

# ACTIVITY REPORT



2015



## CONTENTS

### EDITORIALS

---

- 4 Serge Bonnel
- 5 Hervé Domas

### LIFE IN THE COMPANY

---

- 8-9 Key events
- 10-11 Key data
- 12 Administration and finances
- 13 Contribution
- 14 Audit
- 15-17 Promotion

### LIFE IN THE SECTOR

---

- 20-21 Regulatory news
- 22-23 Operations
- 24 Optimisation
- 25 Recyclers
- 26 Export
- 27 Associated missions

### R&D, DEPLOYMENT, APPLICATIONS AND ENVIRONMENT

---

- 30 Projects
- 31 Research
- 32-33 Innovation
- 34 Environment
- 35 Standardisation

### DIRECTORY

---

- 38-39 Clients 2015
- 40-41 Collectors
- 42 Transformation sites
- 43 Recovery companies





**SERGE BONNEL**  
CEO



**HERVÉ DOMAS**  
MANAGING DIRECTOR

## NEW LEGISLATION PROVIDES GREATER FAIRNESS

Twelve years after publication of the decree that created the end-of-life tyre sector, this year was marked by that of a new decree, 2015-1003 “regarding the management of tyre waste”. This text has not only made it possible to modernise the regulatory framework within which we work, but also (and above all) to set out new legal provisions allowing us to do our job more easily. To achieve this, our teams have worked in close collaboration with the French State Department for Ecology. The teams worked together studiously, efficiently and successfully, and I am absolutely delighted, given what is at stake for our future.

At the end of the year, the decree was followed by publication of its implementing decrees. These texts had become necessary, and confirm – or even validate – the work methods that we have used since 2004, particularly the need for our collectors to have an authorisation from the Préfecture of their département and the obligation for the points of sale to transfer all their tyres solely to authorised collectors. We hope that these measures, which are now cast in (legal) stone and thus no longer open to negotiation, will seriously hamper illegal tyre collections, as this is a form of fraud against which we have spoken out for many years.

Finally, this new regulatory framework has defined a penalty system for those who put tyres on the market without paying the eco-tax. Despite our best efforts, there are still too many of this kind of tyre to be presented for collection. The fines inflicted at the end of 2015 by the French State were a warning to all those trying to cheat the system: now, they are no longer immune from sanctions that will hit them where it hurts most: financially. This is only fair with regard to those who put tyres on the market legally and who, year after year, declare and finance the processing of their end-of-life tyres.

In the future, in the name of fairness and better information for the consumer-car driver, we would like to see the tyre eco-tax become a separate item on the invoice when a new tyre is purchased, as is the case in most of the European countries that have an EPR strategy. Given the excellent work carried out with the State Department in 2015, we are very hopeful that this separate itemisation will become a reality as early as 2016.

## A RECORD AND NEW STAKES

Records are set to be broken... Once again, in 2015 and with 320,578 tonnes, Aliapur attained its highest level of annual collections of end-of-life tyres. This is an indicator of economic momentum and we can but delight in it.

Beyond the satisfaction of these quantities, this year was also that of an audit of our activity by the French Court of Audit. After a detailed analysis, the Court produced a very positive report that produced a justified sense of pride in Aliapur’s teams. On page 14, you will find a summary of this report. There is no question, of course, of us resting on our laurels: there are still many areas in which we can progress, and we fully intend to take up these challenges.

Material recycling is one of our most important issues, as it involves finding an efficient second life for tyres that cannot be re-used. 2015 was the year in which a product close to our hearts emerged: Aglostic. Thanks to this new innovation from New Caledonia and the company Aedes Systems, end-of-life tyres will play a part in fighting against the diseases transmitted by mosquitoes. What can be more heart-warming than knowing that our actions can lead to the eradication of chikungunya, dengue fever or zika? This type of cooperation, with solid yet creative industrial partners, is a model that we are going to try and develop.

The road industry (asphalt), the construction sector or even the plastic industry are all avenues that we are actively pursuing, even if there are many kinds of obstacles in our way. Our aim is incredibly simple: granulate obtained from tyres must become a recognised raw material of value.

At the same time, energy recovery is the subject of more and more demands, particularly from cement manufacturers. Considering this method as secondary would be regrettable because it has many advantages: preserving fossil fuels, decreasing CO2 emissions thanks to the proximity of the supply, safeguarding our external trade balance and the results of the cement industry and, finally, the inorganic part of tyres which is not used for fuel, but which can be used in the manufacture of clinker.

Finally, whether we talk of material recycling or energy recovery, the keys to success in the coming years will be innovation, markets and Europe. We need to consolidate our capacity for innovation by means of external partnerships, as well as to envisage developments, not from a technical point of view, but using a “market” approach, thus giving our efforts some leverage by sharing them with our colleagues in other countries. I am convinced that this is absolutely the way forward.



**LIFE IN THE  
COMPANY**

## IN 2015



### MARCH

**05/03:** Aliapur and the industrialist, Bioret, officially launched the project for stabling mats made from end-of-life tyre granulate for cattle.

**11/03:** The City of Paris launched the General Assembly for the Circular Economy. With 12 other eco-organisations, Aliapur clearly showed its support for this initiative.

**25/03:** The ETRMA (European Tyre and Rubber Manufacturers' Association) brought together the various European sectors to work on the health and environmental impact of end-of-life tyres.

### JANUARY

**01/01:** The decree concerning the Triman came into force. The Triman is the new symbol for recycling products. Tyres are concerned by this new symbol

**07/01:** Aliapur was received by the Moroccan State Department for the Environment, which is looking for technical support in setting up a collection and processing sector for end-of-life tyres

### FEBRUARY

In February, Aliapur's R&D department published the French translation of the "Manufacturing guide for asphalt using rubber powder obtained from end-of-life tyres", produced by Signus, the sector's Spanish equivalent. The technical and scientific conclusions given in this guide show the obvious advantages of this type of road surface, which Aliapur now intends to promote widely.



### APRIL

**14/04:** Under the guidance of the Ademe, a work group was launched devoted to the granulation of end-of-life tyres. Aliapur participates actively in this group as it is very involved in this form of recovery for end-of-life tyres.

**23-24/04:** The European work group from the CEN TC366 met in Madrid to work on the creation of European standards for the recycling of end-of-life tyres. Aliapur has been fully committed to this work group since it was set up in 2012.

**28/04:** The association Recyvalor started evacuating a section of 3,200 tonnes of tyres from the historic site in Souillac, in the Lot département. Aliapur is a member of this association, and is responsible for the technical side of this vast project, given that the total volume of this site is estimated at 25,000 tonnes.

### MAY

**13/05:** With the support of the French national trade union for rubber and polymers (SNCP), Aliapur transmits elements of information on the absence of an environmental impact for end-of-life tyres to the French national agency for health safety (ANSES).

**18-19/05:** The Spanish, French, Italian and Portuguese sectors (EFIP) met in Bologna (Italy) to share their progress in terms of R&D and the identification of new recovery methods.

In May, the granulator HET, from Moselle and now part of the Aliapur network, boosted its development by installing two granulation lines. This now makes it possible to increase the volumes of end-of-life tyres that are delivered to it.

### JUNE

**01/06:** First meeting for Aliapur at the French State Department for Ecology on the subject of removing end-of-life tyres from the status of waste. The aim of this new working group is to allow reusable tyres to be considered as a product and not waste.

**22/06:** Aliapur presented its shareholders with a 5-year plan to outline the major operating and development projects for the company for 2020.

### JULY

**13/07:** Aliapur signed a contract with the LafargeHolcim group to supply the cement works in Martres Tolosane (Toulouse). The factory is currently undergoing modernisation that will allow it to accept whole tyres.

**20/07:** The Austrian industrialist, Kias Recycling, took an interest in shred from the French sector. It welcomed a delegation from Aliapur at its granulation factory not far from Salzburg. The negotiation process was fast and easy. Kias will receive around 10,000 tonnes of end-of-life tyres per year from 2016.



### AUGUST

**18/08:** Publication in the Official Journal of decree 2015-1003 "concerning the management of tyre waste", which replaces the founding decree from 2002, and provides the sector with a new regulatory framework. Aliapur is satisfied with this text, which is the fruit of close, constructive work with the French State Department for Ecology.

In August, Aliapur finalised the update of its reference guide, "Using end-of-life tyres as an alternative fuel source", which integrates new data: the inorganic part of tyres.



### SEPTEMBER

**08/09:** Aliapur received the Swedish sector, SDAB, to exchange ideas on recovery methods in Europe.

In September, Aliapur offered to set up for communities that make the request an occasional collection system for end-of-life tyres from landfill sites that do not have enough room for permanent collections. These operations are scheduled to last around 3 weeks.

Also in September, the Savoyard town of Méry chose to build two protection barriers with the Pneusol technique, which uses truck tyres, to protect homes near a cliff from rockfalls. Aliapur encourages this type of public works project, as it has proven both its solidity and its efficacy.

### OCTOBER

**01/10:** Date of entry into force of the new decree that covers the activities of the end-of-life tyre sector.

**13-17/10:** For the first time, Aliapur was an exhibitor at the Equip'Auto trade fair (Paris Nord Villepinte), with an 80 m<sup>2</sup> stand. The aim of this participation was essentially to meet those who put tyres on the market: manufacturers, distribution networks, importers, etc.

### NOVEMBER

**13/11:** Aliapur is delighted to be able to present "Aglostic", a device designed with the company's technical support. It is a filter for gutters that was designed by a company in New Caledonia, Aedes Systems. In a region severely affected by chikungunya, dengue fever and the Zika virus, this filter made from tyre granulate allows the water to flow through normally, whilst preventing the mosquitoes from reaching stagnant water in which to lay their eggs.

**21/11:** As part of the exchange of good practices between European sectors, Aliapur received a delegation from Ecopneus (Italy), which is interested in the equestrian floor Mustang developed with tyre granulate. This floor covering has been installed in Vallet (Nantes) since 2008.

### DECEMBER

**05/12:** As part of the COP21, 9 sectors – including Aliapur – held an exhibition in the Luxembourg Gardens (Senate) in Paris. The title of this exhibition was "Mieux trier, recycler, valoriser pour la planète" (Sort, recycle and recover better for the planet!) and it will be open until the beginning of January 2016.

**24/12:** Publication in the Official Journal of the implementation decrees for decree 2015-1003, which stipulate in particular the collection modalities for end-of-life tyres by authorised collectors (NOR: DEVP1521994A), determining the general missions and objectives set for the eco-organisations in the sector (NOR: DEVP1522390A) or the producers that have set up an individual system for tyre management (NOR: DEVP1522454A).

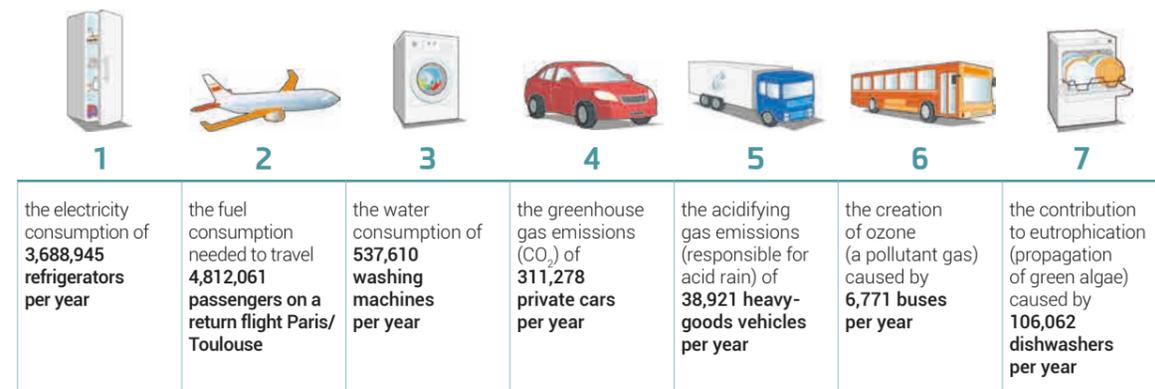
Finally, in December, Aliapur started negotiations with the Spanish granulator, GMN, which is very interested in French end-of-life tyres. An agreement is due to be signed in early 2016.

## ENVIRONMENTAL ADDED VALUE 2015

Excluding re-use (re-use and retreading), 270,836 tonnes of end-of-life tyres were recovered by Aliapur in 2015, or the equivalent of 35.8 million passenger car tyres. The recovery of these tyres has made it possible

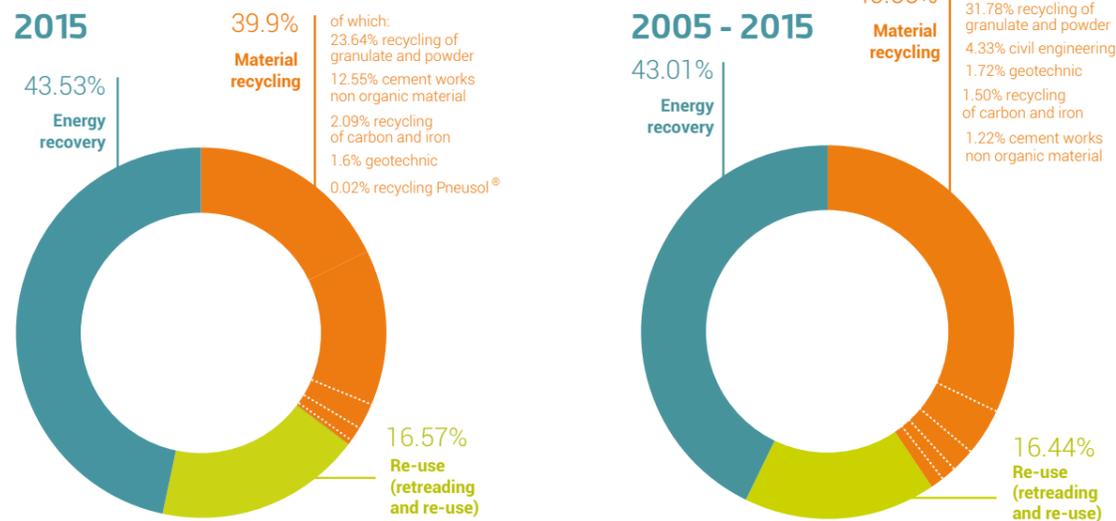
to make savings in natural resources and environmental impact. The LCA of end-of-life tyres makes it possible to express these savings as equivalents of uses of equipment and actions from day-to-day life.

**270,836 tonnes** of end-of-life tyres (excluding re-use) allow the economy of:

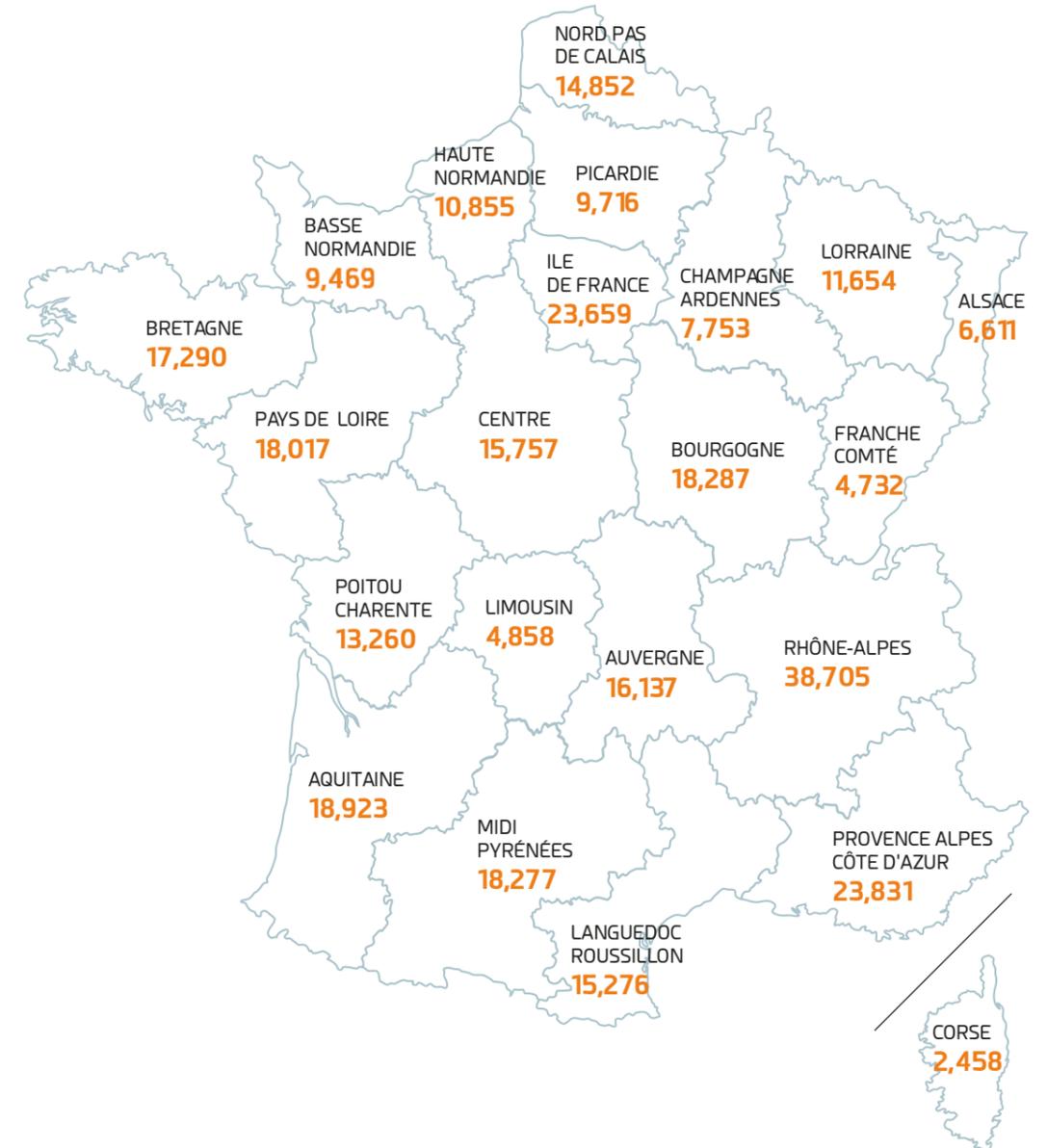


- 1 - 235 liter, class A fridge-freezer
- 2 - Return flight Paris-Toulouse, 1,200 km in a medium-haul plane
- 3 - 5 kg, class A washing machine / 220 standard cycles per year / water consumption split between the standard 60°C «cotton» programme, full load / half-load and 40°C half-load
- 4 - vehicle emitting 130 g of CO<sub>2</sub> per year (target attained in France in 2010) and with annual kilometres of 12,000 km (average km travelled by a private individual in Europe)
- 5 - 16-32 tonne heavy-goods vehicle «euro 5» travelling 60,000 km per year
- 6 - average public transport type bus or coach travelling 38,000 km per year (average km in France)
- 7 - standard dishwasher (280 cycles per year) - no notion of class A because we only talk of the pollutants rejected by the washing water and cleaning products.

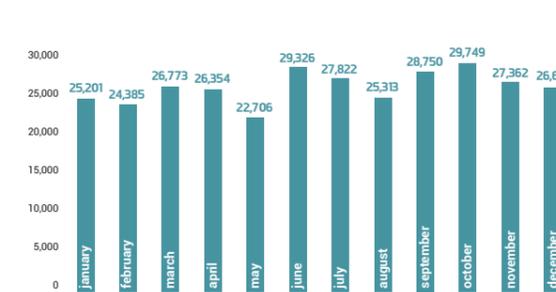
### Recovery distribution



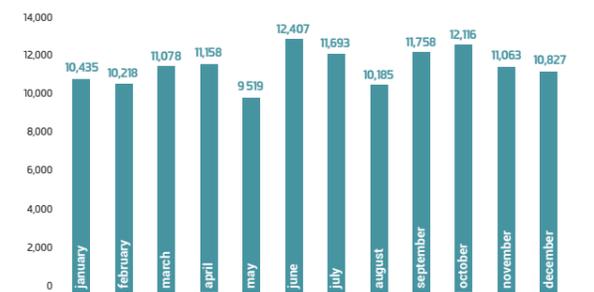
**320,378 tonnes of used tyres collected in 2015** or the equivalent of 42.3 million passenger car tyres



### Tonnes collected per month



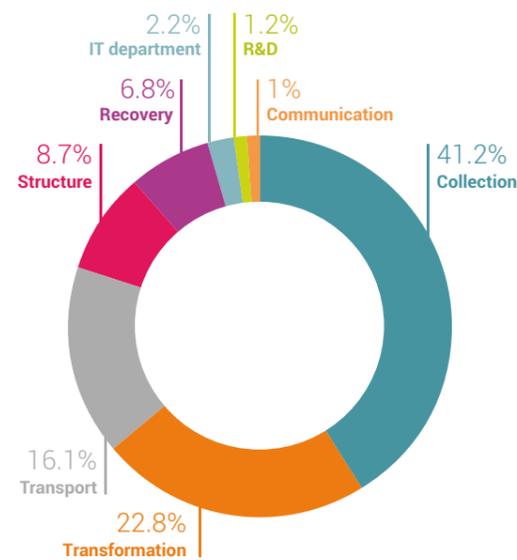
### 132,457 collections in 2015



## STRUCTURAL COSTS UNDER CONTROL

- Operating revenue of **€ 53M**, financed by those who put tyres on the market up to a total of 316,142 tonnes - a **record** since the creation of Aliapur.
- A net income for 2015 of **€ 527K**, or 0.94% of the turnover. In accordance with Aliapur's statutes, no dividends are paid to the shareholders.
- **87%** of the costs are assigned to collection, shredding, transport or recycling.
- The **transport** item represented 16% of the operating costs, or € 8.5M. It is the subject of an annual call for tender.

Distribution of costs in 2015



Although the main costs concern the organisation of collections and recycling (the "Operations"), in 2015 Aliapur also had costs of:

- **€640k** in R&D, or 1.2% of the turnover, for material recycling actions
- €520k in communication, or 1% of the turnover
- €1.172k in IT, particularly the development of Aliabase, Aliapur's online professional tool.

### The shareholders

Shareholder	Shares	Permanent representative on the Board of Directors
Bridgestone France	124	Mr Benoît RAULIN
Mrs Brigitte GBAGBA	1	Mrs Brigitte GBAGBA
Continental Holding France	124	Mrs Pascale WOITTEQUAND
Mr Serge BONNEL, President of the Board of Directors	1	Mr Serge BONNEL
Goodyear Dunlop Tyres	249	Mr Grégory BOURCHARLAT
Mr Mark THYS	1	Mr Mark THYS
Manufacture Française des Pneumatiques Michelin	249	Mr Pierre-Yves COMBY
Mr Patrick OZOUX	1	Mr Patrick OZOUX
Pneus Pirelli SAS	124	Mr Laurent CABASSU
Pneus Pirelli SPA	1	Mr Matthieu BRINON
<b>TOTAL</b>	<b>875</b>	

### Statement 2015



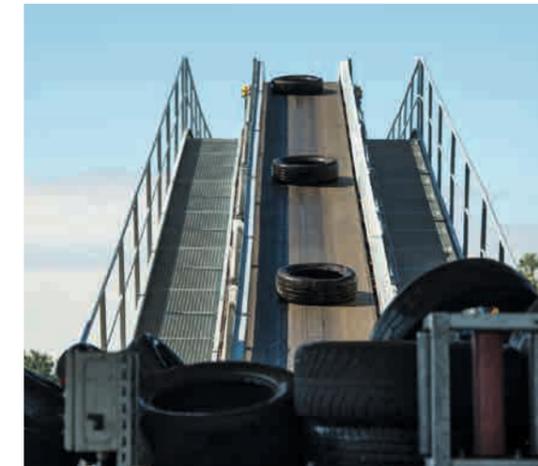
### Financial results (in k€)

Turnover	53,191
Subcontracting operating costs	45,601
Operating margin	4,708
Gross operating surplus	1,104
<b>Net result</b>	<b>527</b>

## THE ECO-TAX WILL REMAIN UNCHANGED IN 2016

Aliapur's manufacturer shareholders came together at a Board Meeting in December. At the meeting, they chose to maintain the eco-tax for 2016 at the same level as in 2015 for all categories of tyre. It should be remembered that, after three years of stability (2012-2014), the tax dropped significantly on 01 January 2015. The tax for "passenger

vehicle tyres", the emblematic category that alone represents two thirds of the volumes collected every year, thus dropped from € 1.35 to € 1.25. The tax for truck tyres in turn dropped from € 9.70 to € 9.10. It should also be noted that Aliapur's eco-tax has dropped consistently since the sector started operating in 2004.



Eco-tax excluding VAT for category A tyres (passenger vehicles)



### Eco-tax per type of car tyre

Aliapur Category	Average weight	Type of tyre	Price exc. VAT 2016	Evolution exc. VAT 2004/2016
A1 (3 to 5 kg)	4.06 kg	Motorbikes, quads, all tyres between 3 and 5 kg	€0.75	-25.00%
A2 (5 to 20 kg)	7.57 kg	Cars, 4WD, small utility vehicles, all tyres between 5 and 20 kg	€1.25	-43.18%
A3 (5 to 20 kg)	7.57 kg	Special tyres (pluggable, equipped with extra features...), on the condition that they be easy to identify during sorting	Price defined in relation to tyre specificities	
B1 (20 to 80 kg)	56.11 kg	Utility vehicles, truck, all tyres between 20 and 80 kg	€9.10	-15.74%
B2 (20 to 80 kg)	56.11 kg	Special tyres (pluggable, equipped with extra features...), on the condition that they be easy to identify during sorting	Price defined in relation to tyre specificities	
C1 (80 to 130 kg)	92.12 kg	Agricultural, civil engineering, public works, maintenance vehicles	€19.50	-27.75%
C2 (130 to 200 kg)	161 kg	Agricultural, civil engineering, public works, maintenance vehicles	€32.30	-42.68%
D1 (200 to 450 kg)	257.17 kg	Agricultural, civil engineering, public works, maintenance vehicles	€54.15	-63.90%
D2 (more than 450 kg)	465 kg	Agricultural, civil engineering, public works, maintenance vehicles	€101.65	-37.54%
E (less than 3 kg)	2 kg	Scooters, all tyres less than 3 kg	€0.48	-42.17%
F1	Average 77 kg	Commercial aircraft	€17.10	-36.55%
F2	Average 6 kg	General aircraft	€1.45	-30.95%
F3	Average 16 kg	Military and regional aircraft	€3.15	-43.75%

## FULL MARKS FROM THE FRENCH COURT OF AUDIT

Most eco-organisations underwent an audit by the French Court of Audit in 2015. Aliapur's accreditation is set for 01 January 2020. Although Aliapur operates without using a single cent of public money, the company has always insisted on transparency with regard to how it operates, how it is financed, and its actions: the audit focused on the fiscal years 2005 to 2014, and the "Definitive observations" were returned on 18 November 2015. These observations were exceedingly positive. Here are a few key elements in summary form.

From the outset, the Court of Audit noted that, "the company's operating methods are satisfactory". "Unlike other sectors, those who collect and process used tyres must first obtain authorisation from the Préfecture", which has effectively been the case ever since Aliapur first started out in 2004. Similarly, "particular emphasis is placed on maintaining the confidentiality of data, in particular in the regulations". This was one of Aliapur's commitments from the outset, as its manufacturer shareholders - and its producer clients - are also commercial rivals. On this subject, the Court notes that "although the not-for-profit nature of eco-organisations is not formally included in the company's statutes, Aliapur has always respected this principle" and suggests that it be directly included in the statutes of the company. The Court also specifies that "the governance of the company is simple and efficient" and notes in particular that "the price scale for each category {of tyre} has constantly decreased between 2004 and 2014, from -10 % to -61 %, depending on the category. [...] These decreases are not an issue as Aliapur has almost always attained its objectives for collection and processing: with the efficacy of the system thus guaranteed, efforts have turned to efficiency".

### A QUESTION OF IMAGE

Since its creation, and through its activity, Aliapur is at the heart of a vast relational network that is composed of not only the key players in the used tyre processing sector (those who put tyres on to the market, distributors, collectors, etc.), but also of institutional stakeholders (State Department, ADEME, town halls, Préfecture...) and professional stakeholders (unions, eco-organisations, media, etc.).

As this network is rich and varied, Aliapur evolves in myriad representations that can be as diversified as the profiles of its contacts. In parallel, general interest in the quality of waste processing, recycling and environmental issues is on the rise. In November 2015, Aliapur thus decided to have an image study carried out, as a means of understanding and analysing how people see the company. This survey includes a qualitative aspect, with interviews with Aliapur's direct contacts, and a quantitative aspect, with a questionnaire sent out to all the points of sale collected. It is due to be completed by March 2016.



### Healthy financial situation

The Court of Audit attributes the same level of satisfaction to the finances, accounts and account maintenance of the company: "the company's financial situation is healthy, and its management modalities do not require any observations. [...] The accounting documents are of good quality and have been approved without reserve by the auditors. Since 2013, the company has provided itself with a high-performance, reliable tyre flow monitoring tool. Ultimately, this tool is due to be interfaced with the accounting management tool". This tool is the extranet, Aliabase, which links in real time the 40,000 points of sale collected from, with the 29 collection service providers and with the company Aliapur. The Court also observes that this tool "makes it possible to ensure the traceability of tyre flows from those that store them to the recycling platform. The controls carried out on the service providers give an image of a global system that is well-supervised, and which should satisfy the requirements in the context of the accreditation scheduled for 2020".

## AN EXHIBITION AT THE FRENCH SENATE TO BETTER UNDERSTAND RECYCLING

Protecting the environment also means encouraging selective sorting, recycling, recovering and reducing waste. In the context of the COP21 in Paris, 9 sectors joined forces with the agency In-Finitum to organise an exhibition for the general public called "Mieux trier, recycler, valoriser, pour la planète !" (Sort, recycle and recover better for the planet!), which was held in the French Senate (in the Luxembourg Gardens in Paris) for a month, last December. This exhibition took the form of 10 tarpaulins, each 3 m wide and 1.80 m high: one for a general presentation of recycling, and 1 tarpaulin per sector concerned. There are many advantages to recycling and recovering waste. They include protecting natural resources, saving raw materials, and reducing waste, some of which can be harmful for the environment and health. These activities also lead to local jobs, innovation and the development of new circular economies.

With this exhibition, visitors were able to discover what happens to our waste on a daily basis, how recycling and recovery processes work, what is at stake, and the good reflexes to adopt. Aliapur took part in the exhibition, alongside Corepile (batteries and small, portable batteries), Cyclamed (unused medication), Dastri, (infectious clinical waste), EcoDDS (specific dispersed waste), Eco-Emballages, Ecofolio (paper), Eco-Système (waste from electrical and electronic equipment) and Eco-TLC (textiles, household linens and shoes).

### KEY FIGURE

# 400

...tweets and around a hundred photos and videos have been posted this year on the company's Twitter account, @Com\_Aliapur. This account was set up in December 2014, but only really got going in January 2015. It was essentially designed to broadcast the news published on the company's website, as well as any news that appears in the sector in the general and professional press. The Twitter account provides information regarding Aliapur's participation in national or international events.



### 2<sup>nd</sup> EDITION OF THE ENVIRONMENTAL CERTIFICATE

In January 2015, for the second year, Aliapur sent a "certificate of environmental savings" to each point of sale collected from at least once in the course of 2014.

This certificate is based on an environmental calculator developed by Aliapur on the basis of the Life Cycle Assessment for end-of-life tyres carried out in 2010 by the company PricewaterhouseCoopers.

This calculator converts into litres of water, litres of diesel, and kWh the energy and natural resources saved by using recycled end-of-life tyres instead of manufactured raw materials to create new products. This is the case, for example, when tyre granulate is used to manufacture sports surfaces instead of rubber granulate made from oil derivatives. It is also the case when tyre shred is used as a fuel in cement works, thus eliminating the need to use coal.

Every car industry professional whose stored tyres were collected received a personalised certificate.

## ALIAPUR'S FIRST PARTICIPATION AT THE EQUIP'AUTO TRADE SHOW

In 2015, for the first time, Aliapur took part in the Equip'Auto professional trade show, which was held from 13 to 17 October at the Paris Nord Villepinte exhibition centre. As Aliapur has nothing to sell – its activities are financed by the eco-tax and it provides a service of free collections from car industry professionals – the aim of this participation was essentially to meet the companies that put tyres on the market (manufacturers, distributors, importers, networks, etc.) which already declare their tyres with the company, but also with the points of sales from which tyres are collected and the institutional or professional stakeholders (organisations, unions, etc.).

On an 80 m<sup>2</sup> stand installed in the area dedicated to maintenance and distribution networks, Aliapur also had its environmental savings calculator running in real time: from Tuesday to Friday, this calculator displayed the number of tyres collected in mainland France by the Aliapur network and their equivalent in savings of natural resources and greenhouse gas emissions.

Finally, like most of the exhibitors, Aliapur took advantage of the night session on the Thursday to welcome 300 guests to the stand, resulting in a privileged evening for fluid, friendly exchanges around the president of Aliapur's Board of Directors and the CEO of Continental, Serge Bonnel, the CEO of Aliapur Hervé Domas, and most of the company's teams.



### KEY FIGURE

**707,916**

...passenger vehicle tyres were collected by Aliapur from Tuesday 13 October at 9 a.m. and Friday 16 October at 6 p.m., that is, the entire duration of the trade show. This collection was retransmitted in real time on the environmental calculator installed on Aliapur's stand. This volume of tyres is recovered or recycled by the Aliapur sector, and is then used instead of manufactured products or fossil fuels. It corresponds to considerable environmental savings: the electricity consumption of almost 80,000 refrigerators running for 1 year, the water consumption of 2.48 million cycles of a washing machine, and the CO<sub>2</sub> emissions of a car covering 84 million km. It should be noted that all these savings can be accumulated!



LIFE IN THE  
SECTOR

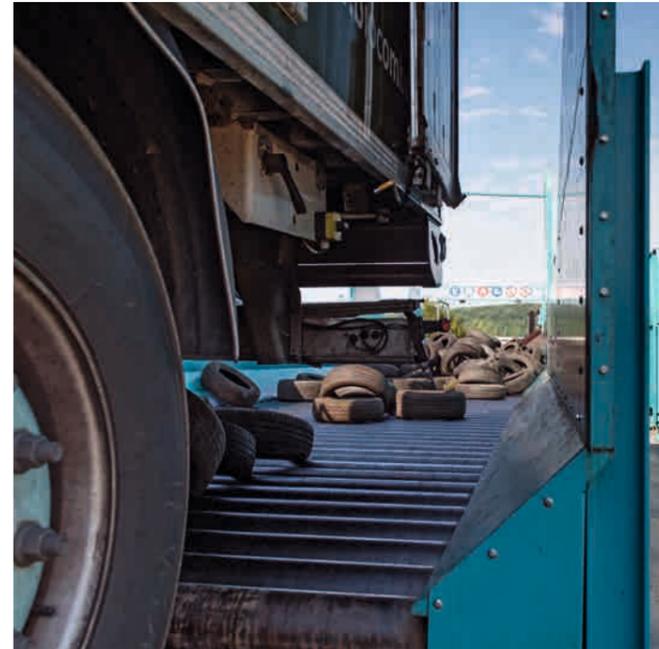
## A NEW REGULATORY FRAMEWORK FOR THE SECTOR

Decree 2015-1003 “concerning the management of tyre waste” was signed by the French State Department for Ecology and published in the Official Journal on 18 August. This decree modifies the founding decree for the sector, published in 2002. This renewal of the regulatory framework in force will result in a few modifications, including the obligations for those who put tyres on the market, in particular in cases of collection deficits or difficulties. The decree also introduces more specific goals, notably in terms of territorial coverage, and the recycling and recovery of tyre waste, in agreement with all the key players in the sector.

For Aliapur, the new decree is the fruit of a long series of exchanges and joint efforts with the State Department for Ecology since 2013. The text corresponds as much to the expectations of the sector today as the founding decree in 2002 corresponded to its needs when operations were launched in 2003. This is particularly true because, in the meantime, the various professions have considerably evolved and the entire tyre processing chain has been developed.

### Active fight against unauthorised collections

Of the most satisfactory measures, we can cite one that obliges those who stock and distribute tyres (car industry professionals) to give all their end-of-life tyres only to authorised collectors. Aliapur is delighted by the official nature of this measure, as the company's collectors have been obliged to have an authorisation since the operational start to the sector's activities in March 2004. The new decree thus provides a legal framework for an obligation that is already in place in the field. Above all, this



measure will make it possible to fight actively against unauthorised collections. Similarly, the company is delighted that a penalty system has been defined for tyres that have been put on to the market without paying the eco-tax.

Furthermore, the ranking of recovery methods has been clearly announced, with, in order of priority, re-use, recycling (material recycling), then the other methods of recovery, including energy recovery. For Aliapur, this ranking is an interesting improvement that will have an impact on the entire sector.

This new decree came into force on 01 October 2015 and brings a degree of maturity to a sector whose exemplary behaviour has been praised regularly.

### TRIMAN: A NEW SYMBOL FOR RECYCLABLE PRODUCTS

A new logo is gradually starting to appear on products and packaging: the Triman. This symbol, which corresponds to a regulatory obligation, informs consumers that “the product or packaging [...] must be sorted or taken to a collection point to be recycled”.

The text of the decree related to the Triman came into force on 01 January 2015. Tyres are concerned by this programme, but they benefit from a dispensation with regard to marking criteria. Aliapur has chosen the “marking by default on a dematerialised support”, that is, on its website. Most manufacturers have made the same decision: as there is no packaging on tyres, it would otherwise be necessary to modify all the tyre baking moulds so that the symbol could appear directly on the sidewall. The standards included on the sidewalls of tyres, however, are defined by European regulations.

## A DECREE THAT DEFINES COLLECTION MODALITIES

On 15 December, decree 2015-1003 was completed with an amendment “concerning the collection of tyre waste” (NOR: DEVP1521994A), signed jointly by two French State Departments: Ecology and the Economy. This text replaces the decree of 2003 and is aimed at collectors as well as “professionals in the tyre waste management sector”. It determines very precisely the procedure for accreditation by the Préfet: in particular, it defines the content of the authorisation request form that must be submitted to the Préfecture, the specifications that collectors must respect, and the minimum conditions for collecting tyre waste from car industry professionals. It also provides a reminder that collectors must have a “pledge” from one or more individual companies that put tyres on the market or from a collective organisation – Aliapur, in other words.



Once again, Aliapur is delighted that a complementary and rigorous regulatory framework has been implemented. Not only is this further recognition of a profession that has developed considerably and increased in professionalism in the last twelve years or so, but in addition this decree is an official text that will combat illegal collectors – freeriders who pillage stocks of end-of-life tyres from garages, removing tyres that still have a market value to sell them on the second-hand market. It is important to remember that re-use is the recovery method that is preferred by the European directive and the 2015 decree. In addition, trade in reusable tyres is part of the sector's general economy.

### “Everything necessary”

It is the responsibility of the distributors and those who stock tyres (collection points) to “do everything necessary to preserve the potential for the re-use, recycling and recovery of tyre waste, particularly by giving tyre waste destined to be re-used only to authorised collectors, in conformity with article R. 543-143 of the French Environmental Code, by storing the tyres in such a way as to preserve their integrity, and by separating them from other types of waste”. As a reminder, these obligations are already an integral part of the collection conditions defined by Aliapur, and respect of which guarantees that tyre collections remain free of charge. It should be noted once again that the decree reminds us that tyres put on the market without respecting the regulations for end-of-life management and processing (either individually, or by paying an eco-tax to a collective organisation such as Aliapur) “are not eligible for free collection”. Furthermore, the legislation includes a strict financial penalty system for those who put tyres on the market without respecting this provision.

### TECHNICAL ASSISTANCE IN FRANCE'S OVERSEAS DÉPARTEMENTS

In the last ten years or so (that is, since well before the official provision was included in the decree of 15 December), Aliapur has developed specific accompaniment for France's Overseas Départements: Guadeloupe, Martinique, French Guyana and Reunion Island. This accompaniment is both technical and operational, and it has allowed the local key players to implement their own organisation for the recycling of tyre waste.

With the same objective in mind, Aliapur thus went to Mayotte in June 2015 to meet with all the local public and economic decision-makers (General Council, CCI, MEDEF, ADEME, business leaders, distributors, etc.). The local sector is now up and running

### KEY FIGURE

**5** ...like the “5-year long-term plan for achieving goals” that the decree of 15 December stipulates in article 8 for each organisation responsible for processing end-of-life tyres, including Aliapur. This plan must present the orientations proposed in response to the goals stipulated in this same decree. In particular, it must specify “the distribution envisaged between the re-use, recycling, material recycling and energy recovery of tyre waste [...], as well as opportunities envisaged”.

## A RECORD YEAR FOR COLLECTIONS

With 320,377 tonnes, 2015 was a new record in the history of Aliapur. Every category of tyre progressed in terms of volume. In parallel, the time taken to make a collection dropped, on average over the year and for all *départements*, to less than 5 working days following registration of the request for a collection. The initial order from those who put tyres on the market amounted to 316,143 tonnes for 2015. Aliapur has thus not only achieved its targets, but even did better by 4,234 tonnes, or the equivalent of more than half a million passenger vehicle tyres. This excess was dealt with thanks to the financial reserves formed in 2012, the only year during which Aliapur was not able to collect all the tyre volumes ordered: 20,000 tonnes of end-of-life tyres were missing because of a decline in the sales of new tyres.

### Two phenomena

The record in 2015 can nevertheless be explained by two phenomena: a significant increase in the sales of new tyres in 2014 (which has an equivalent

impact on the orders of volumes to be collected this year) but also, in part, increased vigilance on the part of the public authorities with regard to those who put tyres on the market and who omit, sometimes by accident but sometimes deliberately, to declare their tyres and pay the corresponding eco-tax.

This year, however, has also been characterised by a decrease in the volume of re-usable tyres, both in the passenger vehicle and truck categories: Aliapur and its service providers have had to face an increase in pillaging, from points of sale, of tyres that still have a market value on the second-hand market. Although the installation of closed skips (capable of storing 500 to 600 car tyres) remains a priority for all car professionals whose sales volume of new car tyres justifies it, today there is demand for the same type of safe containers of smaller size, with a capacity of 100 to 200 tyres. Several collectors have already worked on prototypes. This avenue will be developed by Aliapur and its service providers in 2016.

### KEY FIGURE

# 42.3

...million passenger vehicle tyres, which is the equivalent of the 320,377 tonnes collected by Aliapur in 2015.

### ANNUAL REPORT AND REGULATORY NEWS

As every year, Aliapur brought together all its service providers to establish an annual report for the sector. The meeting took place on 26 November in the Lyon region. It focused essentially on the new regulations, particularly the decree of 18 August "concerning the management of tyre waste", the real unifying thread for all the activities in the sector (see also p.20). The day also made it possible to do an initial review of the year's figures, operational changes, and the progress made in Research & Development into recovery methods for end-of-life tyres.



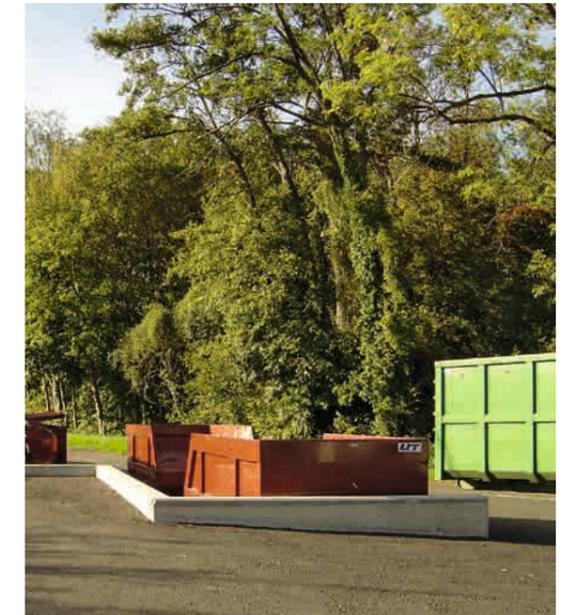
## OCCASIONAL COLLECTIONS IN LANDFILL SITES

Generally speaking, end-of-life tyres are left by car owners with car professionals when they buy new tyres. However, there are sometimes private individuals who have end-of-life tyres that they would like to get rid of, but without having to buy new tyres. The natural, civic gesture is to take them to a landfill site. In such sites that have the necessary space and infrastructures, Aliapur has roughly 1.8 million passenger vehicle tyres collected every year. The removal of these tyres is now the subject of a Charter, signed in October 2008 by Aliapur, the Cercle National du Recyclage (CNR), the association of French Mayors (AMF) and Amorce (a national association for communities, associations and businesses in the field of waste management). But as tyres are a rather cumbersome form of waste, many landfill sites are unable to take them because of a lack of space. In autumn 2015, Aliapur thus suggested to the CNR that occasional collections be set up in communities that make the request. These operations are reserved for private individuals, and thus do not concern professionals, who benefit from free collections from their premises.

### One or two weeks on average

These occasional collections from landfill sites are scheduled to last one or two weeks on average. During this period, the authorised service provider responsible for the *département* makes one or more skips available to the community free of charge. Naturally, the collection conditions are the same: only tyres from cars or two-wheeled vehicles are

accepted (with the exception of bicycles), with their rims removed, and not mixed with other forms of waste – and no more than 4 tyres per household. In addition, in order to be recovered, these tyres must not be soiled – by oil or battery acid, for example. For Aliapur, these occasional collections are an efficient and pragmatic response to requests made by elected officials and communities that are particularly aware of environmental concerns, but which lack the space in their landfill sites and are keen to prevent tyres being dumped. It was thus logical that an adapted solution be implemented.



### ALIAPUR TESTS ITS APPLICATION

In October 2015, Aliapur started testing its smartphone application with two of its collection service providers. This application is free and reserved for professionals with a link to the Aliapur sector. It is described as a "quick and easy service for indicating a collection incident". Ultimately, it will be the subject of two developments – one for collectors, the other for the points of sale where tyres are collected. The "collectors" side, which was developed this year, thus allows a service provider to indicate an incident, a disturbance or a problem in just a few stages – for example, if the tyres to be collected are inaccessible, or soiled, or if the site is closed, or something prevents the collection, etc. Once connected to the application, the collector can be geolocalised. He can then choose the type of incident from a drop-down menu and can even add a photo, if necessary. This will all be transmitted to Aliapur in real time. Once Aliapur is informed, it will take the measures necessary to resolve the situation.

This "collectors" part of the application will be deployed with all service providers next year, as will the part reserved for distributors. The latter will also be able to inform Aliapur of any difficulties they encounter. The application is set to be fully operational in the last quarter of 2016.

## INVENTORIES AT THE SPEED OF LIGHT

Every year in December, Aliapur does an inventory of its collection and transformation service providers in order to compare the stocks of used tyres and shred physically present on the sites at year-end, with the volumes mentioned in the company's computerised databases.

Until now, these inventories were carried out by weighing all the stocks. This method provided precise and accurate results, but took a long time – more than a day for the larger sites, given that whole tyres and shred must be loaded into trucks, weighed and then returned to their place. Above all, it requires the use of machine operators and drivers, and produces significant emissions of CO<sub>2</sub>.

The inventory nevertheless remains necessary. In 2015, Aliapur thus contacted SGS, a world-renowned certification organisation that already issues the



Qualicert-Valorpneu certificates for the sector's quality procedure and traceability. For two years, SGS has been developing a method for calculating stocks by means of laser measurements. It was, however, necessary to adapt these calculations to the specificity of whole tyres and, above all, tyre shred. To do so, Aliapur's R&D department studied the density of the shred in relation to its size (small, medium, large), which they used as the standard.

In practical terms, the laser is mounted on a cradle suspended over each stockpile that needs to be quantified or, if the configuration allows it, placed on a stand. It provides a 3D image which, when combined with Aliapur's density studies, makes it possible to reconstitute the volume and thus calculate the tonnages with precision. In addition to the time saved – it takes no longer than half a day for even the biggest sites – this method is reliable, economical in terms of maintenance, and does not produce the CO<sub>2</sub> emissions associated with the use of trucks. Aliapur is already envisaging the next stage: replacing the cradle with a drone.

### KEY FIGURE

**2** ...laser measurements are all it takes to calculate the volume of end-of-life tyre shred contained in a storage unit. As each unit can generally contain up to 300 tonnes, these 2 measurements mean it is no longer necessary for 15 trucks to be used to bring the shred to the weighing station.



## ALIAPUR EXTENDS ITS NETWORK IN EUROPE

Three new recyclers joined the Aliapur network in 2015: the Austrian granulator, Kias Recycling, the Spanish factory of the Italian cement manufacturer Italcementi, and a LafargeHolcim cement works near Toulouse.

Kias Recycling has its factory in Ohlsdorf, situated around fifty kilometres from Salzburg in Austria. The company is a group that specialises in the recovery of end-of-life tyres. The Austrian granulation market is dynamic, and characterised by a wide range of possibilities for tyre granulate. As the volume of tyre granulate and tyre shred is insufficient in Austria, the granulator approached Aliapur thanks to its reputation for providing characterised shred of constant quality, regardless of its origin. The negotiation process was fast and painless. Aliapur has committed to providing Kias with an annual volume of tyre shred of around 10,000 tonnes, a quantity that can be adjusted in relation to French demand (which takes priority), and the activity of the granulator. Kias is the first Austrian granulator in the sector.

Ever-desirous to diversify its network of recyclers, Aliapur has also signed an agreement with a Spanish cement works situated in Anorga, on the Bay of Biscay, close to the French border. This factory is part of the

Italian group, Italcementi. From 2016, this cement works will receive tyre shred in "small" format.

### Whole tyres instead of shreds

A second agreement has been signed with another cement works, this time part of the LafargeHolcim group, situated in Martres Tolosane (near Toulouse). The factory is currently undergoing modernisation: the group has invested several million Euros to implement a tyre injection process using the patented "Mid Kiln" process. This project is supported by the ADEME, which provided funding of €400,000. For this factory, it is a question of being able to absorb not tyre shred, as is usually the case, but whole tyres, like in the LafargeHolcim cement works in Bouc-Bel-Air, on the outskirts of Marseille, and the Vicat factory situated in Créchy, in the Allier département.

Finally, Aliapur has also formed ties with a Spanish granulator, the company GMN. This factory is situated in Maials, around fifty kilometres from Tarragona, and is also a newcomer to the sector. These contacts are in principle going to lead to a contract in 2016 for the delivery of whole tyres.



## 126,882 TONNES EXPORTED IN 2015



Although 2015 was less successful than 2014 (more than 133,000 tonnes), the year was nevertheless characterised by a significant volume of exported tyre shred: almost 127,000, or the equivalent of 16.7 million passenger vehicle tyres. 2015 was thus another good year for exports, which is a sign of constant demand for shred from the French sector, as it is characterised by constant quality regardless of the transformation site from which it is obtained.

The Moroccan cement industry has been a traditional partner of Aliapur since 2004. As every year, Morocco is the number 1 importer of shred. On site, Aliapur delivers to the main local cement groups: LafargeHolcim Morocco, Cimar (Italcementi group) and Cimat (Ciments de l'Atlas). In total, almost 70,000 tonnes have been delivered, transported by 31 boats, including 7 river-sea vessels capable of navigating on both rivers and the sea. Four vessels travelled down the Rhone from the river port of Salaise (southern Lyon) and 3 others took the Seine from the river port of Saint-Aubin (east of Rouen), before travelling to Morocco. Together, these river-sea vessels have made it possible to transport 12,000 tonnes of shred, thus avoiding the need to have more than 400 heavy goods vehicles on roads that see a lot of traffic and are often

saturated, thus making savings in the corresponding emissions of CO<sub>2</sub>.

Two new destinations were inaugurated in 2015, though for much more modest volumes: Austria and Spain (see also p.25: "Aliapur extends its network in Europe").

### KEY FIGURE

**320** ...vessels have delivered tyre shred for Aliapur, taking all destinations into account, since 2004: 290 to Morocco, 25 to Sweden, and 5 to Finland.

### VOLUMES AND DESTINATIONS

**Morocco:** 69,553 tonnes (cement industry)  
**Germany:** 22,314 tonnes (granulation)  
**Switzerland:** 13,348 tonnes (cement industry)  
**The Netherlands:** 9,870 tonnes (granulation)  
**Sweden:** 6 504,tonnes (urban heating)  
**Austria:** 3,002 tonnes (granulation)  
**Luxemburg:** 1,624 tonnes (steelworks)  
**Spain:** 667 tonnes (cement industry)

## SILAGE TYRES MANAGED BY ALIASTOCKS

The company Aliastocks was created by Aliapur in 2005 to process historic stocks, even though this was not its initial mission. In 2008, the company was put on standby when the association Recyvalor was created. It was reactivated in 2011 to take over missions connected to Aliapur's activities: management of tyres from end-of-life vehicles (ELV, see below), and processing silage tyres and those not covered by the decree.

For many years, the tyres used to hold silage tarpaulins in place were considered as being a recovery method for tyres. In recent years, the chambers of agriculture have very strongly encouraged farmers to replace them with alternative solutions, or even to opt for different means of covering silos. The problem is then how to get rid of the tyres. As their processing costs are high, most chambers of agriculture participate in the financial side of dealing with them, along with the farmers themselves.

In 2015, Aliastocks won a call for tender by the Rhone chamber of agriculture for the collection

and recycling of a volume of 3,000 tonnes of silage tyres in the *département*. Aliastocks turned to the company Eurec Environnement, one of Aliapur's service providers. Farmers deposited their tyres in skips installed on several farms, after having removed any hubcaps or other waste. As these tyres had often spent several years outside, they were no longer supple enough, nor did they have the qualities required, to be granulated. They were thus recovered as an alternative fuel source in cement works.

### RECYVALOR FOCUSED ON THE SOUILLAC SITE

The gigantic historic stockpile in Souillac in the Lot *département* (estimated at 30,000 tonnes of tyres) is without doubt the association Recyvalor's largest site. Clearing it, under the guidance of Aliapur, which represents the manufacturer shareholders on the association's board of directors, started in 2012 and continues in sections every year. In 2015, 3,137 tonnes – the equivalent of more than 40,000 tyres – were removed and processed by the company Alcyon, which was chosen following a call for tender. Some of these tyres were dumped outside many years ago, meaning that many had lost their elastic qualities. This means that material recycling is impossible. However, their intrinsic qualities remain: they are almost exclusively recovered as a substitute fuel source in cement works.

A second site was also cleared at the end of the year in Moulins la Marche (in the Orne *département*): it was a small site, with only a few hundred tonnes. Half of the tyres were recycled for Public Works and the other half were granulated.

As a reminder, the association Recyvalor was created in 2008. It is composed of representatives of distributors, manufacturers and car manufacturers, as well as professionals from the tyre and waste sectors, plus environmental experts. Recyvalor works in partnership with the French State (Department of Ecology) and as such has an overall budget of €3.2M for the period 2015-2017, destined to cover collection and elimination costs. Whilst Aliapur graciously makes its organisation and its know-how available to Recyvalor, the company's shareholders also support the association thanks to €325,000 paid in 2015.



### ELV: INCREASING VOLUMES

On a like-for-like basis, the volumes of tyres from end-of-life vehicles (ELV) collected by Aliastocks increased slightly in 2015, to reach 5,670 tonnes, representing the equivalent of 750,000 passenger vehicle tyres, or 30,000 more tyres than in 2014. Despite everything, the re-use rate for tyres from ELV has not changed and remains at around 8 % (or half that of the tyres collected from garages), as in 2014, essentially because of the sometimes aggressive removal methods. Aliastocks processes these tyres on behalf of the GVF group (Volkswagen, Audi, Seat, Skoda,...), Suzuki, Honda and Porsche.



**R&D, DEPLOYMENT  
APPLICATIONS  
AND ENVIRONMENT**

## STATE OF PROGRESS OF R&D PROGRAMMES



## CEMENT MANUFACTURERS BOOST MATERIAL RECYCLING

More than 170,000 tonnes of whole or shredded end-of-life tyres were sent to cement works in 2015. Historically, this energy recovery method in cement works has always represented large volumes of tyres, in response to a constant demand from industrialists who have used end-of-life tyres as an alternative fuel source since the 1970s.

### An excellent alternative source of fuel

Until 2009, there was little information concerning the characteristics of the tyres. At the time, Aliapur had completed its first measurement campaign, the results of which made it possible to confirm that end-of-life tyres are an excellent alternative source of fuel because their calorific value is the same as that of coal, and almost identical to that of petroleum coke, both of which are fossil fuels. This study also made it possible to define the biomass of the tyres, as they are manufactured from natural rubber.

However, in the kilns of cement works, tyres do not

act only as a fuel source. The metal reinforcement of tyres, when it decomposes, effectively also provides an input of raw materials in the form of iron oxides that are essential for firing the limestone. In addition, the ash obtained from the firing is an integral part of the finished product, the cement. In tyres, only the carbon is wholly consumed by the firing operation. The iron, silica, sulphur and zinc (inorganic compounds) remain present in the clinker, and thus provide minerals capable of compensating for deficiencies in the quarry usually used in the manufacture of cement.

### Conclusive results

In a study by Aliapur from 2009, the composition of ash was not examined as it was not a characteristic necessary for assessing end-of-life tyres as an alternative fuel source. It is only recently that the cement industry has shown an interest in the ash levels represented by the inorganic part of tyres (without carbon). The industrialists' approach is to be able to use the waste as a raw material and source of energy, so as to replace the mineral natural resources and fossil fuels used in industrial processes ("co-processing"). To support this approach, Aliapur has thus aimed to have at its disposition reliable reference values based on the intrinsic composition of tyres – as a reminder, this composition is constant and repeatable, regardless of the origin of the tyres collected on the French market. A new measurement campaign thus took place in 2015.

The results are conclusive. They show that the levels of inorganic matter in tyres not burnt during firing in cement works, but recycled as part of the actual composition of the cement, is 23.75 %. The cement industry is thus not only an energy recovery method (thanks to the combustion of carbon) but now also a material recycling method (through the recycling of the inorganic elements found in tyres).



Research	Development	Industrialisation	Diffusion/deployment
Surface treatment	Fibres for reinforce road coatings	Physical and chemical characterisation of shred	Granulate in equestrian floors
Biotechnologies applied to granulate	Odours	Physical and chemical characterisation of granulate	Visiopur cabin
Fire behaviour of materials	Noise barrier	Physical and chemical characterisation of textile fibres	Shred in foundries and steelworks
Powder - asphalt interaction	Sustainability of performances Granulate in turf	Physical and chemical characterisation of wire	Whole tyres in the rehabilitation of quarries
Filtration of wastewater	Procedure for generating high-yield powder	Physical and chemical characterisation of powder	Environnemental harmlessness of granulate in synthetic turf
End-of-life LCA	Granulate / powder in acoustic insulation	Thermoplastic composites made from granulate	Surfaces for athletics tracks
Characterisation / Micronisation	molded parts formulation	Physical and chemical characterisation of powder	LCA for 9 recovery methods
Evaluation of the nanoparticles present in ELT		Cement composites	Inorganic rates in ELT
Expertise in the products obtained from pyrolysis		Anti mosquito filter	Biomass of ELT
Production of polyurethane-based end of life tires			Positioning ELT as a fuel source
Market study in the building construction product			Recycling wire in steelworks
Analysis of PAHs measurement method			Market research for granulate in Europe
Use of ELT for producing seal			Publication of Technical Data Sheets for granulate
Sorting optimization ELT			Shredded tyres in drainage, infiltration and retention: state-of-the-art and good practices

■ Aliapur Innovation   
 ■ Environment and Sustainable Development  
■ Characterisation / Standardisation / Leaving waste status

## END-OF-LIFE TYRES: A WEAPON AGAINST MOSQUITOES

At the planetary level, one human being in two is potentially exposed to virus-carrying mosquitoes. Dengue fever is far from being eradicated; chikungunya is still not the subject of any radical treatment on the market, just as there is at present no vaccine against Zika, now present in 21 countries in Latin America and 6 in Europe (Great Britain, Italy, the Netherlands, Portugal, Denmark and Switzerland). Furthermore, WHO has declared Zika to be an emergency of worldwide status. All these threats to human health reinforce the need to implement – quickly – preventive measures. Given the propagation, it has become vital for the countries concerned to fight the risks of transmission of the virus, particularly given that mosquitoes find all they need to proliferate in the human environment: their field of action rarely exceeds a radius of 25 metres around their original breeding ground, in stagnant water, with a preference for the guttering on houses. Christophe Put and Thierry Suviri, who are based in New Caledonia, have created the company Aedes, specialising in disinsectisation. In addition

to the standard means of fighting mosquitoes (gels, sprays, traps, etc.), they have had the idea of preventing the installation of breeding grounds – solving the problem at its roots, so to speak.

### "Aglostic"

In 2012, they thus imagined a device that could be installed in gutters, half-way between a filter and a plug, both sufficiently porous for rainwater to flow through, and sufficiently dense for mosquitoes not to be able to do the same, thus preventing them from breeding. Naturally, this device requires a material that will not rot, that is safe for health and the environment, and that agglomerates easily. Instinctively, the two associates turned to tyre rubber granulate, and manufactured a prototype. They named it "Aglostic". Although the prototype was technically conclusive, there remained several questions with regard to its degree of effectiveness. To answer these questions, Aedes turned to Aliapur, with the support of the competitiveness pole, Elastopôle, and Adecap. Aliapur's Research and



### KEY FIGURE

# 98%

This is Aglostic's efficacy rate against the passage of mosquito eggs into stagnant water, thus making it possible to prevent the installation of breeding grounds.

### TYRE RUBBER UNDER THE HOOVES OF COWS

The company Bioret specialises in producing and marketing equipment based on elastomers for livestock farms (mattresses, cubicles, skid-proof floor coverings...). It achieves 45 % of its turnover from exports to 20 countries and markets a range of products whose manufacture partly includes recycled rubber. In early 2015, Bioret was seeking to innovate with new products, this time manufactured with rubber from end-of-life tyres. The company contacted Aliapur for support in the development of its manufacturing process and implementation of a pilot line for floor mat production (stall mats) for cattle.

These mats are made from tyre granulate, and provide a soft, and thus comfortable, surface for the hooves of cattle. They are combined with a controlled porosity principle, and also make it possible to better eliminate the faeces of the animals, a source of corrosive ammonia that is harmful for their health. In addition, their legs remain dry.

This project has been carried out in partnership with the Elastopôle competitiveness pole, as well as the ADEME. A production factory is due to be set up around 2018, resulting in the creation of 25 jobs. In addition to the environmental benefits associated with manufacturing products from recycled materials, for Aliapur, this innovation opens up a new recycling method for end-of-life tyre granulate.

Development department was interested in the originality of the approach, the innovative nature of the product, and the market potential. It thus asked the Centre de Transfert Technologique du Mans (CTTM), a long-term partner, to do an in-depth study of the device. The study was financed by Aliapur and lasted almost a year. It made it possible to determine the size of granulate to use, the choice of binding agent, the mechanical resistance of the device, the water infiltration and flow rates, the quality of the drainage, and the harmlessness of the water filtered in this way with regard to health and the environment. It was also necessary to verify that the composition of the product could allow water to pass through, but also prevent mosquito eggs and larvae from doing the same. In the end, the results scientifically validated the technical choices made by Aedes for its device, which now has proven efficacy.

### Several awards

Since then, Aedes has received several awards and, supported by the BPI France, is working actively on deploying the Aglostic. As for Aliapur, it has obtained an exclusive operating licence for the patent in mainland France and the Caribbean, in exchange for funding for a year of studies and tests. Beyond the assistance in the fight against virus-carrying mosquitoes and support for an ingenious young company, Aglostic is also a new solution for material recycling. Aliapur is thus now searching for industrial partners ready to exploit the patent, in particular in the building industry and the pest control sector, as well as manufacturers and installers.



## PUBLIC WORKS: SHRED UNDER STRICT SURVEILLANCE

Whole end-of-life tyres are used in public works to build retaining walls. This "Pneusol" method (truck tyres whose sidewalls are partially removed and then bound to each other) was developed by the laboratories at the Ponts et Chaussées school thirty years ago. Today, it still makes it possible to make use of all the intrinsic qualities of tyres: it is supple enough to absorb any ground vibrations, yet rigid enough to prevent sliding.

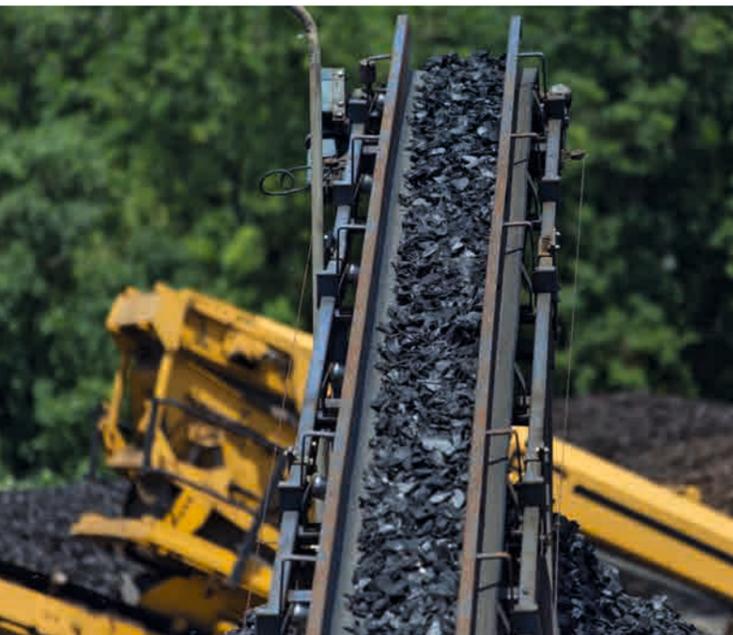
Shredded tyres have long been used as filler in retention basins, which are used to store rainwater temporarily. The shred lets the water through, ultimately returning it to the soil. Using shred is much less costly than the sand-gravel aggregate usually used. In 2008, several studies carried out by Aliapur confirmed that there is no impact on health or the environment on the water put into prolonged

contact with shred. Naturally, this study focused only on shred produced in the strictest sense of the term by Aliapur's service providers.

In 2010, the Life Cycle Assessment of end-of-life tyres carried out by the firm PricewaterhouseCoopers for Aliapur highlighted that priority should be given to certain recovery methods in relation to their environmental benefits. Using shred in public works was thus put on standby, remaining more anecdotal than anything else, even though Aliapur did not abandon its monitoring of technological progress all the same.

### A new study launched

Although the legislation in force has few restrictions, the French State Department for Ecology decided to launch a new study on shred in retention basins so as to be able to make a definitive statement regarding shred's lack of environmental impact. This study was launched in 2013 and associated several partners with the State Department in its pilot committee: the ADEME, the Office national de l'Eau, the Agence de l'Eau, the Centre d'études et d'expertise sur les risques, as well as the key players in the sector, particularly Aliapur. The initial results of this study were presented in spring 2015, making it possible in particular to define the characteristics of the shred to be used in the basins, create an analysis grid for rainwater that has been in prolonged contact with it, and define the acceptability parameters of this technique for using products obtained from end-of-life tyres. In the second half of 2015, the follow-up to this study was launched in order to implement the protocols that had thus been established. In 2016, this study will continue with laboratory tests and on pilot installations.



### GRANULATE IN CONCRETE

In December, Aliapur participated in a conference on "Recycling by-products in concrete", organised by the University of Cergy-Pontoise and Elastopôle as part of the "The constructions of the future" theme. The aim of this scientific event was to bring state-of-the-art technological developments into contact with research in progress in the field of recycling by-products in concrete and public works structures: end-of-life tyres, wood, plastic, grass, granulate from demolition...

On this occasion, Aliapur presented the sector and its progress in the applications designed for public works. As a reminder, recycling ELT in concrete and public works structures can be an option that makes it possible to improve crack resistance or to provide acoustic insulation solutions.

## A SAFE FRAMEWORK FOR END-OF-LIFE TYRES

### ISO TC 45

In October, the French national union for rubber and polymers (Syndicat National du Caoutchouc et des Polymères, SNCP) organised the 63rd world conference for the "Rubber and rubber-based products" group at the ISO (International Organization for Standardization - ISO TC 45). At this event, 160 international experts (producers and distributors of raw materials, transformers, users, etc.) came together over 6 days to work on the management of rubber standards. The conference was sponsored by Aliapur alongside Michelin, and is a strategic event for the sector as it is where the regulatory framework and future of the sector of activity are established, all whilst defining the areas of focus for the coming years. Seventeen countries participated, with a strong presence from Asian delegations (60 % of the delegates), showing their desire to join the ISO's technical committees and work groups.

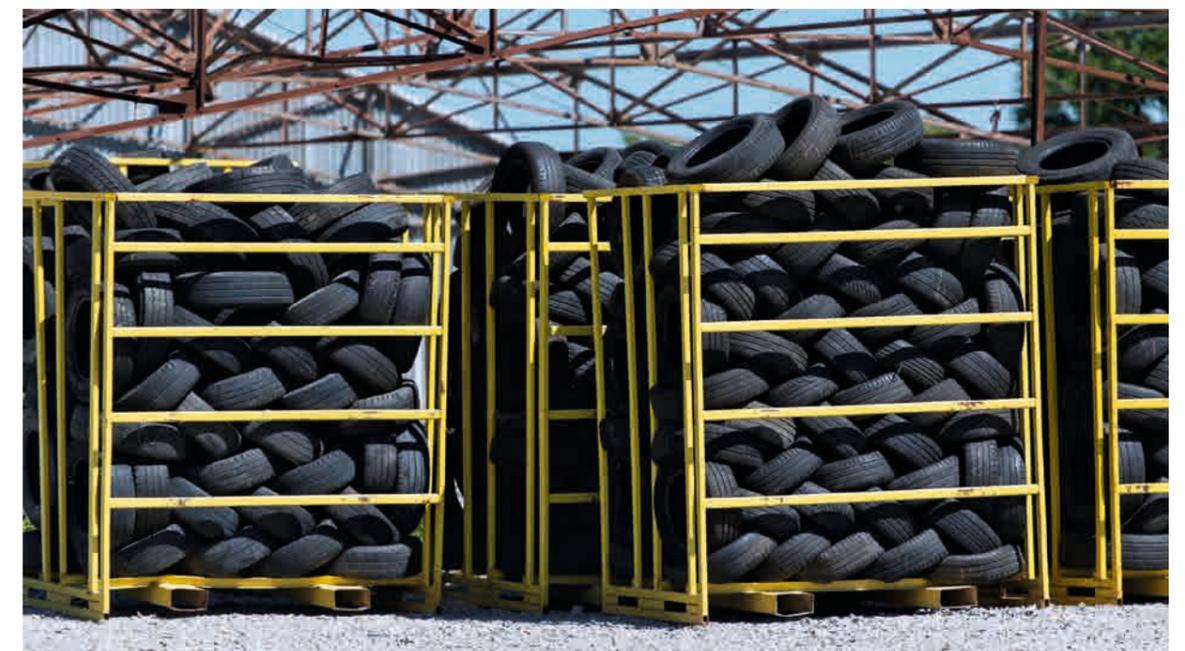
### Regulatory locks

Still at the SNCP, Aliapur was highly involved in 2015 in the work group "Recycling and regulatory locks". The discussions covered the role of secondary raw materials (SRM) – in particular end-of-life tyres – with a view to removing them from the status of waste. It is also a question in these works of the REACH regulation

which aims to make safe the use of chemical substances in European industries, to guarantee their lack of impact on human health and the environment. It should be noted that this work group is open and ready to welcome new experts keen to defend the interests of the sector.

### Standardisation

Finally, Aliapur participates actively in evolution in the standardisation of end-of-life tyres to make the recycling methods safer and anticipate the requirements of the market. At the European level, Aliapur pilots the French delegation AFNOR and participates in the TC 366 technical committee, "End-of-Life Tyres" alongside experts from the various European sectors. In 2015, this commission carried out cross-tests to verify the precision of the European standards defined last year, and to validate their relevance, so as to obtain a European standard that will replace all the national standards (EN standard). This is a major issue because it conditions the contractual relations between clients and suppliers. At this stage, it is thus imperative for the work group to measure with precision any possible differences in relation to the origin of the stock, the preparation prior to measurement, or even the measurement itself. The results of these cross-tests will be published in 2016.





**DIRECTORY**  
2015

# DIRECTORY



## 344 CLIENTS IN 2015

Aliapur's clients are companies concerned by the end-of-life period of the tyres that they put on to the French market. For this reason, they mandate Aliapur to fulfill their obligations for collecting and reprocessing the tonnages of used tyres equivalent to their sales in the preceding year.

### MANUFACTURERS

APOLLO VREDESTEIN FRANCE  
BRIDGESTONE  
BRIDGESTONE EUROPE  
CONTINENTAL  
COOPER TIRE & RUBBER COMPANY FRANCE  
GOODYEAR DUNLOP TIRES FRANCE  
HANKOOK  
KUMHO TIRE FRANCE  
MICHELIN  
MITAS  
NOKIAN TYRES  
PIRELLI

### WEB SITES

1001 pneus  
ALLO PNEUS  
CENTAURE PNEU SERVICE (Toopneus)  
DELTICOM AG  
GETTYGO  
GOEGGEL FRANCE  
IHLE  
LAJANTE.FR  
OXYO PNEUS  
PNEUMACLIC.COM (Puissance pneu)  
PNEUMARKET (HP DIS)  
PNEU WYZ SAS  
SAS EASY 4D  
TYREDATING  
TYREFACTORS.com  
TYRES IN STOCK FRANCE  
VAN DEN BAN  
VO TECH

### DISTRIBUTORS OF TYRES

67 AUTO  
A7 AUTO PIECES  
AB SERVE

AGRI PNEUS  
ALEX EXPRESS  
ALFA PNEUS  
ALLIANCE AUTOMOBILES  
ALLO CASSE AUTO  
ALSACE PNEUS ET SERVICES  
AMBULANCES ET TAXIS FACE  
AMERICARS  
ANNEMASSE PNEUS BIS  
ARCIS PNEUS  
ARGO FRANCE  
ARMELINE  
AS2G  
ATLANTIC PNEUS  
ATOUTPRIX PNEUS  
AUCHAN  
AUTO AGI  
AUTO CASSE FERRARI  
AUTO CENTRE PONTIVY  
AUTO DISCOUNT SERVICES  
AUTO GARAGE MEC'ADDU  
AUTO INTER EUROPE  
AUTO LOOK PERFECT  
AUTO PRO TECH  
AUTO SECURITE  
AUTO SYSTEM  
AYE NEGOCE  
BACHER PNEUS  
BERTRAND PNEUS  
BERTRAND PNEUS CHAMPAGNE  
BIHR  
BM PNEUS SERVICE  
BM68  
BMW Group FRANCE  
BOLLON PNEUS  
BONNOT 2000  
BOULAY AUTO PIECES  
BOURGUEIL PNEUS  
BOUSSEL AUTOMOBILES  
BR EXPORT SAS  
BRP EUROPE NV  
BRUNEL PNEUS

BS PNEUS  
CAILLEAU PNEUS  
CAMOPLAST SOLIDEAL FRANCE  
CARRASCAL PNEUS  
CARROSSERIE ALBALAT  
CARROSSERIE ARGONNE  
CARROSSERIE DE L ARGOAT  
CARS LITTORAL  
CARTIER PNEU EURL  
CASH AND CARRY  
CBS PNEUMATIQUE  
CDS PNEUS  
CENTRAL GARAGE TOREZ  
CENTRAL PNEUMATIQUES  
CENTRE AUTO BLINOIS  
CENTRE DU PNEU  
CENTRE DU PNEU D'OCCASION  
CENTRE FA AUTO  
CHALLANS PNEUS  
CHAMALAU PNEUS  
CHAUMONT POIDS LOURDS  
CHEVILLARD AGRI  
CHOLET PNEUS  
CHOUTEAU PNEUS  
CIRON LE MANS  
CLASSIC CAR  
CLINIC AUTO  
COFIRHAD  
CONAIR  
COPADEX  
CORSE PNEUS  
COURILLEAU PNEUS  
COURILLEAU PNEUS NIORT  
CREPY PNEUS  
CRISTAL AUTO  
CS DISTRI  
CYL AUTO  
DA PONTE  
DATCH DISTRIBUTION  
DDF  
DELIT PNEUS SAS  
DELMAS

DISALCO MOTORS FRANCE  
DISTRICASH  
DOME PNEU VULCO  
DPM PROGARDEN  
DRAG'ON SARL  
DUCATI WEST EUROPE  
DUJARDIN SARL  
DUPRAY BERTRAND  
ECO PNEUS  
E-MOTORS SARL  
EQUIPNEU SA  
ERRIC  
ESCANDE PNEUS  
ESPACE MOTOS - ABONDANCE  
ESPACE PIECES AUTO  
ESTPNEUS  
ETS MORA  
EUROMASTER  
EUROPNEUS  
EUROPNEUS 59  
EVOBUS FRANCE  
FAAC AUTO  
FAVOPNEU  
FEDIMA TYRES  
FEU VERT  
FORD ASTIER  
FORREZ INTERNATIONAL  
FRANCE POIDS LOURDS  
G+ SERVICES  
GADEST  
GARAGE 2SOUZA  
GARAGE ALSACE AUTO  
GARAGE CONTANT  
GARAGE D4  
GARAGE DE LA BARMASSA  
GARAGE DE LA MULATIERE  
GARAGE DELOMMEZ  
GARAGE DES CASTORS  
GARAGE DES DOLMENS  
GARAGE DU GRAND LAUNAY  
GARAGE DUCLOS  
GARAGE FABRIS  
Garage FENEIS  
GARAGE FREDDY FASTER  
GARAGE JSA  
GARAGE MADEC  
GARAGE MARTINEZ  
GARAGE MOREU  
GARAGE NOMINE  
GARAGE SCHLESSER  
GARAGE SCHNEIDER  
GARAGE TBV  
GARAGE TOUCH & STYLE  
GARAGE YANN MORVAN  
GASTOU ET FILS  
GOMAX  
GOUPIL AUTO  
GPA  
GREG AUTO  
HARLEY DAVIDSON FRANCE  
HAUTOT  
HEBERT DOMINIQUE  
HENNETTE SARL  
HOLDING SIMON  
HONDA MOTOR EUROPE LTD  
HORS LIMIT  
HRP  
HUTCHINSON  
ICARIUS  
IDEALE RESIDENCE MOBILE  
IMPERIAL AUTO  
INEO SUPPORT GLOBAL  
IPS SARL  
ISEKI FRANCE  
IVECO FRANCE

JCLB  
JEANDOT SA  
JMD Pneus  
JOSSEFRAND PNEUS  
JP PEDRON  
JS PNEUS  
JUMBO PNEUS  
KAMSAR SA  
KANAIR  
KAWASAKI MOTORS EUROPE NV  
KEYAMA TYRES  
KERYADO PNEU  
KIKOPNEUS  
KING JUMBO MILORD  
KISS AUTOMOBILES  
KRAMP FRANCE  
KUSTOM STORE  
KVERNELAND GROUP FRANCE  
LA CLINIQUE DU PNEU  
LADOUGNE  
LALLEMAND PNEUS SILIGOM  
LALOYER PNEUS  
LANDRAU ECOPIECES  
LDI LUBERON  
LEMKEN FRANCE  
LIBOURNE PNEUS SERVICES  
LITTORAL PNEUS SERVICES  
LM CONCEPT  
MAISA 37  
MAISON DU PNEU GRAY  
MAISON DU PNEU MARIOTTE  
MAISON DU PNEU PONTARLIER  
MAN CAMIONS & BUS SA  
MANITOU  
MARCEL FRANCE MECANO GALVA  
MATEQUIP  
MAZERES AERO EQUIPEMENT  
MCGM DIFFUSION  
MCMR AUTOMOBILES  
MECAPNEUS SERVICES  
MERCEDES BENZ FRANCE  
METIFIOT  
METZ PNEUS  
MG PNEUS  
MICHEL MALLARD ETAPE AUTO  
MISTRANGELO PNEUS  
MONFROY MONCHY  
MONT BLANC PNEUS  
MORACO  
MOREZ AUTOMOBILES  
MOTANA SAS  
MP SA (Massa pneus)  
NANTES EQUIP'AUTO  
NICOLAS GUILLO  
NIPPON PIECES SERVICES  
NORD EST PNEUMATIQUES  
O'HARA  
ORECA  
PARAY PNEU  
PARIS SERVICES V.I.  
PAX AUTOMOBILES  
PENGLAOU PNEUS  
PERIGORD PNEUS  
PEUGEOT MOTOCYCLES  
PICAUD PNEUS  
PLANETE PNEUS  
PNEU INTER DISTRIBUTION  
PNEUS BAIE DE SEINE  
PNEUS GERN  
PNEUS KRUPP FRANCE  
PNEUS LEGROS  
PNEUS MULTI SERVICES  
PNEUS OSTERSTOCK  
PNEUS SERVICES  
POIDS LOURDS 86

POIDS LOURDS SERVICE NANTAIS  
POINT CONFIANCE - AUTUN  
POINT PNEUS GUERIDO  
POINT S FRANCE  
POINT S PNEUS ET ENTRETIEN  
PROMOPNEU MARIOTTE  
PYRAME  
RAPIDE PNEUMATIQUE  
RASSER AUTO  
RE'ACTION  
RENAULT LOUIS GRASSER  
RENAULT TRUCKS FRANCE  
RF AUTO PIECES  
ROADY  
ROADY CENDRAUTO  
ROCADE DEPANNAGE  
RONAL FRANCE  
ROUEN AUTOMOBILES  
ROUGIER SARL  
RS CAR DESIGN  
SAME DEUTZ FAHR  
SARL DU PNEU  
SATELITE  
SCAPAUTO  
SCPI - SIFAM TRADING  
SELF PNEUS  
SEMA  
SIDAN  
SIMA  
SIRPLAI ROADY  
SLPA  
SOBEDI  
SODIPNEU RACING  
SODIP-PNEUMALIN  
SOMTP CENTRE  
SONODIS  
SOS PNEUS  
SOVIA  
SP PNEUS  
SPAREX SARL  
SPORT PNEUS  
SSR PNEUS  
STATION SERVICE FLOTTES  
STIHL  
STURNY  
SUD IMPORT DISTRIBUTION  
SUD OUEST AUTO  
SUD PNEUS 81  
SUZUKI  
TARARE PNEUS  
TECHNIC AVIATION  
TECHNIGUM  
THOUERY FRERES  
TOM AUTO  
TONNERRE PNEUS JEANDOT  
TOP GOM  
TOP PNEU ATELIER  
TOUPNEU ALSACE  
TOURNUS DEMOLITION  
TOUTAUTO  
TRANS 4 EQUIPEMENTS  
TRIUMPH SAS  
UGIGRIP  
UZUN OTOMOTIV  
VALETY  
VERTS LOISIRS  
VIVA PNEUS  
VOLKSWAGEN GROUP FRANCE  
VOLVO TRUCKS FRANCE  
VULCALUC PNEUS  
WIETRICH  
Y2B  
YAMAHA MOTOR NV  
YC  
ZETOR FRANCE

## COLLECTORS

### ALCYON

📍 16 - 17 - 24 - 33 - 46 - 87  
33440 Saint-Louis-de-Montferrand  
05 56 77 19 19

### AUTO PNEUS NORMANDIE

📍 14 - 50  
14570 Clécy  
02 31 59 21 31

### AUTO PNEUS VARENNES

📍 08 - 51  
14570 Clécy  
02 31 59 21 31

### COLLET ENVIRONNEMENT

📍 21 - 25 - 39 - 52 - 70  
21470 Brazey-en-Plaine  
03 80 29 94 71

### BATI RECYCLAGE

📍 85  
85280 La Ferrière  
02 51 07 22 00

### CHRONOROUTE BRETAGNE

📍 35 - 44  
35320 Crevin  
02 99 42 43 25



### DROHE RECYCLAGE

📍 09 - 31 - 32 - 82  
31800 Labarthe-Inard  
05 61 95 59 17

### ENVIRONNEMENT MASSIF CENTRAL

📍 12 - 48  
48000 Mende  
04 66 32 37 55

### ENVIRONNEMENT SERVICES

📍 20  
20501 Ajaccio  
04 90 10 90 33

### EPUR

📍 71  
71020 Mâcon Cedex 9  
03 85 20 95 60

### ERRIC

📍 10 - 45 - 77 - 89  
77650 Jutigny  
01 64 08 62 10

### EUREC ENVIRONNEMENT

📍 07 - 26 - 38 - 69  
69780 Saint-Pierre-de-Chandieu  
04 78 40 23 12

### EUREC SUD

📍 11 - 30 - 34 - 66 - 81  
34500 Béziers  
04 67 26 87 60

### GROUPE CHARLES ANDRÉ

📍 13 - 83 - 84  
13340 Rognac  
04 42 10 41 63

### GILLES HENRY

📍 54 - 55 - 57 - 67 - 68 - 88 - 90  
54200 Chaudenay-sur-Moselle  
03 83 64 84 90

### GOMMAGE

📍 62 - 80  
62210 Avion  
03 21 28 30 55

### GRANULATEX

📍 01 - 05 - 73 - 74  
74550 Perrignier  
04 50 72 51 93

### GURDEBEKE

📍 02 - 60  
60400 Noyon  
03 44 93 25 21

### HENRY RECYCLAGE

📍 27 - 28 - 75 - 76 - 78  
76410 Saint-Aubin-les-Elbeuf  
02 35 64 65 80

### LE FEUVRIER

📍 53 - 61  
61100 Flers  
02 33 66 63 50

### MEGA PNEUS

📍 37 - 49 - 72 - 79 - 86  
37310 Reignac-sur-Indre  
02 47 91 08 07

### OURRY

📍 91 - 92 - 93 - 94 - 95  
77390 Champdeuil  
01 64 14 18 00

### PROCAR-RECYGOM

📍 03 - 15 - 19 - 23 - 42 - 43 - 63  
63350 Joze  
04 73 70 26 22

### RAMERY ENVIRONNEMENT

📍 59  
62440 Harnes  
03 21 14 00 00

### SEPCHAT

📍 41  
41100 Saint-Ouen  
02 54 77 20 66

### TFM PNEUS SUD

📍 04 - 06  
06560 Valbonne Sophia Antipolis  
04 93 65 03 79

### TRANSPORTS CASSIER

📍 18 - 36 - 58  
58340 Cercy-la-Tour  
03 86 50 57 26

### TRIGONE

📍 22 - 29 - 56  
22530 Saint-Guen  
02 96 26 08 91

### VALPAQ

📍 40 - 47 - 64 - 65  
40160 Ychoux  
05 58 82 34 48

## TRANSFORMATION SITES

### ALCYON

33440 Saint-Louis-de-Montferrand  
05 56 77 19 19

### BROYAGE VAL DE LOIRE

37310 Reignac-sur-Indre  
02 47 91 08 07

### EUREC ENVIRONNEMENT

69780 Saint-Pierre-de-Chandieu  
04 78 40 23 12

### EUREC SUD

34500 Béziers  
04 67 26 87 60

### GROUPE CHARLES ANDRÉ

13340 Rognac  
04 42 10 41 63

### GILLES HENRY

54200 Chaudeney-sur-Moselle  
03 83 64 84 90

### HENRY RECYCLAGE

76410 Saint-Aubin-lès-Elbeuf  
02 35 64 65 80

### PROCAR-RECYGOM

63350 Joze  
04 73 70 26 22

### RAMERY ENVIRONNEMENT

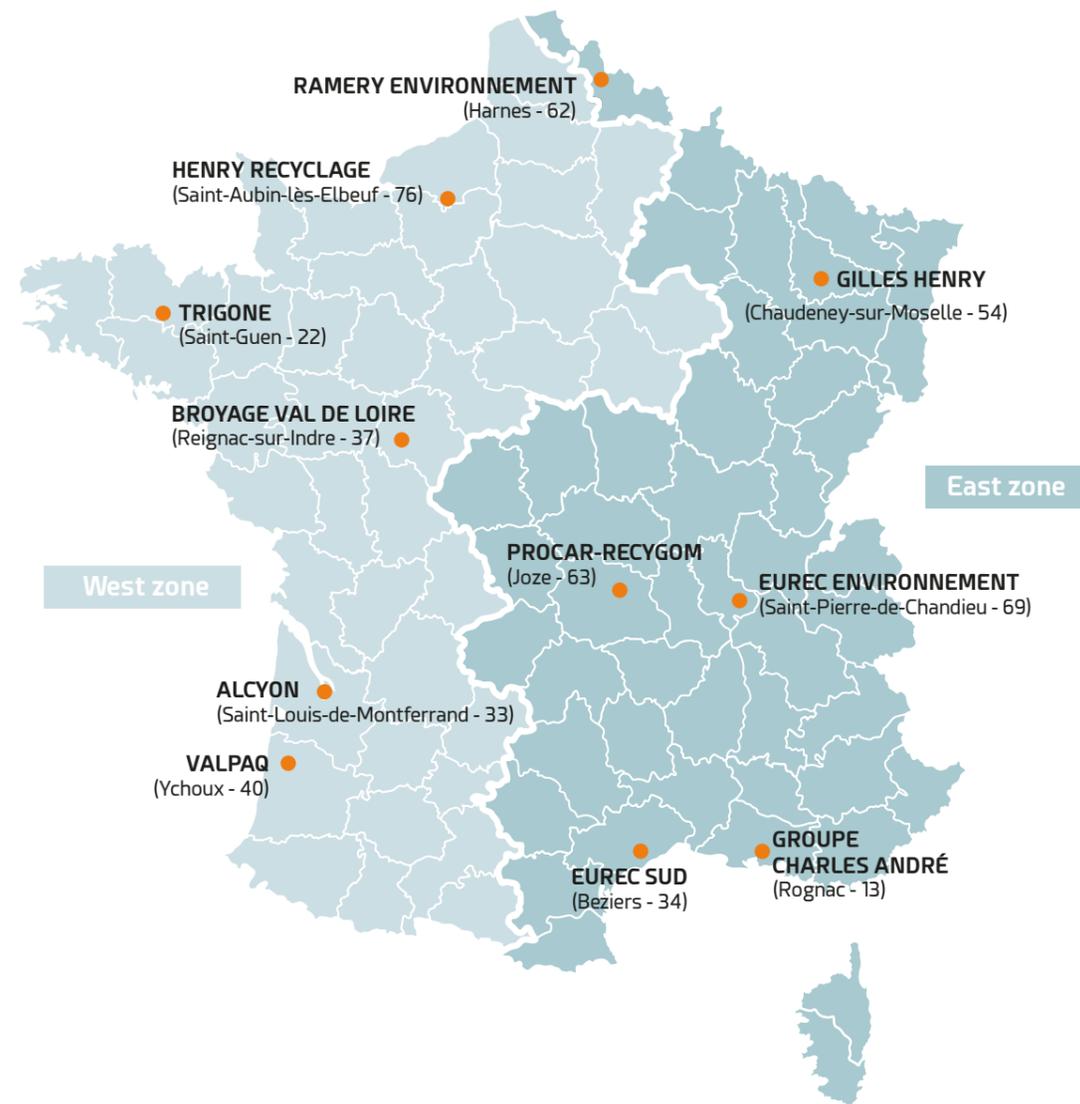
62440 Harnes  
03 21 14 00 00

### TRIGONE

22530 Saint-Guen  
02 96 26 08 91

### VALPAQ

41160 Ychoux  
05 58 82 34 48



## RECOVERY COMPANIES

### STEELWORKS

#### LAMINÉS MARCHANDS EUROPÉENS

59125 Trith Saint Léger

#### ARCELOR MITTAL

Esch-sur-Alzette, Luxembourg

#### ARCELOR MITTAL

Differdange, Luxembourg

### URBAN HEATING

#### E.ON SUÈDE

Norrköping

### CEMENT WORKS

#### CALCIA

30300 Beaucaire

#### CIMENTS DE L'ATLAS

Beni Hellal, Maroc

#### CIMENTS DU MAROC

Casablanca, Maroc

#### HOLCIM MAROC

Fes

Oujda

Rabat

Settat

### HOLCIM SUISSE

Eclépens/VD

### JURA-CEMENT

Wildegg, Suisse

### LAFARGE

76430 Saint-Vigor-d'Ymonville

13320 Bouc-Bel-Air

69380 Lozanne

11210 Port-La-Nouvelle

53410 Saint-Pierre-La-Cour

### LAFARGE MAROC

Casablanca

### VICAT

38390 Montalieu-Vercieu

03150 Créchy

### GRINDERS

#### DELTA GOM

60400 Noyon

#### ESTATO UMWELTSERVICE GMBH

Weiden, Allemagne

#### GMN MAIALS

Lleida, Espagne

### HET FRANCE

57260 Dieuze

### KIAS RECYCLING GMB

Ohlsdorf, Autriche

### RBSI

57385 Tétting-sur-Nied

### ROLL GOM

62217 Tilloy-les-Mofflaines

### RUMAL - KARGRO

Weert, Hollande

### GEOTECHNICS AND WHOLE TYRE IN PUBLIC WORKS

#### EUREC ENVIRONNEMENT

69780 Saint-Pierre de Chandieu

#### SMC (SOCIÉTÉ DES MATÉRIAUX CAENNAIS)

14550 Blainville-Sur-Orne

#### ADS

59760 Grande Synthe



### MAROC

LAFARGE MAROC (Casablanca)

HOLCIM MAROC (Oujda)

HOLCIM MAROC (Fes)

HOLCIM MAROC (Settat)

CIMENTS DU MAROC (Safi)

CIMENTS DE L'ATLAS (Béni Mellal)

CIMENTS DU MAROC (Marrakech)

CIMENTS DU MAROC (Agadir Ait Baha)

### ● STEELWORKS

### ● URBAN HEATING

### ● CEMENT WORKS

### ● GRINDERS

### ● GEOTECHNICS AND WHOLE TYRE IN PUBLIC WORKS

**EDITED BY:**  
Communication Aliapur

**PHOTO CREDITS:**  
Michel Djaoui

**DESIGN/PRODUCTION:**  
Crayon Bleu

