from Terrassa to Olesa de Montserrat, bordering the South of the centre.

MOLLET DEL VALLÈS CENTRE

Polígono Industrial
Can Prat
C/ Bilbao, 35-61
Mollet del Vallès

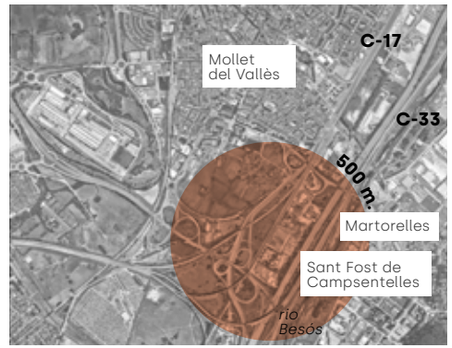
36% Surface busy

Surface area of the centre: 38,918 m²
Land occupation: 14,161 m²

The centre is close to two municipalities:
Mollet del Vallès:
51,151 population
300 m distance
Sant Fost de Campsentelles:
8,997 population
500 m distance

UTM Coordinates
X 434,600
Y 4,597,800

The height above sea level in the industrial estate varies between 55 m and 60 m.



The first houses that belong to the town of Mollet del Vallès are located approximately 300 m to the North of the site. Various sports areas are located within the vicinity of the site. The closest, the Mollet Tennis Club, is within 240 m, with another one about 400 m to the North-east and another one to the South.
The town of Martorelles is located to the East of the site, on the other side of the Besòs River, past Sant Fost de Campcentelles.

Nearby natural elements
— The Besòs River, approximately 200 m to the South-east of the installations.
— The protected aquifer of El Baix Maresme.
— PEIN (Area of Natural Interest): Conreria-Sant Mateu-Céllecs, 3.3 km away.

Neighbouring Infrastructures
— C-33 motorway, to the South-east of the installations.
— Road from Martorelles to Mollet, to the North-east of the installations.
— Railway lines from Mollet del Vallès to El Papiol and Barcelona to Portbou, to the Northwest.

BARBERÀ DEL VALLÈS CENTRE

Polígono Industrial Santiga
C/ Puig dels Tudons, 10
Barberà del Vallès

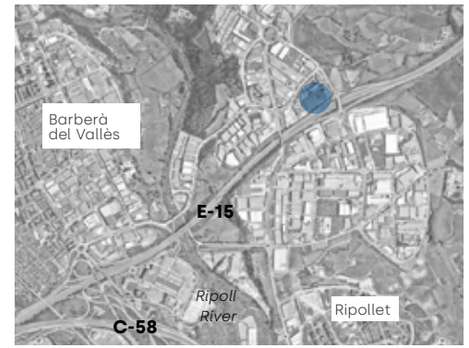
35% Surface busy

Surface area of the centre: 43,899 m²
Land occupation: 15,180 m²

The centre is close to two municipalities:
Barberà del Vallès:
33,016 population
1,500 m distance
Santa Perpètua de la Mogoda:
26,033 population
2,000 m distance

UTM Coordinates
X 429,500
Y 4,597,800

The height above sea level in the industrial estate varies between 130 m and 134 m.



Nearby natural elements
— The production centre is located in a highly industrialised area, 4.8 km from the nearest Area of Natural Interest (Serra de Collserola).

Neighbouring Infrastructures
— AP-7 motorway, to the South-east of the installations.

Olesa de Montserrat Centre
The KAO industrial estate is approximately located between the following UTM coordinates:
406,675 < X < 406,875;
4,601,105 < Y < 4,601,140
(longitude West 1º 52' 52'' and latitude North 41º 33' 23'').

Mollet del Vallès Centre
The KAO industrial estate is approximately located between the following UTM coordinates:
434,400 < X < 434,800;
4,597,550 < Y < 4,598,150.

Barberà del Vallès Centre
The KAO industrial estate is approximately located between the following UTM coordinates:
429,150 < X < 429,400;
4,596,600 < Y < 4,597,200.

2.2.2.2 DISTRIBUTION OF DIVISIONS BY CENTRE

The company has the following plants and divisions:

OLESA DE MONTSERRAT CENTRE

— HTR plant
— Ethylene oxide and propylene oxide plants
— Aroma Compounding plant
— MDJ plant (aroma)
— C plant (aromas)
— OTB plant
— Blends division
— Services and Energies (Cogeneration)

MOLLET DEL VALLÈS CENTRE

— HTR plant
— Aromas I plant
— Aromas II-III plant
— Aromas IV plant
— Inks Warehouse
— Blends division
— Services and Energies

BARBERÀ DEL VALLÈS CENTRE

— Toner factory
— Research and development laboratories
— Pilot Plant
— Central office installations
— Developer division
— Services and Energies

[3] Ink production (activity of Kao Chimigraf) was added in 2017 due to being included in the Integrated Environmental Authorisation of Kao Corporation, S.A.U. for Mollet del Vallès

[4] Production index $= \frac{\text{Final production year i}}{\text{Final production 2005}} \times 100$

2.2.2.3 ANNUAL PRODUCTION

The annual production evolution for each centre is shown below.

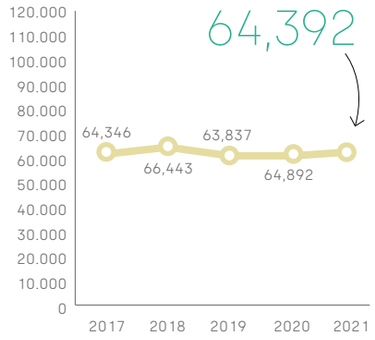
ILLUSTRATION 1.

ANNUAL EVOLUTION OF PRODUCTION

Final production = Finished products produced at our facilities. Viz., not including intermediate products (products subject to several processing cycles before they can be considered an end product).

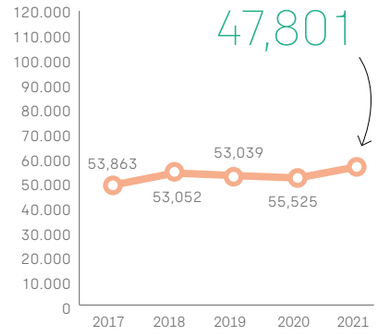
OLESA DE MONTSERRAT CENTRE

Final production (t)



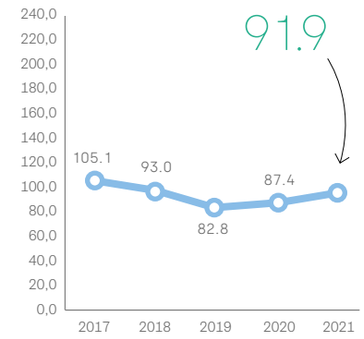
MOLLET DEL VALLÈS CENTRE

Final production (t)[3]



BARBERÀ DEL VALLÈS CENTRE

Production index (%)[4]



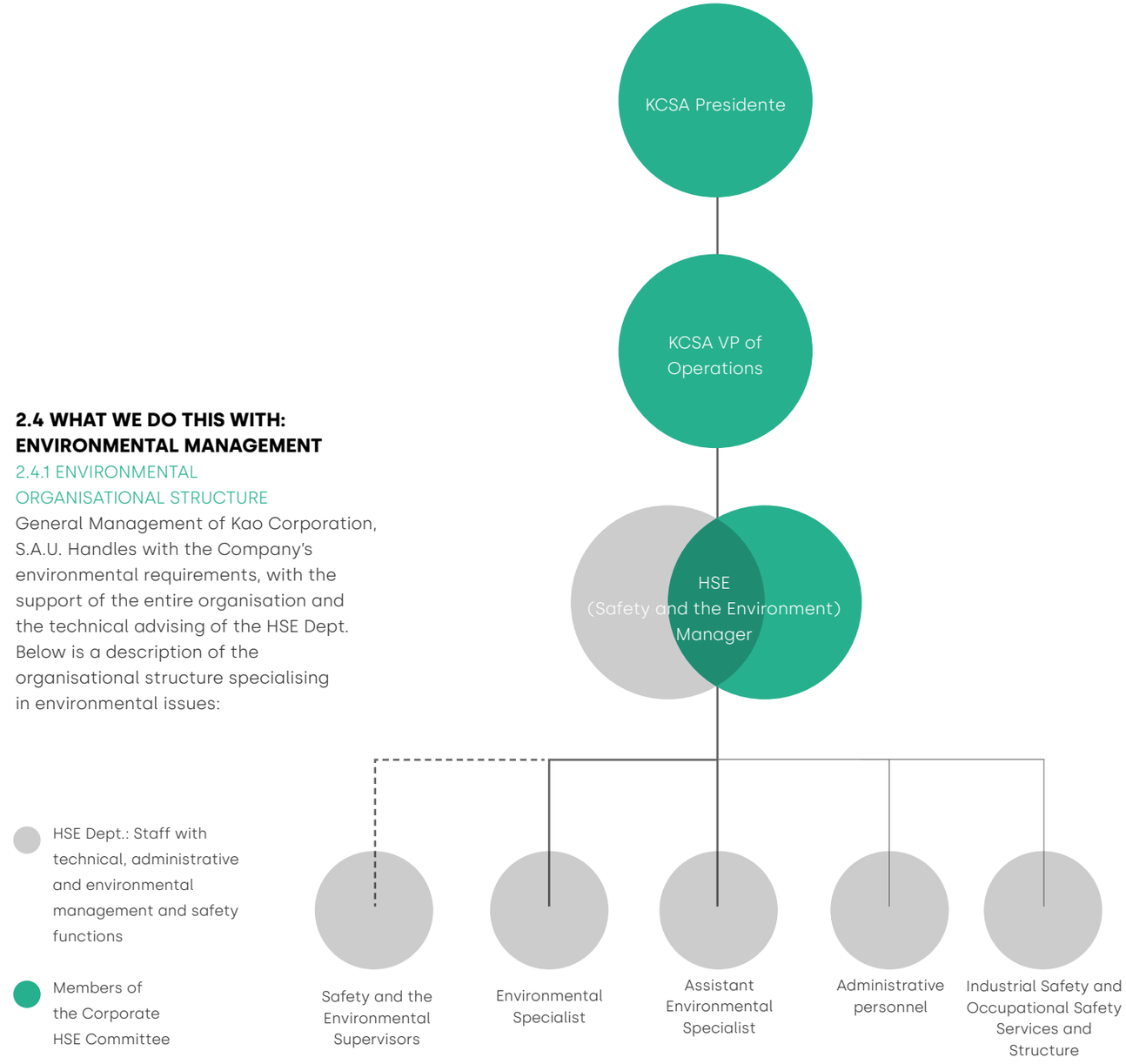
2.3 FOR WHOM AND WITH WHOM WE WORK

Since the company was established in 1887, Kao has been providing an unmistakable value to people around the world. Our consumer products promote cleanliness, beauty and health, while our chemical products contribute to developing different industries.
As we transform ourselves to drive change, Kao remains attentive to the needs of society and strives to become a company that enjoys global support.
As we can see, satisfying and enriching people's lives and remaining as close as possible to consumers and clients are our reason for being and the path to follow.
This is only possible with the collaboration of our suppliers, contractors, collaborators and personnel that make up the organisation as well as our neighbours, regulating agencies, competitors, non-governmental organisations, investors and pressure groups who drive us to continuously improve our activity.
With all stakeholders in mind, Kao develops its policy on ESG activities and the Kirei Lifestyle Plan, which presents our ambitious intentions for the future, both opportunities and challenges, whereby we will make greater contributions to the sustainability of society.

2.4 WHAT WE DO THIS WITH: ENVIRONMENTAL MANAGEMENT

2.4.1 ENVIRONMENTAL ORGANISATIONAL STRUCTURE

General Management of Kao Corporation, S.A.U. Handles with the Company's environmental requirements, with the support of the entire organisation and the technical advising of the HSE Dept. Below is a description of the organisational structure specialising in environmental issues:



2.4.2 RISK PREVENTION MANAGEMENT SYSTEM

As from the end of 2011, Kao Corporation, S.A.U. has had a management system that integrates the areas of safety and the environment.
In 2013 the Safety and Environmental Service (currently the HSE Dept.), with the collaboration of the Engineering and Maintenance Department, conducted a review of the management system for the purpose of incorporating the requirements of standard ISO 50001: Energy Management Systems and subsequently certify the MS also based on this reference. The process concludes with a system designed and certified in accordance with the ISO 14001, EMAS and OHSAS 18001 and ISO 50001 benchmark standards, and also responds to certain legislative demands that require a management system such as the regulations governing prevention of occupational risks (Prevention Plan) or the norms concerning the prevention of serious accidents.
In 2016 a new edition of the system was reviewed and published for the main purpose of adapting the documents to the version of standard 14001:2015 and the legal requirements approved since the previous edition.
In 2018, the system was revised again in order to update the scope following the addition of a Kao Chimigraf plant at the Mollet facility and to begin incorporating the requirements of the ISO 45001 standard. The process ended with certification based on this standard in May 2020.
At the end of 2021, the review of the system began by drafting the procedures in inclusive language and by incorporating the latest legal and/or internal requirements.
The systems integration procedure seeks greater management efficiency through processes that are simplified to the extent possible and, on occasions, unified. It also facilitates understanding and usage by users and a reduced administrative load.
The risk prevention system is audited annually by a leading system certification agency with specialists in each one of the areas.

2.4.3 THE RESPONSIBLE CARE PROGRAMME

Kao Corporation, S.A.U. has subscribed to the Responsible Care programme since its introduction in Spain through FEIQUE (1993). "Responsible Care" is a global program that is applied in 52 countries.
Cefic has developed a new European Responsible Care® management framework and a self-assessment tool.
In 2019, Cefic (European Chemical Industry Council) developed a new European framework for Responsible Care Management so that more European manufacturers of chemical products would join it, thereby improving the reputation of and trust in the industry.
Launched in the mid-80s in Canada, the Responsible Care® initiative is now being implemented by 62 chemical associations in nearly 70 economies around the world. In

Europe, about 30 countries and more than 4000 companies have joined the program. The new European Responsible Care management framework is accompanied by a self-assessment tool that is a valuable instrument for guiding national companies and associations to excellence. The tool allows benchmarking, and it provides recommendations and good industry practices of great interest.
The updated system links Responsible Care to standards of the highest level, including ISO9001, ISO14001, ISO50001, ISO45001, ISO26000, EMAS, RC14001 and RCMS, together with Principles of Sustainability, such as the UN Sustainable Development Goals, the Cefic Sustainability Charter and the ChemistryCan initiative.
As from March 2016, Kao Corporation, S.A.U., as a company adhered to the Responsible Care Programme, has been authorized to use the Responsible Enterprise RSE trade mark of Responsible Care for a renewable period of two years, due to complying with all the necessary requirements. This distinctive sign represents and guarantees to third parties, the company's commitment to Business Social Responsibility (RSE) under the Responsible Care trade mark.
The objective of this initiative, which was implemented in March 2015, is to give companies such as Kao Corporation, S.A.U. visible recognition that certifies their commitment with RSE policies, thereby highlighting the company's contribution in this area before public and private bodies, competent institutions and society as a whole.
Application of the Responsible Care Programme at all companies of the group is also intensely driven from Kao's headquarters in Japan. Group management has designed its own audit programme based on the Responsible Care guidelines, which means that, annually, every subsidiary must answer a list of questions that are structured by different codes, very similar to those of the Spanish programme. Within the framework of this programme, an annual RC Meeting is held in Tokyo, to which the HSE Manager has had the opportunity to attend since 2015.
This year, as was the case in 2020 due to the pandemic, the meeting had a different format, holding meetings per company and sharing information through new technologies.

2.4.4 VOLUNTARY CERTIFICATIONS

Kao Corporation, S.A.U. has voluntary certifications related to various standards such as the following:

— EMAS Regulation
— ISO 14001:2015
— ISO 50001:2018
— ISO 45001:2018
— ISO 9001:2015

EMAS

CERTIFICATE OF REGISTRATION

The Ministry of Territory and Sustainability certifies that the sites

Barberà del Vallès (Pol. Ind. Santiga. C/ Puig dels Tudons, 10)
Mollet del Vallès (Pol. Ind. Can Prat. C/ Bilbao, 35-61)
Olesa de Montserrat (Pol. Ind. Can Vinyals. Ctra. de la Puda, s/n)

of the organization

KAO CORPORATION, S.A

located in Pol. Ind. Santiga. C/ Puig dels Tudons, 10 de Barberà del Vallès

has been registered with the number

ES-CAT-000177

In accordance with the Resolution of November 7, 2019 the General Director of Environmental Quality and Climatic Change, and articles 13 and 14 of the Regulation 1221/2009 of the European Parliament and of the Council of 25th November 2009, which enables organisations to register voluntarily to a EC Eco-Management and Audit Scheme (EMAS). The requirements of the environmental management system EMAS are the same as established in the norm EN ISO 14001:2015.

The Ministry of Territory and Sustainability,

Date of registration: 13/07/2005
Date 6th renovation: 07/11/2019
This certificate will be in force until: 02/10/2022

Damià Calvet Valera

Generalitat de Catalunya
Departament de Territori
i Sostenibilitat


IQNet
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

AENOR has issued an IQNet recognized certificate that the organization:

KAO CORPORATION, S.A.

SEDE CENTRAL
PI SANTIGA, CL PUIG DELS TUDONS, 10
08210 - BARBERA DEL VALLES (BARCELONA)

PI CAN VIÑALS
CR DE LA PUDA, S/N
08640 - OLESA DE MONTSERRAT (BARCELONA)

CL BILBAO, 35-61.
08100 - MOLLET DEL VALLES (BARCELONA)

has implemented and maintains a

Environmental Management System

for the following scope:

Design, production and sales of surfactants (anionic, non-ionic, cationic and amphoteric, isolated or in mixture), polymers, aroma, fragrances and toner.

which fulfills the requirements of the following standard

ISO 14001:2015

First issued on: 2003-02-10 Last issued: 2018-09-01 Validity date: 2021-09-01

This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document

Registration Number: ES-2003/0038

Alex Stoichitoiu
President of IQNet

Rafael GARCÍA MEIRO
Chief Executive Officer

AENOR


IQNet
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

AENOR has issued an IQNet recognized certificate that the organization:

KAO CORPORATION, S.A.

SEDE CENTRAL
PI SANTIGA, CL PUIG DELS TUDONS, 10
08210 - BARBERA DEL VALLES (BARCELONA)

PI CAN VIÑALS, CR DE LA PUDA, S/N.
08640 - OLESA DE MONSERRAT (BARCELONA)

CL BILBAO, 35-61.
08100 - MOLLET DEL VALLES (BARCELONA)

has implemented and maintains a

Occupational Health and Safety Management System

for the following scope:

Design, production and sales of surfactants (anionic, non-ionic, cationic and amphoteric, isolated or in mixture), polymers, aroma, fragrances and toner.

which fulfills the requirements of the following standard

ISO 45001:2018

First issued on: 2020-07-28 Validity date: 2023-11-30

This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document

Registration Number: ES-SST-0019/2004

Alex Stoichitoiu
President of IQNet

Rafael GARCÍA MEIRO
Chief Executive Officer

AENOR


IQNet
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

AENOR has issued an IQNet recognized certificate that the organization:

KAO CORPORATION, S.A.
(Planta de Barbera del Vallès)

PI SANTIGA, CL PUIG DELS TUDONS, 10.
08210 - BARBERA DEL VALLES (BARCELONA)

PI CAN VIÑALS, CR DE LA PUDA, S/N.
08640 - OLESA DE MONSERRAT (BARCELONA)

CL BILBAO, 35-61.
08100 - MOLLET DEL VALLES (BARCELONA)

has implemented and maintains a

Quality Management System

for the following scope:

The design, production and sales of:
Surfactants (anionic, non-ionic, cationic and amphoteric, isolated or in mixture), polymers, fatty amines, aroma fragrances and toner.

which fulfills the requirements of the following standard

ISO 9001:2015

First issued on: 1999-08-01 Last issued: 2021-07-21 Validity date: 2024-07-21

This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document

Registration Number: ES-0226/1995

Alex Stoichitoiu
President of IQNet

Rafael GARCÍA MEIRO
Chief Executive Officer

AENOR


IQNet
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

AENOR has issued an IQNet recognized certificate that the organization:

KAO CORPORATION, S.A.

C PUIG DEL TUDONS, 10.
08210 - BARBERA DEL VALLES (BARCELONA)

CL BILBAO, 35-61.
08100 - MOLLET DEL VALLES (BARCELONA)

PI CAN VIÑALS, CR DE LA PUDA, S/N.
08640 - OLESA DE MONSERRAT (BARCELONA)

has implemented and maintains a

Energy Management System

for the following scope:

The energy management systems for the production selling of surfactants (anionic, non-ionic, cationic and amphoteric, isolated or in mixture), polymers, fatty amines, flavors, fragance and toner.

which fulfills the requirements of the following standard

ISO 50001:2018

First issued on: 2014-11-05 Last issued: 2020-11-05 Validity date: 2023-11-05

This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document

Registration Number: ES-SE-2014/0033

Alex Stoichitoiu
President of IQNet

Rafael GARCÍA MEIRO
Chief Executive Officer

AENOR

In addition, the Olesa and Mollet centres have EFfCI GMP certification, following the guidelines of the European Federation of Manufacturers of Cosmetic Ingredients (EFfCI), which applies to all products that Kao Corporation, S.A.U. uses in the cosmetics and detergent markets. In addition to these certifications, palm oil certified according to the Roundtable on Sustainable Palm Oil (RSPO) is purchased.

3. LEADERSHIP

3.1 GENERAL POLICY ON SUSTAINABILITY AND RISK PREVENTION

The General Sustainability and Risk Prevention Policy is a document that is constantly updated and adapted to the company's context, the drafting of which includes the participation of both management and labour.

Kao Corporation, S.A.

POLÍTICA GENERAL DE SOSTENIBILIDAD Y PREVENCIÓN DE RIESGOS

In 2018, the 6th edition was published, which incorporates the following:

— In the risk prevention area, the commitment to "fostering the physical, psychological and mental well-being" of the employees.

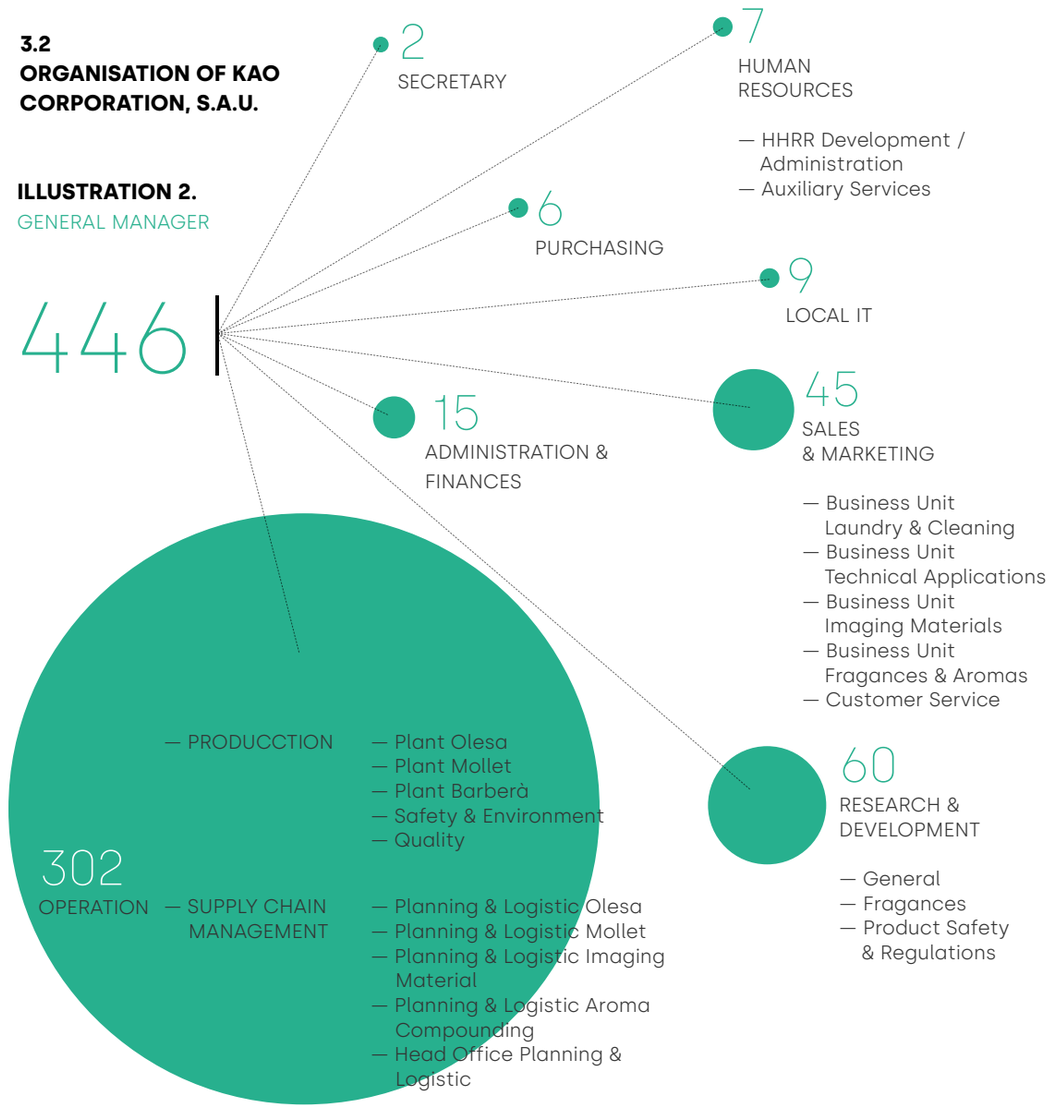
— In the environmental area, the consideration of the "perspective life cycle" that is to be taken into account when carrying out our work. Concepts related to the circular economy were also added, such as optimisation of the value of resources or innovation to create value, as well as the commitment to not only foster biodiversity but also preserve it.

— In all areas, the commitment towards establishing participation processes to achieve a maximum collaboration, both internal and external, for the purpose of optimising the creation of mutual value.

Work has begun on the next edition of the General Policy on Sustainability and Risk Prevention, in which green purchasing and the circular economy, among others, have gained importance.

3.2 ORGANISATION OF KAO CORPORATION, S.A.U.

ILLUSTRATION 2.
GENERAL MANAGER



4. PLANNING

4.1 ENVIRONMENTAL ASPECTS

4.1.1 ASSESSMENT METHODOLOGY

Environmental aspects are elements of an organisation's activities, products or services that may interact with the environment.
We include the following:

— Resources (material and energy)
— Atmospheric emissions
— Water
— Waste
— Soils
— Other environmental issues that affect the community (smells, noise, etc.)

Kao Corporation, S.A.U. conducts an annual evaluation of the environmental aspects identified in each centre and reviews the inventory of environmental aspects, reorganising them to ensure that the evaluation is more efficient and effective.
In 2002, Kao Corporation S.A.U. developed its own method for identifying and assessing environmental aspects to be able to quantify direct and indirect interactions with the environment.

The method is based on external criteria[5] and, therefore, is considered to be an objective and acceptable method.
The criteria that enable the environmental impact to be assessed are:

— NATURE (previously referred to as Hazard): Characteristic property of the assessed environmental aspect.
— MAGNITUDE / TREND: Quantification or intensity of the environmental aspect assessed. If this criterion cannot be applied, specific supplementary magnitudes of the aspect are analysed.
— FREQUENCY: The frequency with which the environmental aspect occurs.
— APPROACHING THE LIMIT (previously referred to as Supplementary Magnitude): Expresses how close we are to levels that are considered acceptable, limits or references that are not to be exceeded.
— EVIDENCE OF THE DEGREE AFFECTED: Expresses the representative level of closeness to the accepted reference.

The magnitude of the impact (mi) of each environmental aspect is the product of these factors, of the assessment of the technician who performs the assessment and of the Life Cycle Analysis criterion (hereinafter, ACV), which expresses opportunities for improvement according to that approach.

mi = Nature X Magnitude X Frequency X Approach X Evidence + ACV + Technical assessment

Based on this, we have determined what environmental aspects have an impact on (or affect) each one of the phases of the life cycle.

[5] Legal provisions and other environmental technical references. The methodology is described in the internal procedure PGDG-301.

The database for assessment of environmental aspects includes the reference of environmental aspects analysed for each area *(illustration 3)*:

- Microbiological agents: Prevention and control of legionnaires' disease in cooling towers
- Waste water: Water quality parameters (pH, suspended matter, conductivity, etc.) at the dumping points
- Groundwater: Water quality parameters (hydrocarbons, solvents, etc.) considering each of the existing piezometers
- Consumption of resources: Water, electricity, fuel, raw and auxiliary materials
- Atmospheric emissions: Sources of combustion and process, transport
- Greenhouse gases: Coolants for air- conditioning units and refrigerating facilities
- Waste: Each type of waste produced by the production centre
- Noise: Noise immission level at each centre
- Accidents/emergencies: Leaks and spills of hazardous and non-hazardous substances, explosions, fires, mechanical/electrical faults, uncontrolled accidental discharges, transport accidents, floods, etc.
- Others: Reuse of materials, biodiversity

ILLUSTRATION 3.
NUMBER OF ENVIRONMENTAL ASPECTS ASSESSED IN 2021

	Microbiological agents	Waste water	Groundwater	Water consumption	Electricity consumption	Gas consumption	Material consumption	Atmospheric emissions	Greenhouse gases	Waste	Noise	Accidents/ Emergencies	Others	TOTAL
OLESA DE MONTSERRAT CENTRE	3	97	93	3	2	2	15	44	9	82	1	22	2	375
MOLLET DEL VALLÈS CENTRE	3	96	93	4	2	2	14	34	7	82	1	22	2	362
BARBERÀ DEL VALLÈS CENTRE	1	11	93	1	1	2	5	26	8	54	1	33	2	238
KAO CORPORATION, S.A.U.	7	204	279	8	5	6	34	104	24	218	3	77	8	977

Source: Aspects assessment database

4.1.2 DIRECT ENVIRONMENTAL ASPECTS

The number of aspects has increased slightly compared to the previous year (10 registrations, incorporation of more environmentally friendly coolant gases and WEEE waste, as well as the segregation of waste from the dining room, and 2 casualties that correspond to pollutants from the source of the replaced boiler).

4.1.2.1 IMPACT ASSESSMENT UNDER NORMAL OPERATING CONDITIONS

The average environmental impact corresponding to each production centre under normal operating conditions and in relation to the aspects being assessed is detailed below.

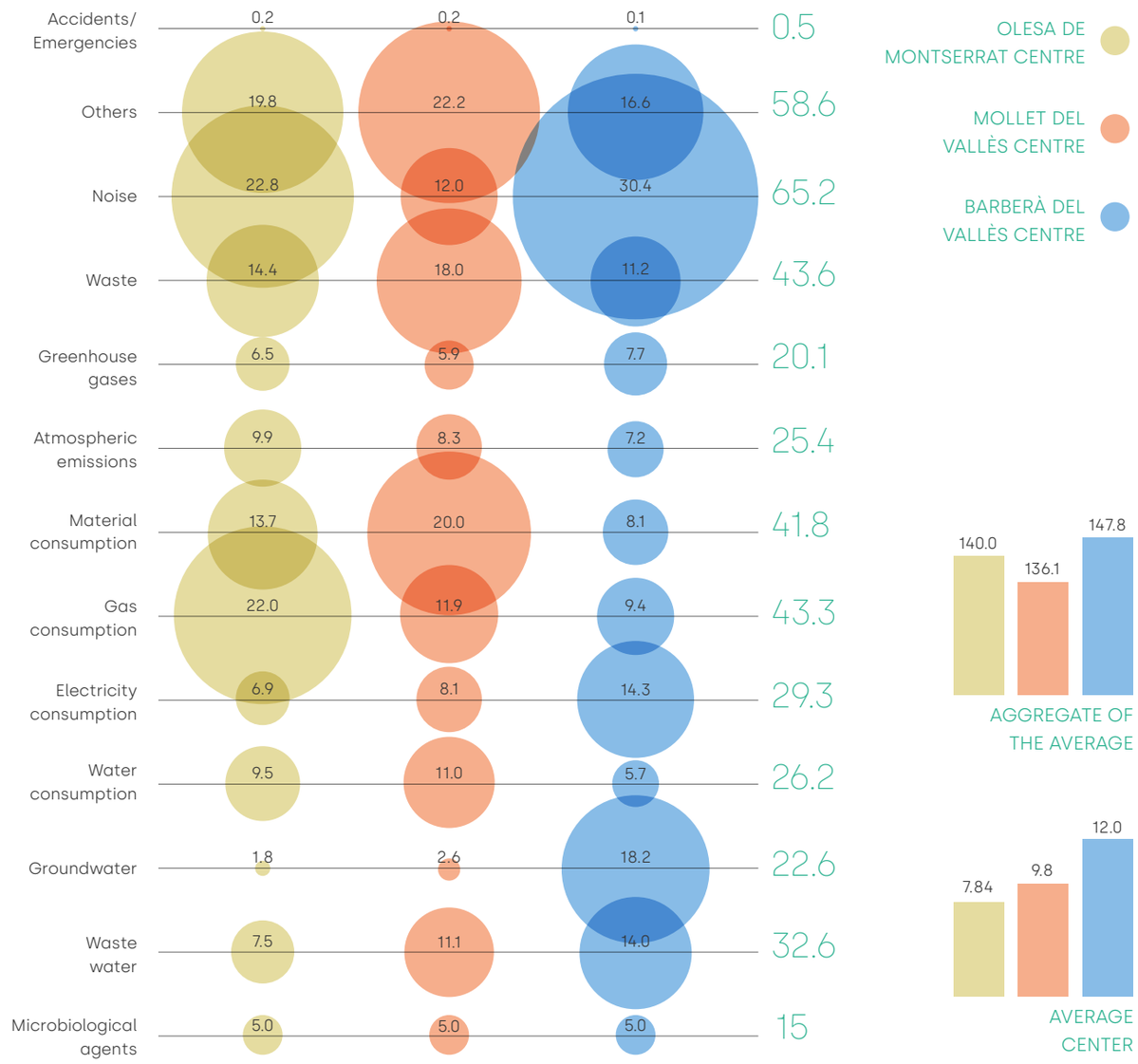


ILLUSTRATION 4.
AGGREGATE OF THE AVERAGE MAGNITUDE OF IMPACTS BY VECTORS AND CENTRES.

ILLUSTRATION 5.
AVERAGE MAGNITUDE OF IMPACT BY VECTOR AND CENTRE.

4.1.2.2 ASSESSMENT OF THE IMPACT UNDER ATYPICAL CONDITIONS

Atypical conditions at Kao Corporation, S.A.U. are those due to abnormal conditions (such as industrial tests), as well as possible emergency situations. Possible emergency situations are those included in the respective Self-protection Plans of the centres.
In the case of the Olesa de Montserrat and Mollet del Vallès centres, as they are both affected by the regulations governing the prevention of serious accidents (see paragraph 7.2), the major environmental aspects are those resulting from accident scenarios shown in the "Serious Accidents Safety Report".

4.1.2.3 ENVIRONMENTAL ASPECTS WITH A SIGNIFICANT IMPACT

Kao Corporation, S.A.U. considers an environmental aspect to be significant when the magnitude of impact is higher than fifty (mi > 50).
A consideration of significant may represent the implementation of preventive and/or corrective actions, new operational checks or the definition of environmental improvement targets, as applicable.
We therefore take into account the level of adaptation, which expresses the ratio of approximation between the magnitude or value of the indicator of the aspects to be assessed, with regard to the levels considered acceptable, limits or references that are not to be exceeded.
During the assessment of the aspects that was carried out in 2021 related with the actions that took place in 2020, no significant new impact was detected associated with atypical situations.
Nor have any significant impacts been observed with regard to indirect aspects.

ILLUSTRATION 6.
Significant aspects related with the activities carried out in 2020 and assessed in 2021

OLESA DE MONTSERRAT CENTRE

IMPACT	ASPECT	POLLUTING SUBSTANCE/ PARAMETER	AREA	CODE	mi:	CHANGE VERSUS ACCEPTABLE LEVEL	OBSERVATION
Water pollution	Waste water	Anionic detergents	Waste water treatment plant	AR-124	98	-94%	1
Water and soil contamination	Groundwater	Total xylenes	General	AS-116	57	-99%	2
Resources	Waste	1m³ containers	Production	RE-26	87	27%	3
		Miscellaneous solvents		RE-28	77	10%	
		Treatment plant sludge		RE-36	58	8%	
		Plastics, absorb.		RE-57	157	21%	
		NH solid waste		RE-60	53	70%	

1

AR-124: The average increases compared to last year and is the all-time high. Waste water with a greater load than what was managed externally as waste is being treated.
Action: Currently, we do not consider that any additional actions need to be taken other than monitoring the values obtained in the self-monitoring.

2

AR-116: All-time high; the highest concentration is detected in Pz-1.
Action: Follow-up.

3

RE-26: A larger volume of this type of waste has been generated in the aroma compounding plant. Depending on the consumption of raw materials, they can be received in containers with a larger capacity.
Action: Follow-up.
RE-28: The waste is significant due to the fluctuation inherent to this type of waste; every 3-4 years more is shipped. The quantity is lower than the all-time high.
Action: Follow-up..
RE-36: Confirmation of what was indicated the two preceding years: The improvements made to the treatment plant, as well as the lower volume of waste water, make treatment possible in the treatment plant, when it was previously managed as waste. Its higher organic load leads to greater generation of sludge.
Action: Follow-up.
Attempts have been made to subject sludge to external heat treatment without success.
RE-57: This aspect is significant due to having a higher removal frequency because it is used to complete platforms, meaning the waste is shipped with other waste to reduce storage times and locations. This is due to the storage capacity.
The platform is shared with other waste, so we also guarantee that 6 months of storage is not exceeded. After analysing the NCV for assessing the energy recovery of waste, the result is unfavourable. It must be repeated because the humidity obtained is extremely high for this type of waste.
Action: Follow-up.
RE-60: Cleanings and recoveries beyond the regular ones have been carried out.
Action: Follow-up. Perform NCV characterization to assess the energy recovery of waste.

MOLLET DEL VALLÈS CENTRE

IMPACT	ASPECT	POLLUTING SUBSTANCE/ PARAMETER	AREA	CODE	mi:	CHANGE VERSUS ACCEPTABLE LEVEL	OBSERVATION
Water pollution	Waste water	Inhibitor matter	Waste water treatment plant	AR-34	236	>200%	1
		Nonylphenol and ethoxylates		AR-101	138	-83%	
		BOD		AR-127	87	-51%	
Water and soil contamination	Groundwater	Barium	General	AS-37	76	>200%	2
Resources	Starting materials	Acrylic acid	Aromas	CM-014	83	17%	3
Resources	Waste	Aroma waters	Production	RE-5	68	115%	4
		Aroma waters tank		RE-6	89	17%	
		Empty containers		RE-35	66	85%	
		NH solid waste		RE-60	54	5%	
		Obsolete (KCHI)		RE-53	229	59%	
		Cont. plastics, abs. (KCHI)		RE-57	107	-12%	

1

AR-34: Anomalous value detected in the external control in May. A specific event that could be associated with accident MO-02/20. Additional analyses are performed to verify that it is resolved.
Action: In the future, ensure that high-load discharges are segregated and treated in the treatment plant at very low flow rates or they are managed as waste. If treated internally, analyse additional parameters more frequently to ensure compliance with the discharge limits.
AR-101: Detected in the sampling carried out in the extraction water (well).
Action: Maintain annual monitoring and, if detected again, provide for the analysis thereof in groundwater monitoring, which is carried out annually.
AR-127: A specific deviation of pH (more acidic waters), of unknown origin, causes the biological reactor to stop, a circumstance that affected the COD parameter. This even overlapped with the fact that the emergency pond was full due to storm Gloria, so little else could be done but to neutralize the pH.
Action: Keep the level of the emergency pond low, especially when heavy rain is forecast. Greater control over the use and storage of acidic or base substances. Maintain the control frequency for this parameter. Renovation of the waste water treatment system is being studied.

2

AS-37: Maximum concentrations are detected at Pz-10 and 11 (above 300 µg/L).
Action: Continue to carry out annual monitoring, and if the next sampling continues the upward trend, increase the sampling rate.

3

CM-014: The aspect is significant because it was evaluated with the limit values established before construction of the new lactone plant 4. Action: Update the limit value and continue to monitor.

4

RE-5 y RE-6: The aspect is significant because the limit value is calculated based on the average of the preceding three years when lactone production plant 4 did not exist.
Action: Continue to monitor.
RE-35: More quantity has been removed by incineration.
Action: Follow-up.
RE-60: The aspect is significant because the quantity is higher than the preceding year (although it is lower than the all-time high) and because the management route has not always been waste recovery.
Action: Follow-up.
RE-53 y RE-57: Waste generated by the activity of KCHI, which has been increasing production.
Acción: Follow-up.

BARBERÀ DEL VALLÈS CENTRE

IMPACT	ASPECT	POLLUTING SUBSTANCE/ PARAMETER	AREA	CODE	mi:	CHANGE VERSUS ACCEPTABLE LEVEL	OBSERVATION
Water and soil contamination	Groundwater	Cobalt	General	AS-142	56	-79%	1
		Vanadium		AS-146	51	>200%	
		1.1-Dichloroethene		AS165	308	-11%	
		Nickel and compounds		AS-35	496	-43%	
		Barium		AS-37	90	172%	
		Pentachlorophenol		AS-81	396	>200%	
		Tetrachloroethylene		AS-88	128	-84%	
Soil contamination	Waste	Maintenance water	Maintenance	RE-133	64	8%	2

1

The values of this campaign are increasing compared to previous years, and they are focused on one of the existing piezometers. Possible causes are investigated with the R&D, Engineering and Maintenance and Production departments, without identifying an active source of the cause. Past uses are also being investigated and a soil gas campaign is carried out to limit the extent.

Action: Maintain annual monitoring and continue in the line of work to narrow the scope.

2

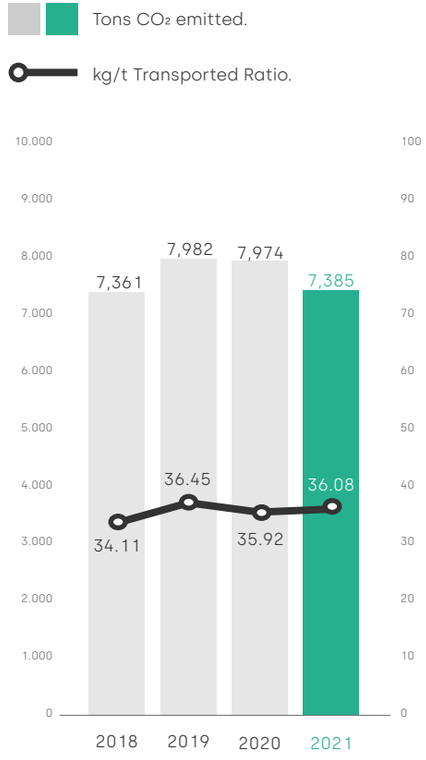
RE-34: A packaging operation is performed on a mixture of 3 raw materials, which requires the use of bags that are then discarded.
RE-133: Significant aspect since 2017. The variability in the product portfolio is maintained, which involves more cleaning of the sieves.
Action: For the time being, no actions have been identified that would allow reducing the generated volume.

4.1.3 INDIRECT ENVIRONMENTAL ASPECTS

Indirect environmental aspects are those aspects that cannot be directly managed, despite their potentially negative impact on the environment. We can highlight the following:

ILLUSTRATION 7.

Evolution of CO_2 emissions in transport



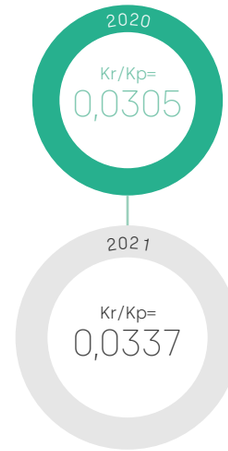
Transportation of finished products

The transport of finished products to numerous national and international destinations generates gas emissions through the combustion of diesel, as well as particulates and other minority pollutants, such as the tropospheric ozone. In 2017, the group defined a common methodology for calculating CO_2 emissions due to transport, useful for both the finished product and the raw material. The method considers the tons transported and the distance travelled. The calculation allows comparing the annual evolution of emissions from transport and assessing the results that could stem from future changes. The assessment of this indirect environmental aspect concludes that it is not significant. Multimodal transport has been maximized and is taking place at many of the main destinations. In 2021, the emission ratio is increasing slightly due to shipments by ship, rail and road, which worsen the ratio compared to the preceding year *(illustration 7)*.

Distribution of packaged products

The finished product is packaged in a range of containers made from various materials (metals, plastic), often selected by the customers for product presentation purposes, and therefore considered to be an indirect aspect. These enter the market through to the end of their service life, when they are recycled or removed as waste. The internal management and sales actions included in the Corporate Container Prevention Plan (PEPE) are targeted at decreasing the Kr/Kp rate, where:

— Kr: weight of container
— Kp: weight of the product contained



The global ratio is 2020 improving thanks to the quantity shipped in bulk. In 2021, a greater supply of products packaged mainly in metal drums was required, to the detriment of bulk supply; this explains the decline in the global ratio. This situation also happens in the domestic market. The sales team maintains close contact with customers in order to optimize material deliveries so that they are carried out in bulk whenever possible, as well as in packages that improve the Kr/Kp ratio. In this area, the draft Royal Decree on Packaging and Packaging Waste will encourage actions aimed at optimizing this ratio. The environmental aspect continues to be non-significant.

4.2 ENVIRONMENTAL OBJECTIVES

4.2.1 FORMULATION OF ENVIRONMENTAL TARGETS

Kao Corporation, S.A.U. has ratified the long-term objectives of the parent company, and it annually defines the environmental objectives according to the current situation (strategies for improvement and analysis of priorities, internal needs, external requirements, etc.). In any case, the development and execution thereof are aimed at continuously improving the environmental performance of the organization and achieving the long-term objectives.
Since 2017 and by reason of the effort to adapt the new requirements to the new edition of ISO 14001, the analysis process prior to the establishing of objectives has been completed and improved, which in addition to taking into account the annual review that Management carries out of the efficiency of the management system and the determining of the conformity with the obtained results, the following aspects are also taken into account:

— The results of the assessment of the internal and external context of the company
— The results of the risk assessment and opportunities
— The results of the assessing of the needs and expectations of the internal as well as external interested parties of the company

In 2020, the Eco Together program concluded, which defined the corporate objectives for the 2011-2020 period, in order to make way for the Kirei Lifestyle Plan.
The Kirei Lifestyle Plan covers the 2021-2030 period and uses different reference years depending on the aspect in question.
The Kirei Lifestyle Plan, in addition to establishing objectives for the same environmental aspects as its predecessor (water, waste and energy), expands both the areas of action and the requirements.
The objectives cover several areas: environmental decarbonization (increasing the rate of renewable energy from purchased electricity and reducing the absolute value of GHG emissions), reducing waste (zero waste in landfills and simple incineration) and preventing air and water pollution.

TABLE 1.

The commitments acquired for 2030 to make the world a healthier and cleaner place are the following:

SCOPE	INDICATOR	OBJECTIVE VALUE	BASE YEAR
Decarbonization	Reduction of scopes 1 & 2 CO_2 emissions, absolute	55%	2017
Energy	Purchased renewable electricity	100%	-
	Reduction of energy consumption	1%	Preceding year
Zero waste	Reduction of the ratio of industrial waste to landfill and incineration	<1%	-
Water conservation	Reduction of water consumption	45%	2005
Biodiversity	Promoting the conservation of biodiversity	1%	Preceding year
Resources	Purchase of RSPO certified palm oil	100%	-

TABLE 2.

These long-term goals are specified for 2021 in:

INDICATOR	OBJECTIVE VALUE	BASE YEAR
Reduction of scopes 1 & 2 CO_2 emissions, absolute	7%	2017
Purchased renewable electricity	100%	-
Reduction of energy consumption	1%	Preceding year
Reduction of the ratio of industrial waste to landfill and incineration	<preceding year	-
Reduction of the waste generation ratio	1%	Preceding year
Reduction of water consumption	41%	2005
Promoting and conserving biodiversity at KCSA workplaces (Increase score vs preceding year)	<preceding year	550 346 520
Purchase of RSPO certified palm oil	<preceding year	-

4.2.2 IMPLEMENTED ENVIRONMENTAL IMPROVEMENT TARGETS

The 2021 goals are indicated below: The achieved objective[6] is calculated as the mean achievement reached by each one of the centres. An example is provided in the table below *(table 3)*.

The table below *(table 4)* lists the value of the year used as a reference for calculating the degree in which the goals are reached.

The value and rate for the year may be seen in the indicators table of the applicable vector.

The achievement reached by a centre in a year is calculated as: (Base year ratio — $Year_i$ ratio) / Base year ratio.

TABLE 3.

	CENTRE 1	CENTRE 2	CENTRE 3	TOTAL ACHIEVEMENT %
Objective	3% reduction			-
Reached objective	0%	1,2%	4,3%	-
% achieved	0	$\frac{1,2 \times 100}{3} = 40$	100	$\frac{0+40+100}{3} = 46,67$

TABLE 4.

	OLESA DE MONTSERRAT	MOLLET DEL VALLÈS	BARBERÀ DEL VALLÈS	KAO CORP., S.A.U.
Emissions of scopes 1 and 2 (t CO_2e) [EA-] in 2017	33,374	17,132	6,206	56,712
Water consumption (m^3) [CA-G]	258,091	492,939	23,075	774,105
Ratio (m^3/t) en 2005	5.30	10.22	9.78	7.80
Energy consumption per ton sold (MWh) [Cx-G]	101,263	94,719	16,088	212,070
Ratio (MWh/t) in 2020	1.56	1.71	8.61	1.73
Generation of waste (t) [RE-]	3,748	4,436	282	8,466
Ratio (Kg/t) in 2020	57.75	82.01	150.92	70.05
Ratio of industrial waste to landfill and incineration (%)	47.37	21.86	10.88	31.78
RSPO certified palm oil (%) in 2020	-	-	-	23.51

Source: MAESTRO.xlsx

[6] 100%: Equal to or higher than the target value defined. 0%: No action performed or results below the starting value.

ILLUSTRATION 8.
Objectives developed in 2021

ASSOCIATED ASPECT: WATER CONSUMPTION [CA-G]
Reduction of 41% in water consumption as compared to 2005.

The decrease achieved by each centre is as follows:

OLESA
DE MONTSERRAT
56.6%

— Improvements in the management of osmo sis water by optimizing the operating time of the osmosis plant

MOLLET
DEL VALLÈS
67.9%

— Optimization of steam consumption in tanks and the tablet press

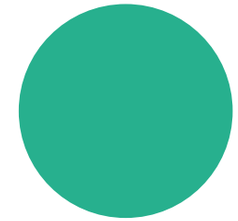
BARBERÀ
DEL VALLÈS
78.4%

TOTAL KAO
CORPORATION, S.A.U.
57.5%

The achievement is due to the actions taken during previous years and to strict control and daily monitoring of the water consumption from different uses.
Actions carried out in 2021 that result in lower water consumption:

REFERENCE MA-08

ACHIEVED
100%



ASSOCIATED ASPECT: ELECTRICAL ENERGY [CE-G]

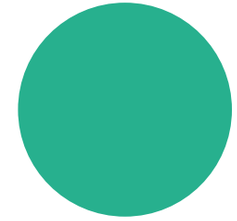
Purchase of 100% renewable electricity.

TOTAL KAO CORPORATION, S.A.U.

KCSA has signed a contract for the supply of electricity exclusively from 100% renewable energy sources certified by the National Commission on Markets and Competition (CNMC).

ACHIEVED

100%



ASSOCIATED ASPECT: ENERGY SAVING [CX-G]
Decrease of energy consumption by 1% vs 2020.

The decrease achieved by each centre is as follows:

OLESA
DE MONTSERRAT
0%

— Improvements in osmotic water management by optimizing the operating time
— Automation of the cooling water pumps

MOLLET
DEL VALLÈS
0%

— Optimization of steam consumption in tanks and the tablet press
— Automation of the cooling water pumps
— Replacement of the KM-1421 stirrer motor with a more efficient one, type IE3
— Optimize the operation of the B-4301 blower

BARBERÀ
DEL VALLÈS
0%

— Replacement of the PC-200 air compressor with a more efficient one, type IE3

TOTAL KAO
CORPORATION, S.A.U.
0%

Although a program of actions is established annually and these actions are included in the Sustainability Plan, they have not been able to compensate for the energy ratio of the current production mix.
The products requested by our customers require a higher energy demand, either because they require a smaller particle size or longer cycle times and/or greater thermal demand.
However, had we not implemented any action, the ratio would have been more unfavourable.

The most notable actions are:
— Replacement of conventional light fixtures with LEDs.

REFERENCE MA-09

ACHIEVED
0%

ASSOCIATED ASPECT: CO_2 EMISSIONS [EA-24]

Annual reduction of 7% in CO_2 emissions (scopes 1 and 2) vs 2017.

The decrease achieved by each centre is as follows:

OLESA DE MONTSERRAT
18.4%

MOLLET DEL VALLÈS
23.0%

BARBERÀ DEL VALLÈS
98.7%

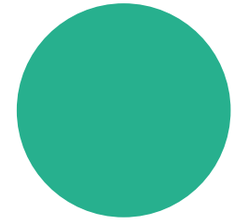
TOTAL KAO CORPORATION, S.A.U.
28.6%

The annual goal has been achieved basically thanks to the green purchase of electricity.

— In 2021, work has been carried out on the roadmap to meet the corporate goal defined for 2030.

REFERENCE MA-10

ACHIEVED
100%



ASSOCIATED ASPECT: WASTE [RE-]

Reduction of 1% in waste generation as compared to 2020.

The main actions that are being carried out are shown below:

OLESA
DE MONTSERRAT
4.2%

— Improvement in the aldol reaction through better control over addition of the catalyst.
— Recovery of the organic phase in the isomerization phase.
— Replacement of containers for receiving raw materials.

MOLLET
DEL VALLÈS
0%

— Reduction of the consumption of C8 Alcohol in the production of crude Undecalactone.
— Reduction of the consumption of C6 Alcohol in the production of crude Nonalactone.
— Recovery of volatile alcohol in Aromas II.

BARBERÀ
DEL VALLÈS
6.9%

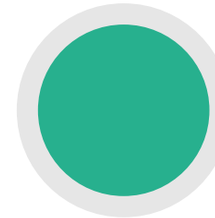
— Recovery of fines.

TOTAL KAO
CORPORATION, S.A.U.
0%

The goal has been achieved at two of the three centres. The progress is very remarkable. At the Mollet del Vallès centre, the actions to improve performance carried out in the aroma process have not been able to compensate for the impact of the product mix on the centre's ratio, where the production of surfactants has dropped.
The main factors that have hampered achievement of the goal have been:
— Scrapping of installations: 317 tons in Mollet del Vallès. In the other two centres they are irrelevant.
— Modification of the production mix. The aroma production business (Olesa and Mollet) has grown with respect to the surfactants business. The former has a larger ratio, meaning that it generates a larger amount of waste per ton produced.
— Another cause, also associated with the increase in aroma production, is the greater generation of Waste oil, which has not been completely absorbed with the sale of a derivative, therefore necessitating the management of this substance as waste (See comments in the waste indicators section, 7.1.1.4).

REFERENCE MA-11

ACHIEVED
67%



ASSOCIATED ASPECT: WASTE [RE-]

Reduction of the weight of industrial waste destined for a landfill or incineration vs 2020.

The percentage of waste destined for a landfill or incineration per centre was:

OLESA DE MONTSERRAT

2020— 47%
2021— 42%

MOLLET DEL VALLÈS

2020— 22%
2021— 14%

BARBERÀ DEL VALLÈS

2020— 10.88%
2021— 10.64%

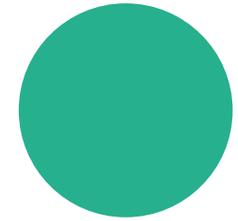
TOTAL KAO CORPORATION, S.A.U.

2020— 32%
2021— 21%

The goal for 2021 has been met at all three centres, although alternatives must continue to be sought for the management of certain waste, such as sewage sludge, in order to achieve the long-term goal.

REFERENCE MA-09

ACHIEVED
100%



ASSOCIATED ASPECT: BIODIVERSITY [OA-]
Promote and conserve the biodiversity of KCSA workplaces.

The score achieved in the 2021 self-assessment is:

OLESA
DE MONTSERRAT
585

MOLLET
DEL VALLÈS
376

BARBERÀ
DEL VALLÈS
525

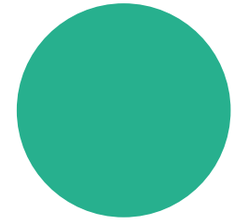
TOTAL KAO
CORPORATION, S.A.U.

This corporate objective has been modified. Initially, the matrix established that all companies of the group must equal or exceed 460 points in the assessment form prepared by Kao Japan.
These three years of experience have shown that, for some of the plants, it is impossible to achieve this score due to their construction characteristics and dimensions. That is why this objective has been reformulated, consequently emphasizing actions to promote and conserve local biodiversity.
KCSA maintains the objective of improving biodiversity, while in the case of Mollet del Vallès, adjusting the objective to the possibilities of this centre.

The actions carried out at the centres, in addition to those implemented annually, such as the biodiversity route, are:
— Monitoring of existing nest boxes and insect hotels in Barberà del Vallès and the installation of nest boxes in Mollet del Vallès and Olesa de Montserrat
— Planting of plants by new staff
— Selection of the species of the year: the House Sparrow (Passer domesticus). Carrying out various informative actions to inform about the species (posters and emails, sensory panel, virtual quiz game, etc.).

REFERENCE MA-13

ACHIEVED
100%



ASSOCIATED ASPECT: RESOURCES [CM-]

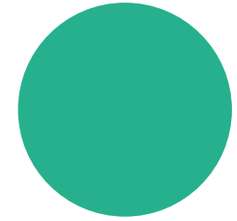
Purchase of RSPO certified palm oil higher than the purchase of the preceding year.

TOTAL KAO
CORPORATION, S.A.U.

This corporate objective is the commitment made by the Kao group to supply all products based on sustainable palm oil if the customer requires it. Collaboration with customers and Kao's subsidiaries means the increased consumption of RSPO certified products and it has allowed increasing the percentage from 23.51% to 26.83% of the previous year, thus contributing to transformation of the market towards more sustainable supply chains.

ACHIEVED

100%

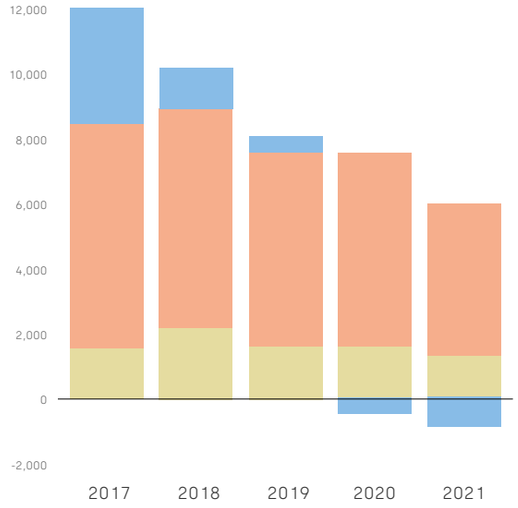


The following graphs show the results obtained over the past 5 years, as well as the contributions of each establishment to the actions undertaken since 2010 to reduce water consumption, electricity consumption and waste generation.

ILLUSTRATION 9.
Progress of the achievements reached

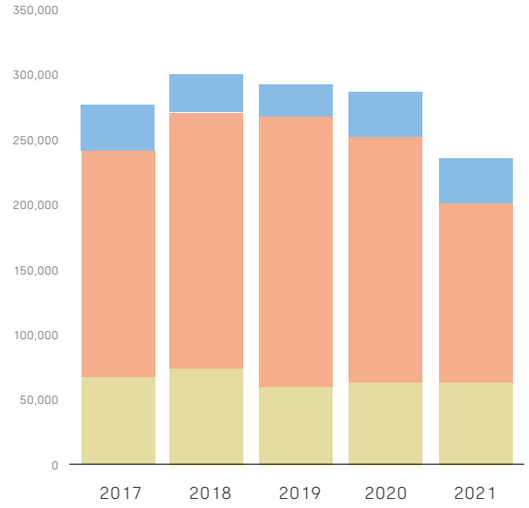
REDUCTION IN ELECTRICAL CONSUMPTION
Data in MWh

↓ 83,370 MWh
Savings in electrical consumption since 2010



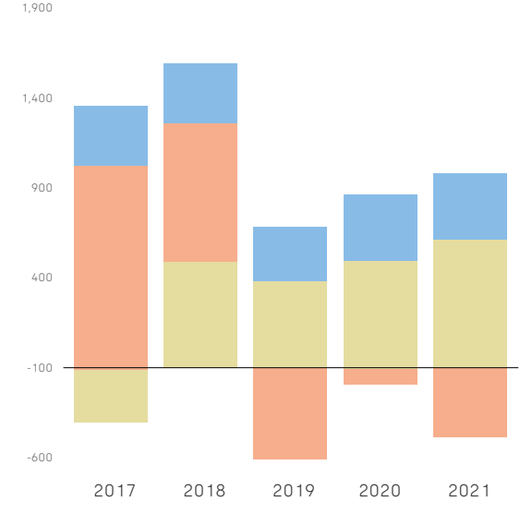
REDUCTION IN WATER CONSUMPTION
Data in m³

↓ 2,209,098 m³
Water consumption savings since 2010



REDUCTION IN WASTE GENERATION
Data in t

↓ 6,600 t
Waste prevention since 2010 (construction/demolition waste considered)



4.2.3 PLANNING OF NEW TARGETS FOR 2022

The objectives for 2022 have been defined using the described methodology, and considering, among other aspects, actions related to the Kirei Lifestyle Plan, focused on making the world healthier and cleaner. This Plan defines objectives that must be addressed annually in order to achieve the long-term objective. Another line of work that includes a schedule of actions apart from the regular objectives continues to be promotion of the environmental aspect of Corporate Social Responsibility (see section 5.4.2).

TABLE 5.

The commitments acquired for 2022 to make the world a healthier and cleaner place are the following:

SCOPE	INDICATOR	OBJECTIVE VALUE	BASE YEAR
Decarbonization	Reduction of scopes 1 & 2 CO_2 emissions, absolute	12%	2017
Energía	Purchased renewable electricity	100%	-
	Reduction of energy consumption	2%	2020
Residuo cero	Reduction of the ratio of industrial waste to landfill and incineration	<preceding year	2021
	Reduction of the waste generation ratio	2%	2020
Conservación del agua	Reduction of water consumption	45%	2005
Biodiversidad	Improve the score achieved the preceding year		2021

5. SUPPORT

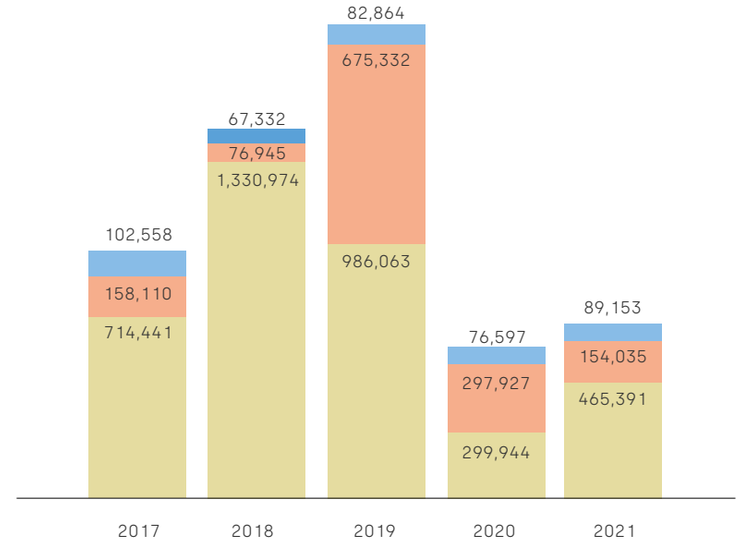
For maintenance and continuously improving the environmental management system, Kao Corporation, S.A.U. has the support of the Kao group, which incorporates the necessary economic resources for making the necessary investments to improve existing technologies or implement new technologies, as well as the necessary human resources for sharing the experiences, concerns and initiatives of all the subsidiaries.

5.1 RESOURCES

The group's main resource is their employees, who every day, through their commitment and hard work, achieve and maintain the high standards that are set by the group. Kao Corporation, S.A.U. considers environmental investments to be an essential part of sustainable business development and gives such investments the same value and importance as other corporate areas. Since 2015 the company has implemented a method that allows carrying out a detailed quantification and analysis of the environmental costs and investments. This method can be used to determine the environmental costs associated with personnel, the operation of pollution mitigation facilities (waste water treatment, gas washer or scrubbers, etc.), more energy-efficient equipment, investments or waste management, among others. At the investment level, the following graphic shows the evolution of investments in environmental matters. Regarding investments in 2021, they have been distributed among the various environmental vectors, with the areas of atmospheric emissions, energy savings and waste receiving the most financial resources.

ILLUSTRATION 10.
Annual evolution of environmental investments made

TOTALS	2020
2017	674,468
975,109	2021
2018	708,578
1,475,252	
2019	
1,744,259	



5.2 TRAINING IN SAFETY AND THE ENVIRONMENT

The training and instruction of employees continues to be an essential issue for the company. Throughout 2021, Kao Corporation, S.A.U. gave 161 hours of training on safety and the environment, with an overall impact of 1,387 effective hours (Σ hours of training x attendees).
In 2021, the online training module on waste management was developed in order to acquire or maintain the basic knowledge necessary to contribute to proper waste management.
Work also continues on improving the process of evaluating the efficiency of the training given, which is a complex task due to the difficulty of establishing indicators that are reliable and objective.

5.3 INTERNAL COMMUNICATION AND PARTICIPATION

The management system for risks prevention includes a wide range of systems targeted at encouraging internal communication. These systems try to ensure that all company personnel receive health and environmental information and in turn can pass on this information.
The systems available include multiple channels and groups, but they all share the fact that these are corporate purpose-built channels.
There are many channels, ranging from the classic meetings or committees through to the use of new technologies such as intranets or interactive portals.
The meetings that are systematically held by each work team are referred to as waterfall committees (137 in 2021). These meetings have a prearranged agenda, with set items to be dealt with such as changes dealt with in the area, achievements in safety and the environment of the area and programmes and procedures.
The first waterfall committee is called the Corporate HSE Committee, and it receives the most relevant information from the company's waterfall committees and vice versa.
This committee defines the policy, reviews the system every year and sets the company's targets. It also regularly visits the work centres, applying the Japanese principle of "genba-ism", viz., proximity to the customer.
The Safety and Health Committee and the Self-protection Committee are also kept operational, if applicable, to handle issues related to environmental management.
Other communication systems are the safety and environment intranet, the employee portal (Kaonet HR) the QA web (Quality Assurance), the financial department and KOMPASS (corporate intranet shared by all the subsidiaries of the group). All these enable corporate information to be obtained without any kind of distortion and to interact with this information in multiple ways, from making suggestions to taking self-teaching courses.
Internally, the comprehensive health promotion project is worth mentioning, from which a new line of action is derived for the company, focussed primarily on promoting health from a prevention perspective.
It is organized in the form of three-year periods that address cardiovascular health, the musculoskeletal system and emotional well-being.

5.4 EXTERNAL COMMUNICATION

Management explicitly determines the stakeholders of the company in terms of all the RPMS (Risk Prevention Management System) areas.

For each of the interested parties that have been identified, we have analysed their expectations and needs and have assessed the measure in which these expectations and needs are satisfied by the company.

Some of the tools that are most widely used for external communication in terms of the environmental aspects are provided below:

5.4.1 KAO GROUP

The Kao Group uses three communication tools to report corporate activities to its stakeholders (http://www.kao.com/):

- Kao Overview that describes the corporate philosophy, the business performance and the specific initiatives to enable "unconditionally satisfying and enriching the lives of people around the world".
- Kao Integrated Report: presents the activities that create value with their financial and non-financial information.
- Kao Sustainability Data Book: This report introduces the different activities of the Kao Group in terms of "profitable growth" as well as "contributing to the sustainability of the world" by means of solving social problems.

5.4.2 KAO CORPORATION, S.A.U.

Moreover, Kao Corporation, S.A.U. publishes information about its non-financial information (policies, analyses, strategies, human resources management, etc.), as well as information about its products, events and indicators on the Kao Chemicals website (http://www.kaochemicals-eu.com/) and through this Environmental Statement.

Each year the organisation promotes a series of projects that are in line with the principles of the Sustainability and Risk Prevention Policy and aimed at improving the impact of the company on its surrounding environment as well as contributing to society. Among other activities, this aspect of CSR promotes the voluntary participation of personnel from Kao Corporation, S.A.U. in activities organised by the cities where it is present, for example, the annual planting of trees in Mollet del Vallès, in which the company has participated in for the seventh year in a row, while also making financial contributions for support.

It should be noted that the mobility limitations and social groupings as a result of the pandemic have resulted in fewer activities compared to previous years.

Other actions carried out in 2021 include:

- Food collection to ensure families in need have access to sufficient food that is also safe and healthy. In this area, collaboration took place with the Red Cross and the Food Bank.
- Toy collection campaign for Christmas.
- Safety day, which includes the biodiversity route.
- Online workshops to address various subjects: learning about diabetes, early detection of diabetes and real food.
- As part of the SecondLife program, computer and hygiene equipment has been donated to the Women's Association of Burkina.

— Collaboration with the Portolà Foundation to provide the staff of Kao Corporation, S.A.U. with a solidarity gift for the Christmas holidays.
— Collaboration with L'Obra Social de Sant Joan de Déu on the delivery of a book stand for Sant Jordi containing seeds for planting.
— Blood donation campaign.

On the other hand, Kao Corporation, S.A.U. replies to all requests for information or complaints from neighbours of the cities where it carry out its business.

5.4.3 BUSINESS ENVIRONMENT

Kao Corporation, S.A.U. actively participates with different organisations, enterprises and work groups within the sphere of safety and the environment. The main organisations of which it is an active member are:

— FEDEQUIM, Federation of Chemical Companies of Catalonia, which in turn is a direct member of FEIQUE, the employers' organisation of the chemical sector and which organises multiple specific commissions in the areas of safety and the environment.
— AEPSAT, Spanish Association of Producers of Substances for Surfactant Applications founded in 1993.
— Since 1985, it has been a member of COASHIQ, the Independent Commission for Health and Safety at Work in the Chemical Industry. As part of this organisation, Kao Corporation, S.A.U. forms part of the governing board and has been coordinating one of its Committee for 29 years now. Furthermore, as a member of FEIQUE, Kao Corporation, S.A.U. has adhered to the Responsible Care programme since it was introduced in Spain in 1993.

5.4.4 SCHOOLS AND TRAINING CENTRES

Kao Corporation, S.A.U. provides grants to students in middle and higher education cycles in chemistry by providing scholarships that facilitate the continuation of their studies. Candidates are evaluated according to the criteria of income, academic record and personal evaluation. The students awarded scholarships through this program belong to the High Schools of Barberà del Vallès and Mollet del Vallès. Throughout the year, the company also organizes open-house days and visits to production plants for students in high school, vocational training and university.

5.4.5 ADMINISTRATIONS

Kao Corporation, S.A.U., as member of the working group created in the environmental area of FEDEQUIM, has participated in drafting the documents sent to the Directorate General of Environmental Quality with the aim of improving the environmental inspection efforts that are carried out in the wake of implementation of the comprehensive environmental inspection plan of Catalonia; in addition to participating in the regulatory proposal on waste management and atmospheric emissions instruction. Annually, visits are made to the City Halls of the three municipalities where the centres of the Kao group are located, and meetings are also held with competent authorities on water, waste and the atmosphere to talk about issues of interest related with the activity carried out by Kao Corporation, S.A.U., as well as with the Unified Environmental Management Office and with Acció: Catalonia Trade & Investment.

5.4.6 THE MEDIA

In 2021 there have been no requests for information submitted by the media.

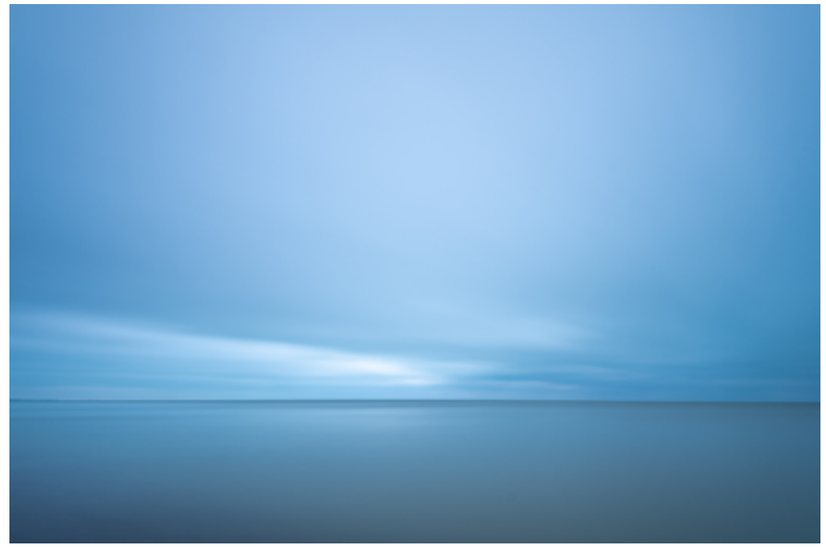
5.4.7 SUPPLIERS AND CLIENTS

Communicating with suppliers is an essential element to achieve the environmental objectives. Kao maintains different systems that facilitate a proper exchange of information and documents. At the corporate level, a supplier evaluation system that considers various scopes is being promoted, the main ones of which are respect for human rights, safety management, environmental management and product safety. Therefore, software that has been extensively implemented in the chemical sector is used.
This does not detract from performing other activities that are in accordance with the corporate value, Yoki-Monozukuri[7], and the principle of genba-ism[8], which defines the importance of observing things on site, at their real location and in their real environment.
Suppliers are normally audited and visited annually. This is done to increase our understanding of commercial operations to the utmost and to optimize performance. For these purposes, the waste managers are providers. Annually, a visit/audit is carried out of at least one of them and reported to the group. In 2021, as a result of the pandemic, they were not scheduled.
Regarding communications with *customers*, they are based on providing the Safety Data Sheets and technical information on each product prior to the first delivery and in the event of any updates.
On the other hand, the Customer Service Department continues to receive numerous customer surveys, thereby requesting data on safety and the environment, among other data.
It is worth mentioning that, just like Kao when it is acting in this capacity, clients are increasingly requesting information via structured software such as Sedex or Ecovadis, which determine the company's score based on their responses.
In the case of Ecovadis, KCSA holds the "platinum recognition level", which places it among the best companies evaluated by this organisation.

[7] Yoki means good/excellent while Monozukuri means development/ manufacturing of products.

[8] Genba means a real place.

6. OPERATION



6.1 OPERATIONAL CONTROL

Kao Corporation, S.A.U. uses management procedures, standard operational safety instructions, operating procedures, basic safety rules and other documents to define how the processes must be carried out, what must be controlled, how and with what frequency.
This gives rise to certain records that are documented proof of how certain actions have been carried out or of their results.
This documentation is used to meet the different requirements of the organisation such as this environmental declaration, which is drafted based on the indicators obtained from the records that are generated by the system.

6.2 EMERGENCY PREPARATION AND RESPONSE

Kao Corporation, S.A.U. has two facilities affected by the regulations governing the prevention of serious accidents (Royal Decree 840/2015) at the highest level, specifically affecting the facilities at Olesa de Montserrat and Mollet del Vallès.
This entails extremely high levels of safety, already laid down in the policy, both with regard to the organisation as well as the part that refers to installations and the entire sphere of human behaviour.
As laid down in the regulations, each establishment has to prepare the "Serious Accidents Safety Report" (SR), which is submitted to Management together with the Assessment Report drawn up by the authorised organisation. These reports are submitted every five years, providing no substantial changes have taken place in the interim period.
Kao Corporation, S.A.U. has satisfied the procedures in this area in the proper time and manner.

Crisis communication

Since 2012, Kao Corporation, S.A.U. has had a manual for crisis communications, which has been updated based on the lessons learned during drills, as well as from real events.
Once a crisis situation is under control, we must always conduct an assessment to determine ways to improve our actions in future situations. All these lessons learned have been compiled in the third edition of the manual approved in 2018.
The last activation of the crisis committee was in 2020 with the outbreak of the pandemic.
In 2021, the activity of the crisis committee consisted in participating in the simulation of an accident involving the transport of dangerous goods.

Collaboration with other companies of the group: SHEEP group

Since 2014, the Kao group has been encouraging companies that are part of Kao Chemicals Europe to meet periodically for the purpose of exchanging experiences and knowledge related with safety and the environment.
Executives and technicians from Kao Chimigraf (located in Spain), Kao Chemicals Germany (located in Germany) and Quimikao (located in Mexico) as well representatives from Kao Japan and Kao Corporation, S.A.U. participate in this forum.
Acronym SHEEP stands for "safety, health, environment, engineering & production" and its purpose is to register all the subjects that are discussed at the different meetings.
The circular economy, energy efficiency, innovation and harmonization of the environmental indicators are currently being promoted.

Action in the case of an emergency

Kao Corporation, S.A.U. has a Self-protection Plan for each of its centres (3), which is kept up-to-date and reviewed every three years.
In accordance with Decree 30/2015, d'Autoprotecció, the Self-protection Plans of the Olesa de Montserrat and Mollet del Vallès centres must be submitted to the Civil Protection Agency for certification through the Hermes platform. Both have been submitted and certified by the aforementioned administration.
In order to check that the different plans are appropriate and check the degree of training for those in charge of carrying out actions, the company conducts 16 drills every year. In 2021, the drills consisted in simulating intrusions at each of the centres.
Kao Corporation, S.A.U. has a crew of Company Fire Fighters, some of them with an advanced level of qualification, and personnel trained in administering first aid, ensuring that a minimum of two qualified personnel are present on each shift. Each facility has an AED unit.

7. EVALUATION OF **PERFORMANCE**

The following table *(page 52)* shows consumption of energy at the three production centres, where:

— Total consumption: It is the sum of electricity consumption, heat consumption and diesel consumption.

— Natural gas consumption: It is the overall consumption of gas, meaning the amount consumed in the steam and thermal oil boilers, as well as the amount consumed in cogeneration for electricity production and by the thermal oxidizer. Since 2017, all the electricity produced is sold and the necessary electricity is purchased. The Olesa de Montserrat centre is the only centre with a cogeneration plant and a thermal oxidizer.

— Diesel consumption: It is used for fire-fighting pumps at each of the centres and for forklifts at the Olesa de Montserrat and Mollet del Vallès centres. In the case of Olesa, also for a tractor unit for internal use.

— Heat consumption: This is the consumption of Natural gas used in the steam and thermal oil boilers.

7.1 ENVIRONMENTAL BEHAVIOUR

7.1.1 ENVIRONMENTAL INDICATORS

Beginning in 2017, all indicators related with the Mollet del Vallès centre include the activity carried out by Kao Chimigraf at the facilities of said centre, given that this activity has been added to the Integrated Environmental Authorisation of Kao Corporation, S.A.U.

7.1.1.1 ENERGY EFFICIENT INDICATORS

All the energy consumed is purchased in cases where the Olesa de Montserrat centre has a cogeneration plant. Since 2019, electricity purchases come from 100% renewable energy that is certified by the National Commission on Markets and Competition (CNMC).

TABLE 6.

Basic energy efficiency indicators

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
Total consumption (MWh)	99,007	99,492	99,844	101,263	100,916
Total consumption / Final production (MWh/t)	1.54	1.50	1.56	1.56	1.57
Renewable energy consumption (%)	2.28	1.76	16.39	16.52	16.76
Electricity consumption (MWh)	16,619	16,703	16,364	16,731	16,916
Consumption of electricity purchased (%)	100	100	100	100	100
Electrical consumption / Final production (MWh/t)	0.26	0.25	0.26	0.26	0.26
Natural gas consumption (GJ)	463,910	464,346	474,160	480,429	469,714
Natural gas consumption / Final production (GJ/t)	7.21	6.99	7.43	7.40	7.29
Consumption (GJ)	1,199	1,151	889	1,201	1,084
Diesel consumption / Final production (GJ/t)	0.02	0.02	0.01	0.02	0.02
Heat consumption (MWh)	82,055	82,470	83,234	84,198	83,700
Heat consumption / Final production (MWh/t)	1.28	1.24	1.30	1.30	1.30

	2017	2018	2019	2020	2021
MOLLET DEL VALLÈS CENTRE					
Total consumption (MWh)	87,680	88,508	84,334	94,719	91,980
Total consumption / Final production (MWh/t)	1.63	1.67	1.59	1.71	1.92
Renewable energy consumption (%)	1.79	1.36	13.29	12.77	12.72
Electricity consumption (MWh)	11,564	11,483	11,208	12,091	11,696
Consumption of electricity purchased (%)	100	100	100	100	100
Electrical consumption / Final production (MWh/t)	0.21	0.22	0.21	0.22	0.24
Natural gas consumption (GJ)	221,997	224,192	214,480	244,502	232,633
Natural gas consumption / Final production (GJ/t)	4.12	4.23	4.04	4.40	4.87
Consumption (GJ)	493	492	469	499	618
Diesel consumption / Final production (GJ/t)	0.01	0.01	0.01	0.01	0.01
Heat consumption (MWh)	75,979	76,889	72,995	82,489	80,113
Heat consumption / Final production (MWh/t)	1.41	1.45	1.38	1.49	1.68

NOTES FOR INTERPRETING THE EVOLUTION OF INDICATORS:

The total energy consumption of Kao Corporation, S.A.U. has decreased, but the ratio has increased. The main reason is the product mix, which requires more energy. The centres of Mollet del Vallès and Barberà del Vallès are where this situation is most evident. While at the Mollet del Vallès centre, the increase is due to the thermal demand because of the addition of aroma plant IV, which has seen its production increase by 24% compared to 2020.

In Barberà del Vallès, the increase is due to the fact that the demanded products are those that require a greater consumption of services, between 8 and 12 kWh/t, as opposed to products that consume less energy, between 4 and 6 kWh/t, which has decreased.

The current demands of the market require a toner with a smaller particle size and this requires a greater energy consumption in order to reach the desired atomization.

In relation to Kao Chimigraf, the electricity consumption of the activity was 3.5% compared to the consumption of the centre. It was higher than the preceding year. This activity does not require the supply of natural gas, nor does it require thermal energy for the production of its products, except to ensure the climate conditions in the building.

If we compare energy consumption in relative terms with respect to the sector[9] (companies that are members of Responsible Care), our consumption is higher (6.6 compared to 4.03 GJ/tonne produced). The heterogeneity of the chemical sector should be noted, which ranges from large volume companies to small businesses, meaning that it comprises highly complex industrial facilities that, with different processes and products, are subject to constant changes in growth and adaptation; we are a clear example, with three establishments in the same sector that are not fully comparable. The section on environmental objectives (5.2.2) lists the actions taken at each centre.

[9] Source: FEIQUE. Annexes to the videoconference of the Responsible Care Coordinators Committee held on 23/11/2021.

	2017	2018	2019	2020	2021
BARBERÀ DEL VALLÈS CENTRE					
Total consumption (MWh)	15,729	15,687	14,809	16,088	17,328
Total consumption / Final production (MWh/t)	6.99	7.89	8.36	8.61	8.81
Renewable energy consumption (%)	13.48	10.42	99.08	99.49	99.48
Electricity consumption (MWh)	15,593	15,567	14,673	16,005	17,238
Consumption of electricity purchased (%)	100	100	100	100	100
Electrical consumption / Final production (MWh/t)	6.93	7.83	8.29	8.56	8.76
Natural gas consumption (GJ)	313	332	282	206	206
Natural gas consumption / Final production (GJ/t)	0.14	0.17	0.16	0.11	0.10
Consumption (GJ)	178.02	102.28	206.74	91.64	96.01
Diesel consumption / Final production (GJ/t)	0.08	0.05	0.12	0.05	0.05
Heat consumption (MWh)	95.56	101.32	86.46	62.58	63.92
Heat consumption / Final production (MWh/t)	0.04	0.05	0.05	0.03	0.03

	2017	2018	2019	2020	2021
TOTAL KAO CORPORATION, S.A.U.					
Total consumption (MWh)	202,416	203,687	198,987	212,070	210,225
Total consumption / Final production (MWh/t)	1.68	1.68	1.68	1.73	1.84
Renewable energy consumption (%)	2.94	2.26	21.23	21.14	21.81
Electricity consumption (MWh)	43,776	43,752	42,245	44,828	45,849
Consumption of electricity purchased (%)	100	100	100	100	100
Electrical consumption / Final production (MWh/t)	0.36	0.36	0.36	0.37	0.40
Natural gas consumption (GJ)	686,220	688,870	688,921	725,137	702,553
Natural gas consumption / Final production (GJ/t)	5.70	5.67	5.81	5.93	6.15
Consumption (GJ)	1,870	1,745	1,565	1,792	1,798
Diesel consumption / Final production (GJ/t)	0.02	0.01	0.01	0.01	0.02
Heat consumption (MWh)	158,034	159,358	156,229	166,687	163,876
Heat consumption / Final production (MWh/t)	1.31	1.31	1.32	1.36	1.44

Source: Electricity Bills - Gas Bills - Cogeneration Center

7.1.1.2 MATERIALS CONSUMPTION INDICATORS

This indicator has been calculated considering both the purchases of raw materials as well as auxiliary and materials representative of each production process, excluding energy products and water.
Of the purchases of representative materials, the three most distinctive of each centre are specified, except for the Barberà del Vallès centre, for which, for reasons of confidentiality, such disclosure is precluded.

It is worth mentioning that the consumption of the Mollet del Vallès centre includes the raw materials used by Kao Chimigraf, which represent 3.2% of the total raw material consumption.

7.1.1.3 WATER INDICATORS

TABLE 7.
Basic materials consumption indicators

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
Fatty Acids (t)	11,552	16,641	15,993	17,055	16,436
Alcohols (t)	4,030	4,121	4,165	4,046	3,867
Ethylene/propylene oxide (t)	5,728	6,061	5,847	5,352	6,285
Materials (t)	46,221	52,401	50,462	51,530	51,640
Materials / Final production (t/t)	0.72	0.79	0.79	0.79	0.80
MOLLET DEL VALLÈS CENTRE					
Alcohols (t)	6,093	6,199	5,970	6,384	5,414
Aldehydes (t)	1,223	1,053	1,106	1,076	959
Fatty Acids (t)	18,286	19,697	18,490	19,471	16,392
Materials (t)	48,248	48,272	46,438	52,457	43,771
Materials / Final production (t/t)	0.90	0.91	0.88	0.94	0.92
BARBERÀ DEL VALLÈS CENTRE					
Materials (t)	2,191	1,931	1,700	1,758	1,867
Materials / Final production (t/t)	0.97	0.97	0.96	0.94	0.95
TOTAL KAO CORPORATION, S.A.U.					
Materials (t)	96,659	102,604	98,599	105,745	97,278
Materials / Final production (t/t)	0.80	0.84	0.83	0.86	0.85

Source: Annual waste declaration. Purchasing Result (GR basis)

TABLE 8.
Basic indicators on water consumption

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
Consumption (m³)	146,656	146,658	145,705	146,669	148,213
Consumption / Final production (m³/t)	2.28	2.21	2.28	2.26	2.30
Public water supply network (%)	94.88	92.91	90.26	87.38	89.04
MOLLET DEL VALLÈS CENTRE					
Consumption (m³)	166,276	136,714	133,298	157,636	156,768
Consumption / Final production (m³/t)	3.09	2.58	2.51	2.84	3.28
Public water supply network (%)	1.13	1.43	1.77	1.16	0.99
BARBERÀ DEL VALLÈS CENTRE					
Consumption (m³)	11,234	7,240	9,135	7,124	8,182
Consumption / Final production (m³/t)	4.99	3.64	5.16	3.81	4.16
Public water supply network (%)	100.00	100.00	100.00	100.00	80.622
TOTAL KAO CORPORATION, S.A.U.					
Consumption (m³)	324,166	290,612	288,138	311,429	313,163
Consumption / Final production (m³/t)	2.69	2.39	2.43	2.55	2.74
Public water supply network (%)	46.97	50.06	49.63	44.03	44.74

Source: PRTR Statement — Quarterly ACA Statement (B6)

NOTES FOR INTERPRETING THE EVOLUTION OF INDICATORS:

This year, the consumption ratio has increased at all centres, but it must be recalled that 2020 was an atypical year due to the pandemic and that the pandemic affected each of the workplaces to a greater or lesser extent as a result of teleworking. If we omit 2020, we can see that the ratio is maintained in the case of the Olesa de Montserrat centre and improves at the Barberà del Vallès centre; conversely, it increases at the Mollet del Vallès centre. At this centre, consumption decreases, but the product mix penalizes the ratio (decrease in the production of surfactants). The decline at the Barberà del Vallès centre is mainly due to the fact that on-site work has been partially re-established. The comments made about water consumption are valid for discharges. It should be noted that the consumption and discharges of Barberà del Vallès are barely related to production (it only uses water for an adiabatic cooling tower that essentially only operates in summer and whose consumption is less than 9%), wherefore the evolution of the ratio with respect to production is not very representative, given that other factors, such as the number of people present in the establishment, are what influence the ratio. Regarding the quality of the discharge, it is not compromised by the decrease in the discharge volume. Despite these results, other actions that allow further reducing consumption without compromising the processes or the quality of the discharge continue to be assessed. If we compare water consumption in relative terms with respect to the sector[10] (companies that are members of Responsible Care), our consumption is lower (2.74 versus 3.4 m³/t), and if we compare the emissions of COD, our emissions are higher (0.36 compared to 0.193 kg/ton produced). In this case, in addition to the applicability of the comments made regarding the indicators, we must consider that the treatments carried out by the different facilities depend on the destination of the waste water (sea, river, external treatment plant, etc.), which entails great variability. At the Mollet del Vallès centre, the water consumption generated by the business activity of Kao Chimigraf is insignificant (< 0.5%).

[10] Source: FEIQUE. Annexes to the videoconference of the Responsible Care Coordinators Committee held on 23/11/2021.

TABLE 9.

Indicators on the impact of dumping

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
Discharged (m³)	65,925	78,030	70,162	71,577	70,540
Discharged / Final production (m³/t)	1.02	1.17	1.10	1.10	1.10
TOC: Total Organic Carbon = COD/3 (kg)	7,080	6,086	6,108	6,812	5,585
TOC / Final production (kg/t)	0.11	0.09	0.10	0.10	0.09
SM: Suspended Matter (kg)	3,322	3,829	4,153	3,969	2,500
SM / Final production (kg/t)	0.05	0.06	0.07	0.06	0.04
N: Total nitrogen (kg)	785	1,021	1,253	939	694
N / Final production (kg/t)	0.01	0.02	0.02	0.01	0.01
P: Total phosphorus (kg)	113	125	168	127	187
P / Final production (g/t)	1.76	1.88	2.64	1.96	2.90
MOLLET DEL VALLÈS CENTRE					
Discharged (m³)	125,979	108,466	85,523	119,890	111,033
Discharged / Final production (m³/t)	2.34	2.04	1.61	2.16	2.32
TOC: Total Organic Carbon = COD/3 (kg)	7,796	11,784	9,877	16,158	7,791
TOC / Final production (kg/t)	0.14	0.22	0.19	0.29	0.16
SM: Suspended Matter (kg)	5,764	7,936	3,881	3,744	3,985
SM / Final production (kg/t)	0.11	0.15	0.07	0.07	0.08
N: Total nitrogen (kg)	2,197	2,992	5,510	3,115	2,215
N / Final production (kg/t)	0.04	0.06	0.10	0.06	0.05
P: Total phosphorus (kg)	1,290	886	1,667	926	1,007
P / Final production (g/t)	23.96	16.69	31.43	16.68	21.06

	2017	2018	2019	2020	2021
BARBERÀ DEL VALLÈS CENTRE					
Discharged (m³)	4,722	5,254	5,538	5,137	4,763
Discharged / Final production (m³/t)	2.10	2.64	3.13	2.75	2.42
TOC: Total Organic Carbon = COD/3 (kg)	209	180	188	180	196
TOC / Final production (kg/t)	0.09	0.09	0.11	0.10	0.10
SM: Suspended Matter (kg)	291	269	321	333	676
SM / Final production (kg/t)	0.13	0.14	0.18	0.18	0.34
N: Total nitrogen (kg)	41	113	111	153	215
N / Final production (kg/t)	0.02	0.06	0.06	0.08	0.11
P: Phosphorous (kg)	24	29	29	27	24
P / Final production (g/t)	10.50	14.72	16.37	14.62	12.36
TOTAL KAO CORPORATION, S.A.U.					
Discharged (m³)	196,626	191,750	161,223	196,605	186,336
Discharged / Final production (m³/t)	1.63	1.58	1.36	1.61	1.63
TOC: Total Organic Carbon = COD/3 (kg)	15,084	18,051	16,174	23,150	13,573
TOC / Final production (kg/t)	0.13	0.15	0.14	0.19	0.12
SM: Suspended Matter (kg)	9,377	12,034	8,355	8,047	7,161
SM / Final production (kg/t)	0.08	0.10	0.07	0.07	0.06
N: Total nitrogen (kg)	3,023	4,126	6,874	4,207	3,124
N / Final production (kg/t)	0.03	0.03	0.06	0.03	0.03
P: Total phosphorus (kg)	1,427	1,040	1,864	1,080	1,218
P / Final production (g/t)	11.85	8.56	15.71	8.84	10.67

Source: PRTR Statement - Monthly Report [centre]

7.1.1.4 WASTE MANAGEMENT

The data on waste production have been adjusted over time due to the introduction of legal provisions governing the classification and coding of waste (Regional, National and European codes).

Waste from all activities is generated at the Kao Corporation, S.A.U. centres:
—Waste similar to household waste: Paper, cardboard, plastic, batteries, fluorescent tubes, toner cartridges, beakers, drink cans and common waste.
—Industrial waste, characteristic of the industrial process, including the following: Sludge from the treatment of waste water, liquid waste from the aroma production plant, solid waste from the surfactant plants, toner and resins.

TABLE 10.
Basic indicators on waste

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
Generated (t)	4,497	3,832	3,808	3,748	3,562
Generated / Final production (kg/t)	69.88	57.68	59.65	57.75	55.32
Non-hazardous (t)	893	993	1,049	1,095	696
Non-hazardous waste generated / Final production (kg/t)	13.88	14.94	16.43	16.88	10.81
Hazardous (t)	3,603	2,840	2,759	2,652	2,866
Hazardous generated / Final production (kg/t)	56.00	42.74	43.21	40.87	44.50
Hazardous Generated / Total Generated (%)	80.1	74.1	72.4	70.8	80.5
MOLLET DEL VALLÈS CENTRE					
Generated (t)	3,407	3,675	5,523	4,643	4,366
Generated / Final production (kg/t)	63.26	69.26	104.12	83.62	91.33
Non-hazardous (t)	275	671	2012	207	454
Non-hazardous waste generated / Final production (kg/t)	5.10	12.65	37.93	3.73	9.49
Hazardous (t)	3,132	3,003	3,511	4,436	3,912
Hazardous generated / Final production (kg/t)	58.16	56.61	66.19	79.89	81.84
Hazardous Generated / Total Generated (%)	91.9	81.7	63.6	95.5	89.6

	2017	2018	2019	2020	2021
BARBERÀ DEL VALLÈS CENTRE					
Generated (t)	410	327	295	282	276
Generated / Final production (kg/t)	182.15	164.23	166.64	150.92	140.44
Non-hazardous (t)	393	310	278	262	253
Non-hazardous waste generated / Final production (kg/t)	174.70	155.96	156.91	140.41	128.51
Hazardous (t)	17	16	17	20	23
Hazardous generated / Final production (kg/t)	7.46	8.27	9.73	10.52	11.94
Hazardous Generated / Total Generated (%)	4.1	5.0	5.8	7.0	8.5
TOTAL KAO CORPORATION, S.A.					
Generated (t)	8,314	7,834	9,625	8,673	8,204
Generated / Final production (kg/t)	69.02	64.48	81.13	70.92	71.86
Non-hazardous (t)	1,561	1,974	3,339	1,565	1,403
Non-hazardous waste generated / Final production (kg/t)	12.96	16.25	28.14	12.80	12.29
Hazardous (t)	6,753	5,860	6,287	7,108	6,801
Hazardous generated / Final production (kg/t)	56.06	48.23	52.99	58.13	59.57
Hazardous Generated / Total Generated (%)	81.2	74.8	65.3	82.0	82.9

Source: Annual waste statement [centre]. SIMA database

TABLE 11.

Basic indicators on waste type

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
Non-hazardous waste (t)					
07 From organic chemical processes	720.97	794.65	875.27	869.20	514.16
Ratio (kg/t)	11.20	11.96	13.71	13.39	7.98
16 Catalysts	18.42	28.42	7.14	28.04	18.76
Ratio (kg/t)	0.29	0.43	0.11	0.43	0.29
17 From construction and demolition	0.00	0.00	0.00	0.00	0.00
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00
20 Similar to municipal waste	147.53	169.58	166.32	197.74	162.86
Ratio (kg/t)	2.29	2.55	2.61	3.05	2.53
Hazardous waste (t)					
07 From organic chemical processes	3,253.97	2,569.55	2,480.6	2,358.56	2,578.96
Ratio (kg/t)	50.57	38.67	38.86	36.35	40.05
13 From oils and liquid fuels	7.35	4.84	1.04	0.30	0.75
Ratio (kg/t)	0.11	0.07	0.02	0.00	0.01
14 From solvents	0.00	0.00	0.00	0.00	0.00
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00
15 From containers, absorbents, cleaning rags	321.50	261.42	271.68	292.36	282.10
Ratio (kg/t)	5.00	3.93	4.26	4.51	4.38
16 Not specified in other chapters of the list	20.30	3.88	4.84	0.85	3.59
Ratio (kg/t)	0.32	0.06	0.08	0.01	0.06
17 From construction and demolition	0.00	0.00	0.24	0.00	0.00
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00
20 Similar to municipal waste	0.16	0.10	0.14	0.26	0.31
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00

	2017	2018	2019	2020	2021
MOLLET DEL VALLÈS CENTRE					
Non-hazardous waste (t)					
06 From inorganic chemical processes	0.00	0.00	0.00	0.00	0.00
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00
07 From organic chemical processes	156.20	195.90	129.60	0.00	0.00
Ratio (kg/t)	2.90	3.69	2.44	0.00	0.00
16 Catalysts	0.00	0.00	0.00	1.09	0.23
Ratio (kg/t)	0.00	0.00	0.00	0.02	0.00
17 From construction and demolition	0.00	221.24	1,676.93	66.36	317.37
Ratio (kg/t)	0.00	4.17	31.62	1.20	6.64
19 Exchange resins and activated carbon	0.00	0.00	0.00	0.00	0.00
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00
20 Similar to municipal waste	118.59	253.89	204.98	139.23	135.71
Ratio (kg/t)	2.20	4.79	3.86	2.51	2.84
Hazardous waste (t)					
06 From inorganic chemical processes	51.22	0.00	0.00	0.00	0.00
Ratio (kg/t)	0.95	0.00	0.00	0.00	0.00
07 From organic chemical processes	2,872.28	2,825.39	3,341.77	4,241.61	3,725.03
Ratio (kg/t)	53.33	53.26	63.01	76.39	77.93
08 Inks	46.16	74.01	69.42	55.40	65.32
Ratio (kg/t)	0.86	1.39	1.31	1.00	1.37
13 From oils and liquid fuels	1.80	1.00	0.68	3.45	0.00
Ratio (kg/t)	0.03	0.02	0.01	0.06	0.00
14 From solvents	0.38	0.30	0.30	0.38	0.30
Ratio (kg/t)	0.01	0.01	0.01	0.01	0.01
15 From containers, absorbents, cleaning rags	132.91	102.63	98.31	135.08	121.05
Ratio (kg/t)	2.47	1.93	1.85	2.43	2.53
16 Not specified in other chapters of the list	27.63	0.00	0.26	0.00	0.00
Ratio (kg/t)	0.51	0.00	0.00	0.00	0.00
17 From construction and demolition	0.00	0.00	0.00	0.00	0.00
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00
20 Similar to municipal waste	0.12	0.12	0.02	0.11	0.14
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00

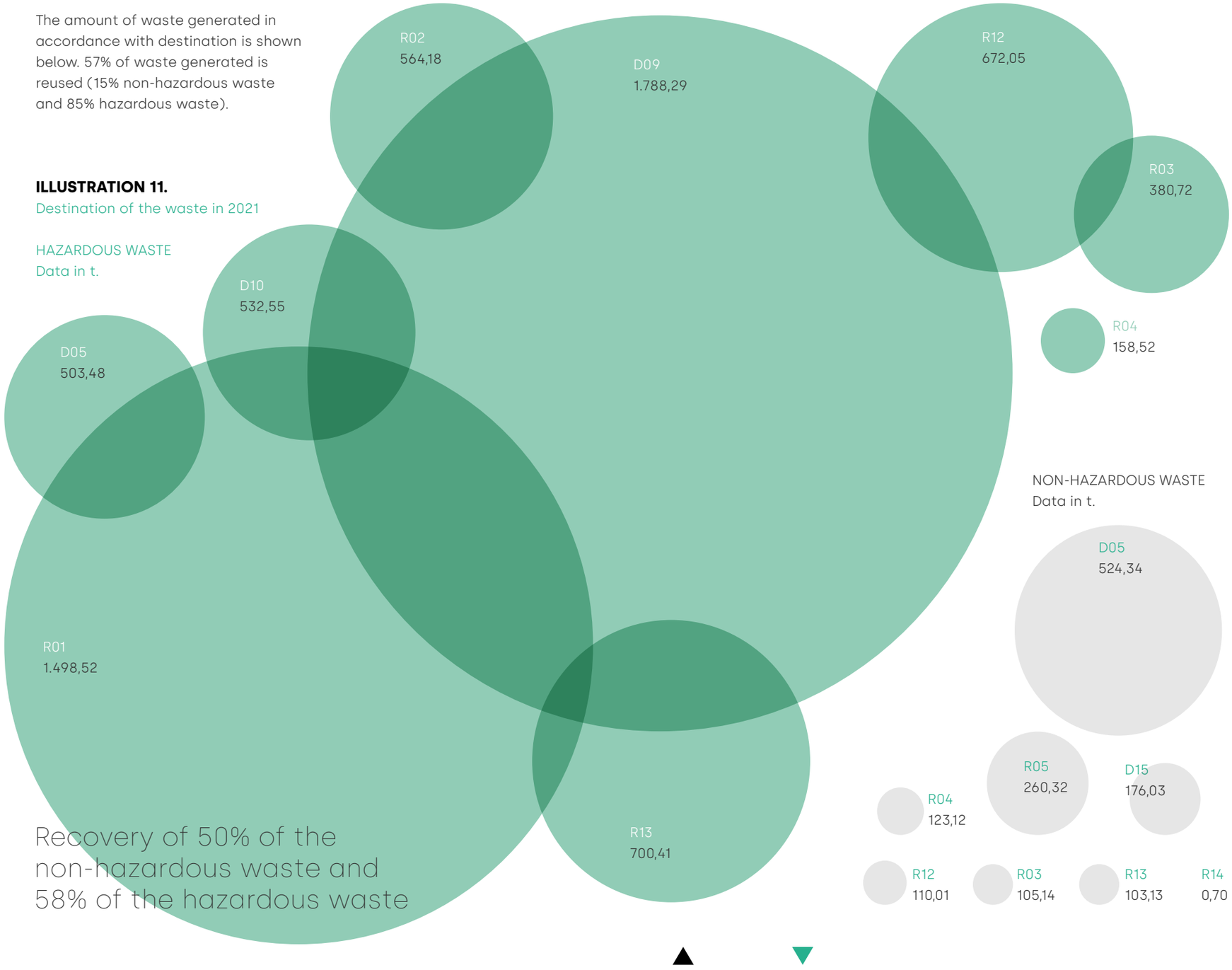
BARBERÀ DEL VALLÈS CENTRE	2017	2018	2019	2020	2021
Non-hazardous waste (t)					
08 From processes	119.11	113.96	99.34	97.75	83.58
Ratio (kg/t)	52.94	57.29	56.10	52.29	42.49
15 From containers	0.70	0.80	3.41	1.92	1.31
Ratio (kg/t)	0.31	0.40	1.93	1.03	0.67
17 From construction and demolition	0.00	0.58	0.32	0.00	0.00
Ratio (kg/t)	0.00	0.29	0.18	0.00	0.00
20 Similar to municipal waste	273.27	194.89	174.80	162.81	167.86
Ratio (kg/t)	121.45	97.97	98.70	87.09	85.35
Hazardous waste (t)					
07 From organic chemical processes	5.94	3.88	0.00	7.36	7.04
Ratio (kg/t)	2.64	1.95	0.00	3.94	3.58
08 Inks	0.09	0.00	0.00	0.00	0.00
Ratio (kg/t)	0.04	0.00	0.00	0.00	0.00
13 From oils and liquid fuels	0.45	0.63	0.50	0.48	0.00
Ratio (kg/t)	0.20	0.32	0.28	0.26	0.00
14 From solvents	0.40	0.28	0.48	0.30	0.35
Ratio (kg/t)	0.18	0.14	0.27	0.16	0.18
15 From containers, absorbents, cleaning rags	1.43	1.24	2.40	2.77	3.93
Ratio (kg/t)	0.63	0.62	1.36	1.48	2.00
16 Not specified in other chapters of the list	7.63	9.40	12.78	8.65	11.83
Ratio (kg/t)	3.39	4.72	7.22	4.63	6.02
18 From the Medical Service	0.00	0.01	0.01	0.00	0.00
Ratio (kg/t)	0.00	0.01	0.01	0.00	0.00
20 Similar to municipal waste	0.84	1.01	1.07	0.10	0.32
Ratio (kg/t)	0.37	0.51	0.60	0.05	0.16

TOTAL KAO CORPORATION, S.A.	2017	2018	2019	2020	2021
Non-hazardous waste (t)					
06 From inorganic chemical processes	0.00	0.00	0.00	0.00	0.00
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00
07 From organic chemical processes	877.17	990.55	1,004.87	869.20	514.16
Ratio (kg/t)	7.28	8.15	8.47	7.11	4.50
08 From processes	119.11	114.02	99.40	97.79	83.62
Ratio (kg/t)	0.99	0.94	0.84	0.80	0.73
15 From containers	0.70	0.80	3.98	2.85	2.21
Ratio (kg/t)	0.01	0.01	0.03	0.02	0.02
16 Catalysts	18.42	28.42	7.14	29.13	18.99
Ratio (kg/t)	0.15	0.23	0.06	0.24	0.17
17 From construction and demolition	6.50	221.82	1,677.25	66.36	317.37
Ratio (kg/t)	0.05	1.83	14.14	0.54	2.78
19 Exchange resins and activated carbon	0.00	0.00	0.00	0.00	0.00
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00
20 Similar to municipal waste	539.39	618.36	546.10	499.78	466.44
Ratio (kg/t)	4.48	5.09	4.60	4.09	4.09
Hazardous waste (t)					
07 From organic chemical processes	6,132.19	5,398.82	5,822.38	6,607.53	6,311.03
Ratio (kg/t)	50.91	44.44	49.07	54.03	55.28
08 Inks	46.25	74.01	69.42	55.40	65.32
Ratio (kg/t)	0.38	0.61	0.59	0.45	0.57
13 From oils and liquid fuels	9.60	6.47	2.22	4.23	0.75
Ratio (kg/t)	0.08	0.05	0.02	0.03	0.01
14 From solvents	0.78	0.58	0.78	0.68	0.65
Ratio (kg/t)	0.01	0.00	0.01	0.01	0.01
15 From containers, absorbents, cleaning rags	455.83	365.29	372.39		
Ratio (kg/t)	3.78	3.01	3.14	0.00	0.00
16 Not specified in other chapters of the list	55.56	13.28	17.88	9.50	15.43
Ratio (kg/t)	0.46	0.11	0.15	0.08	0.14
17 From construction and demolition	0.00	0.00	0.24	0.00	0.00
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00
18 From the Medical Service	0.00	0.01	0.01	0.00	0.00
Ratio (kg/t)	0.00	0.00	0.00	0.00	0.00
20 Similar to municipal waste	1.12	1.23	1.22	0.47	0.78
Ratio (kg/t)	0.01	0.01	0.01	0.00	0.01

Source: Annual waste statement [centre]. SIMA database

The amount of waste generated in accordance with destination is shown below. 57% of waste generated is reused (15% non-hazardous waste and 85% hazardous waste).

ILLUSTRATION 11.
Destination of the waste in 2021



Recovery of 50% of the non-hazardous waste and 58% of the hazardous waste

Ref. Use
R01 Primary use as fuel or other method of producing energy
R02 Recovery or regeneration of solvents
R03 Recycling or recovery of organic substances that are not used as solvents (including compost and other biological transformation processes)
R04 Recycling and recovery of metals and metallic compounds
R05 Recycling and recovery of other inorganic matter
R12 Exchange of waste to subject it to any of the operations between R1 and R11
R13 Storage of waste that is waiting to be subjected to any of the operations from R1 to R12 (excluding temporary storage, awaiting collection, at the location where the waste was generated)
D05 Controlled depositing at especially designed locations (for example, placing in separate cells that are watertight, covered and isolated from each other and the environment)
D09 Physical-chemical treatment not specified in any other section of this annex and which as a result, produces compounds or mixtures that are eliminated using one of the procedures from D1 to D1 (for example, evaporation, drying, calcination, etc.)
D10 Incineration in soil
D15 Storage of waste that is waiting to be subjected to any of the operations from D1 to D14 (excluding temporary storage, awaiting collection, at the location where the waste was generated)

TABLE 12.

Indicators of (special) hazardous waste according to its treatment

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
Recovered (t)	2,114	1,868	1,973	1,820	1,939
Recovered / Final production (kg/t)	32.85	28.12	30.90	28.04	30.12
Eliminated (t)	1,490	972	786	833	926
Eliminated / Final production (kg/t)	23.15	14.62	12.31	12.83	14.39
MOLLET DEL VALLÈS CENTRE					
Recovered (t)	2,757	2,695	2,991	2,394	2,034
Recovered / Final production (kg/t)	51.19	50.79	56.39	43.11	42.54
Eliminated (t)	375	309	520	2,042	1,878
Eliminated / Final production (kg/t)	6.97	5.82	9.80	36.78	39.29
BARBERÀ DEL VALLÈS CENTRE					
Recovered (t)	1	3	3	2	1
Recovered / Final production (kg/t)	0.49	1.44	1.64	1.14	0.75
Eliminated (t)	16	14	14	18	22
Eliminated / Final production (kg/t)	6.97	6.83	8.10	9.38	11.19
TOTAL KAO CORPORATION, S.A.					
Recovered (t)	4,872	4,566	4,966	4,216	3,974
Recovered / Final production (kg/t)	40.44	37.58	41.86	34.47	34.81
Eliminated (t)	1,881	1,294	1,320	2,892	2,827
Eliminated / Final production (kg/t)	15.61	10.65	11.13	23.65	24.76

Source: Annual waste statement [centre]. SIMA database

NOTES FOR INTERPRETING THE EVOLUTION OF INDICATORS:

The objectives section (5.2.2) lists the actions carried out.

The quantity of waste has decreased at all centres. Moreover, the ratio decreases, except at Mollet del Vallès centre, whose production of surfactants decreases.

The main causes that hinder achieving better results are:

— Market dynamics mean that certain products that use fractions resulting from the production of aromas have a limited commercial outlet, and in default thereof, they have to be managed as waste.

— A higher volume of sludge as a result of the greater pollutant load contained in the waters by reducing the discharge volume and maintaining the discharge quality.

— The removal of waste related to dismantling/construction actions.

At the Mollet del Vallès centre, 317 tons of this type of waste have been removed.

As indicated in the environmental actions section, a working group has been created to continuously study alternatives to the measures that have been considered and implemented to date and related to innovation for the purpose of defining strategies that allow achieving the desired goals.

The indicator introduced in the environmental declaration is global and although the indicator is representative, certain clarifications are provided such as:

— The type of waste that is generated at the company's installations are diverse and not all of it is directly related with production.

— The production of certain products favours the rate (provides weight with less generation of waste), and the production of other products, to the contrary, hampers the rate (little weight produced with more generation of waste, such as the case of aromas).

Olesa de Montserrat is the centre with the most production, wherefore any deviation has a representative impact on the company's indicators. In this centre, there has been a change in the classification of sewage sludge, which is now classified as hazardous, hence the main difference in the waste quantities and ratios.

At the Mollet del Vallès centre, the waste generated by the business activity of Kao Chimigraf represents 3.2% of the centre's total.

If we compare waste generation in relative terms with respect to the sector[11] (companies that are members of Responsible Care), we generate a greater quantity (71.86 versus 20.64 kg/t), and with respect to hazardous waste as well (59.57 versus 7.72 kg/ton produced). In this case, in addition to the applicability of the comments made regarding the indicators, it must be taken into consideration that the classification of waste is conditioned by the products produced.

[11] Source: FEIQUE. Annexes to the videoconference of the Responsible Care Coordinators Committee held on 23/11/2021.

7.1.1.5 INDICATORS ON BIODIVERSITY

TABLE 13.
Basic indicators on biodiversity

	SOLAR TOTAL	LAND OCCUPATION	TOTAL SEALED	TOTAL NATURE-ORIENTED	
				AT THE CENTRE	OUTSIDE OF THE CENTRE
OLESA DE MONTSERRAT CENTRE					
Surface area (m²)	103,303	22,633 (22%)	58,368 (57%)	44,935 (43%)	0
MOLLET DEL VALLÈS CENTRE					
Surface area (m²)	38,918	13,847 (36%)	36,178 (93%)	2,788 (7%)	24,874
BARBERÀ DEL VALLÈS CENTRE					
Surface area (m²)	43,899	15,200 (35%)	31,257 (71%)	12,642 (29%)	0

Source: Environmental authorisation/licence. Evaluation sheet of biodiversity conservation.xlsx

7.1.1.6 INDICATORS ON ATMOSPHERIC EMISSIONS

At the centre, greenhouse gas emissions (hereinafter GHG) are regularly generated: CO_2, CH_4 and N_2O. HFC or SF6 emissions can occur sporadically due to leaks in air conditioning equipment or transformers, respectively. PFCs and NF_3 are not used at the facilities.
The CO_2 emissions in *Table 14* correspond to those regulated by the GHG emissions trading system and transport of the fleet controlled by the activity.

The organization's GHG emissions are classified as direct emissions (scope 1) and indirect emissions (scopes 2 and 3):

— Scope 1, direct emissions resulting from the combustion of fuels in fixed sources, such as boilers, turbines and pumps; those relating to physical or chemical processes; those corresponding to the transport of vehicles owned or controlled by Kao Corporation, S.A.U., such as rental vehicles or coaches; as well as fugitives emissions caused by equipment leaks, especially those from air conditioning and/or cooling equipment.
— Scope 2, indirect emissions associated with the purchase and consumption of energy, in our case, emissions related to the purchase of electrical energy.
— Scope 3, indirect emissions that include all other emissions resulting from the activity, which are located outside the facilities specific to the activity and are associated with the value or supply chain of goods and services. This group includes emissions related to the transport of raw materials and finished products.
— For now, we are not in a position to provide emissions related to commercial trips and commuting by employees in their own vehicle. However, in 2021, the emissions caused by trips to customers were computed (23,559 kg of CO_2), with 96% of these emissions corresponding to the air environment.

TABLE 14.

Basic indicators of GHG emissions[12,13]

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
CO_2 emissions (t)	26,699	26,875	27,337	27,689	27,100
CH_4 emissions (t CO_{2e})	18	18	19	19	18
N_2O emissions (t CO_{2e})	123	123	126	127	124
HFC emissions (t CO_{2e})	52	20	6	15	3
SF_6 emissions (t CO_{2e})	0	0	0	0	0
Total GHG emissions, reach 1 (t CO_{2e})	26,892	27,035	27,487	27,850	27,246
GHG emissions, reach 1 / Final production (t CO_{2e}/t)	0.42	0.41	0.43	0.43	0.42
Total GHG emissions, reach 2 (t CO_{2e})	6,482	6,347	0	0	0
GHG emissions, reach 2 / Final production (t CO_{2e}/t)	0.10	0.10	0.00	0.00	0.00
Total GHG emissions, reach 3 (t CO_{2e})	ND	4,222	4,425	4,413	3,927
GHG emissions, reach 3 / Final production (t CO_{2e}/t)	ND	0.06	0.07	0.07	0.06
MOLLET DEL VALLÈS CENTRE					
CO_2 emissions (t)	12,487	12,677	12,082	13,719	13,097
CH_4 emissions (t CO_{2e})	9	9	8	10	9
N_2O emissions (t CO_{2e})	59	59	57	65	62
HFC emissions (t CO_{2e})	68	0	410	97	21
SF_6 emissions (t CO_{2e})	0	0	0	0	0
Total GHG emissions, reach 1 (t CO_{2e})	12,622	12,745	12,557	13,891	13,189
GHG emissions, reach 1 / Final production (t CO_{2e}/t)	0.23	0.24	0.24	0.25	0.28
Total GHG emissions, reach 2 (t CO_{2e})	4,510	4,363	0	0	0
GHG emissions, reach 2 / Final production (t CO_{2e}/t)	0.08	0.08	0.00	0.00	0.00
Total GHG emissions, reach 3 (t CO_{2e})	ND	3,322	3,812	2,028	1,766
GHG emissions, reach 3 / Final production (t CO_{2e}/t)	ND	0.05	0.06	0.03	0.03

	2017	2018	2019	2020	2021
BARBERÀ DEL VALLÈS CENTRE					
CO_2 emissions (t)	29	25	29	17	18
CH_4 emissions (t CO_{2e})	0.0	0.0	0.0	0.0	0.0
N_2O emissions (t CO_{2e})	0.1	0.1	0.1	0.1	0.1
HFC emissions (t CO_{2e})	96	33	70	214	63
SF_6 emissions (t CO_{2e})	0	0	0	0	0
Total GHG emissions, reach 1 (t CO_{2e})	125	58	99	231	81
GHG emissions, reach 1 / Final production (t CO_{2e}/t)	0.06	0.03	0.06	0.12	0.04
Total GHG emissions, reach 2 (t CO_{2e})	6,081	5,915	0	0	0
GHG emissions, reach 2 / Final production (t CO_{2e}/t)	2.70	2.97	0.00	0.00	0.00
Total GHG emissions, reach 3 (t CO_{2e})	ND	708	1,621	1,534	1,691
GHG emissions, reach 3 / Final production (t CO_{2e}/t)	ND	0.01	0.03	0.02	0.03
TOTAL KAO CORPORATION, S.A.					
CO_2 emissions (t)	39,214	39,576	39,476	41,445	40,243
CH_4 emissions (t CO_{2e})	27	27	27	28	28
N_2O emissions (t CO_{2e})	182	183	183	192	186
HFC emissions (t CO_{2e})	216	52	485	327	88
SF_6 emissions (t CO_{2e})	0	0	0	0	0
Total GHG emissions, reach 1 (t CO_{2e})	39,639	39,838	40,170	41,992	40,544
GHG emissions, reach 1 / Final production (t CO_{2e}/t)	0.33	0.33	0.34	0.34	0.36
Total GHG emissions, reach 2 (t CO_{2e})	17,073	16,626	0	0	0
GHG emissions, reach 2 / Final production (t CO_{2e}/t)	0.14	0.14	0.00	0.00	0.00
Total GHG emissions, reach 3 (t CO_{2e})	ND	13,519	15,775	14,420	14,692
GHG emissions, reach 3 / Final production (t CO_{2e}/t)	ND	0.11	0.13	0.12	0.13

Source: Verified GHG Report - MITECO Calculator

It should be noted that the scope 1 emissions data related to the own fleet of vehicles or under the control of the business is only available for 2019 onwards.

[12] It includes emissions of CO_2, CH_4, N_2O, HFCs, PFCs, NF_3 and SF_6. MITECO calculator, version 22.

[13] The values in italics have been modified compared to the preceding statement. Incorporation of emissions from the decarboxylation of MDJ.

In 2016 the Mollet del Vallès centre received a resolution revoking the greenhouse gas emissions authorisation as a result of the stoppage of the cogeneration plant and the fatty acids process. For this reason, emissions are no longer assigned for the remaining 2013-2020 period.

TABLE 15.

Basic indicators of CO_2 emissions subject to the GHG emissions trading system

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
Assigned emissions (t)	8,650	7,819	7,012	6,233	4,937
Emissions (t)	26,026	26,190	26,671	27,018	27,031
Emissions / Final production (t CO_2/t)	0.40	0.39	0.42	0.42	0.42
MOLLET DEL VALLÈS CENTRE					
Emissions (t)	12,457	12,646	12,055	13,690	13,060
Emissions / Final production (t CO_2/t)	0.23	0.24	0.23	0.25	0.27
BARBERÀ DEL VALLÈS CENTRE					
Emissions (t)	17	18	16	12	12
Emissions / Final production (t CO_2/t)	0.01	0.01	0.01	0.01	0.01
TOTAL KAO CORPORATION, S.A.					
Assigned emissions (t)	8,650	7,819	7,012	6,233	4,937
Emissions (t)	38,500	38,854	38,741	40,719	40,103
Emissions / Final production (t CO_2/t)	0.32	0.32	0.33	0.33	0.35

Source: Verified GHG Report - PRTR Statement

TABLE 16.

Basic indicators on emissions of CO

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
Emissions (kg)	4,639	4,643	4,742	4,804	4,697
Emissions / Final production (kg CO/t)	0.07	0.07	0.07	0.07	0.07
MOLLET DEL VALLÈS CENTRE					
Emissions (kg)	2,220	2,242	2,145	2,445	2,326
Emissions / Final production (kg CO/t)	0.04	0.04	0.04	0.04	0.05
CBARBERÀ DEL VALLÈS CENTRE					
Emissions (kg)	3	3	3	2	2
Emissions / Final production (kg CO/t)	0.00	0.00	0.00	0.00	0.00
TOTAL KAO CORPORATION, S.A.					
Emissions (kg)	6,862	6,889	6,889	7,251	7,026
Emissions / Final production (kg CO/t)	0.06	0.06	0.06	0.06	0.06

Source: Verified GHG Report - PRTR Statement

If we compare NOx emissions in relative terms with respect to the sector[14] (companies that are members of Responsible Care), our emission is higher (0.38 compared to 0.21 kg/ton produced).
As it was previously mentioned, the heterogeneity of the chemical sector should be noted, which ranges from large volume companies to small businesses, meaning that it comprises highly complex industrial facilities that, with different processes and products, are subject to constant changes in growth and adaptation; we are a clear example, with three establishments in the same sector that are not fully comparable.

[14] Source: FEIQUE. Annexes to the videoconference of the Responsible Care Coordinators Committee held on 23/11/2021.

TABLE 17.

Basic indicators on emissions of NOx

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
Emissions (kg)	28,762	28,789	29,398	29,787	29,122
Emissions / Final production (kg NOx/t)	0.45	0.43	0.46	0.46	0.45
MOLLET DEL VALLÈS CENTRE					
Emissions (kg)	13,764	13,900	13,298	15,159	14,423
Emissions / Final production (kg NOx/t)	0.26	0.26	0.25	0.27	0.30
BARBERÀ DEL VALLÈS CENTRE					
Emissions (kg)	19	21	17	13	13
Emissions / Final production (kg NOx/t)	0.01	0.01	0.01	0.01	0.01
TOTAL KAO CORPORATION, S.A.U.					
Emissions (kg)	42,546	42,710	42,713	44,958	43,558
Emissions / Final production (kg NOx/t)	0.35	0.35	0.36	0.37	0.38

Source: Verified GHG Report - PRTR Statement

TABLA 18.

Basic indicators on other emissions

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
VOC emissions as TOCs (KgC)	12,675	12,800	15,561	10,073	5,556
TOC emissions (KgC/1000 t Final Production)	196.99	192.64	243.76	155.23	86.28
PM emissions (kg)	21	23	20	8.34	8.81
PM emissions (kg/1000 t Final Production)	0.33	0.34	0.32	0.13	0.14
Dioxins and furans (kg)	0	0	1.4E-08	7.9E-08	3.2E-07
SO_2 emissions as SOx (kg)	110.65	106.24	82.03	110.87	100.03
SOX emissions (kg/1000 t Final Production)	1.72	1.60	1.29	1.71	1.55
MOLLET DEL VALLÈS CENTRE					
VOC emissions as TOCs (KgC)	3,633	2,303	3,423	3,508	2,325
TOC emissions (KgC/1000 t Final Production)	67.44	43.41	64.53	63.17	48.64
PM emissions (kg)	0	0	8	8	4
PM emissions (kg/1000 t Final Production)	0.00	0.00	0.15	0.14	0.09
SO_2 emissions as SOx (kg)	45.55	45.42	43.32	46.07	57.09
SOX emissions (kg/1000 t Final Production)	0.85	0.86	0.82	0.83	1.19
BARBERÀ DEL VALLÈS CENTRE					
PM emissions (kg)	711	667	580	719	778
PM emissions (kg/1000 t Final production)	316.06	335.48	327.72	384.42	395.33
SO_2 emissions as SOx (kg)	16.43	9.44	19.08	8.46	8.86
SOX emissions (kg/1000 t Final production)	7.30	4.75	10.78	4.53	4.51
TOTAL KAO CORPORATION, S.A.					
VOC emissions as TOCs (KgC)	16,308	15,103	18,984	13,581	7,881
TOC emissions (KgC/1000 t Final Production)	135	124	308	218	135
PM emissions (kg)	732.47	690.15	608.39	734.74	790.82
PM emissions (kg/1000 t Final production)	6.08	5.68	5.13	6.01	6.93
Dioxins and furans (kg)	0.00	0.00	1.4E-08	7.9E-08	3.2E-07
SO2 emissions as SOx (kg)	172.63	161.10	144.43	165.40	165.98
SOX emissions (kg/1000 t Final production)	1.43	1.33	1.22	1.35	1.45

Source: PRTR Statement - Aspects assessment database

Emissions from diffuse sources have been separated, given that the former are expressed as total organic carbon, while diffuse emissions are calculated as VOC emissions and are basically due to the activity of KCHI, subject to solvent regulations.

TABLE 19.

Diffuse emissions

	2017	2018	2019	2020	2021
MOLLET DEL VALLÈS CENTRE					
VOC emissions (kg)	29,621	9,160	4,301	7,114	1,233
VOC emissions (kg VOCs/1000 t Final Production)	549.94	172.66	81.09	128.13	25.799

Source: PGD Mollet

NOTES FOR INTERPRETING THE EVOLUTION OF INDICATORS:

Facilities subject to the GHG emissions trading system are the largest contributors of scope 1 emissions, meaning the Olesa de Montserrat facility, which has a cogeneration plant, where the ratio is maintained. On the other hand, scope 2 emissions are zero due to the purchase of all electricity from renewable sources.

The atmospheric emissions of all combustion units are below the legal limit. They are below 100 mg/Nm3 for CO and below 450 mg/Nm3 for NOx.

At the Olesa de Montserrat centre, the reduction in emissions is due to the existence of the RTO, and we expect a further decrease when the rest of the process emission sources are connected.

At the Mollet del Vallès centre, we must highlight the actions initiated in 2018 by the ink manufacturing activity carried out by the company Kao Chimigraf, whereby a significant reduction is achieved.

If we compare VOC emissions in relative terms with respect to the sector[15] (companies that are members of Responsible Care), our emission is lower (0.135 versus 0.261 kg/ton produced).

[15] Source: FEIQUE. Annexes to the videoconference of the Responsible Care Coordinators Committee held on 23/11/2021.

7.1.1.7 ACOUSTIC EMISSION IMPACT INDICATORS

TABLE 20.

Indicator on the level of noise emitted to the outside[16]

	2017	2018	2019	2020	2021
OLESA DE MONTSERRAT CENTRE					
Ground concentration level (dBA)	50	44	45	45	41
MOLLET DEL VALLÈS CENTRE					
Ground concentration level (dBA)	46	39	47	37	46
BARBERÀ DEL VALLÈS CENTRE					
Ground concentration level (dBA)	53	68	66	62	65

Source: Periodic checks, environmental authorizations/licenses — External company report

NOTES FOR INTERPRETING THE EVOLUTION OF THE INDICATOR:

The values shown in the table correspond to the measuring point with the highest level of immission, applying the most restrictive correction factors as per Law 16/2002.

At the Barberà del Vallès centre, the values correspond to measurements taken in low sensitivity areas for which the immission limits are: 65 dBA during the day and 55 dBA at night. When making calculations for sensitive areas (day, 55 dBA; and night, 45 dBA) pursuant to the ISO 9613-1:1993 standard, the resulting sound pressure level is below 40 dBA. No significant variations are observed, except at the Mollet del Vallès centre, where last year the result was lower than usual, with no identified cause.

[16] Measurements made at night time.

7.1.2 ENVIRONMENTAL PERFORMANCE INDICATORS

The environmental performance indicators are the reference values that provide an overall view of the organisation's environmental behaviour with regard to a reference period. Modifications to the facilities, the products, processes and/or associated activities demonstrate the high level of productive dynamism and adaptation to market requirements and legislation, which cause annual fluctuations in these indicators. All ratios are calculated using end production, which does not consider the production of intermediate products. The indicators for 2021 are provided below, together with a comparison with the values obtained the previous year.

TABLE 21.
Performance indicators

		2020	↑↓	2021
OLESA DE MONTSERRAT CENTRE				
Electricity consumption	Consumption / Final production (MWh/t)	0.26	↔	0.26
Gas consumption	Consumption / Final production (GJ/t)	7.40	↓	7.29
Water consumption	Consumption / Final production (m³/t)	2.26	↑	2.30
Total Organic Carbon (TOC) Discharge	TOC / Final production (kg/t)	0.10	↓	0.09
Discharge of Suspended Matter (SM)	SM / Final production (kg/t)	0.06	↓	0.04
Non-hazardous waste	Generated / Final production (t/t)	16.88	↓	10.81
Hazardous waste	Generated / Final production (t/t)	40.87	↑	44.50
CO_2 emissions	Emissions / Final production (t CO_2/t)	0.42	↔	0.42
MOLLET DEL VALLÈS CENTRE				
Electricity consumption	Consumption / Final production (MWh/t)	0.22	↑	0.24
Gas consumption	Consumption / Final production (GJ/t)	4.40	↑	4.87
Water consumption	Consumption / Final production (m³/t)	2.84	↑	3.28
Total Organic Carbon (TOC) Discharge	TOC / Final production (kg/t)	0.29	↓	0.16
Discharge of Suspended Matter (SM)	SM / Final production (kg/t)	0.07	↑	0.08
Non-hazardous waste	Generated / Final production (t/t)	3.73	↑	9.49
Hazardous waste	Generated / Final production (t/t)	79.89	↑	81.84
CO_2 emissions	Emissions / Final production (t CO_2/t)	0.25	↑	0.27
BARBERÀ DEL VALLÈS CENTRE				
Electricity consumption	Consumption / Final production (MWh/t)	8.56	↑	8.76
Gas consumption	Consumption / Final production (GJ/t)	0.11	↓	0.10
Water consumption	Consumption / Final production (m³/t)	3.81	↑	4.16
Total Organic Carbon (TOC) Discharge	TOC / Final production (kg/t)	0.10	↔	0.10
Discharge of Suspended Matter (SM)	SM / Final production (kg/t)	0.18	↑	0.34
Non-hazardous waste	Generated / Final production (t/t)	140.41	↓	128.51
Hazardous waste	Generated / Final production (t/t)	10.52	↑	11.94
CO_2 emissions	Emissions / Final production (t CO_2/t)	0.01	↔	0.01
TOTAL KAO CORPORATION, S.A.				
Electricity consumption	Consumption / Final production (MWh/t)	0.37	↑	0.40
Gas consumption	Consumption / Final production (GJ/t)	5.93	↑	6.15
Water consumption	Consumption / Final production (m³/t)	2.55	↑	2.74
Total Organic Carbon (TOC) Discharge	TOC / Final production (kg/t)	0.19	↓	0.12
Discharge of Suspended Matter (SM)	SM / Final production (kg/t)	0.07	↓	0.06
Non-hazardous waste	Generated / Final production (t/t)	12.80	↓	12.29
Hazardous waste	Generated / Final production (t/t)	58.13	↑	59.57
CO_2 emissions	Emissions / Final production (t CO_2/t)	0.33	↑	0.35

7.2 EVALUATION OF LEGAL COMPLIANCE

Kao Corporation, S.A.U. regularly analyses all legal provisions and regulations that are published, which it accesses through a variety of means. The Infosald application is the main source. Based on this, the company makes a summary of all new legal provisions and publishes the appropriate legal requirements sheet on the Intranet of the HSE Dept. Communication is also made through the committees structure, especially on the Corporate HSE Committee.
This application also enables monitoring and assessment of the degree of compliance with applicable legal requirements.
The facilities of Kao Corporation, S.A.U. have been legalised in accordance with industrial safety regulations (high and low voltage, storage of hazardous chemical products, pressurised equipment, refrigeration facilities, etc.), and the periodic mandatory inspections are conducted.

7.2.1 ENVIRONMENTAL AUTHORISATIONS

Kao Corporation, S.A.U. holds all the necessary environmental authorisations and licences for its three work centres and, since 2002, it has been adapted to Law 3/1998 on Integrated Pollution Prevention and Control (IPPC), currently repealed by Law 20/2009, on Prevention and Environmental Control of Activities.
Under the control of Official Environmental Agencies, our organisation demonstrates its adaptation to the environmental prevention, control and authorisation requirements at local, regional, state and European levels.
The following table shows the status of environmental authorisations and licences, substantial changes and renewals submitted.
Based on the changes to the regulations of 2013, the facilities of Mollet del Vallès and Olesa de Montserrat are subjected to initial and periodic biannual checks and are subject to the comprehensive environmental inspection plan of Catalonia.
Therefore, beginning in March 2014, the periodic inspections have been carried out based on the annual programme that is drafted by the DGQACC, which establishes the dates when these inspections must be performed.
The resulting reports are public and are posted on the Territory and Sustainability Department's Website

TABLE 22.
Environmental authorisations/licences

	APPLICATION NO.	DATE OF RULING
OLESA DE MONTSERRAT CENTRE		
Balance	BA20010008	17/06/2002
Substantial change: MDJ and OTB Plant	BA20030121	18/01/2005
Substantial change: HTR and C plant	BA20070072	23/10/2007
Renewal	B1RP140700	31/03/2017
Substantial change: MDJ-2 plant	B1CS210116	Pending
MOLLET DEL VALLÈS CENTRE		
Balance	BA20000018	03/04/2002
Renewal	BA20090126	09/12/2010
Substantial change: Lactones 4	B1CS170639	10/03/2020
BARBERÀ DEL VALLÈS CENTRE		
Balance	UAL A000005	
Substantial change: Line 4 and gas washer pilot plant	UAL A050002	17/01/2007

7.2.2 ANALYSIS OF LEGAL COMPLIANCE

The assessment, from different operational spheres, of legal requirements that apply to Kao Corporation S.A.U. has been performed by the company's own specialists, as well as by the competent authorities.
Kao Corporation S.A.U. complies with all legal and other applicable requirements, although the result of the inspection of the 2021 integrated environmental authorization is unfavourable due to detecting two breaches considered relevant by the Administration:

— The measurements of the F23 and F24 sources were carried out after the deadline (instead of January they were carried out in May).
— Lighting points existing after 2015 have been modified without submitting the corresponding non-substantial change modification (replacement of mercury lamps by LEDs and replacement of other luminaires with higher efficiency LEDs). The non-substantial change will be submitted shortly, which will include the inventory of lamps and will be adjusted to the Guide prepared by the *Service for the Prevention and Control of Acoustic and Light Pollution.*

The environmental authorisations and licences of the three centres remain updated together with the changes introduced.
During this period there have been no sanctioning procedures.
There has been no situation that constitutes a risk to public health or the environment.
In 2021, the procedure was carried out for the request for a substantial change at the Olesa de Montserrat centre to build a plant to increase the production of the MDJ aroma.
A response has also been given to all of the commitments acquired by Kao Corporation, S.A.U., and the company has also submitted all statements required in all areas (water, emissions, waste, soils, etc.).

WATER

Kao Corporation, S.A.U. has permits to capture its own sources of water, both for the Mollet del Vallès centre as well as the Olesa de Montserrat centre (Decision of 16 November 2006 and Decision of 29 October 2004, respectively). The water extraction that takes place does not exceed the authorized limits.
As far as consumption of tap water is concerned, this is below the levels granted in the respective environmental authorisations and licences.
Kao Corporation, S.A.U. also has the corresponding dumping permits for each centre. The Mollet del Vallès centre submitted a dump permit renewal request in February of 2018 as a result of a substantial change related with the construction of the lactones plant 4 (Ref. B1CS170639). The permit renewal was granted in Resolution G-2018/772/174 (File number 2014/525) with a validity period of 4 years.
The Barberà del Vallès centre submitted a dump permit renewal request in April of 2016, which was approved in June of that same year (with a validity period of 6 years). The Olesa de Montserrat centre's permit was renewed by the Comprehensive Environmental Authorisation Resolution.

Quality of the dumped water (Decree 130/2003)

The analytical parameters of dumped waters comply with the limits laid down in each environmental authorisation and licence, although the following situations have been occasionally detected where the established limits have been exceeded:

— MOLLET DEL VALLÈS CENTRE
  — In the self-control carried out on May 4, the limit for inhibitory substances defined in the *Regulatory Regulation of Aigües Residuals of the Consorci per la Defensa del Riu Besòs* (50 Equitox/m³) was slightly exceeded. The causes of this value could not be determined; usually lower than the detection limit, as evidenced by the checks carried out before and after, including the inspection carried out by the Consorci.

— BARBERÀ DEL VALLÈS CENTRE

— Self-monitoring for the month of July detected a concentration of nitrates higher than the limit value of 100 mg/l defined by the *Reglament Metropolità d'abocament d'aigües residuals*. After conducting the cause analysis, no behaviour in the discharge regime nor an unusual operation of the aeration system is identified, and it is concluded that the increase could be due to longer residence times. Therefore, it is decided that the tank could be emptied based on three levels to reduce or extend the residence time in the homogenizing tank, depending on the characteristics of the discharge. In addition, we have increased the frequency of analysis of this parameter for greater control, which will allow us to take immediate measures, if necessary.

— In the self-monitoring for the month of November, a concentration of suspended matter higher than the limit value was detected. After analysing the causes, the discharge of water from cleaning the Toner floors was identified. The decision was made to collect these waters in containers in order to carry out a differentiated management.

All other parameters have all been below the legal limit.
The declaration given in the Pollutant Release and Transfer Register (PRTR) (Royal Decree 508/2007) concerning emissions of waste water pollutants of the Olesa de Montserrat and Mollet del Vallès centres reveals that both centres are below the established thresholds.

TABLE 23.
Dumping parameters in 2021[17]

		CENTRO DE OLESA DE MONTSERRAT	CENTRO DE MOLLET DEL VALLÈS	CENTRO DE BARBERÀ DEL VALLÈS
pH	Legal limit	6– 10	6–10	6–10
	Value	7.8/8.4	7.3/8.1	7.1/7.7
COD: Chemical Oxygen Demand (mg/l)	Legal limit	1500	1500	1500
	Value	238/860	211/1265	124/940
SM: Suspended Matter (mg/l)	Legal limit	500	750	750
	Value	35/110	36/198	142/940
N: Organic and ammoniacal nitrogen (mg/l)	Legal limit	90	90*	90
	Value	7 / 20.4	21 / 29.9	23 / 50
IM: Inhibitory Materials (Equitox/m³)	Legal limit	25	50	25
	Value	0 / 0	7.4 / 52	0 / 0
Chlorides (mg/l)	Legal limit	2,500	2000	2500
	Value	1131 / 1477	687 / 1,314	89 / 182
Conductivity (µS/cm)	Legal limit	6,000	5,000	6,000
	Value	4890 / 5940	2819 / 4530	1017 / 1205
P: Phosphorus (mg/l)	Legal limit	50	50	50
	Value	2.7 / 7.1	9.1 / 25	5.1 / 8
Anionic surfactants (mg/l LSS)	Legal limit	6	5	6
	Value	0.14 / 8	0.54 / 2.35	0.3 / 0.5
Nonylphenol (mg/l)	Legal limit	1	-	1
	Value	0	0	0

Source: Aspects assessment database. Monthly report [centre]

[17] Value: Average value / Maximum value.
Legal limits: Olesa de Montserrat: *Reglament dels serveis públics de sanejament Decret 130/2003, Mollet del Vallès: Reglament regulador d'abocaments d'aigües residuals del Consorci per a la defensa del riu Besòs y Barberà del Vallès: Reglament Metropolità d'abocaments d'aigües residuals.*
**El Reglament regulador d'abocaments d'aigües residuals del Consoric per a la defensa del riu Besòs* does not stipulate a limit value for organic and ammoniacal nitrogen. Therefore the value stipulated in Decree 130/2003 is applicable.

Groundwater (Royal Decree 1514/2009)

Each centre has a series of piezometers, strategically located, which enable us to assess the degree of pollution of groundwater and, therefore, detect whether the subsoil is affected.
The following Illustration 12 lists the existing piezometers at each establishment.

In 2006, we set up the Groundwater Control and Monitoring Plan associated with the subsoil being affected. The frequency is annual, and the plan remains in force.
In 2020, the Groundwater Monitoring and Control Plan (PSC) was carried out at the Olesa de Montserrat and Mollet del Vallès centres in accordance with the requirements of the environmental authorization.
In 2021, the annual groundwater control was carried out by an accredited company.
Each of the establishments has its corresponding Quantitative Risk Analysis (ACR).
All the values of the analysed parameters are lower than the VGI values defined in regulations, except that the 2021 results of the Barberà del Vallès plant showed a higher concentration of trichloroethylene in one of the piezometers. An additional analysis is therefore being carried out, and when the results are confirmed, a soil-gas campaign will be carried out to detect the radius of effect. In this regard, it should be noted that the toner production facility does not use chlorinated materials.

ILLUSTRATION 12.
Number of piezometers

OLESA DE MONTSERRAT CENTRE
14

MOLLET DEL VALLÈS CENTRE
13 y 2 pozos

BARBERÀ DEL VALLÈS CENTRE
8

WASTE

Kao Corporation, S.A.U. is registered as a producer of waste at each centre, and it uses authorised managers to handle its waste, in accordance with Decree 93/1999, Law 22/2011 (on the drafting date of this statement, repealed by Law 7/2022), Decree 152/2017 and Decree 553/2020.

ATMOSPHERIC EMISSIONS

Based on Autonomous Law 22/1983 and Law 34/2007 and the supplementary regulations implemented by these laws, Kao Corporation, S.A.U. has a Record Book for each one of its emitting sources, where the results of the checks that are performed are recorded. In 2015, a remote recording was carried out of these emitting sources.
A table 24 is attached with the types of emitting sources that are located at each centre, and it defines the frequency at which each source must be subjected to an external control (group A every 2 years, B every 3 years, C every 5 years and "-" not required).
The checks are performed with the regulatory frequency.
Measurements of the sources were performed in 2021 by their applicable CAPCA code. Meaning, 9 process sources and 3 combustion sources at the Olesa de Montserrat centre and 5 process sources and 1 combustion source at the Mollet del Vallès centre.
The measurements of the emissions have been performed in accordance with the technical instructions published by the Servei de Vigilància i Control de l'Aire. Some of these measurements must be taken with vane probes instead of Pitot probes to determine the flows of sources where, due to their characteristics, differential pressure cannot be detected using a Pitot probe.

TABLE 24.
No. of sources / CAPCA

	OLESA DE MONTSERRAT CENTRE	MOLLET DEL VALLÈS CENTRE*	BARBERÀ DEL VALLÈS CENTRE**
Industrial processes	19 / 19-	14/10A, 5-	23/15A, 3B, 2C y 3-
Combustion installations	2/2-	7/2B, 3C y 2-	7/2B, 3C y 2-
TOTAL	21/21-	21/10A, 3B, 3C y 7-	30/15A, 5B, 5C y 5-

* Including the sources of Kao Chimigraf's business activity.
** The source applicable to the DMS tank (scrubber CV-454), even though it belongs to the CAPCA group "-", measurements must be carried out every 5 years as required by the renewal resolution provided by the AAI.

The results of the checks carried out revealed full compliance. The following table shows the latest results obtained from the sources in operation during the last official measurements taken at each one of the sources.

[18] Value: Average value of all the sources/ Maximum value.

TABLE 25.

Emission of atmospheric pollutants[18]

		OLESA DE MONTSERRAT CENTRE	MOLLET DEL VALLÈS CENTRE
VOCs (expressed as TOCs) (kg/h)	Legal limit	50 mgC/Nm³ si emisión másica ≥ 0,5 kgC/h	50 mgC/Nm³ o emisión másica 0.5 kgC/h
	Value	0.09 / 0.5	0.04 / 0.2
CO (mg/Nm³)	Legal limit	100 mg/Nm³	100 mg/Nm³
	Value	12.32 / 17.0	10.5 / 28.3
NOx (mg/Nm³)	Legal limit	450 mg/Nm³	450 mg/Nm³
	Value	130.84 / 232.7	98.14 / 157.2
Solid particulates (mg/Nm³)	Legal limit	50 mg/Nm³	50 mg/Nm³
	Value	2.9/4.10	1.89 / 2
Dimethyl sulphate (DMS) (g/h)	Legal limit	2 mgC/Nm³ si emisión másica ≥ 10 gC/h	2 mgC/Nm³ si emisión másica ≥ 10 gC/h
	Value	<0.025	< 0.03
Dioxins and furans (ng/Nm³)	Legal limit	0.1 ng/Nm³	-
	Value	0.009	-
Hydrochloric (kg/h)	Legal limit	30 mg/Nm³	-
	Value	0.19 / 0.3	-

NOISE EMISSIONS

Every year, we conduct a noise check inside the facility to verify that sound levels are within the legal limit and to be able to detect an increase in environmental noise and consequently adopt preventive or corrective measures in the shortest possible time.
The level of noise emitted by each centre is below the level required in the Municipal Ordinance corresponding to the municipality in which the centre is located and the level given in Law 16/2002 (refer to section 8.1.1.7).

TABLE 26.

Immission limit (LAr in dBA) day / night in residential area

	LAW 16/2002	MUNICIPAL BY-LAW
OLESA DE MONTSERRAT CENTRE	55 / 45	70 / 60
MOLLET DEL VALLÈS CENTRE	55 / 45	60 / 50
BARBERÀ DEL VALLÈS CENTRE	65 / 55	65 / 60

SOILS

In 2004, Kao Corporation, S.A.U. evaluated the level of industrial soil contamination at its three centres. The limit concentrations obtained were correct, in accordance with the provisional soil quality criteria applicable in Catalonia for industrial soils.

By the same token, the "Soil Status Report" is available in accordance with the Royal Decree 9/2005 and with the requirements of the Agència de Residus de Catalunya.

There are regular actions to prevent soil contamination, such as re-asphalting of roads, renewing tanks and ensuring that the production plants are paved properly.

The "Basic Soil Report" for the Olesa de Montserrat centre was submitted in 2015 in accordance with Law 5/2013 and the one for the Mollet del Vallès centre was submitted in 2017.

The soils Periodic Situation Report (PSR) for the Olesa de Montserrat centre was submitted in 2016 and the one for the Mollet del Vallès centre was submitted in 2017.

In 2020, the Soil Monitoring and Control Plan (PSC) was carried out, prescribed by the environmental authorization of the Olesa de Montserrat centre and the Mollet del Vallès centre. Both centres concluded that the calculated mobilization rates do not exceed the values established in the ARC methodological guidelines, so no additional measures must be taken and they can continue with the existing PSC.

7.3 INTERNAL AUDITS

During this financial year, an Environmental internal audit was performed in different areas and centres in accordance with the 2021 Annual Audit Plan. The main aim of this audit was to check the adaptation of the Risk Prevention Management System (RPMS) to the Responsible Care Environmental Management Module.

In the energy area, an external company has been hired to perform the internal audit. During the audit process, the great effort carried out by all personnel associated with the audited departments and areas is worth mentioning.

8. IMPROVEMENT

Kao Corporation, S.A.U. has developed indicators associated with environmental aspects in order to define specific improvement plans. The result of this action has included the reduction of hundreds of tonnes of waste and major reductions in the pollutant loads dumped into water which, in the absence of said plans, would have meant an environmental impact far in excess of that currently under consideration.

The following are some examples of preventive actions that have allowed our organisation to reduce its environmental impact.

CIRCULAR ECONOMY

"Our mission is to fight for the satisfaction and sincere enrichment of people's lives worldwide and to contribute to the sustainability of the world..." The concept of sustainability, so widely spread, is interrelated with the circular economy, whose objective is that the value of resources (water, energy, etc.), materials and products should be maintained in the economy for as long as possible, thereby reducing waste generation as much as possible.
The principles on which the circular economy is based are:

1.- Preserving and improving natural capital; meaning, controlling stocks and balancing the flows of renewable resources.
2.- Optimizing resource performance by circulating the products, components and materials in use to their maximum utility at all times, in both technical and biological cycles.
3.- Promoting efficiency of the system by revealing and discarding negative externalities as waste.

There are several actions that have been carried out in this area, from the replacement of plastic material in the dining room with reusable glass bottles, the application of green purchase criteria for materials such as paper or reused containers, etc.
The collaborative collection system of organic waste and packaging waste segregated at our facilities with other companies located in the industrial complex of Barberà del Vallès, the only establishment that has a food service, was interrupted by the outbreak of the pandemic, but it is expected to be launched again at the beginning of 2022.
Another annual activity is the donation of equipment to schools, universities and NGOs so that it can be reused. We have thereby succeeded in extending the useful life of equipment and reduced waste generation.

ENERGY CONSUMPTION

Natural gas is the main energy resource used by Kao Corporation, S.A.U. It is a clean fuel that allows to efficiently generate electricity and produce steam. Therefore, we generate the cleanest electrical energy, which we feed into the public power distribution grid.
The energy efficiency is also thanks to the use of high performance turbines, the optimisation of resources and the appropriate maintenance of the installations (recovery of condensates, improved thermal insulation, economizers, etc.).
As part of its commitment to the environment, and in line with the objectives of the Kirei Lifestyle Plan, the line of work at Kao Corporation, S.A.U. is emphasised, which is focused on improving energy efficiency.
This activity began in 2012 with an initial audit that identified areas for improvement. After the actions required to introduce a management system based on the UNE-EN ISO 50001 standard, it concluded with certification in the first quarter of 2014.
The implementation of ISO 50001 is a further reflection of the commitment of Kao Corporation, S.A.U., whereby we expect to further improve the results obtained to date.
The proposed actions for improvement are included in the Sustainability Plan of each centre.

In 2021, we have been working on the energy roadmap that will allow us to reduce CO_2 emissions until reaching neutrality, as well as reach greater energy efficiency.

WASTE WATER

Most of the waste water generated in the processes of the chemical plants (Olesa de Montserrat and Mollet del Vallès) is previously treated at the company's own treatment plants, which include physicalchemical and biological treatment technologies, before being sent to municipal treatment plants.

The pollutant loads present in waste water have varied substantially in recent years, depending on the activities conducted by the productive plants and vary based on the actions taken to reduce its polluting load.

Renovation of the treatment plant at the Mollet del Vallès centre is under study.

WASTE

One of the company's permanent objectives focuses on the continuous improvement of its waste management, not only from the point of view of trying to reduce or appropriately process waste, but also by researching new forms of management.

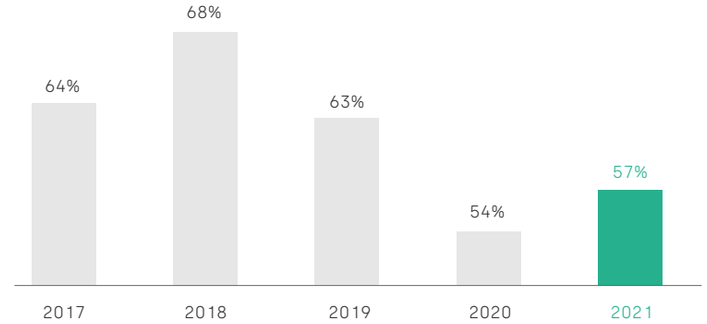
A multidisciplinary working group has been convened to focus on production waste generation prevention.

The progressive development of minimisation plans is one of the most important challenges with regards to both environmental and economic impacts. New strategies, such as the reduction of sludge treatment and the reuse of water, will make it possible to significantly minimise the volume of generated waste.

The internal use of waste with high calorific value as an alternative to conventional fuels has also been studied, and a request for a change has been submitted to practice such management at the Olesa de Montserrat centre.

ILLUSTRATION 13.

Evolution of the waste recovery percentage



Waste recovery

The effort made by Kao Corporation, S.A.U. to search for other companies that can use our waste as raw materials or energy in their processes, i.e. to obtain value from a waste product, is evident in the increased percentage of recovered waste, exceeding 50% since 2005, with the exception of 2009. Part of the fluctuations in the quantities of recovered waste is due to treatment capacity of managers that offer this management route.

ATMOSPHERIC EMISSIONS

Analytical control of atmospheric emission sources at the three industrial centres has gradually increased by means of Monitoring and Inspection Bodies.
From an environmental viewpoint, the constant actions performed to optimise resources and investments significantly contribute to reducing CO_2 emissions.
A FID analyser was purchased in 2016 to measure the TOCs for the purpose of determining if they have an effect on any changes in the process conditions and if so, in what measure.
In 2019, the thermal oxidation facility located at the Olesa de Montserrat centre for treating the gas emissions generated by the sources (3) of the aroma processes became operational.

BIODIVERSITY

Greater knowledge, awareness and sensitivity regarding environmental aspects involves expanding the scope of the environmental actions that are taken, including conservation and the promotion of biodiversity.
In this regard, the Kao Group has developed a methodology based on standard of use of the earth developed by JBIB[19] to understand the situation of biodiversity and evaluate the progress of conservation at each Kao facility in the world.
Along this line, in 2017 the group provided all the subsidiaries with a form for evaluating progress on the conservation of biodiversity. In 2018, an inventory of both animal and plant species was taken at each facility, informative material was prepared, and the form was completed so that it could serve as the starting point for being able to assess advances in this area.
To improve this area, Kao Corporation, S.A.U., drew up and published its first biodiversity policy, published in May 2019, which entailed the definition of short, medium and long-term objectives. The Safety Day held in each centre serves to publicize and promote these objectives so that they can be achieved.

[19] JBIB (Japan Business Initiative for Biodiversity) is an organization of numerous businesses from various types of industries, which are committed to the conservation of biodiversity. Kao has participated in JBIB since its founding in 2008.

In 2021, aromatic plants were planted on one of the slopes of Barberà del Vallès. Jasmines were planted at the other two centres, and existing invasive plants were controlled at the centres. In the case of Barberà del Vallès, the transfer of a beehive was requested. Nest boxes have also been placed at the Olesa de Montserrat and Mollet del Vallès centres, and the nest boxes and the insect hotel in Barberà del Vallès have been monitored.
In order to expand our knowledge in this area, the species of the year has been selected. This time the house sparrow was selected (*Passer domesticus*), and informative material has been prepared to publicize this species, which is so close to us.

OTHERS KAIZEN

The Kaizen philosophy is fully aligned with the Kirei Lifestyle Plan. This term is of Japanese origin and means "change for the better" or "improvement", however, it is commonly translated as "continuous improvement".
It is a quality management method that is highly known around the industrial world that develops culture and enables all workers to participate and which intention is for the company and their employees to always seek to achieve better results by optimising the processes and identifying activities that can be carried out more efficiently; its focus is on eliminating waste and misuse in production systems.
The phrase: *short steps to travel a long distance*, sums up the meaning of Kaizen. All we have to do is go to the work locations (genba), observe what is happening there, recognise and take the necessary actions. Time can also be managed to ensure it is optimised just like any of the organisation's tangible assets.
All these reasons show that the company has made a clear effort to continuously improve the adaptation and efficiency of the RPMS to improve performance in safety and the environment.

9. REFERENCES

— EC Regulation 1221/2009 of the European Parliament and of the Council of 25 November 2009, whereby organisations are allowed to participate on a voluntary basis in a Community Environmental Management and Audit System (EMAS).

— Responsible Care®.

— ISO 14031 (2013). Environmental management: Environmental performance assessment. General guidelines.

— ISO 14001 (2015). Environmental management systems. Requirements with guidance for use.

— Directives on the Environmental Declarations of the EMAS. Ministry of the Environment. Official Publications Office of the European Communities (ISBN 92-894-1603).

— National Institute of Statistics (INE): Population census.

— Department of the Environment of Generalitat de Catalunya: Distances to aquifers and PEIN areas (remote cartography).

GLOSSARY

ACA: Agència Catalana de l'Aigua

ACR: Quantitative Risk Analysis

BPM: Business Process Management

CAPCA: Catalogue of Potentially Contaminating Activities of the Atmosphere

CEO: Chief Executive Officer

CO: Carbon monoxide

CO_2: Carbon dioxide

TOC: Total Organic Carbon

EE: Electrical Energy

ESG: Environmental, Social and Governance

FEIQUE: Federation of the Spanish Chemical Industry

GHG: Greenhouse gases

HSE Dept.: Health, Safety & Environment department

BSR: Basic Soil report

SR: Safety Report (Serious Accidents)

SM: Suspended Matter

IM: Inhibitor Matter

mi: Magnitude of the impact

NO_x: Nitrogen oxide

PM10: Particulates up to the size of 10 µ

PRTR: Pollutant Release and Transfer Register

PLASEQCAT: Pla d'Emergència Exterior del Sector Químic de Catalunya

RC: Responsible Care

RCMS: Responsible Care Management System

SGPR: Risk Prevention Management System

GIL: Generic Intervention Level

GNRL: Generic No-Risk Level

10. PUBLICATION OF THE DECLARATION

This Environmental Statement has been prepared by the HSE Dept. of Kao Corporation, S.A.U., to publish the environmental management results for 2021 and to monitor the favourable evolution of the historically obtained figures, indicators and improvements. It also provides clear and concise information that is useful for the external audit and verification of the environmental management carried out by the Organisation in accordance with EC Regulation 1221/2009 (EMAS). The information given in this Declaration is extracted from other official documents, developed broadly and specifically for each area of action:

Annual waste declarations submitted to:
— Agència de Residus de Catalunya. Departament de Territori i Sostenibilitat. Generalitat de Catalunya.

Declaracions de l'ús i la contaminació de l'aigua (water use and pollution declarations), presented to:
— Agència Catalana de l'Aigua (daily analysis data for factories and external laboratories approved by the ACA). Departament de Territori i Sostenibilitat. Generalitat de Catalunya.

Official pollutant emission controls submitted to:
— Direcció General de Qualitat Ambiental i Canvi Climàtic. Departament de Territori i Sostenibilitat. Generalitat de Catalunya.

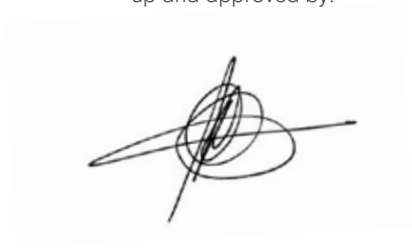
Kao Corporation S.A.U. has been making this Environmental Statement since 2003 as an essential part of its internal and external communications with stakeholders and other interested parties, thereby seeking daily improvements based on the indicators and objectives provided herein.

This Environmental Declaration can be consulted at:
http://mediambient.gencat.cat/ca/05_ambits_dactuacio/empresa_i_produccio_sostenible/sistemes_de_gestio/sistemes_de_gestio_ambiental_iso_14001_i_emas/emas/Organitzacions-registrades-i-declaracions-ambientals/index.html

https://www.kaochemicals-eu.com/publications

11. SEAL OF APPROVAL FROM THE VERIFICATION AGENCY

This document has been drawn up and approved by:



Mª José Bermejo
KCSA President

The system has been verified and this Environmental Statement has been validated by AENOR.

Generalitat de Catalunya
Departament de Territori i Sostenibilitat

Declaració del verificador ambiental sobre les activitats de verificació i validació

EMAS

Annex VII del Reglament 1221/2009, de 25 de novembre, del Parlament europeu i del Consell, relatiu a la participació voluntària d'organitzacions en un sistema comunitari de gestió i auditoria ambiental (EMAS)

L'entitat de verificació **AENOR INTERNACIONAL, S.A.U.**, amb el número d'acreditació **ES-V-0001** i el número d'habilitació de la Direcció General de Qualitat Ambiental **014-V-EMAS-R** acreditat per a l'àmbit 20.11, 20.12, 20.13, 20.14, 20.15, 20.16 y 20.17 (Grup NACE), declara haver verificat que l'organització (*), segons indica la declaració ambiental de l'organització **KAO CORPORATION, S.A.**, en possessió del número de registre ES-CAT-000177,, compleix tots els requisits del Reglament (CE) 1221/2009, relatiu a la participació voluntària d'organitzacions en un sistema comunitari de gestió i auditoria ambiental EMAS, modificat d'acord amb el Reglament (UE) 2017/1505 i Reglament (UE) 2018/2026.

Amb la signatura d'aquesta declaració, declaro que:

- La verificació i validació s'han dut a terme respectant escrupolosament els requisits del Reglament (CE) 1221/2009, modificat d'acord amb el Reglament (UE) 2017/1505 i Reglament (UE) 2018/2026;
- El resultat de la verificació i validació confirma que no hi ha indicis d'incompliment dels requisits legals aplicables en matèria de medi ambient;
- Les dades i la informació de la declaració ambiental/la declaració ambiental actualitzada (*) de l'organització/el centre (*) reflecteix una imatge fiable, convincent i correcta sobre totes les activitats de l'organització/el centre (*), en l'àmbit esmentat a la declaració ambiental.

Aquest document no equival al registre EMAS. El registre en EMAS només pot ser atorgat per un organisme competent en virtut del Reglament (CE) 1221/2009. Aquest document no servirà per si mateix per a la comunicació pública independent.

Fet a .Madrid, 2022-09-05

Signatura i segell de l'entitat de verificació
(*) Gubreu el que no escau

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