

# SUSTAINABLE DEVELOPMENT REPORT 2016

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- > 7 families of products for sustainable animal nutrition
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### OUR COMMITMENT TO SAFETY



### OUR COMMITMENT TO SUSTAINABLE GROWTH



### OUR COMMITMENT TO SOCIAL RESPONSIBILITY



### OUR COMMITMENT TO THE ENVIRONMENT



**RESPONSIBLE CARE®**  
OUR COMMITMENT TO SUSTAINABILITY

Adisseo is a signatory to the *Responsible Care* global charter and, as such, is committed to safe management of its products throughout their lifecycle, the promotion of their role in improving quality of life and their contribution to sustainability.



Adisseo has voluntarily followed the Global Reporting Initiative G4 Guidelines in preparing this report – Find out more at [www.globalreporting.org](http://www.globalreporting.org)





# A GLOBAL LEADER

## in animal nutrition

Adisseo is a global leader in the production of additives and nutritional solutions for animal feed.

The group is No. 3 worldwide, and is the second largest methionine producer as well as leading the market in protected methionine for ruminants.

The mission of Adisseo is to offer our world healthy, sustainable, affordable, high-quality food by providing the animal feed and food industries with innovative products and services.

Adisseo is committed to distributing the value it creates fairly between its customers, employees and shareholders.

Additionally Adisseo invests actively in research, in its industrial production base, in environmental protection and in the development of its teams and people.

Adisseo became a subsidiary of the Chinese Bluestar Group in 2006, and has continued to increase its labor force and financial results. It is also the first international company to have its shares traded on the Shanghai stock market.

### > KEY FIGURES

+1,900  
employees  
worldwide

€1.469 billion  
in revenue  
result to end September 2016 extrapolated

7  
in-house research center  
and many external  
research contributors

+160  
researchers

€880 million  
invested  
since 2010

7  
plants  
in France, Spain and China

2  
manufacturing centers  
(Europe and Asia)  
and multiple industry  
partnerships

+2,500  
customers  
in more than 100 countries

### > OUR PRESENCE WORLDWIDE

● Headquarters ● Sales offices ● Main production sites ● R&D centers



### > OUR VALUES

**CREATIVITY**  
Which opens  
new paths to progress  
and new ways  
of succeeding  
together.

**TEAM SPIRIT**  
Which unites us  
in our successes  
and challenges.

**INTEGRITY**  
Which underpins  
our interaction  
with customers  
and partners,  
ensuring that our  
actions are consistent  
with our words  
and values.

**RESPONSIBILITY**  
Each of us  
is a stakeholder  
in the company  
and a contributor  
to its success  
We encourage  
decisiveness,  
a sense of urgency,  
courage and  
delegation.

**RESULTS-FOCUSED CULTURE**  
Which makes our  
actions effective and  
measurable, because  
we understand that  
success is built on the  
quest for performance,  
continuous improve-  
ment and listening  
to our customers.

### "OFFERING OUR WORLD HEALTHY, SUSTAINABLE, AFFORDABLE & HIGH-QUALITY FOOD"

Interview with **Jean-Marc Dublanc**,  
Chief Executive Officer of Adisseo



#### How does sustainability fit in with the business activities of Adisseo?

We have a very clear vision of our mission. It is based on an equally clear fact: by 2050, the world's population will have risen to more than 9 billion. Feeding this population is one of the major challenges of our time. So our mission will be to provide the world with healthy, sustainable, affordable, high-quality food without compromising the principles of sustainability.

To succeed in this mission, Adisseo has positioned itself as a key stakeholder central to the animal protein production chain. And sustainability is critical to this production chain. The very essence of what we do at Adisseo as a provider of nutritional solutions is to improve the conversion of plant proteins into animal proteins. Producing these proteins consumes the majority of crops grown in the world, thereby generating a demand for productive land, driving the substantial use of plant protection products, and consuming large amounts of water and energy. The very nature of our business is to improve meat production in ways that reduce our dependence on these natural resources.

#### So what are the solutions you contribute to achieving that?

If we continue to produce meat in the same way as we did 50 years ago, there will not be enough productive agricultural land to feed the world's population. But we are improving this level of production through nutritional expertise, animal genetics and livestock management. The quantity of feed required for the growth of a chicken is, for example, substantially less today than it once was. If we add around 2 kilos of methionine to a tonne of feed, we can optimize the growth of that animal.

Similarly, we will improve digestion with enzymes, which reduces livestock farm waste, and the choice of raw materials based on their nutritional value by using a service like Precise Nutrition Expertise or PNE.

Given that animal feed is the largest single expense for livestock farmers, this has an important economic effect, and can make farming profitable in challenging regions, such as Africa, where we also support an aid program for chicken farming families.

#### How do you incorporate this approach into your own manufacturing environment?

We focus our work on the three priorities of safety, the environment and people. Because we are essentially chemists operating in sensitive locations, safety has always been a non-negotiable priority on which we never compromise, whether in our own production plants or in the use of our products.

Environmental considerations are now of equal importance and priority. We must work towards zero environmental impact. For example, we have already reduced our water consumption significantly. We are also investing in technologies to manage and eliminate the odors generated by our production activities, which represents a highly complex area of research. And, we have also embraced innovations in energy by contributing to the construction of a biomass plant at our Commentry facility to provide 50% of the steam needed by the plant, at the same time as developing a new strand for the local economy.

People represent the third key value for Adisseo. In fact, we have made the satisfaction and commitment of our people a key indicator of company performance. We measure that indicator precisely, and develop initiatives alongside our teams to ensure that we progress every year in this crucial area that governs our success in every other part of the business.

"We must work towards  
zero environmental impact."



# A PREFERRED PARTNER

Adisseo is committed to improving the quality of animal feed by offering nutritional products and solutions that contribute to livestock wellbeing, as well as promoting their growth, improving their health and reducing waste. The result is optimized performance for poultry, pig and dairy production worldwide.



## > SEVEN FAMILIES OF PRODUCTS FOR SUSTAINABLY BETTER ANIMAL NUTRITION



### Rhodimet®

Rhodimet® is a source of methionine, an essential amino acid and feed supplement for all animals. Rhodimet® is the solution for achieving the right methionine balance in monogastric animal (poultry and pig) feed. It improves technical and economic performance while reducing nitrogenous discharges into the environment.

Available in both dry (Rhodimet® NP99) and liquid (Rhodimet® AT88) forms, Rhodimet® responds effectively to a wide range of the needs for animal nutrition professionals.

Recent studies\* conducted by Adisseo have shown that adding a liquid source of methionine (D, L-HMTBA) can deliver energy savings of up to 7% compared with the powder form (D, L-Met) during the pelletizing process.

\* Rhodimet technical report No. 6 09/2016



### Smartamine® and MetaSmart®

Adisseo is the pioneer in protected methionine for dairy cows and other ruminants. When fed to ruminants, methionine must be protected to avoid rumen degradation, and ensure its availability at the right point in the digestive tract.

Adisseo manufactures and sells the two market-leading brands of methionine, Smartamine® and MetaSmart®. These nutritional solutions are essential for ensuring that dairy cow rations contain the correct amino acid balance.



### Microvit®

Microvit® is a complete range of animal feed vitamins that provides the quality and consistent reliability required to achieve the most demanding level of traceability.

With Microvit®, Adisseo supplies its customers with a top quality product, along with all the expertise and innovation needed for its strategic "premixer" partners to respond effectively to ongoing growth in what is an increasingly demanding market.



### Rovabio®

Rovabio® is a range of enzymes (Advance, Excel and Max) that improves the digestibility of the plant-based raw materials used in poultry and pig feeds, contributing to a more environmentally-friendly model for livestock farming.

With multi-species, multi-ingredient and multi-application solutions, Rovabio® is the most versatile enzyme product on the market today.



### Selisseo®

Selisseo® 2% Se is the innovative source of organic selenium developed by Adisseo from selenohydroxymethionine. Selenium has been used for decades in animal feed for its well-known antioxidant properties.

However, compared to more traditional sources of selenium, Selisseo® 2% Se delivers a better response to the needs of professionals for performance, reliability and convenience.

Selisseo® 2% Se is the only source of selenium available in the market as a choice of powder or liquid.



### AdiSodium™

AdiSodium™ is a source of chlorine-free sodium. It provides an economical solution to achieve the correct electrolytic balance of feed for monogastric animals, and provides a source of sulfur easily assimilated into ruminant feeds.



### Alterion

Alterion is a natural, non-GMO probiotic solution derived from a single strain of *Bacillus subtilis*, carefully selected by Adisseo experts and their partner Novozymes.

Alterion improves absorption of digestive nutrients, optimizes feed usage, improves performance and reduces waste.

Alterion also limits the presence of undesirable intestinal bacteria in poultry. As a result, it offers an excellent alternative to growth factor antibiotics, thereby reducing drug residues in the environment and in animal products for human consumption. It is therefore a preferred product for limiting the development of antibiotic-resistant bacteria.



### Sulfur products and regeneration service

Adisseo relies on a high level of upstream integration to secure its methionine value chain.

Sulfuric acid is one of the most commonly used compounds across a broad spectrum of industry sectors. So in addition to ensuring its own security of supply, Adisseo also provides this product to external customers.

To assist its customers in avoiding the need to destroy residual used acid, Adisseo offers a regeneration service that recycles this otherwise waste product to the point where it can be reused for the same purpose, thereby meeting all the conditions required for a virtuous circular economy.

This service is greatly appreciated by industries that use large volumes of sulfuric acid, since it reduces the environmental impact of their production processes by significantly improving the carbon footprint of their products.

Adisseo is a major force in sulfuric acid regeneration in France and Eastern Europe; a status fully consistent with the sustainability policy it applies internally and externally for the benefit of its customers.



## > SERVICES FOR GREATER NUTRITIONAL CONTROL

Adisseo has developed a series of exclusive analytical and forecasting services designed to provide its customers with easy access to help and expert assistance on using its products and improving the nutritional quality of feeds.



E.lab is an online service that allows Adisseo customers to request analysis and find out precisely which samples they should send to the Adisseo laboratory (CARAT-Analyse in France and CEAN in Brazil). Customers can then track the status of their request in real time (receipt of samples, analysis in progress, waiting time before results, etc.) and access the final results directly.



PNE (Precise Nutrition Evaluation) is a unique rapid-analysis service that uses near-infrared spectrometry (NIRS) to predict the nutritional quality of the raw materials used in feed. Using this system, Adisseo can analyze all the raw materials in a dietary regime, and generate a real-time prediction of all the characteristics influencing its nutritional benefits.

The user interface and design of the PNE service were further upgraded during 2016. As a result, the PNE website is now more powerful, and offers a series of new functions, including supplier comparison, trends over given periods, comparisons with national and global standards, etc.



DIM (Serenity DIMension) is a set of services designed to help Adisseo switch easily from the use of powdered methionine (Rhodimet® NP99) to liquid methionine (Rhodimet® AT88).

> More information on the [feedsolutions.adisseo.com](http://feedsolutions.adisseo.com) website

# A customer-focused OR GANIZATION



For several years now, Adisseo has been engaged in a policy of continuous improvement covering every part of its business to boost customer satisfaction.

The group applies the same policy to boosting the commitment of its people and maximizing the quality of all its stakeholder relationships.

To achieve this, Adisseo has introduced a totally new CRM (Customer Relationship Management) system to deliver an even faster and more effective response to customer expectations while boosting their satisfaction over the long term by simplifying its own business practices.



## > Improving internal processes

In 2015, Adisseo launched a wide-ranging initiative called AGILE to deliver further improvements regarding the individual and collective effectiveness of its employees and to respond more effectively to the needs of internal and external customers.

The Agile project was rolled out in a series of waves before achieving its current 'run mode' status. It encompasses all Adisseo working processes. In 2016, 83% of planned initiatives were implemented, representing 300 simplification initiatives focused on 5 key business processes, including customer service.

### JUST A FEW OF THE RESULTS

> **Simplified purchasing:** saving more than 30 man/days per year

> **Simplified customer support:** boosting satisfaction to 75%

> **Simplified product marketing:** strategies focused on customer needs

> **Simplified training processes:** the time saved is reinvested in the provision of help and advice on the choice of training program

> **Simplified operations:** improved flow management, forecasting and inventory levels

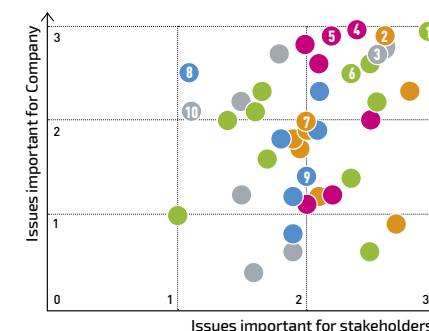
## > Putting customer at the heart of our organization



Launched in 2016, the We Move project will enable Adisseo to improve its service and at the same time help to deliver its mission of providing the world's population with healthy, high-quality, affordable food. The challenge is to offer innovative products and services that are fully consistent

with the principles of sustainability, and adapting to an environment that is constantly changing. Facilitating change in corporate culture, organizational structures, collaborative working methods and innovation are just some of the areas covered by this project.

## > Conducting a materiality analysis



Identifying the CSR (Corporate Social Responsibility) challenges faced by the company, their importance for external stakeholders and the impact on long-term overall company performance, provides direction for company strategy.

Identifying these challenges at the end of 2015 led to the mapping of our CSR challenges in five distinct areas: the environment, employee relations and management, societal, products and services, and governance.

The same process allowed us to identify the priority challenges for ADISSEO to remain fully consistent with its vision of offering our world healthy, sustainable, affordable, high-quality food by basing everything we do on the three fundamental values of personal safety, environmental protection and financial performance.



## > Building and Sharing expertise alongside customers

On September 20, 21 and 22, Adisseo South America hosted the Nutriciencia 2016 event at Florianópolis in Brazil for an audience of 80 guests from South America. They included many nutritionists and trainers, directors, technical managers and sales managers from Adisseo, customer companies, and opinion leaders from the region's scientific community.

In the USA, the Adisseo Ruminant Team hosted its 9th evening conference at the joint annual meeting of the American Dairy Science Association and American Society of Animal Science in Salt Lake City. The guest speaker was Dr. Erminio Trevisi, of the Università Cattolica del Sacro Cuore in Italy.

A conference on the liver function index as an indicator of dairy cattle health was attended by more than 150 professional delegates.

## The customer satisfaction



> The customer satisfaction index, OTIF (On Time In Full), remains stable at a high level.  
> Action plans are underway to ensure continued progress in this area.



Our priority

# ZERO ACCIDENTS

The personal safety of our full-time employees, our temporary employees, the employees of external companies, visitors and neighboring communities is an absolute priority at Adisseo. The company has implemented a series of innovative systems to ensure constant vigilance and achieve its goal of zero accidents.

At Adisseo, every new project implemented includes an important safety component, and when multiple options are available, those that ensure maximum safety will always be chosen.



Adisseo, Usinaid and Transaid

## Making Adisseo expertise available to everyone

In 2015, Adisseo joined the French Usinaid network, which advises industrial companies and government departments on how best to manage an incident or accident involving an olfactory chemical on an industrial site. Adisseo has volunteered its advice on 7 substances. Adisseo is also a member of the Transaid network set up to assist emergency services in handling transportation accidents involving hazardous materials.

GOAL  
2020

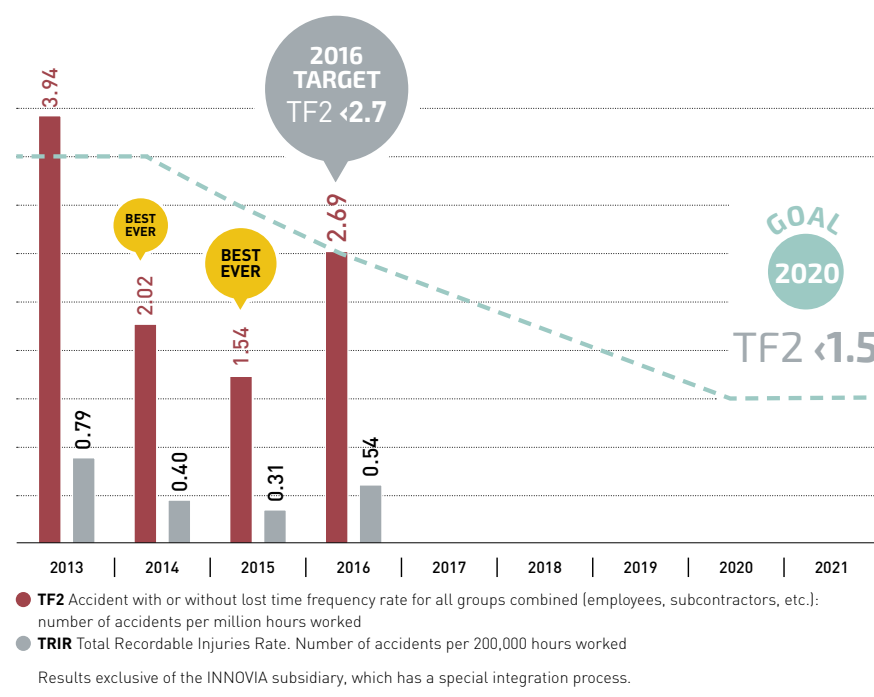
To achieve a TRIR\* consistently below 0.3

\* (Total Recordable Injury Rate per 200,000 man-hours worked)

## 2016: safety results on target



In 2016, the accident with or without lost time frequency rate of 2.7 (equivalent to a TRIR of 0.54) is consistent with achieving our target. This result is one of the best in the industry, the two previous years were slightly better, which delivered our best performances. A series of special action plans are being rolled out throughout the company to improve results in 2017.



## > Safety: records beaten on the majority of Adisseo sites

Adisseo's plant located at Burgos (Spain) achieved 1,000 accident-free days in September 2016, and in December was able to report its third year in succession with no accidents. It's a performance that the teams intend to keep up as they work towards their new goal of 2,000 accident-free days. Other sites have also achieved excellent results, including Nanjing (China) with more than 18 accident-free months, and Roches-Roussillon (France), which has achieved almost 500 days with no accident (493 days which is a new record for this site).



Two safety awards for Adisseo Spain

Adisseo Spain received the 2016 Safety Management Award presented by Coashiq (the Autonomous Commission for Safety and Hygiene in the Workplace for Chemical and Related Industries). This award specifically recognizes the 1,000 accident-free days achieved by the Burgos plant. The company also received the MC Mutual "Antonio Baró" annual award for workplace risk prevention.







## > Securing our industrial sites

The terrorist attacks on France and the wider Europe in 2015 and 2016 have led to a significant tightening of security measures on Adisseo sites. These security measures are designed to protect people, property, products, processes and information systems against all kinds of criminal and malicious action (intrusion, theft, terrorism etc.), including cyber attacks. Adisseo has invested around €3 million to secure its industrial sites. Working closely with the proper authorities, a series of measures have been implemented, including upgrading perimeter fences, developing new video surveillance resources, tightening security at sensitive points, and even modifying access routes to improve surveillance and limit the number of site entrances.

€3 million  
invested in industrial site  
security during 2016

### > Informing employees about security

As part of upgrading security at Roches-Roussillon, each employee received a guide explaining the different levels of alert, the resources implemented to prevent any malicious act, and what to do in the event of a potential threat. Employees were also advised to observe and report any unusual activity, but never to expose themselves to danger or take direct action.

## > Talking safety with customers

Adisseo Commentry welcomed approximately twenty Health, Safety & Environment managers from the Avril Group. The Avril Group is an Adisseo customer, and France's leading producer and financier of oils and vegetable proteins. As part of the visit, the Adisseo QHSE teams were able to demonstrate the safety expertise of the group, and plans are in place to continue the process of discussion around other Adisseo services, such as its safety training center and officially recognized inspection service (regulatory inspections of pressurized equipment for which the establishment is responsible).



INTERVIEW WITH  
LAURENT LASKRI,  
HSE DIRECTOR,  
AVRIL GROUP

**Were there aspects that particularly interested you?**

Your approach to chemical hazards, which has immediate practical applications for us, the opportunity to receive support from your Recognized Inspection Service for some of our sites in France, and the services offered by your Safety Training Center.

**Would you welcome more discussions of this type?**

Definitely. We found it to be an excellent experience.



### > Controlling every fire risk

To improve fire prevention, the Burgos plant has provided fire extinguisher training for all personnel who are not members of an emergency response team. More than 60 people received this training in eight sessions spread over four days. For many, it was the first opportunity to find out how a fire extinguisher works. Already rolled out to other Adisseo entities, this training session could prove to be very useful not only in the workplace, but also at home.

## > Sharing safety good practices

Every year, Adisseo holds a safety day for all employees in all its manufacturing, research, administrative and sales facilities. As well as focusing on day-to-day safety at Adisseo, it also provides an additional opportunity to offer training, visits and discussion on the subject of safety and achieving the zero-accident target.



## > Taking workplace hardship into account

The Workplace Hardship Prevention Personal Account (*Compte Personnel de Prévention de la Pénibilité* or C3P) was introduced into French law in 2014, and is implemented by Adisseo France. The program allows any employee exposed to one or more workplace hardship factors (night working, exposure to hazardous substances, load handling, etc.) to collect points that entitle them to certain benefits, such as training for a career change, making a transition to part-time working or even taking early retirement. In 2016, 338 employees of Adisseo in France are involved in this program, which is fully consistent with the corresponding preventive safety policy in place in all Adisseo entities.



Our priority

# INVESTING IN QUALITY & INNOVATION

Adisseo is one of the top investors in its industry.

Since it joined Bluestar/Chemchina in 2006, the group has invested €1 billion; half in France and half in China. It has focused these investments on expanding its teams and working more closely with customers, improving production quality and quantity, developing its research capabilities and shrinking its environmental footprint.

In 2016 alone, more than €26 million was invested in workplace safety and the environment.



Adisseo and Mangra combine their expertise

### Innovation for customers

The Rhodimet® Plug & Spray system is designed to add Rhodimet® AT88 (an analog of liquid methionine) to animal feed by direct injection into the

feed component mixer. It is particularly suitable for feed plants using between 30 and 100 tonnes of Rhodimet® AT88 per year. The system

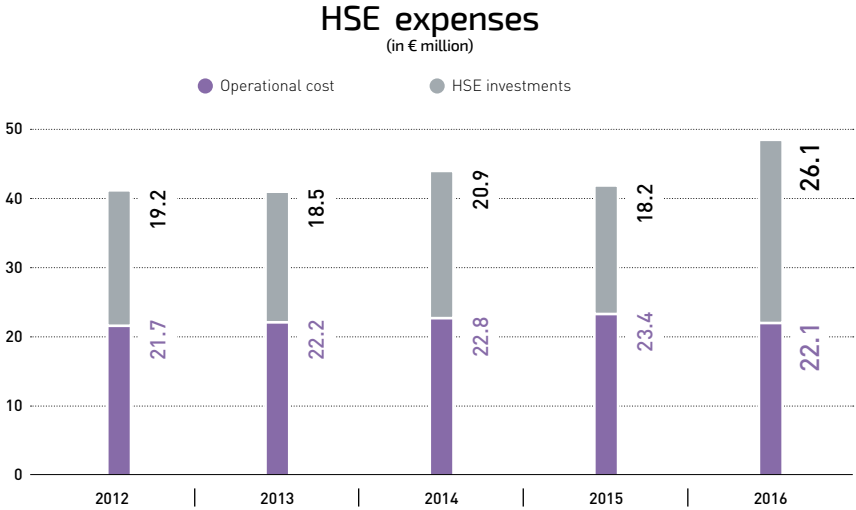
has been specially designed for Adisseo by engineering company Mangra by combining and concentrating the expertise of both companies.



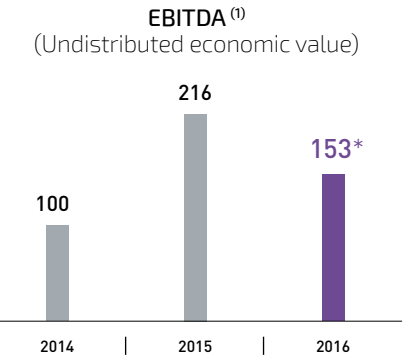
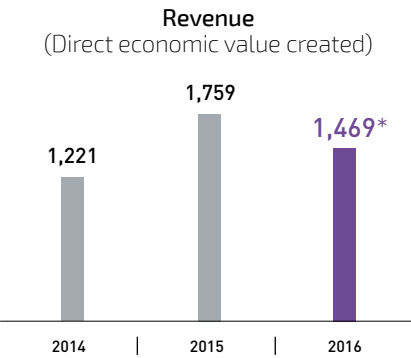
Developing with success  
one product/service or one  
process innovation

## A proactive policy of Health, Safety & Environment investment

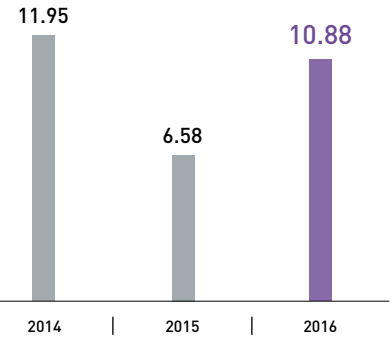
Our HSE operating expenditure, which includes an ever-increasing number of regulatory constraints (additional studies, higher taxes, etc.) is governed by a proactive HSE investment policy that has seen more than € 20 million invested annually in recent years. Every new industrial project is used to further improve our management of safety and environmental risks, and mitigate the impacts as part of our wider commitment to sustainable growth.



### Economic value (in € million)



### Public subsidies received <sup>(2)</sup> (in € million)



\* Result to end September 2016 extrapolated | (1) Earnings Before Interest, Taxes, Depreciation and Amortization / base 100 2014 | (2) Primary contribution: research tax credit

### > Producing more by consuming less

The Adisseo MACARON project aims to increase the production capacity of the Roussillon site methionine units by improving shop reliability and installing new equipment. Implementation of

this project has also delivered a 25% reduction in water consumption at the Roussillon site. This significant savings has allowed Adisseo to secure a subsidy from the regional water authority.

-25%  
water consumed  
on the Roussillon site





## > Diversifying methionine production: ADRY+

After more than a year of work and the finalization of preliminary studies, the ADRY+ project entered its decisive phase midway through 2016. This strategic project will enable Adisseo to expand the market for Rhodimet® AT88 liquid methionine.

This new powdered version of the product is a calcium salt of Rhodimet® enriched with AT88 to deliver the benefits of this product (the same efficacy value > 88%) to customers whose process cannot use the liquid form of methionine.

The new ADRY+ production unit is under construction at the Adisseo Burgos plant, consolidating the long-term future of the site and creating more jobs. Designed to incorporate many aspects of sustainability, it optimizes energy consumption (by recycling waste steam), reduces CO2 emissions and imposes the



minimum possible level of environmental impact. A special waste process air treatment plant is integral to the new facility, and is designed to eliminate any odors with the potential to impact negatively on neighboring communities. The investment in this odor treatment system - which was not an obligatory requirement - accounts for around 7% of total investment in this project.

## > Guaranteeing supplies and jobs

The Adisseo acquisition of the Port of Bayonne Sulfur Terminal in France during July 2016 consolidates the upstream integration of its methionine production activity. The group has the resources necessary to improve the reliability, production costs and operating efficiency of the terminal to boost the competitiveness of the European methionine chain in its entirety, and therefore guarantee stability of supply to its customers.

It further strengthens Adisseo's commitment to jobs, investment and sustainability in its local facilities. Up to €10 million will be invested here to upgrade site safety and environmental performance to industry best practice standards, and provide a secure future for local jobs.

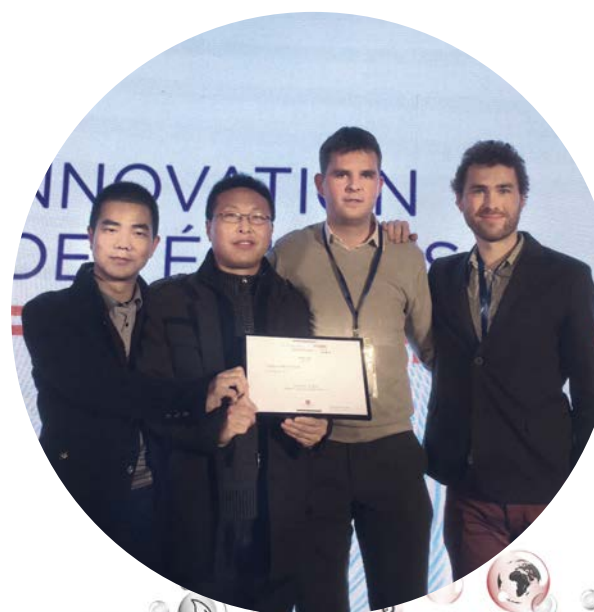
€10 million  
invested in the Port of Bayonne Sulfur Terminal



## > Innovating for feed digestibility

In Rovabio Advance, Adisseo researchers have developed and perfected a new family of enzymes called Feedases. Feedases bring together all those complex enzymatic solutions that by their action deliver improved overall digestibility of animal feeds. This in turn allows our customers to reduce the quantity of feed they need to give their animals, and therefore to reduce the quantity of ammonia released into the environment. Since its launch in 2015, 13.5 million tonnes of feed have been treated with different forms of Rovabio Advance, which is represents 3 billion chickens or the equivalent of 5.5 million tonnes of meat.

13.5 million  
tonnes of feed  
treated with Rovabio® Advance



## > Creating new processes

ANTARES (Adisseo Nanjing Treatment of Ammonium sulfate by RESin) is a project designed to optimize the ammonium sulfate unit operated by the Adisseo Nanjing site in China. The plan is to use a semi-continuous, 3-stage, resin-based process to separate the sulfurated organic molecules (chiefly HMTBA, the main molecule used in AT88) from the ammonium sulphate solution (AS). The HMTBA will then be recycled into the AT88 process to boost production efficiency and improve AS quality in terms of particle size, acidity and odor. Run by the Nanjing R&D team, this project recently entered its pre-production phase. As a nominee in the R&D category, the ANTARES project took bronze in the 2016 Innovation Awards for Franco-Chinese Teams.



## Our priorities

# SHARING & CARING

At Adisseo, the commitment of its people is a key performance indicator alongside safety and financial results. With more than 1,900 employees worldwide, Adisseo is a net creator of jobs. In 2016 alone, the company hired more than 170 new people across the 50 distinct disciplines that define its rich diversity. Looking beyond its own people,

Adisseo is also committed to developing close relationships with academic institutions, non-profit organizations and its neighboring communities.

Contributing to local communities is a priority for all Adisseo operations around the world. Caring for others in a mutually supportive way is another Adisseo value, along with supporting the employment of disabled workers and helping livestock farmers in impoverished regions of Africa are also central to the Adisseo spirit.



### Adisseo & employee support

#### Wellbeing in the workplace

More and more wellness and wellbeing initiatives are now being implemented. For example, the medical service at Adisseo Commeny now offers employees

the opportunity to engage in personal consultations with a psychologist as part of an initiative to provide a more comprehensive level of support. The psychologist

works in liaison with the company physician, and consultations are booked directly with the psychologist to maintain the correct level of professional confidentiality.

GOAL  
2018

To achieve an employee commitment rate (77%)

in a context of organizational and cultural change

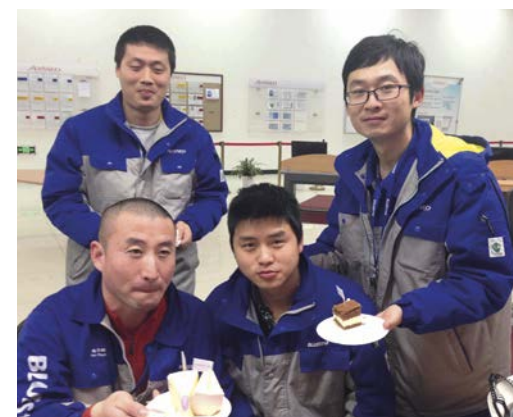
## > Listening to employees to gain their commitment

Since 2014, Adisseo has conducted a wide-ranging biannual satisfaction survey to gather the opinions of all its employees. The outcomes have led to practical initiatives designed to respond directly to the expectations expressed. In 2016, 1,620 employees completed the 70-question, 13-subject online survey. The latest survey also included the new indicator of 'employee commitment'; a more demanding measure than 'employee satisfaction'.



The results of the 2016 survey show that the levels of employee satisfaction and commitment are rising, which is the prime goal of the initiatives introduced so far. In overall terms, Adisseo has made progress in 10 of the 13 areas surveyed, and in half of those, the company is also seen to be performing on a par with, or better than, other companies in its industry. Commitment to quality and customer service is significantly higher. Other opportunities for improvement are also being pursued in local-level management and shop-floor communication.

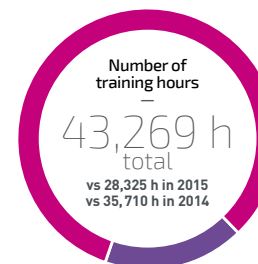
Programs like Agile and We Move are already helping us to improve in this direction.



### Training at Adisseo in 2016 (in Europe by employee and professional category)

\*Workers, Technicians, Supervisors (non-management)

35,725 h  
WTS\*



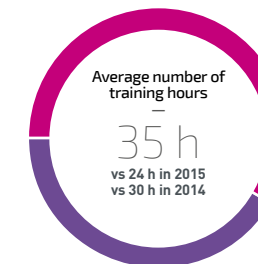
7,544 h  
Managers

851  
WTS\*



204  
Managers

27 h  
WTS\*



38 h  
Managers

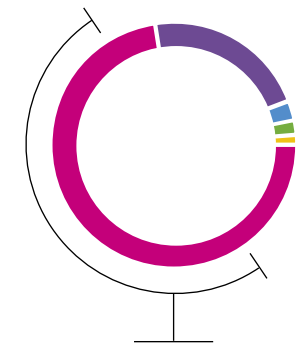
## > On-the-job training

On-the-job training delivers a direct response to an expectation expressed in in-house surveys. This type of training helps to improve the safety and reliability of facilities and the organizational structure. It also facilitates the transfer of knowledge and skills between employees. An ambitious program was

launched in 2016, beginning with Roches Roussillon and Commeny. It includes a definition of the basics of the job, the training programs available, the testing of digital solutions for easier delivery of training and the Adisseo College project to provide permanent on-demand access to training and experience sharing.

64-LA1

Total number of employees by region in 2016



1,904 employees

Number of employees 2015 : 1828  
Number of employees 2014 : 1804

1,382  
EUROPE, MIDDLE EAST, AFRICA, CIS

396  
CHINA

59  
ASIA-PACIFIC

37  
NORTH & CENTRAL AMERICA

30  
SOUTH AMERICA

64-LA9





### > Running together

No fewer than 120 Adisseo and Bluestar Silicones employees competed in the 7<sup>th</sup> Run In event in Lyon (France). The Adisseo competitors included 2 marathon runners, 34 half-marathon runners and 24 10km runners. Joint participation in this race reinforces the links between Adisseo and the BlueStar Group.



### > Promoting sustainability at Adisseo

Adisseo launched its Sustainability Week in 2014 to promote awareness of sustainability and motivate its people to sustainability initiatives.

May 30 to June 5, 2016 saw the third of these events worldwide, with local projects underway in every entity (lunches featuring organic and local produce, the presentation of

individual initiatives including biodiversity, carbon footprint, etc) and group initiatives (European suggestions boxes, the launch of the sustainability awareness module, etc.).

120 employees competed

race "Run In" 2016

Thousands of miles away, 18 Nanjing-based employees ran the Lishui Marathon. Adisseo donated RMB 100 (€13.79) for every kilometer covered by each runner to an Ankylosing Spondylitis charity.



## > Facilitating employment for people with disabilities

Providing support for people with disabilities is integral to our Corporate Social Responsibility (CSR) policy. Adisseo employs people with disabilities, and encourages its subcontractors to do the same. Every year, our sites play an active role in European Disability Employment Week by hosting discussion and information meetings with its own employees and/or external contributors to develop the integration of disabled employees into the company.

"Having your disability recognized makes it easy for your work colleagues to understand. It's also allowed me to have my workstation adapted so that I can carry on in the job."

AN ADISSEO EMPLOYEE



## > Encouraging vocations

The National Chemistry Olympiad was introduced in 1984 to interest final-year school students in chemistry and attract the most talented of them into industry careers. Adisseo Commentry Plant Manager Emmanuel Goldberger presented the Académie de Clermont-Ferrand First Prize to Oscar Jozon, a final-year science student and the Lycée Descartes high school at Cournon in the Auvergne region of France first performance in coming first in the regional contest. The involvement of Adisseo in this important competition underlines its commitment to encouraging top students to take up a vocation in the industry.

### > Supporting chemistry education

Every year, Adisseo attends the Chemistry Village careers fair in Lyon and Paris. The Lyon event in February 2016 proved hugely successful:

the 123,000 + visitors looking for information, contacts and vacancies were able to meet with representatives of the Cinachem laboratory in Lyon,

the Commentry and Roches-Roussillon plants, and the Antony headquarters.

## > Showcasing careers at Adisseo

Six chemistry teachers from the Lycée de Montluçon high school in France attended a one-day immersion course at the Commentry site. A perfect opportunity to highlight its commitment to pre-university education. Every year, Adisseo hires around 15 young people under work/study courses, and provides training for around 40 trainees. By inviting these teachers into its facility, Adisseo hoped to bring the world of education together with the corporate world to create a better understanding of the company's needs and challenges, and contribute towards a better education for young people.



### > Opening the doors to our production plants

On Tuesday, October 4, 2016, around a hundred students from Agroparis Tech (the Paris Institute of Technology for Life, Food and Environmental Sciences) toured the Adisseo plant in Commentry. The visit excited a lot of interest among these future animal nutrition decision-makers, who may also be our future customers or colleagues.





## > Discussing with universities

The 4<sup>th</sup> Amino Acid University was hosted by Adisseo at the University of Florida between June 10 and 12, 2016. The event was attended by 31 undergraduate students, 23 graduate students and 8 professors from three American universities: Florida, Georgia and Clemson. Sessions were led by 12 professors, all global leaders in their specialty fields, and sparked a discussion on the issues surrounding the use of amino acids in dairy cattle feed.

## > Donating

During the year, Adisseo China visited the Social Wellbeing Institute for the elderly in Shanghai Pudong New Area. The aim of the visit was to donate 80 boxes of Sheng Mu organic yogurt with a total value of ¥ 25,000. Adisseo China plans to develop this policy of donation going forward, as part of making an active contribution to social welfare in the region.



## > Discovering China

The 27<sup>th</sup> Bluestar Summer Camp ran from July 19 to August 11 during 2016. Ten children of Adisseo employees participated in the opportunity to travel to China and take part in a host of activities. Skiing, an introduction to Chinese culture, swimming, flag football and a visit to the Great Wall of China were just some of the experiences in their packed program!



## > Protecting biodiversity and explaining its importance

Adisseo has been a partner of the Nature Observation Center on the Ile du Beurre near Lyon for several years, providing support for its heron rookery surveillance camera project. Because of this support between January and early July, visitors can now see breeding herons in the wild, live from the study center!

## > Swapping perspectives on sustainability

The Adisseo Spain team has visited the L'Oréal facility at Burgos to discover how a 'model' production plant has built its own sustainability plan. The visit was a follow-up to the previous tour of L'Oréal in Suzhou (China) by staff from Adisseo in Nanjing.

The two teams discussed the longterm goals of achieving carbon-neutral (zero CO<sub>2</sub> emission) production plants and dry production plants in which aqueous discharges are treated and recycled. In the same spirit, Adisseo

Roches-Roussillon also welcomed a delegation from Hexcel, a new arrival at the Roussillon chemicals complex to help the company with its integration. The Adisseo Zero-Odor policy was just one of the issues on the agenda.



# > Helping livestock farmers in Africa

Adisseo is an active supporter of Elevages sans Frontières (Livestock without Borders), a nonprofit organization that provides vulnerable farming communities with the guidance they need to improve their lives by setting up revenue-generating livestock businesses. The involvement of Adisseo staff is intended to help fund the poultry segment of a multi-livestock breeding program in Benin. The ultimate goal here is to bring about lasting life improvements to around 1,000 families through the promotion and development of communal animal husbandry.

In return for each animal received at the start of the project, the families involved agreed to donate another animal reared by themselves to another struggling family, thereby initiating a virtuous chain reaction.

## Achievements since February 2016

### Preparation and delivery of livestock training programs

> Technical exchange visits between subsistence farming organizations.

### Establishment of livestock farms

> Construction of 100 chicken runs  
> Distribution of poultry raising equipment  
> Distribution of poultry to 92 families.

### Improving local skills

> Training for all subsistence farming organizations on cooperative enterprise management and the procedures for securing and updating their legal status.



1,000 families in Benin benefit from this program



## Our priority

# REDUCING OUR ECOLOGICAL FOOTPRINT

Every year, Adisseo conducts new surveys and initiates new projects to reduce the environmental impact of its activities. From the supply chain to the water and energy consumption of production plants, office buildings and sales activities, every part of Adisseo is covered by the company's environmental policy. Adisseo strives to take the innovative route to addressing these issues, such as the use of biomass as a fuel source for its Commentry plant.



Adisseo and the BP2S

### Adisseo receives an award for its green transportation

On December 7, Adisseo received a Bureau de Promotion Shortsea Shipping (BP2S) of France award

for its conscious decision to opt for alternatives to road transportation. For example, 85% of containers bound

for export markets from France use intermodal routes; and the figure for Spain is 100%.

GOAL

2020

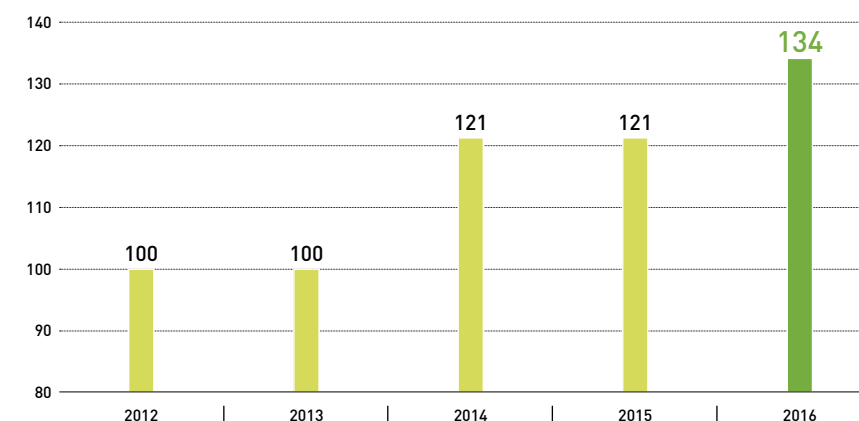
Zero-odor emissions for all our industrial sites

## Business volumes significantly higher than in previous years

The business index illustrates the trend in production volumes at our Commentry, Roches-Roussillon, Burgos and Nanjing sites. Business volumes increased strongly in 2016 as a direct result of the ramp-up of the new

methionine production facility in China, reliability improvements in European units. This trend should be viewed in light of closely controlled environmental results, many of which show an improvement over the period.

Activity index  
(2012 reference)



## > Reducing the carbon footprint of the supply chain

Adisseo uses resources provided by TK'Blue to analyze CO<sub>2</sub> emissions per kilometer traveled indexed against the transportation options used to ship products to customers. It also calculates the social costs involved, the performance of transportation partners and the volume of CO<sub>2</sub> emitted. The results show that Adisseo succeeded in reducing its carbon footprint by more than 20,000 tonnes of CO<sub>2</sub> between 2015 and 2016.

In 2016, improvements focused on reducing the environmental impacts of road transportation and airfreight by switching to maritime and rail, and gaining a clear understanding of the fleets used by our transportation providers.



## > Reducing wastewater discharges

The Nanjing plant has reduced its total volume of wastewater discharges by more than 50% in two years. In 2016 despite increasing its production output by more than 30%, the plant still managed to cut its discharges by more than 25%. A new process water improvement project was also launched during the year to improve discharges even further in 2017.

## > Improving wastewater treatment plant performance

**-40%**  
reduction  
in suspended matter discharges

The Adisseo Commentry team has worked for nearly a year on improving the performance delivered by the plant wastewater treatment facility. Not only has their work improved treatment quality, but it has also enabled the implementation of effective analytical and forecasting tools. For example, the COD\* test results for plant discharges fell by 14%, while discharges of suspended matter were more than 40% lower.

\*Chemical Oxygen Demand



## > Understanding the environmental impact of methionine

Adisseo has conducted a life cycle assessment of the two forms of methionine: powder (Rhodimet® NP99) and liquid (Rhodimet® AT88). The assessment results show that the production of Rhodimet® AT88 has a lower effect on all the main environmental parameters - global warming, acidification and natural resource/non-renewable energy consumption. As a result, the carbon footprint imposed by Rhodimet® AT88 manufacture is around 40% smaller.



## > Greener deliveries

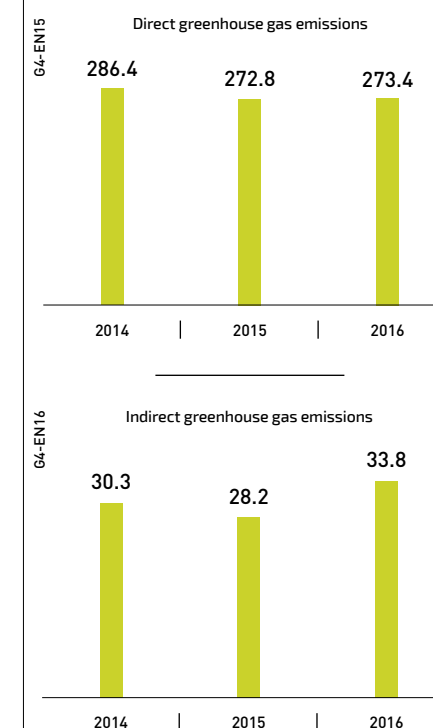
Adisseo South America has launched a logistics project designed to reduce the environmental footprint of its deliveries. The project is currently implementing a greenhouse gas emissions reduction program covering 87% of all Adisseo road deliveries in Brazil. This initiative has been recognized with the award of an *Entrega Ecológica* eco-delivery certificate.

## > Achieving 'Zero Odor'

The 'Zero Odor' project was launched in 2016 with the aim of minimizing the risk of inconveniencing local communities in the vicinity of our production plants. The Nanjing site is the first to benefit from the project, with the mapping of odors and the subsequent identification of 27 sensitive points as potential odor sources. In 2017, the Jiangsu Institute will quantify and characterize the odors as the basis for eliminating them. The same procedure is already underway at our other production sites. With the same goal in mind, the Cinachem laboratory set up a 'judging panel of noses' in 2016 as part of integrating this odor issue into the design of Adisseo processes and products.



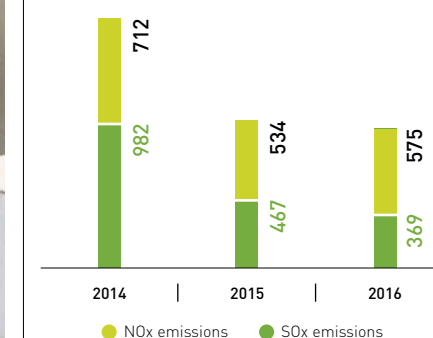
## Greenhouse gas emissions (in kilotons eq CO<sub>2</sub>)



Direct greenhouse gas emissions are those generated by our own facilities.

Indirect greenhouse gas emissions are those associated with the generation of the electricity and steam we purchase for our business processes. They are closely linked to the increase in our business levels seen in 2016.

## NO<sub>x</sub> and SO<sub>x</sub> emissions (in tons)

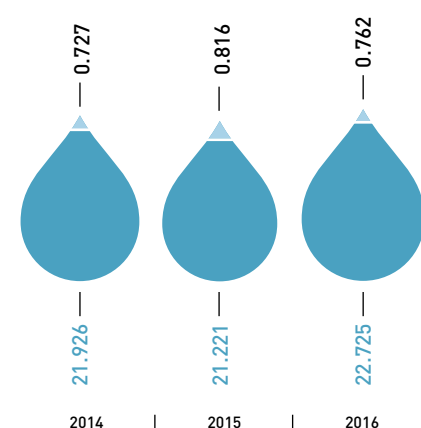


SO<sub>x</sub> (sulfur oxide) emissions continue to fall, while NO<sub>x</sub> (nitrogen oxide) emissions remain stable.

The various investments made (including fume treatment at the Burgos plant) and process controls applied have made it possible to achieve these encouraging results, despite a significant increase in business volumes.

## Water withdrawal

G4-EN8



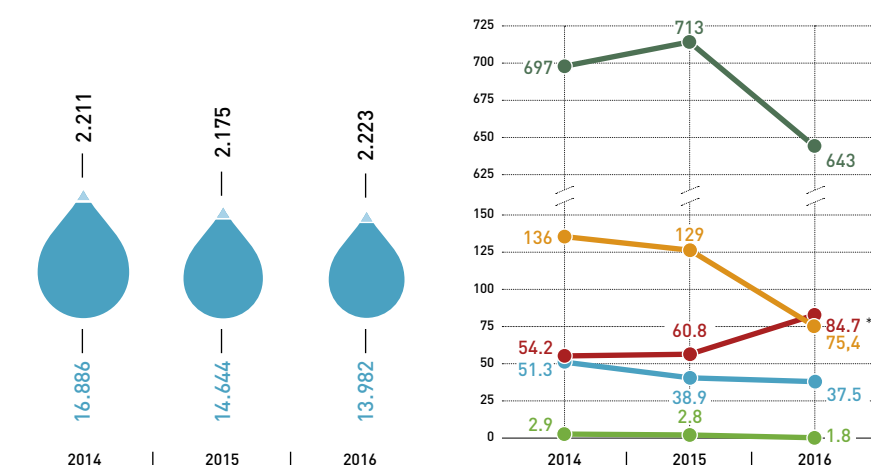
(in million of m<sup>3</sup>)

- Drinking water
- Process water (untreated water/groundwater)

Water consumption closely controlled, despite increased business volumes. High level of effectiveness delivered by drinking water consumption reduction initiatives.

## Water discharge

G4-EN22



(in million of m<sup>3</sup>)

- Volume of water discharged into surface water after treatment
- Volume of water discharged directly into surface water

(in tons)

- COD (Chemical Oxygen Demand)
- SM (Suspended Matter)
- BOD5 (Biological Oxygen Demand)
- Total nitrogen
- Total phosphorus

Significant progress made with the majority of discharged water constituents. In 2016, the main contribution came from performance improvements at the Commeny wastewater treatment plant. Further improvement plans have already been developed to consolidate this trend.

\* Monitoring perimeter extended in 2016 to include the Nanjing (China) site





### > Using less drinking water

Following an analysis of the many uses made of drinking water at Roches-Roussillon, a great deal of work was done in 2016 to reduce more than halve total consumption, thereby saving more than 1500 m<sup>3</sup> of drinking water every month.

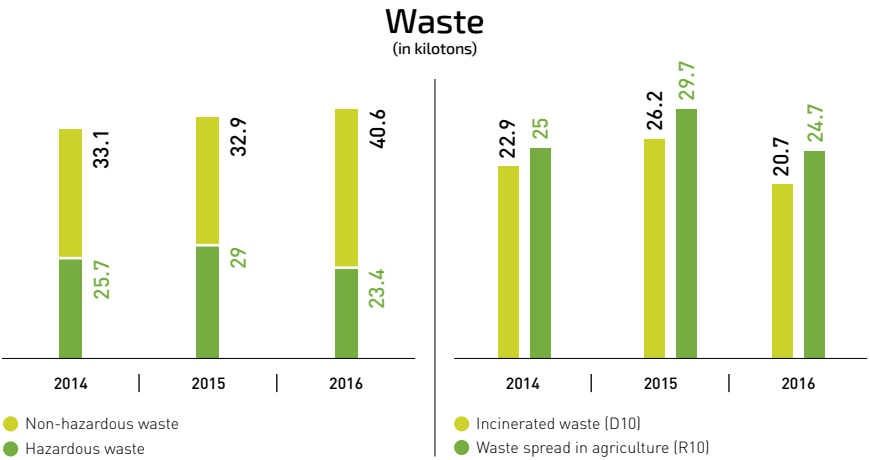
**-1,500m<sup>3</sup>**  
of drinking water  
are consumed  
at Roches-Roussillon  
per year

### > Cutting water and energy consumption on all Adisseo sites

The issue of sustainability applies equally to office buildings. At Adisseo headquarters in Antony (France), water-saving systems installed for all washrooms have cut water consumption by 30% during 2016. Energy consumption has also been reduced by optimizing heating control settings and scheduling the use of fan-coil air-conditioning units.

**-30%**  
of water consumption  
in Adisseo headquarters  
in Antony in 1 year

G4-EN23

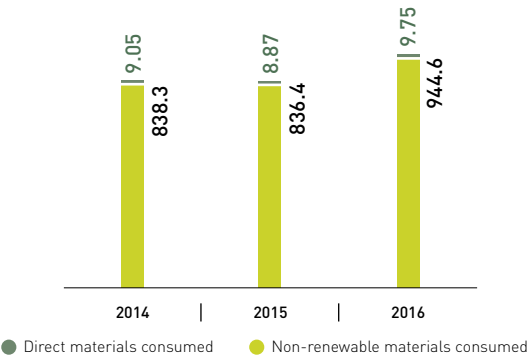


The increase in non-hazardous waste relates primarily to the removal of earth required to invest in storage capacity for acids awaiting regeneration; a service offered to our sulfuric acid customers to avoid the need for them to destroy acid after use. All other categories show significant improvement.

G4-EN1

### Materials consumption

(in kilotons)

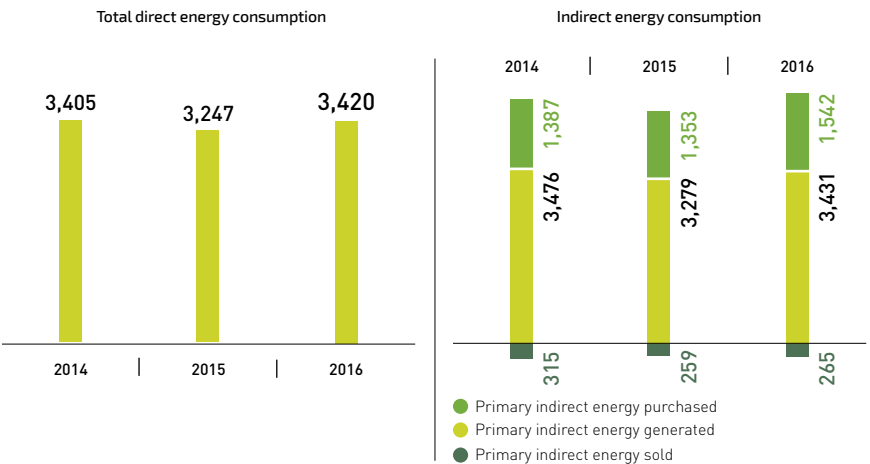


Materials consumption is directly linked to the significant increase in business volumes seen in 2016, and particularly the ramp-up of our Nanjing (China) plant.

G4-EN3

### Energy consumption

(in terajoules)



The rise in total direct energy consumption is largely attributable to the ramp-up of our Nanjing plant. Nevertheless, consumption has been contained as a result of improvement initiatives implemented throughout the group.



Adisseo engages in the most recent recommendations of the Global Reporting Initiative (GRI). In association with the United Nations Environment Program (UNEP), the GRI is developing a globally applicable directive on sustainable development taking into account the economic, environmental, and social performances of companies and organizations. Adisseo is one of 33 French companies that published a GRI-G4 report in 2015. [www.globalreporting.org](http://www.globalreporting.org)

Éléments généraux d'information

Aspect	GRI4 ref.	Description	Status	Page(s)	Comments
Strategy and analysis	G4-1	Statement from the most senior decision-maker of the organization about the relevance of sustainability	Complete	1	
	G4-2	Description of key impacts, risks, and opportunities	Partial	Whole report	Materiality analysis completed in 2016
Organizational profile	G4-3	Name of the organization	Complete	Cover	
	G4-4	Primary brands, products, and services	Complete	2, 3, 4	
	G4-5	Location of the organization's headquarters	Complete	4 <sup>th</sup> cover	
	G4-6	Number of countries where the organization operates	Partial	Flap	
	G4-7	Nature of ownership and legal form	Complete	3 <sup>rd</sup> cover	The Adisseo Group is made up of 21 legal entities controlled by Bluestar Adisseo Company, a company listed on the Shanghai stock market (headquartered at 9 West Beitucheng Road, Chaoyang District, Beijing), and which is owned 89% by its majority shareholder China National Bluestar (Group) Co., Ltd (China).
	G4-8	Markets served	Complete	Flap 11, 3 <sup>rd</sup> cover	Adisseo teams are located in more than 100 countries on all continents. Customers: > Integrators: these are poultry meat producers who have full control of the entire production chain from the manufacture of complete feeds through to poultry slaughter and processing. > Pre-mixers: these are manufacturers of premix products containing micro-ingredients (vitamins, trace elements, etc.), which will be incorporated into complete feeds by feed mill operators. > Feed manufacturers: these are producers of complete feed products for all types of livestock. > Distributors: these intermediaries distribute feed ingredients (amino acids, vitamins, enzymes, etc.) at national level or within a particular market segment.
	G4-9	Scale of the organization	Complete	Flap	
	G4-10	Total number of employees	Partial	15	
	G4-12	Description of the organization's supply chain	Complete	3 <sup>rd</sup> cover	The supply chain structure is based on a community led by company managers for each product range. These are supported by local contacts at each manufacturing site and in each sales region. Network coordination is based on the the sales and operations planning process.
	G4-13	Significant changes	Partial	Whole report	The We Move project introduces organizational and governance changes, supported by a process of change management.
	G4-14	Precautionary approach or principle	Complete	Flap	
	G4-15	Externally developed charters, principles, or other initiatives	Partial	Flap, 2, 5, 8, 9	
	G4-16	Memberships of associations (such as industry associations) and national or international advocacy organizations	Partial	18, 19, 3 <sup>rd</sup> cover	Adisseo is a member of the IFIF (world), the FEFANA (EU), SYNPA (FR), Sindirações (BR) and UIC (of which JM Dublanc is a board member)...
	Identified Material Aspects and Boundaries	G4-17	Organization's operational structure	Partial	1
G4-18		Process for defining the report content and Aspect Boundaries:	Complete	3 <sup>rd</sup> cover	The report content is determined in accordance with the recommendations of G4 directive lines from the GRI.
G4-19		> Material aspects identified	Complete	3 <sup>rd</sup> cover	
G4-20-21		> Scope of the report / indication of possible limits / principles adopted for the communication of data	Complete	3 <sup>rd</sup> cover	
G4-22		Explanation of the effect of any restatements of information provided in previous reports	Complete	15	
G4-23		Significant changes from previous reporting periods in the Scope and Aspect Boundaries	Complete	20, 21, 22, 23, 24	
Stakeholder engagement	G4-24	List of stakeholder groups engaged by the organization	Complete	3 <sup>rd</sup> cover	List of main stakeholders included: customers, employees, trade unions, shareholders, civil society and media, as well as suppliers, public authorities, local and regional communities, etc.
	G4-25	Basis for identification and selection of stakeholders with whom to engage	Complete	3 <sup>rd</sup> cover	Initiatives implemented with stakeholders during the reference period and illustrated in report articles.
	G4-26	Approach to stakeholder engagement	Partial	3 <sup>rd</sup> cover	The methods and frequency of engagement are integral to the company management system.
	G4-27	Key topics and concerns that have been raised through stakeholder engagement	Partial	14, 15, 3 <sup>rd</sup> cover	Environmental considerations have become integral to the basic tenets of the company, in the same way as safety and financial results.
Report profile	G4-28	Reporting period	Complete	Cover	
	G4-29	Date of most recent previous report (if any)	Complete	3 <sup>rd</sup> cover	2015 Sustainable Development Report: June 2016
	G4-30	Reporting cycle	Complete	3 <sup>rd</sup> cover	Annual
	G4-31	Contact point for questions regarding the report or its contents	Complete	3 <sup>rd</sup> cover	sustainability@adisseo.com
	G4-32	GRI Content Index	Complete	3 <sup>rd</sup> cover	
Governance	G4-34	Report the governance structure of the organization	Complete	3 <sup>rd</sup> cover	Governance of the group is divided into committees (the executive management and management committees), as detailed in our ISO 9001, ISO 14001, OHSAS 18001 and FAMI-QS certified management manual.
Ethics and integrity	G4-56	Organization's values, principles, standards and norms of behavior	Complete	Flap	
Economic performance	G4-EC1	Direct economic value generated and distributed	Partial	11	
	G4-EC4	Financial assistance received from government	Partial	11	
Labor practices and decent work	G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender and region	Partial	15	
	G4-LA6	Rate of accidents at work	Partial	7	
	G4-LA9	Average hours of training	Complete	15	Development of eLearning and digital training resources
	G4-LA11	Percentage of employees receiving regular performance and career development reviews	Complete	3 <sup>rd</sup> cover	In 2016, 100% of employees in France and 100% of managers in Spain received at least one performance review.
Society	G4-S01	Nature, scope and efficacy of any program, assessment method and management of activities' impacts	Partial	Whole report	Engagement in dialog with immediate local residents, sustainability day (of discussion with authorities, nonprofit associations, etc.), environmental and social commitment through partnerships, public meetings, emergency communication, etc.
	G4-S02	Local communities	Partial	Whole report	
Product responsibility	G4-PR5	Results of surveys measuring customer satisfaction	Partial	5	OTIF (On Time In Full)
Materials	GR4-EN1	Materials used by weight or volume	Complete	21, 22, 23, 24	
Energy	GR4-EN3	Energy consumption within the organization	Complete	21, 22, 23, 24	
Water	GR4-EN8	Total water withdrawal by source	Complete	21, 22, 23, 24	
Emissions	GR4-EN15	Direct greenhouse gas emissions	Complete	21, 22, 23, 24	
	GR4-EN16	Indirect greenhouse gas emissions	Complete	21, 22, 23, 24	
	GR4-EN21	NOx, SOx and other significant airy missions	Partial	21, 22, 23, 24	
Effluents and waste	GR4-EN22	Total water discharge by quality and destination	Complete	21, 22, 23, 24	
	GR4-EN23	Total weight of waste by type and disposal method	Complete	21, 22, 23, 24	



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