



# 2020 SUSTAINABILITY REPORT





**€489m**  
2020 Revenue



**€271m**  
2020 EBITDA



**€241m**  
2020 CAPEX



**1,300+**  
Customers



**46**  
Offices  
worldwide



**c.1,200**  
Employees

## RAILCARS

40,000 units



- **#2 player** in freight railcar leasing in Europe
- Strong presence across various sectors in **major European countries**
- **#2 player** in freight railcars leasing and largest fleet in France
- **120 different types of railcars**
- **Strong presence in industrial sectors**, in major European countries

## TANK CONTAINERS

60,000 units



- **#1 player** in global tank containers market and more dominant in specialized and gas tank container leasing markets
- **Global** presence in more than 80 countries
- Dedicated **Chinese domestic fleet** of 2,800 units
- Average fleet age of **8 years**
- Wide range of **industrial customers** in various segments: Oil, Chemicals, Mining, Transportation, Food, etc.
- **Modern containers depot** in The Netherlands

## 7 WORKSHOPS



- **7 workshops** strategically located across **France** and **Germany**
- **Undisputed leader** on the French market
- **Supporting the railcar leasing activity** and providing services to **3<sup>rd</sup>-parties**
- Service range covering **all maintenance needs for railcars**: wheelsets & railcar maintenance, transformation, retrofit and new railcar construction
- **Design capabilities** for new railcars
- **European certificates**
- Around 45% of **external revenue**



# SAFETY, QUALITY AND ENVIRONMENT POLICY

Our business operations must fall within a long-term sustainability logic. This means that on top of the need for technical, economic and commercial performance on a day-to-day basis, our Group must depend on fundamentals which guarantee long-term development and make a certain number of commitments towards its employees and partners.

## For Ermewa Group, these fundamentals are

- **First, assets to be maintained:** Group employees' expertise, economic effectiveness of our operations and environmental quality;
- **And second, basic principles to be observed:** risk management, investment by everyone, responsibility shown by everybody, continual improvement process and environmental protection.

## With regard to our commitments, our duty is to

- Ensure the health and safety of our employees and persons involved in our operations.
- Satisfy our clients and assist them to ensure the safety of their operations.
- Deliver reliable, compliant and certified products and services.
- Comply with applicable laws, regulations and procedures.
- Naturally apply a sustainable development approach.
- Maintain employee satisfaction and motivate them to be involved in the continual improvement process.

## In order to meet these commitments,

### WE HAVE

- Implemented a Group Safety Management System.
- Created a Group Safety Management Committee.
- Adopted a common event management method in order to provide optimized feedback.

### WE KEEP

- Controlling compliance with procedures and regulatory requirements relating to Safety, Quality and the Environment.
- Communicating internally on the performance of the Safety Management System.
- Assessing the risks of all our operations by using relevant indicators.
- Providing continuous training to all our employees.

---

### Ermewa Group Management Committee

---



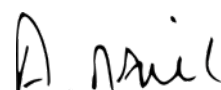
**David Zindo**  
CEO Ermewa Group



**Etienne Fallou**  
CFO Ermewa Group



**Caroline Tomkevitch**  
HR Director



**Agathe Marie**  
Legal & Insurance Director



**Stéphane Gavard**  
CTO Ermewa Group



**Peter Reinshagen**  
Managing Director Ermewa



**Vincent Martin**  
Managing Director Eurotainer



**Julien Mathiaud**  
Managing Director Inveho

# TABLE OF CONTENTS

Message from CEO

5

Introduction of the report

6

## 1 GOVERNANCE

7

1.1 Value & Ethics

1.2 Green Financing Committee

1.3 Corporate Social Responsibility (CSR)

## 2 STRATEGY

13

2.1 Regulation & Certification

2.2 Innovation & Digitalization

2.3 Circular Economy & Environment Actions

## 3 RISK MANAGEMENT

25

3.1 Safety Management System (SMS)

3.2 Ermewa Group's actions during the pandemic

3.3 Skills, Training and Know-How

3.4 Safety Culture

3.5 HR risk

3.6 Other

## 4 TARGETS & METRICS

34

4.1 Environmental Initiatives

4.2 Health & Safety

4.3 Fleet reporting on emissions

## 5 LOOKING FORWARD 2021

39

## Appendix

41

Acronyms

SASB Rail Transportation Metrics

Emissions calculation methodology

Accident list details

# Message from the Chief Executive Officer

**Dear Partners, Investors and Friends,**

Thinking back of 2020 at the Ermewa Group, the first word that crosses my mind is *memorable*.

Yes, 2020 was memorable because of COVID-19. Indeed, we were expecting some disruption last year as we were finalizing our 2019 Sustainability Report, but undoubtedly not a global pandemic that shut down the global economy (and our lives!) for more than a year. Faced with this extraordinary challenge, Ermewa Group has proven resilient. A large part of our fleet of railcars and tank containers are part of vital commercial flows, and they had to be kept running. This was made possible because we kept our maintenance capabilities operational even as we ensured the safest working conditions for our field workers. A massive and immediately operational shift to a “working from home” organization for the other employees accounts for rest. I am extremely proud of how we adapted to the situation. Resilience is one aspect of sustainability and we can say we passed this “stress test”.

2020 was also memorable because, despite COVID-19, we maintained a strong focus on the future. We concluded the acquisitions of DEMI tank containers depot in the Netherlands and Villmann railcars maintenance facilities in Germany to complement our servicing capabilities. We invested in 4,200+ new build railcars and tank containers for our customers; we innovated with, among other things, the Safety++ LPG 117m<sup>3</sup> railcar, the Spilltainer and our Maintenance 4.0 initiative. And we also delivered solid financial results, thereby protecting our capacity to invest and our financial credit. 2020 was not a lost year for Ermewa Group’s development.

Going forward, once the pandemic is (more or less) behind us, Climate Change will be back at the top of the World’s agenda. COP-21 Paris Agreements as well as the European Green Deal are extremely meaningful to us. We truly believe that Ermewa Group will contribute positively to the old continent’s efforts to become the first climate-neutral area in the next decades. Our railcars and tank containers are synonymous with low-CO<sub>2</sub>, clean and safe freight transportation solutions. Their use is optimized by the operating lease business model, they are 100% reusable and, when obsolete, 100% recyclable. In short, what we do fits in perfectly with the European Green Deal framework, especially in 2021 that has been declared the European Year of the Rail.

We strive to be up to this mission: we are learning from experience, improving continuously and, more importantly, we believe that being transparent to our stakeholders is a duty. This is why we present to you this annual Sustainability Report.

I hope you will enjoy the reading



**David Zindo**  
CEO Ermewa Group



## Introduction to the report

As a leading provider of freight transport assets, Ermewa Group is at the heart of global logistics and plays a crucial role in helping its customers implement greener supply chain solutions.

We are also highly committed to ensuring the highest operational safety standards, which ultimately leads to the safety of our employees, clients, all of our stakeholders and the environment.

The purpose of this report is to provide a fair picture of Ermewa Group's actions to guarantee safety, innovate and always be at the forefront of technological development supporting a low-carbon economy. We also report transparently on our fleet and emissions and develop our strategy and objectives for the future.

We maintain a continuous dialogue with our stakeholders with regards to our Sustainability strategy since our global refinancing in 2019. The TCFD (Task Force on Climate-Related Financial Disclosure) as well as metrics presented by the SASB (Sustainability Accounting Standards Board) will continue to be the grounds of our reporting framework.

# 1 GOVERNANCE

## 1.1 VALUE & ETHICS

1.1.1 Our Values

1.1.2 Ethics charter of the Ermewa Group

## 1.2 GREEN FINANCING COMMITTEE

## 1.3 CORPORATE SOCIAL RESPONSIBILITY

1.3.1 Whistleblowing guide

1.3.2 Anti-bribery and anti-corruption

1.3.3 Working from home

1.3.4 EcoVadis rating

1.3.5 Health, Wellness and Corporate engagement

# 1 GOVERNANCE

## 1.1 VALUE & ETHICS

---

### 1.1.1 Our Values



#### TEAM SPIRIT

##### **We foster a team spirit**

- We identify ourselves as Ermewa Group and share the same values
- We operate as one team with one fleet in each of our business activities
- Worldwide, our teams collaborate to ensure the success of our projects



#### PROXIMITY

##### **We know our customers**

- We offer optimized solutions to meet our customers' needs
- Local contacts are our strength to better address our customers' requirements
- Being close to the market as we actively participate in the evolution of our industry



#### COMMITMENT

##### **Ermewa Group is a trusted and professional partner**

- We deliver on our commitments to various stakeholders
- We guarantee the highest standard of services
- We empower people to take on challenges



#### TECHNICAL EXPERTISE

##### **We master technical complexity**

- Our technical expertise brings real added value to our customers
- We are committed to delivering tailor-made solutions
- We encourage innovative approaches



#### PROACTIVE

##### **Our approach is proactive and entrepreneurial**

- We anticipate customer needs and requirements
- Response time is one of our key assets
- We think 'outside the box'



#### SUSTAINABLE DEVELOPMENT

##### **We care for people and the planet**

- The security of our assets and safe environmental practices are our top priorities
- We value our employees and contribute to their development
- We prioritize long-term strategies and deliver results to our shareholders

## 1.1.2 Ethics charter of the Ermewa Group

For a responsible commitment combined with respect of our partners

### RESPONSIBILITY TOWARDS CIVIL SOCIETY

- We comply with laws and regulations
- We actively manage risks in accordance with sustainable development principles and act in favor of greater environmental responsibility by reducing the overall impact of the transport industry on the planet
- We respect personal commitments provided they do not involve the Group
- We do not tolerate corruption and discourage illicit practices

### RESPONSIBILITY TO OUR COMMERCIAL PARTNERS

- We are representatives of the commitment and values of the Group
- We believe in free competition and respect our competitors
- We do not accept gifts and advantages that would create a quid pro quo
- We act properly and in an appropriate manner with our customers providing quality, fairness and confidentiality where appropriate
- We confer importance to our partners sharing our ethical principles

### RESPONSIBILITY TOWARDS OUR GROUP AND OUR SHAREHOLDERS

- We contribute to the enhancement of the Group's image by sharing the same environmental, social and governance values
- We develop our business activities responsibly and we stand by our commitments
- We communicate reliable, complete and appropriate information on our business activity and results
- We protect confidential documents and data
- We respect and protect property made available to us
- We avoid conflicts of interest or situations that may be perceived as such
- We fulfil our employment contracts conscientiously

### RESPONSIBILITY TOWARDS OUR STAFF

- We respect obligations arising from the law, statutes, and contracts
- We respect diversity and condemn all discrimination
- We promote mutual respect and do not tolerate harassment
- We encourage our staff to consider the environmental consequences of their actions and seek to minimize the impact where it is reasonably practicable
- We maintain a healthy, secure, and harmonious working environment
- We respect individuals and their private life
- We are committed to resources and competencies development and improvement policy
- We value expertise and support and encourage entrepreneurial spirit

## 1.2 GREEN FINANCING COMMITTEE

Following the commitment taken in 2019 towards its lenders, the Group set up a task force composed of members from various business units and support functions. This task force allowed for a more detailed follow-up of the investments of the Group regarding their eligibility under green financing, the review of the emissions calculation methodology (that have evolved this year to include the entire fleet of the Group) and set-up of future objectives in terms of business development linked to our ESG strategy.

As mentioned in last year's report, this committee is part of the larger Investment Committee that gathers once a month to discuss the new investments from the Group as well as strategic developments (new markets, clients...).

## 1.3 CORPORATE SOCIAL RESPONSIBILITY

Sustainability is at the center of every decision that is made at Group level. We consider the sustainability not being only how the group operates its activities but how it manages to implement it on the day-to-day life of its employees. As defined in international standards, CSR is made up of seven core subjects:

### The 7 Core Subjects



### How CSR helped us through Covid-19 crisis

This matrix demonstrates the benefits of CSR during the pandemic from a human, environmental and economic point of view and the solutions provided by Ermewa to preserve employees' health and maintain activity.

## THE CONTEXT

Covid-19 crisis  
-> pandemic  
-> confinement

## CHALLENGES :

- Preserve employees's health
- Maintain activity



## OUR SOLUTIONS

- Sanitary conditions: Teleworking
- Working conditions: IT staff equipment
- Continuous activity: Improvement of the Data accuracy
- Continuous activity: +3M use extension (FR)
- Online Trainings
- Communication: Webinar

## THE BENEFITS

- On the social plan:**
  - Keep in touch with your team and not be socially isolated
  - To continue to communicate and to be involved in the activities of the company
  - No partial unemployment, All wages paid
  - Positive perception of employees towards Ermewa
  - No death to mourn
- Environnemental plan:**
  - Reduction in GHG (GreenHouse Emissions) emissions
- Economic plan:**
  - Continuity of activity of the country + of Ermewa + of the customers
  - Data accuracy ongoing updated

## 1.3.1 Whistleblowing guide

Ermewa Group established a "Whistleblowing guide" enabling any staff member (or a casual worker or external collaborator) to report and disclose facts or behaviors related to a crime, a misdemeanor, or any gross and evident violation of the laws, or international commitment (especially – but not limited to – psychological or sexual harassment, discrimination, corruption).

## 1.3.2 Anti-bribery and anti-corruption

The Group is following the French "Sapin II" Act which fights against corruption and promote transparency. This law includes the implementation of training for employees who are the most exposed to corruption. Since 2018, Ermewa Group executes a Sapin II Act training continuous training campaign in the form of an e-learning. As of the end of December 2020, 338 employees validated the training (achieving a score of 80% or more) out of 381 registered participants (i.e. 89%).

This training is thoroughly followed by the HR department to ensure that all participants complete the training.

## 1.3.3 Working from home

The use of telework was one of the expectations raised as part of the "Great Place to Work®" survey carried out end of 2019. The development of teleworking accelerated in connection with the pandemics. Since the beginning of 2020, teleworking enabled us to continue operating despite the pandemic and has been adjusted in each office in accordance with the recommendations of local authorities.

## 1.3.4 EcoVadis rating

Corporate social responsibility (CSR) is a self-regulating business model that helps a company be socially accountable — to itself, its stakeholders, and the public. In 2018, in order to meet customer's expectations, Ermewa opened an access via the platform EcoVadis. In 2020, the score of our evaluation is 69/100\*, as a confirmed level (Gold) and in real progress compared with 2019. Ermewa is now among the top 4% of companies evaluated by EcoVadis in the Rental of other machinery, equipment, and tangible goods business sector. The following topics are covered:

- Environment
- Social
- Business Ethics
- Sustainable Procurement



## 1.3.5 Health, Wellness and Corporate engagement

### 1.3.5.1 Group engagement towards its employees

In 2020, Ermewa carried out the Great Place to Work® survey. It focuses on quality of life at work, mutual trust between employees and management, and overall company performance. Overall, 56% of our employees think that the Ermewa Group is a great place to work, which exactly matches the representative sample of comparable companies.

On another note, Ermewa actively promotes its employees' health by offering to its employees in Levallois and Geneva the possibility to rent a catalogue of different bikes for long duration in order to limit the car use, with "Zenride" or "Cyclable". A "Company Bike Use Charter" has been edited and has to be complied with. This initiative is a good opportunity for employees to improve their health by practicing sport daily.

### 1.3.5.2 Group engagement towards the community



As part of our sustainable development policy, we have entered into a partnership with "Café Joyeux", a company specializing in the distribution of fair-trade coffee that colleagues from Levallois enjoy every day. "Café Joyeux" is also a brand of solidarity café-restaurants that trains and employs people with mental and cognitive disabilities. Its ambition is to make the disability visible and to promote the possible meeting in an ordinary environment. Café Joyeux enables each of its team members to gain confidence, experience and feel fully involved in the company.



Ermewa Group has entrusted the preparation of chocolates in sachets to ESAT's (Etablissement et Service d'Aide par le Travail – Centres providing care through employment) whose vocation is to support persons with disabilities, promote their autonomy, their social and professional integration through work, education and training.

25 employees of Ermewa Group headquarters in Levallois-Perret participated in the toy collection organized in favor of the Paris Necker Children's Hospital, a specialist pediatric unit and reference center for rare conditions and serious and complex diseases. Ermewa Group also donated €1,000 to this establishment.



# 2 STRATEGY

## 2.1 REGULATION & CERTIFICATION

2.1.1 Evolution of the Regulation for the Railcars

2.1.2 Evolution of the Certification

2.1.3 Evolution of the Regulation for Containers

2.1.4 Evolution of the Certification

2.1.5 Evolution of the Regulation for the Workshops

2.1.6 Evolution of the Certification

## 2.2 INNOVATION & DIGITALIZATION

## 2.3 CIRCULAR ECONOMY & ENVIRONMENT ACTIONS

# 2 STRATEGY

## 2.1 REGULATION & CERTIFICATION

We believe that measures implemented by Governments, national and international agencies as well as public sentiment, will drive public policy developments and programs that restrict global greenhouse gas emissions (GHGs) as well as other types of pollution (visual, noise and other environmental pollution). This is very likely to affect not only our business but the overall industry of transport and represents mostly opportunities for the group to prove cutting edge when it comes to implement new policies and regulation on its three business units.

### 2.1.1 Evolution of the Regulation for the Railcars

#### Implementation of 4<sup>th</sup> Railway Package (RP)

Due to COVID-19 pandemic, the entry into force of Directive 2016/797/EU on interoperability of the railway system and Directive 2016/798/EU on railway safety has been postponed by four months to 16 October 2020.

Since June 2019, Ermewa has been registering its wagons in the Member States that have already transposed the directives. Authorizations for placing on the market are issued by the European Union Agency for Railways (ERA).

The entry into force of these directives also has a huge impact in case of modification of a vehicle. If an already authorized vehicle type and/or vehicle is modified, the extent of the modifications must be analyzed, and a new authorization shall be required if:

- Parameters (or Basic Design Characteristics) affecting technical compatibility between the vehicle and the area of use have been modified.
- Overall safety level may be adversely affected by the change, or the relevant TSI requires it.

Furthermore, a new authorization shall also be required if:

- There is a change to the area of use of the vehicle.
- If the entity (e.g., keeper) is not the holder of the vehicle type authorization which is very often the case, it shall notify the changes to the authorizing entity (ERA) which can lead to a new authorization according to regulation (EU) 2018/545 of 4 April 2018 establishing practical arrangements for the railway vehicle authorization and railway vehicle type authorization.

ERA was supposed to implement an IT tool to manage modification requests from wagons keepers. Unfortunately, modification requests are for the time being not formalized with the Agency, which could lead to future miscomprehensions. This topic remains a challenge and will require clarification in the coming months with the UIP and the ERA.

#### Revision of Technical Specification for Interoperability (TSI NOI and WAG)

As owner, keeper, and ECM of its fleet, Ermewa must comply with the European noise restriction regulations for railcars and will replace cast iron brake blocks with less noisy composite brake blocks by the end of 2024.

Two countries have adopted laws in contradiction with the European regulation:

- Switzerland (not a member of the EU) has prohibited the circulation of these railcars since 1st January 2020. After the one-year transition period expires (Jan. 1, 2021), "noisy" railcars will be removed for compliance upgrades with the legal requirements.
- Germany had banned the use of cast iron brake blocks since 13<sup>th</sup> December 2020, despite the fact that the European Commission issued a Letter of Formal Notice (LFN) in May 2020.

The LFN marks the first step out of three in an infringement procedure against a Member State and is a signal to Germany that the Commission does not tolerate any obstacles to the single market and aim

2021 will be a year of transition. Financial sanctions will be suspended but the law will still be applied. This is an ambiguous situation that is not reassuring for the sector. Ermewa is closely following any developments.

### 2.1.2 Evolution of the Certification



### 2.1.3 Evolution of the Regulation for Containers

Containers are regulated by the International Maritime Organization as well as state regulations on dangerous goods. The IMDG Code was developed as an international code for the maritime transport of dangerous goods in packaged form, in order to enhance and harmonize the safe carriage of dangerous goods and to prevent pollution to the environment. The Code sets out in detail the requirements applicable to each individual substance, material, or article, covering matters such as packing, container traffic and stowage, with particular reference to the segregation of incompatible substances. Since its introduction in 1965, the IMDG Code has undergone many changes, both in appearance and content to keep pace with the ever-changing needs of industry.

- The UN Model Regulation chapter on FRP Portable Tanks (FRP = Fibre-reinforced Polymer, i.e., Eurotainer's Omni tank containers, also called composite tank containers) have been accepted. The chapter for FRP Portable tanks will now be published in the UN Model Regulations, the "Orange Book", which will be available in September 2021. Once the chapter is published in the UN Model Regulations, this is considered by the International Maritime Organization in their next amendment of the IMDG Code. This next amendment of the IMDG that will take consideration of the UN Model Regulations is scheduled for release in 2023. From then onwards shipping of FRP tanks globally will be possible.
- Amid the COVID-19 pandemic, the Indian government has allowed the Petroleum and Explosives Safety Organization (PESO) to grant permission to stakeholders for carrying liquid oxygen in tank containers in bulk. According to an official statement, PESO has also devised a system to receive online applications from the stakeholders to expeditiously grant permission to transport liquid oxygen in ISO tank containers. The statement said that due to the pandemic, an urgent need was felt to transport oxygen in sufficient quantities, at a short notice, from surplus areas to deficit ones.
- USDOT approved an amendment to the Hazardous Materials Regulations at the end of 2020. The amendment approves the use of TPED Pi- (π) marked pressure vessels for use as part of an international shipment into or out of the USA. The approval is contingent on the vessel meeting the requirements of chapter 6.2 of the ADR and being loaded per packing instruction P200. This is good news for the P200 cylinders in Eurotainer inventory as it expands the ability to use these cylinders into the USA. There are still restrictions on how they may be used, Title 49 of the Code of Federal Regulations (49CFR171.23) outlines those details. Similarly, there is a multilateral agreement (M318) in the ADR/RID for the carriage of USA built/approved pressure cylinders in Europe.

## 2.1.4 Evolution of the Certification

Eurotainer Dusseldorf and Rotterdam office ISO 9001:2015 certifications were renewed in 2020.

## 2.1.5 Evolution of the Regulation for the Workshops

Dedicated HSE teams are in charge of these topics under the supervision of the BU MD and a new student engineer has been recruited in order to develop and reinforce this team.

The sites follow state directives regarding environment and are in the process of the ISO 14001 certification with the objective of having all the sites certified by 2023 starting with Inveho UFF in 2021 (all Germans sites are already certified).

Within the framework of ISO9001 and ISO14001, Inveho has launched an analysis of the regulatory requirements at BU level. It is worth noting that so far, no wagon workshop in France is certified under ISO 14001 and that Inveho would be a pioneer in this field.

The objective is to organize, optimize and share the regulatory monitoring by means of a unique platform accessible to the whole division.

## 2.1.6 Evolution of the Certification

Workshops were renewed for the following certifications:

- ISO 9001:2015
- VPI (maintenance standard)
- ECM (maintenance delivery function)
- EN15085 (Welding of railway vehicles and components)

## 2.2 INNOVATION & DIGITALIZATION

The growth in demand for safer, more reliable, and sustainable assets on the market is a positive opportunity for our business given the fact that Ermewa is a leading innovator on each of its core segment. From the beginning it appeared imperative to partner with our clients to better understand their needs and to provide them with assets guarantying the highest standards when it comes to safety and supply chain optimization leading.

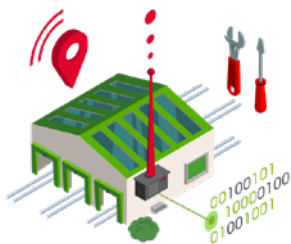
### Innovation

#### LPG railcars

Ermewa, in cooperation with the railcar manufacturer Chemet, developed new LPG Safety++ 117m<sup>3</sup> wagons with the highest level of safety on the existing market. The highlights of the LPG Safety++ equipment are the lightweight bogie with integrated compact brake, a particularly strong protective shield and the KEf control valve from Knorr-Bremse with digital-ready interfaces for the telematic brake monitoring sensors. The design of the wagon and its components focuses on both safety and economy in daily operation.



## Maintenance 4.0



Maintenance in freight railways is time-based maintenance, meaning overhauls are scheduled at regular time-based intervals regardless of the actual condition of the wagon. This kind of maintenance makes railway transport one of the safest modes of transport – but not the most efficient.

In the last few years, new know-how (such as smart data analysis and artificial intelligence) and new technologies (including IoT, cloud and 5G) offer new possibilities in the maintenance domain: Condition-Based Maintenance (CBM) and Predictive Maintenance (PdM).

The gains for Ermewa and the railway supply chain will be multiple:

- Improve the wagon asset availability rate by working on the global rail supply chain (availability of our wagons due to maintenance: from 90 to 95%).
- Optimize and control all costs related to the maintenance supply chain.
- Being part of Ermewa's continuous improvement approach of security and wagons reliability.

To this end, Ermewa launched the project Maintenance 4.0: Proof of Concept (PoC) with partners, compliance with safety requirements and fleet design, transformation of the data into a comprehensive maintenance-oriented information, safety assessment, integration of the information and related processes into ERMi. Maintenance 4.0 will become one of the major transformation projects in our company history.

## Wagon Damage report

Digitalization paves the way to improvements in maintenance and safety. Dematerialized information exchange, data generated by telematics devices such as GPS, empty/load sensors, axle, and brake monitoring tools contribute to a more efficient supply chain.

In 2019, a major improvement was made to the General Contract of Use for Wagons (GCU) with the publication of the new Annex 4 and the digitalization of the Wagon Damage Report (WDR).

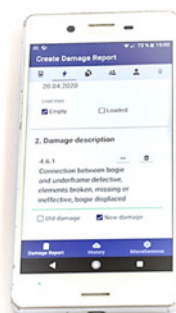
Through the use of digital applications (eWDR) and via the GCU message broker platform, stakeholders have the possibility to record and transmit wagon incident reports to the keeper in real time. The benefits of this system are essential for fleet and supply chain management:

- Increased reliability of the information exchanged
- Reduced errors due to manual data entry
- Optimized maintenance (responsive mobile team)
- Improved customer service (automatic notifications)

These benefits led Ermewa to modernize its information management system by adopting this system. The digital wagon damage report contributes to the continuous improvement of safety and maintenance monitoring at Ermewa. In case of safety incidents, automated alerting processes and contextual data analysis allow us to better understand the causes of the damage in order to take immediate and effective action.

This digital information flow is also used for workshops. Upstream knowledge of the maintenance operations to be carried out (with the mobile team or on its premises) helps to better anticipate resources and spare parts requirements.

The eWDR is therefore an important step in the digitalization of railway communication. The transparency it provides between all stakeholders thus enables the railway sector to increase its safety and performance.



## WagonIQ

At the end of 2020, almost 15,000 wagons are equipped with Communication Management Unit (CMU). The deployment of telematics is continuing at a steady pace and the number of use cases is increasing!

ADS telematics solutions enable us to optimize maintenance operations and strengthen the safety system. They facilitate the deployment of the European Maintenance Manual (EMM), which is an essential support for our ECM functions. In addition, the recording of exceptional shocks allows us to better analyze safety-related accidents and identify the stakeholders involved.

ADS recently introduced an innovative new feature: WagonIQ.

Algorithms are used to identify the state of loading of the wagon without the use of additional sensors. The identification is made possible by analyzing the vibrations of the wagon via the ADS beacon. This functionality has many advantages for the various players.

For example, it allows customers to better monitor their incoming and outgoing flows.

The benefits for Ermewa are:

- Empty and loaded mileage,
- Monitoring of the use of wagons for a personalized and optimized maintenance program

Finally, this functionality for safety and performance will be available on all Ermewa wagons at no extra cost: the information is processed from the data generated by the ADS tag.



## R&D

Cracks on AFR22 bogies

On 10<sup>th</sup> of November 2017, the French NSA EPSF, published a safety alert which imposed to all keepers to put in place safety measures in order to limit the risk of in-line accident.

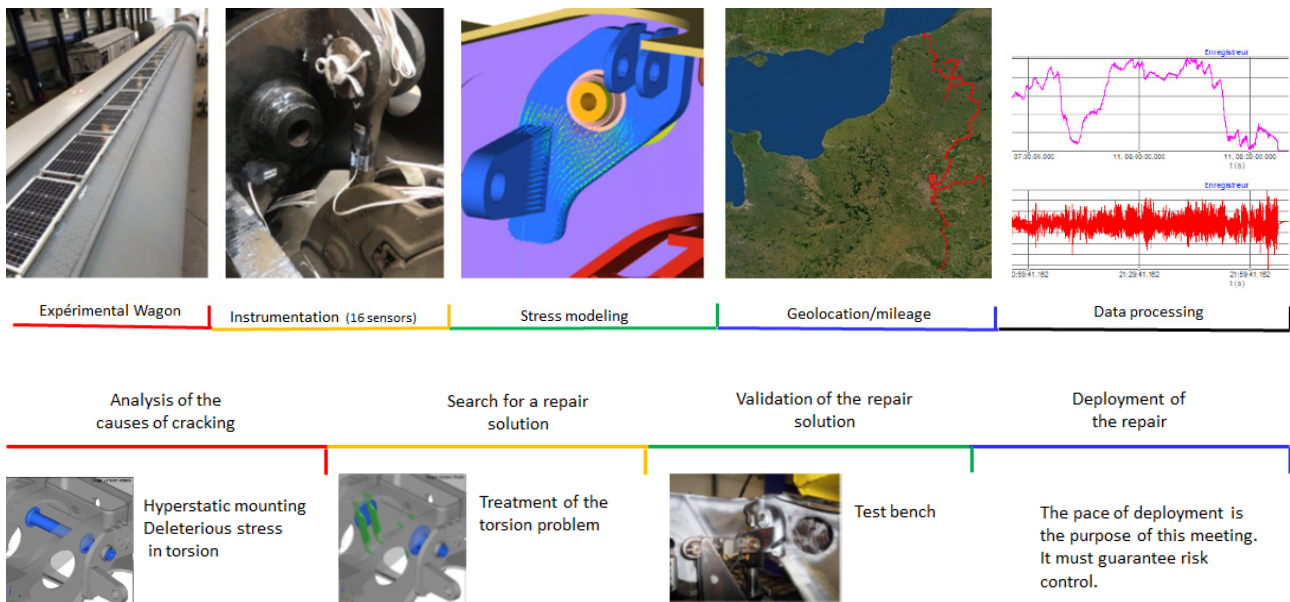
AFR manufactured more than 3,200 wagons equipped with this AFR22 bogie type, of which approximately 1,300 are owned by Ermewa and will be repaired following an in-house methodology approved by EPSF.

- Repair and deployment solution

The target is to evaluate the potential remaining before the bogies crack.

The assessment tools used are:

- Wöhler curve: evaluation of stress build-up before cracking of the welded joint
- Experimental wagon: daily transmission of the real constraints accumulated by the wagon in operation. By crossing these data with the Wöhler curve, we have evaluated the potential remaining before the bogies crack.

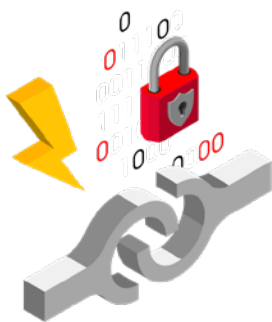


- Statistical evaluation: based on the kilometers travelled since the installation of the CMU, we evaluate the kilometers travelled since the delivery of the wagon and the remaining potential.
- Maintenance planning: a repair planning has been defined considering the potential crack initiation. More than 350 bogies were repaired in 2020.

Based on all evidence provided, **EPSF has lifted the restrictions on the repaired bogies.**

## Digital Automatic Coupling (DAC)

Ermewa is proud to be an active partner in this innovative project that will revolutionize freight rail transport throughout Europe.



Digital Automatic Coupling automatically connects freight cars, as well as their lines for power, data and compressed air, without any need for strenuous physical work. It will open the door to a system of rail freight transport that is fully automated and digitalised.

The demonstrator is carried out by the consortium DAC4EU (Digital Automatic Coupling for Europe) consisting of equal partners: Ermewa, Deutsche Bahn AG and its subsidiary DB Cargo, GATX, Rail Cargo Austria, SBB Cargo and VTG. The consortium is financed by the German Ministry of Transport with around 13 Million Euros.

The European DAC Delivery Programme (EDDP), under the leadership of Shift2Rail, offers a unique European platform for a fruitful and efficient cooperation between railway undertakings, infrastructure managers and wagon keepers as well as the rail supply industry, entities in charge of maintenance, concerned sector organisations, rail research centres and national and European political institutions.

The DAC is key to achieve the ambitious objectives set out in the EU Green Deal and to enable the needed increase in efficiency and transparency of rail freight.

## TIS

Ermewa is also member of TIS (Technical Innovation Circle for Rail Freight Transportation). The goal is to draw up viable proposals for how rail freight railcars can be further developed (innovative bogies, brake systems, wheelsets) and new technologies (telematics, automated operations such as brake test) introduced on a step-by-step basis between now and 2030.

The work on Digital Automatic Coupling (DAC) has led to the definition of technical specifications for validation tests of the solution that will become the European standard.



## The Eurotainer Spill-Tainer

Continuing a pattern of innovation and providing solutions to our clients, Eurotainer is now offering "Spill-tainers" for lease. These spill containment units (40-foot half height box) offer safety and security to companies using tank containers for storage of high value or hazardous products. This new product provides a cost-safety solution, avoids construction of an on-site containment method and delivers compliance with local/regional spill containment regulations.



## High Heat Tank Container

The Purchasing & Technical department developed and produced a specialized tank container capable of maintaining products with a maximum temperature of 220°C. These innovative containers are stainless steel construction, 24,000-liter capacity tanks built with several components that have delivered the ability to maintain this high heat. They include an electric heat traced system for the barrel and bottom valve, 100 mm of multi-layer insulation and 8 to 10 mm of GRP cladding. The GRP cladding is a distinctive black color to match the loaded product color. Additional components include full coverage walkways, ladders on both ends of the tank, high-capacity digital thermometer, a thermowell to measure the product temperature in the middle of the tank, top valve and siphon tube and collapsible handrails.



For a customer in Australia, we have developed a 3-compartment tank-container with a heating system for transporting chocolate. They need compartment tanks to transport 3 different types of high-end chocolate.

The two tanks operate in dedicated skel trailers with dedicated Gen Sets providing power source (sine wave units). The skel also have positive displacement pump unit used to load and unload the ISO.



### Raffles Lease: Baffled Tank Container

These new tank containers are ideally suited for logistics companies, tank operators and other companies that ship a wide variety of products. Stainless steel fixed baffles allow our clients to ship high density and low-density commodities and enable full and short loading. These versatile tank containers are constructed with multiple 300-mm cleaning hatches, in addition to a 500-mm manway. The containers are brand new and can be dedicated to food grade or chemical grade service.

### Wheelsets center expansion

Inveho UFF plans to expand the wheelsets center to increase the overall capacity by 30%. Major works will start in 2021.

## 2.3 CIRCULAR ECONOMY & ENVIRONMENTAL ACTION

Circular economy is a major economic, social and environmental opportunity for the coming years. It proposes to rethink our methods of production and consumption to optimize the use of natural resources and thus limit the waste generated.

Ermewa is challenged to foster its circular economy strategy in order to optimize its resources. Circular economy is in Ermewa's DNA: maintain (58,000 maintenance operations every year), reuse (redeploy wagons nearing end of lease for new use), refurbish (3 years average: 1,300 wagons, extending their lifetime by at least another 10 years), recycle (3 years average: 2,000 wagons to recover high-quality parts and materials).

### New Ermewa Group Headquarters office

Ermewa Group's Headquarters relocated in the summer 2020. The building has been carefully renovated (HQE renovation, BREEAM, BBC Effinergy Renovation) and has been awarded the level "excellent" in terms of HQE Sustainable Management Operation.

Particular attention was paid to biodiversity with planting on the patios and terraces and the installation of birdhouses and bug hotels.

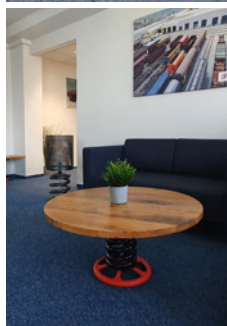
We managed relocation on CSR aspects setting up meeting table in our wood's wagons floor and reuse current desk for individual offices.

## Creative recycling / upcycling projects

In line with its Circular Economy strategy, Ermewa recovers high quality parts and materials from its railcars: steel, wood, and tarpaulins.

Ermewa created a set of unique decorative items made of recycled wood floor to give them a second life. Carefully selected artisans worked to refurbish this wood into industrial decorative items such as tables, pencil cases, phone holders, trivets, etc.

An event took place in September in Lorraine (northeastern France), on a site of one of our French recyclers and co-organizer, SGM Recyclage. The key words of this day were to promote the railway, its potential and its reduced impact on the environment.



One of the highlights was the launch of a project with this recycler: the manufacture and sale of tables built from the floors of our railcars. SGM has already used these floors to produce our wooden objects and meeting tables in Levallois or in Prague offices.



## Sorting boxes for recycling

100% recycled and 100% recyclable cardboard boxes made in France, have been installed in the premises in Levallois-Perret (France) to better sort the daily waste (pens, caps, batteries, light bulbs, etc.).

## Carbon footprint reduction

Eurotainer is working with several industrial accounts to change the carbon footprint of their logistics scheme. Our prospects are mainly edible oil producers and are looking to change their transport mode from Flexibags to tank containers.

Flexibags can only be used for a single trip before being disposed. Moreover, the flexibags face a high risk of leaking.

## VOC emission decrease

Environmental improvements are currently paid significant attention in China. Our tank containers manufacturing partners who merely operate in China have to conform with national and sometimes even local environmental rules and requirements for VOC emission (VOC = Volatile Organic Compounds).

Chinese regulation GB 30981-2020 "Limit of harmful substances of industrial protective coating" which specifies acceptable criteria of harmful substances content in paint systems came into force from 1st Dec. 2020. We have confirmed with our manufacturers that paint requirements per our standard specification are in accordance with this latest standard GB30981-2020.

## Recycling of IT equipment

EVA (Entreprise de Valorisation Adaptée), gives new life to computer equipment and offers sustainable employment to people with disabilities.

Based in the South-East of France, EVA organizes the collection of computer equipment from companies in order to give them a second life. It also offers maintenance and data erasure services.

The refurbished equipment is then sold on an online shop.

The partnership established with EVA allows the workshops to access private sales in which a more complete range at reduced prices is available.



## New management of waste flows and providers

A new waste flow organization has been implemented at Inveho UFF sites in order to reduce costs and to recycle waste. In this sense, we have chosen partners with their own specialties: hazardous waste, pallet recycling, non-hazardous waste, and a company specializing in pumping.

A new recruit has joined the HSE department and is in charge of flow management at the Inveho UFF (Fos-sur-Mer) site: evacuation, labelling, sorting, and reuse.



## Limiting waste in workshops

Inveho UFF acquired a metal drum press. This means that all metal drums can be compressed, which reduces costs and reduces storage volumes.

Other environmental projects for 2021 are being studied to ensure continuous improvement: installation of retention tanks at the waste collection center, purchase of new watertight containers, installation of signs, new waste collection center with an oil separator.



## Emissions monitoring on wheelsets activity

Ermewa signed a contract with TK Blue, a rating agency who calculates external costs and Greenhouse and other pollutant emissions, like CO2 emissions from freight transport for sustainable business development. We chose to make the first calculations on wheelsets transport by trucks.

We are able to rate our carriers on their eco-responsible performance and give them advice to improve themselves. These calculations allow a better visibility of the flows and thus improve their optimization. This leads to a reduction in the number of trucks sent on the road.

Finally, TK Blue will help us write report including all our results on our social and environmental impacts (also called extra financial report).

The advantages are: better mastery of suppliers ; global view of our performance ; improve our impact on society.



## Environmental Assessment of the workshop BU

Inveho has committed to an environmental approach for several years now. Every three years, we carry out environmental diagnostics on all our sites.

These ISO 14001 diagnostics allow us to identify the level of compliance with the standard, to analyze our environmental situation, to evaluate the strengths and weaknesses of our organization, to identify the best strategy for the conduct of our site certification project in the very near future.

Inveho UFF has embarked on an ISO 14001 certification process, as a pilot site, with the objective of obtaining this certification by the end of 2021.

This is a first step towards the Environmental Management System (EMS).





# 3 RISK MANAGEMENT

- 3.1 SAFETY MANAGEMENT SYSTEM (SMS)
- 3.2 ACTIONS DURING THE PANDEMIC
- 3.3 SKILLS, TRAINING, AND KNOW-HOW
- 3.4 SAFETY CULTURE
- 3.5 HR RISK
- 3.6 OTHER

# 3 RISK MANAGEMENT

## PERFORMANCE AND SAFETY IN A GLOBAL RAILWAY SUPPLY CHAIN

### 3.1 Safety Management System (SMS)

- Group Management of the health crisis

In 2020 the world was hit by a global health crisis that has affected the Ermewa Group and its employees. The pandemic struck Asia first, then spread to Europe and finally North and South America.

The Group immediately implemented measures to guarantee the safety of its employees and its continuing operations. When possible, employees worked from home. Communication tools (Microsoft Teams) were installed to keep the teams connected.

When the lockdown was lifted, actions were implemented to manage the risks caused by the COVID-19 pandemic.



The Ermewa Group has published a directive that presents the prevention measures to be implemented. These measures must be associated with the health and safety recommendations from each country where the Group operates.

These measures are long-term and consequently, the Group drew up an operations continuity plan for this crisis.

Each site prepared a prevention plan based on the Group's directive, the objective being to enable everyone to return to work safely (through social distancing) while avoiding any risks of exposure to the virus.

The Safety Management System Steering Committee makes sure each site is applying the Group's directives. Its members collate feedback from any difficulties encountered during lockdown and recommend improvements / best practices for the future.

The pandemic risk is treated separately in the Risk Map because its consequences can be multiple (customer, supplier, IT, HR, financial risk, etc.)

### 3.2 Ermewa Group's actions during the pandemic



#### Maintenance guaranteed by Inveho's mobile teams

To safeguard the health and safety of its employees, Inveho has closed its workshops because of the world health crisis. Nevertheless, some railway traffic is providing the nation's essential services by transporting food such as cereals and sugar and some chemical products like ethanol and even waste.

On the request of its customers including, of course, Ermewa, mobile maintenance teams are ready to work on railcars allocated to this transport traffic, even in this extremely difficult period. Specific safety conditions have been defined to prevent our agents from being contaminated by COVID-19.

## Gas tanks on railway in China

### New solution to deal with the pandemic

In February 2020, due to the outbreak of the coronavirus, roads and highways between cities in China were blocked by government order. All inter-city transport by truck was stopped. Many of our customers urgently needed our containers to load their products. One major client, a gas producer, would have had to shut down their production, fail to deliver their products and miss orders from overseas without the tank containers.

There was only one possible solution – shipment via rail. The Eurotainer China team worked with their logistics partners and shipped our tanks to our one of our largest clients by railway. This was significant as it was the first time ever in China that gas tanks were shipped on any Chinese railway. It has not been allowed in the past due to the fact that gas tanks do not have bottom and top rails.

Working with many parties in China and in light of the situation at that time, permission was given to use the railway to transport the tanks to meet this urgent need.

After loading the tanks on the railcars three days later the tanks arrived at our customer's plant. In recognition of our efforts our client stated to Eurotainer: "Eurotainer is more than a supplier, you are really our strategic business partner."



## 3.3 Skills, Training, and Know-how

- Railcars

The training should not be considered only as an accompaniment to the job or as a "tick the box" certification requirement to be met. They are essential steps in acquiring the necessary expertise to run any function at Ermewa.

We started with the new maintenance manual, the EMM, a major issue in our activity (available in our 3 corporate languages). Then Telematics / Digitalization and awareness to Safety Culture were released as well as other contents such as Microsoft Teams, Safety in station areas, as well as some language courses.

To expand sharing of thoughts and views, a retrospection of the containment experience, we have created the «ERMEWA le podcast» and the «Training Corner» available at «My ERMEWA» intranet.

- Containers

#### Dangerous Goods Safety Advisor (DGSA)

A DGSA is a person certified to provide advice to those in your company that are undertaking activities that could include the consignment, carriage or the related packing, loading, filling, or unloading of dangerous goods, by monitoring compliance with legal requirements governing the Transport of Dangerous Goods over Land (ADR), by rail (RID) and on inland waterways (ADN).

The objective of these regulations is to ensure safe transport and to minimize the risk of accidents and potential harm to people or the environment by applying general technical and organized rules for

packaging, loading, filling, or unloading, carrying, and handling dangerous goods.

The Containers Business Unit's Purchasing & Technical (P&T) team in Rotterdam has their own qualified staff. Internal advice, project reviews and monitoring of procedures with respect to the safety of equipment in the Eurotainer and Raffles fleets are provided.

- Workshops

Inveho has carried out internal training sessions with qualified personnel.

The first training courses concerned:

- Authorizations to drive overhead cranes

The objective was to provide the theoretical and practical knowledge necessary to use overhead cranes, to learn the slinging rules and to allow the employer to issue the driving license.

Target application: carrying heavy loads in the workshop.



- Authorizations to drive forklifts (R489 Category 3) and construction equipment (R482 Category F)

The objective of these training courses is to prevent risks and optimize safety in the workplace. They also allow to meet the training obligation in order to grant the driving authorization by the employer.

Targeted application: handling of axles on the axle park, loading and unloading operations of heavy loads.



## 3.4 Safety culture

Safety culture refers to the interaction between the requirements of the Safety Management System (SMS), how people make sense of them, based on their attitudes, values and beliefs, and what they actually do, as seen in decisions and behaviors. A positive safety culture reinforces the effects of a Safety Management System, improving the capability and efficiency of safety management. As a European railway leader, Ermewa wants to make its commitments to promote safety more visible.

Following the initiative of the European Railway Agency, Ermewa has signed the “European Railway Safety Culture Declaration”. Through this declaration Ermewa commits to raise awareness and promote a positive safety culture through the rail industry.

Building upon the Introduction to Safety Culture via our e-learning sessions concluding in interesting group sessions, Ermewa shall pursue this major commitment in a long-term undertaking launched in 2017 with the Ermewa Railway Safety Conference about “Human Factors in Safety”.

All staff members at Ermewa will be invited to follow a training prepared by the European Union Agency for Railways (ERA). It focuses on the great importance of human factors in the safety culture

This new training program has been developed by top railway experts. Ermewa gained the privilege to be the first railcar lessor to be extended the course but also as a pilot partner.

With a plan to deploy the training to all, the ERA and Ermewa foresaw a “Train the Trainer” concept.

ERA trainers will work in tandem with Ermewa’s employees to prepare the next training cycle together.

Ermewa’s safety leaders will train all personnel across our various locations in Europe.

Thus, with determination we expand our “safety first” philosophy and ambition.



## 3.5 HR risk

Mitigating the risk of loss of skills is a key goal for our activity.



Ermewa actively cooperates with UTC (Université de Technologie de Compiègne / Technological University of Compiègne) which is a public institution of higher education and research, by integrating engineer on apprenticeship contract as well as trainees.



Ermewa also keeps working closely with ESTACA (Ecole Supérieure des Techniques Aéronautiques et de Construction Automobile/Aeronautic, Aerospace, Automotive and Railway Engineering School) or Club of Trainees and International Volunteers in Business (Club des Alternants & VIE).

Ermewa is also participating to several forums and particularly to ones dedicated to young professionals around the Levallois HQ. The Forum for Apprenticeship and Employment of Young Professionals beginning of 2021 is an opportunity to meet future potential candidates and make the Group known to the young people of surrounding cities.

## 3.6 Other

### Actions to improve safety

#### Single maintenance guideline Ermewa

As a specific part of railway safety, the execution of the Common Safety Method is asked by the Commission Implementing Regulation 402/2013/EU. In compliance with this regulation, the reform of the Ermewa Maintenance Manual (EMM) has been assessed according to the above-mentioned regulation and certified by an accredited assessment body.

It is our responsibility as ECM (Entity in Charge of Maintenance) to have only ONE Maintenance Manual specifying the works to be done on our material all over Ermewa and all over the workshops.

The EMM is the synthesis of our know-how about maintenance and technique: best practices from VPI and SNCF for the infrastructure (bogies, brake system, etc.) and standards, regulations, and best practices from each region for the superstructure.

Our next 'maintenance target' is digitalization with our "Maintenance 4.0" project. It is part of our continuous improvement approach of safety and wagons reliability.



#### Tank container safety action



In early 2020, Ouray Services (a hazmat emergency response provider) responded to one of our customer's needs for a transload operation to move high hazard product from road tankers into T22 tanks.

This was a safety action on the part of our customer who was not comfortable with the road tankers in their plant as their operation was set up around Eurotainer ISO Tanks.

Ultimately, this has turned into a recurring action on the part of the customer when their supplier periodically sends road tankers to supply product. The operation happened in South Carolina at the customer's plant.

#### Safety and Health Relay

As part of the health and safety at work improvement initiative, Inveho workshops appointed officers whose role is to pass on all necessary information to management to help avoid any accidents.

Volunteers, mainly from the workshops, accepted this role which involves:

- Identifying and being informed about any dysfunctions and/or near-accidents with work colleagues;
- Informing and advising an employee exposed to danger and providing a solution.

The health and safety officers do not have a reporting role; they are responsible for improving the health and safety of their colleagues through positive action, not through disciplinary measures.

To be easily identified, they wear caps with the logo and have an assigned observation book to help record and pass on the information.

These observations are directly passed on to the site's HSE department for analysis and action, the aim being to create a privileged link between the officers and the HSE departments and anticipate any risks to avoid accidents.

These volunteers attend in parallel First Aid at Work training courses so they can provide first aid to any victims of work accidents or dizzy spells, and also initiate prevention in the workshops.

This action is a key part of safety culture and its development within the Ermewa Group.



## Safety of maneuvers

The safety of maneuvers was improved by the installation of additional audible and visual alarms.

Flashing lights have been installed at strategic points on the test and paint/lettering crossing lanes to add visuals to the existing alarm system.

In addition, a Bluetooth system was made available to the shunting team, which allows the driver to concentrate on his environment and thus limit the risk of accidents.



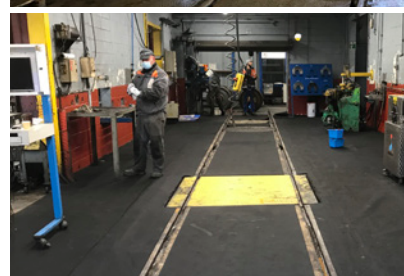
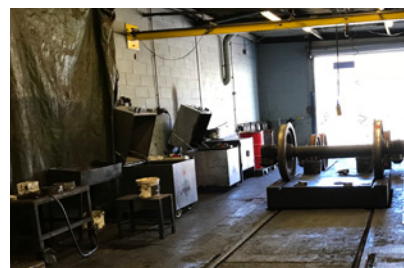
## Improving work conditions

At Inveho UFF, the first 5S\* project has begun in the DLD1 wheelsets sector (Removal, Washing, Adjustment, Sector 1)!

- **Phase 1 SEIRI** (sort and remove any unnecessary items from the area) is complete.
- **Phase 2 SEITON**, the SETTING in order phase, has started!
- **Phase 3 SEISO**, SHINE, will be outsourced to an environmental-friendly service provider.
- **Phases 4 SEIKETSU** (standardize) and **5 SHITSUKE** (sustain) will be implemented at a later date.

The objectives are:

- Improve working conditions
- Reduction of the risk of accidents involving falls from the ground
- Reduction of the risk of occupational diseases
- Increase in productivity



As part of this action, the team of the sector concerned invested in improving the general environment by also painting the walls.

The result was immediately visible and the risk of falls on the same level was immediately reduced.

Some material improvements remain to be made to finalize this 5S project.

The staff working in this area are motivated to improve working conditions and reduce the risks of occupational illness and accidents.

The safety of our employees is our priority.

Other 5S projects are of course planned and will be carried out in 2021.

\*Japanese management technique which is part of the quality approach, and which aims at the continuous improvement of the tasks carried out in companies.

## Fireman exercises / Internal Operation Plan

The Internal Operation Plan (IOP) is an operational decision-making tool that can be used internally and by external emergency services in the event of an incident.

The IOP describes the organizational rules and the resources in place and available on an industrial site in order to minimize the consequences of a potentially major disaster for people, the environment and property.

The IOP therefore focuses on the control of «significant and representative» accidents that may occur, such as fire, explosion, liquid spillage, atmospheric dispersion of toxic substances, etc.

The Inveho UAB IPO was validated by the fire brigade at the end of 2020.

## Evacuation exercises with the fire brigade



Drills to evacuate people trapped in a tank are regularly carried out.

These different drills are very much appreciated by the fire brigade as they allow them to understand our problems and not to arrive in unfamiliar territory if one day they are called to our site for a similar problem.

In addition, our staff is trained in the handling of fire extinguishers.

## Chemical risk assessment



Seirich (System of assessment and information on chemical risks in the workplace): The tool for assessing chemical risks.

It is a software developed by the INRS (National Institute for Research and Safety) and made available to companies in order to list and assess the risks linked to the presence of chemical products.

SEIRICH meets our needs through different functionalities:



### Easy product entry

Indicate the risks and quantities used of your products



### Multi-zone management

Model your company in several zones



### Residual risk

Target precisely the risk of a task of a workstation



### Action plan

Create and manage your action and prevention plan



### Data exploitation

Analyze your inventory over time



### Simulation

Measure the impact of your future actions



### Personal protective equipment

The effectiveness of different PPE is taken into account in the risk calculation



### Label and safety leaflet analysis

SEIRICH can extract the risk statements from these documents



### Printing

Print your documents: workstation notices, labels...

## Experience feedback following the fire in the paint booth

On January 2020, the Inveho UFO paint booth was completely destroyed by fire.

This incident strongly disturbed the organization of the company for one year.

Nevertheless, the fire was well-controlled overall. There were no casualties, no pollution, and no inconvenience to the neighborhood.

Despite this, the fire highlighted our strengths and weaknesses in dealing with this type of situation.

We used this to establish a feedback and improvement plan that has been deployed on all Inveho sites.

Below are the main actions of the improvement plan:

- Update the Internal Operation Plan:
  - Fire scenarios
  - Review of the maintenance cycles of the installations
  - Regulation of entries / exits
  - Signage
  - Different organizations during the day and outside office hours
  - Circulation of fire engines



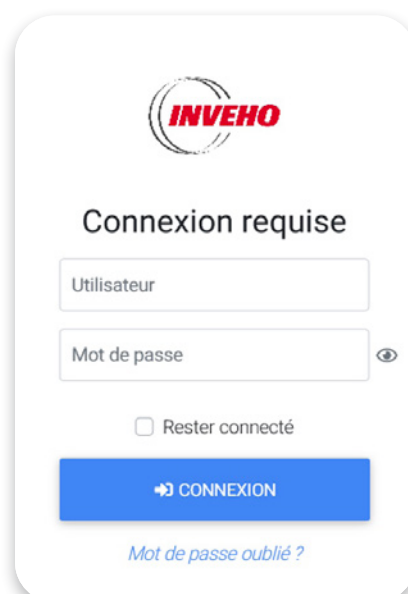
## Deployment of the Integrated Management System

In order to manage the QSE aspects in a uniform way on all the sites of the group, Inveho has developed and deployed a QSE management tool called SMI (Integrated Management System)

This tool allows in particular the management of:

- Staff security clearances
- Employee qualifications
- The training plan
- The single document for assessing professional risks
- Safety sheets for workstations
- Workplace accidents
- QSE documentation, action plans
- Process indicators
- Traceability of wagon components
- Wagon controls in production and customer reception

This tool, accessible from anywhere thanks to its web interface, is user-friendly and responsive. The actions allow communication and monitoring of indicators in real time.





# 4 TARGETS & METRICS

## 4.1 ENVIRONMENTAL INITIATIVES

## 4.2 HEALTH & SAFETY

4.2.1 Railcars

4.2.2 Containers

4.2.3 Workshops

## 4.3 FLEET REPORTING ON EMISSIONS

4.3.1 Results for Railcars

4.3.2 Results for Tank Containers

# 4 TARGETS & METRICS

In 2020, the Group continues to report following the TCFD guidelines and publishes a summary of its corporate initiatives and metrics regarding health and safety. Moreover, we decided to extend the reporting regarding the fleet and adapt the emissions calculation methodology to the entire fleet of assets of the Group.

## 4.1 Environmental initiatives

### Corporate recycling

532 kgs of waste were recycled in 2020 (plastic cups, plastic and glass bottles, cans, caps, batteries, lamp) in the Levallois Office. Here are the results of the waste-to-energy-conversion:



## Photovoltaic power plant

As part of the Ermewa group's CSR policy and Inveho's environmental policy, Inveho UFO is piloting a project to install a photovoltaic power plant. The photovoltaic project is divided into 3 parts:

- Renovation and equipping existing roofs with photovoltaic panels.
- The construction of 2 photovoltaic shades (one for the employees' cars, the other for the storage of the cars).
- The construction of 2 photovoltaic roofs on existing buildings.

The key figures of the project:

Technical data:

- Installed capacity: 6.7 MWp
- Photovoltaic surface area: 33,545 m<sup>2</sup>.
- Electricity production: 7.9 GWh/year

Ecological data:

- Equivalent consumption: 2,662 households
- CO<sub>2</sub> savings: 543 tons/year
- Energy payback time of the installation: 2 years



Subject to obtaining all necessary permits and authorizations, the implementation is expected to take place in 2023.

## Bike Leasing scheme

As presented earlier in the report, the Group created a bike leasing service: Its first effect being health objectives for its employees but also a second effect being replacing the personal transportation.

This policy is available to all France and Switzerland located employees. If the bike comes as a replacement for a company car, the bike is 100% sponsored, otherwise 70%. This initiative is a perfect combination that improves the health of our employees by contributing to reduce their carbon footprint (at a professional and personal level).

So far, 7 people have decided to take on a leasing plan between Levallois and Geneva offices and 1 gave up its company car to switch to bike.

## 4.2 Health & Safety

Quantitative and qualitative reporting are prepared and allow regular improvement of our working procedures. The Technical Management Group monitors the incidents follow-up and action plans if required.

Each Business Unit (Railcar, Container and Workshop) manages its own incidents. The rise of the number of total incidents is linked to the better reporting of these incidents and not of a strong increase in their occurrence.

For Railcar and Container BUs, incidents are first material, with potential external impact on people and/or environment.

Frequency and severity rates for 2020 vs 2019 are as follows:

	2020	2019
Headcount	783	750
Number of days off following Work Accidents	542	616
Severity Rate	0.38	0.46
Fatality Rate (# of death)	0	1
Frequency Rate	30.07	39.27

## 4.2.1 Railcars

All railcars' incidents are registered and centralized through a single tool in the ERP. Incidents are classified in 4 levels:

**1 – Minor:** Slight injury, or minor damages to one or several wagons, total costs less than €30,000, or minor impact on the environment (smells).

**2 – Medium:** At least one minor injuries, or important damages to one or several wagons, costs at least €30,000 in total, or impact on the environment (drip).

**3 – High:** At least one serious injury, or minor injuries to 5 or more persons, or significant damage to several wagons, the infrastructure or the environment, costs at least €150,000 in total, or important impact on the environment (leak of toxic gas, loss of product according to RID §1.8.5.3).

**4 – Major:** According to Safety directive 2016-798:

At least one fatality, or serious injuries to 5 or more persons, or extensive damage to several wagons, the infrastructure or the environment, costs at least €2 million in total, or massive impact on the environment (fire, population evacuation).

In 2020, there were 2,058 incidents in which Ermewa was mentioned at least once.

Level 1	1,989
Level 2	45
Level 3	22
Level 4	2

2 major incidents occurred in 2020: one incident due to suicide and one due to electrocution (1 fatality); Ermewa has not been considered as responsible.

## 4.2.2 Containers

5 incidents can be reported

## 4.2.3 Workshops

No incident to be reported

## 4.3 Fleet reporting on emissions

Following our green emissions in 2019 and our first fleet reporting in 2020, we wanted to extend the scope 1 emissions calculation methodology not only to eligible green assets from the Railcar Business Unit but to report on the overall fleet.

It is worth mentioning that these emissions are linked to the service we provide to our customers. They are using the assets in the context of their activity and therefore must capture these emissions in their reporting already.

However, we can consider that by providing this service to our clients, we are ultimately allowing them to reduce their carbon footprint by using more efficient and more eco-friendly means of transportation than any alternatives.

Within the railcars section will be presented the eligible green assets for our current financing as well as all the other assets. In the Tank Container section will be presented assets that we evaluate to be good candidates for future green financing as well as all the other assets of the fleet.

The details of the methodology as well as the data used to compute the results are presented in appendix.

## 4.3.1 Results for Railcars

As of the end of 2020, Ermewa Group's railcars fleet was composed of c. 40k assets of which c. 25k were eligible under our Green Financing Framework due to either their category, customer, transported product or type.

Based on this methodology, the amount of scope 1 tons of CO<sub>2</sub> of the fleet reach c. 1.7m tons which gives an average value of gCO<sub>2</sub> per t-km per railcar of 14.6. This value places the fleet under the CBI threshold for our activity.



Possible threshold options for new land transport products and projects based on IEA Mobility Model Data						
Direct emissions	2000	2010	2015	2020	2030	2050
IEA 2DS Passenger Activity (gCO <sub>2</sub> per p-km)	107	94	87	75	56	33
IEA 2DS Freight Activity (gCO <sub>2</sub> per p-km)	35	30	27	25	21	18

Figure 5: Low Carbon Transport standard emission threshold - Source: CBI

It is worth mentioning that compared to road transportation (which is a very good comparable in terms of competition with Rail for inland freight transportation), the saved CO<sub>2</sub> emissions amounts to c. 7.1m tons.

## 4.3.2 Results for Tank Containers

As of the end of 2020, Ermewa Group's tank containers fleet was composed of c. 58k assets of which c. 16k were potentially eligible under a similar method of selection than the one for the railcars. An in-depth analysis of the transported product and the type of tank container led to this selection.

Based on the above-mentioned methodology considering the average yearly kilometers travelled, the utilization rate, the average tons transported as well as the modal split, the total amount of scope-1 tons of CO<sub>2</sub> of the fleet reached c. 2.8m tons which gives an average value of gCO<sub>2</sub> per t-km per tank container of 23.3. This value places the fleet under the CBI threshold for the freight activity in 2020.



# 5 LOOKING FORWARD

## LOOKING FORWARD TO 2021

Our mission is to keep placing safety and sustainable growth at the core of our business.

Ermewa Group will keep on pooling resources and technologies, and investing for its customers to protect their interests, and ensuring them optimal performance and safety.

The Group will aim to improve its energy efficiency and reduce its emissions as well as reporting even more in-depth all the metrics that can be made available.

As the reader must have understood, the tank container industry, even being intermodal by nature and using several modes of transportation, is the only alternative to other very polluting way of transporting liquid or gases.

Ermewa will continue to finance its green assets through investments into wagons but also adapt its selection methodology to containers as they allow for a more sustainable supply and logistic chain.

R&D investments will grow and will be part of the fleet renewal strategy for future years.

This year the group will be launching a full-scale audit of its scope-1 to -3 emissions and plan on being advised on this matter by a specialized consultancy company. We aim to be able to present first results within next year report.

Also, the Group had the opportunity to join the Nasdaq Sustainable Bond Network in early 2021 to contribute to its non-financial disclosure strategy.



Special thanks to the Safety Management System Members, Quality Manager Europe (Railcars), Marketing and Communication Department and Finance Department for their contribution.



# 6 APPENDIX

## Acronyms

<b>ADEME:</b>	Agence De l'Environnement et de la Maîtrise de l'Energie
<b>ADR:</b>	Accord for Dangerous Goods by Road
<b>ADS:</b>	Amsted Digital Solutions
<b>AI:</b>	Artificial Intelligence
<b>APOM:</b>	Authorization for Placing on the Market
<b>BREEAM:</b>	Building Research Establishment Environmental Assessment
<b>BU:</b>	Business Unit
<b>CBI:</b>	Climate Bond Initiative
<b>CBM:</b>	Condition Based Maintenance
<b>CCR:</b>	Intermediate Bulk Container lessor
<b>CEO:</b>	Chief Executive Officer
<b>CMU:</b>	Communication Management Unit
<b>CO2:</b>	Carbon Dioxide
<b>CSR:</b>	Corporate Social Responsibility
<b>DAC:</b>	Digital Automatic Coupling
<b>EBA:</b>	Eisenbahn Bundesamt
<b>ECM:</b>	Entity in Charge of Maintenance
<b>EDDP:</b>	European Digital Delivery Program
<b>EMM:</b>	Ermewa Maintenance Manual
<b>EMS:</b>	Environmental Management System
<b>EN:</b>	European Standards
<b>EPSF:</b>	Etablissement Public de Sécurité Ferroviaire
<b>ERA:</b>	European Union Agency for Railways
<b>ERP:</b>	Enterprise Resource Planning
<b>ESAT:</b>	Etablissement et Service d'Aide par le Travail
<b>ESG:</b>	Environment Social Governance
<b>ESTACA:</b>	Ecole Supérieure des Techniques Aéronautiques et de Construction Automobile
<b>EU:</b>	European Union
<b>EUAR:</b>	European Union Agency for Railways
<b>EVA:</b>	Entreprise de Valorisation Adaptée
<b>FRP:</b>	Fibre-reinforced Polymer
<b>GCU:</b>	General Contract of Use
<b>GHG:</b>	Greenhouse Gas
<b>GRP:</b>	Glass Reinforced Plastic
<b>HQE:</b>	Hygiene Quality Environment
<b>IBC:</b>	Intermediate Bulk Container
<b>IMDG:</b>	International Maritime Dangerous Goods Code
<b>IOP:</b>	Internal Operation Plan
<b>IOT:</b>	Internet Of Things
<b>ISO:</b>	International Organization for Standardization

<b>JNS:</b>	Joint Network Secretariat
<b>KPI:</b>	Key Performance Indicator
<b>LFN:</b>	Letter of Formal Notice
<b>LLPDE:</b>	Linear Low-Density Polyethylene
<b>LPG:</b>	Liquid Petroleum Gas
<b>NOI TSI:</b>	Noise Technical Specification Interoperability
<b>NSA:</b>	National Safety Authority
<b>PESO:</b>	Petroleum and Explosive Safety Organization
<b>PM:</b>	Predictive Maintenance
<b>PoC:</b>	Proof of Concept
<b>QSE:</b>	Quality, Safety, Environment
<b>REX:</b>	Return on operated Experience
<b>RID:</b>	Regulation concerning the international carriage of dangerous goods by Rail
<b>RP:</b>	Railway Package
<b>SASB:</b>	Sustainability Accounting Standards Board
<b>SCV:</b>	Supply Chain Visibility
<b>SMI:</b>	Integrated Management System
<b>SMS:</b>	Safety Management System
<b>SQE:</b>	Safety Quality Environment
<b>TCFD:</b>	Task Force on Climate-Related Disclosure
<b>TIS:</b>	Technical Innovation Circle for Rail Freight Transportation
<b>TML:</b>	Taylor Minster Leasing
<b>TPED:</b>	Transportable Pressure Equipment Directive
<b>UN:</b>	United Nations
<b>US:</b>	United States
<b>USDOT:</b>	US Department of Transport
<b>UTC:</b>	Université de Technologie de Compiègne
<b>VIE:</b>	Volontariat International en Entreprise
<b>VOC:</b>	Volatile Organic Compound
<b>VPI:</b>	Maintenance Scheme
<b>WAG TSI:</b>	Wagon Technical Specification Interoperability
<b>WDR:</b>	Wagon Damage Report

# SASB Transportation Metrics

Sustainability Disclosure Topics & Accounting Metrics				
TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MESURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions	Quantitative	Metric tons (t) CO <sub>2</sub> -e	TR-RA-110a.1
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets and an analysis of performance against those targets	Discussion and Analysis	n/a	TR-RA-110a.2
	Total fuel consumed, percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	TR-RA-110a.3
Air Quality	Air emissions of the following pollutants: (1) NO, (excluding N2O and (2) particulate matter (PM10)	Quantitative	Metric tons (t)	TR-RA-120a.1
Employee Health & Safety	(1) Total recordable incident rate (TRIR), (2) fatality rate and (3) near miss frequency rate (NMFR)	Quantitative	Rate	TR-RA-320a.1
Competitive Behaviour	Total amount of monetary losses as a result of legal proceedings associated with anti-competitive behaviour regulations <sup>2</sup>	Quantitative	Reporting currency	TR-RA-520a.1
Accident & Safety Management	Number of accidents and incidents	Quantitative	Number	TR-RA-540a.1
	Number of (1) accident releases and (2) non-accident releases (NARs) <sup>3</sup>	Quantitative	Number	TR-RA-540a.2
	Number of Federal Railroad Administration (FRA) Recommended Violation Defects	Quantitative	Number	TR-RA-540a.3
	Frequency of internal railway integrity inspections <sup>4</sup>	Quantitative	Rate	TR-RA-540a.4

Activity Metrics			
ACTIVITY METRICS	CATEGORY	UNIT OF MESURE	CODE
Number of carloads transported <sup>5</sup>	Quantitative	Number	TR-RA-000.A
Number of intermodal units transported <sup>6</sup>	Quantitative	Number	TR-RA-000.B
Track miles <sup>7</sup>	Quantitative	Miles	TR-RA-000.C
Revenue ton miles (RTM) <sup>8</sup>	Quantitative	RTM	TR-RA-000.D
Number of employees	Quantitative	Number	TR-RA-000.E

<sup>2</sup> Note to TR-RA-520a.1 - The entity shall briefly describe the nature, context and any corrective actions taken as a result of the monetary losses.

<sup>3</sup> Note to TR-RA-520a.2 - Disclosure shall include a discussion of the entity's processes and procedures to manage non-accident and accident releases.

<sup>4</sup> Note to TR-RA-520a.4 - Disclosure shall include, where relevant, a discussion of rail maintenance practices, operating measures and technologies that the entity implements in addition to inspections.

<sup>5</sup> Note to TR-RA-000.A - The scope of disclosure includes all carloads that the entity transported in conjunction with the shipping of freight (including freight that is not containerized) for its customers.

<sup>6</sup> Note to TR-RA-000.B - Intermodal units include shipping containers and truck trailers that can be transported across modes of transportation.

<sup>7</sup> Note to TR-RA-000.C - Track miles include route miles (the total extent of routes available for trains to operate) and take into account multiple track routes such that each route mile with double track is considered two track miles.

<sup>8</sup> Note to TR-RA-000.D - A revenue ton mile (RTM) is defined as one ton of revenue traffic transported one mile. Revenue ton miles are calculated by multiplying the miles traveled on each leg by the number of tons of revenue traffic carried on that leg.

# Emissions calculation methodology

## 1 Details of the methodology

The Group is both present on the railcars and tank containers segments. The first one is the most straightforward in terms of calculation as it only integrates one mean of transportation which is rail. Tank Containers on the other hand, are travelling using several means of transportations: Rail, Road and Sea.

Overall, the methodology to calculate the number of t.km of each fleet is similar, it is based on several internal factors which are:

- The yearly average number of kilometers travelled by the assets
- The number of tons transported on average
- The utilization rate of the fleet (depending on the geography of the assets)

These t.km are split by means of transportation and emissions linked to each mean of transportation are computed.

### 1.1 Emissions per type of fuel and transportation

CO <sub>2</sub> emissions per ton-kilometer in the EU in 2019	
Chart 2019	
Goods with a density less than or equal to 249kg/m <sup>3</sup>	
Electricity Consumed in France	1.99
Electricity Consumed in Europe	17.4
Non-Road Diesel	36.2
Goods with a density between to 250 and 399kg/m <sup>3</sup>	
Electricity Consumed in France	1.55
Electricity Consumed in Europe	13.5
Non-Road Diesel	28.1
Goods with a density greater than or equal to 400kg/m <sup>3</sup>	
Electricity Consumed in France	1.33
Electricity Consumed in Europe	11.7
Non-Road Diesel	24.2
Container Ship - Less than 1200 TEU	33.1
Container Ship - From 1200 to 1899 TEU	21.9
Container Ship - From 1900 to 3849 TEU	20.4
Container Ship - From 3850 to 7499 TEU	13.7
Container Ship - Greater than 7500 TEU	10.2
<b>Average</b>	<b>19.86</b>
Container Truck	94

Fig 1: CO<sub>2</sub> emissions

Source: [https://www.ecologie.gouv.fr/sites/default/files/Information\\_GES%20-%20202019.pdf](https://www.ecologie.gouv.fr/sites/default/files/Information_GES%20-%20202019.pdf)

## 1.2 Locomotive Market

Rolling Stock (Units) in 2017				
Countries	D-Locomotives	E-Locomotives	Total	% of electricity powered
Austria	592	253	845	29.9%
Belgium	369	162	531	30.5%
Bulgaria	407	326	733	44.5%
Croatia	160	50	210	23.8%
Czech Republic	849	528	1,377	38.3%
Denmark	147	62	209	29.7%
Estonia	180	0	180	-
Finland	399	0	399	-
France	1,772	781	2,553	30.6%
Germany	3,480	1,850	5,330	34.7%
Hungary	386	205	591	34.7%
Italy	1,716	583	2,299	25.4%
Latvia	322	0	322	-
Lithuania	344	0	344	-
Norway	103	132	235	56.2%
Poland	1,882	1,576	3,458	45.6%
Portugal	155	56	211	26.5%
Romania	473	414	887	46.7%
Slovakia	425	340	765	44.4%
Slovenia	145	125	270	46.3%
Spain	438	334	772	43.3%
Sweden	352	399	751	53.1%
Switzerland	309	651	960	67.8%
The Netherlands	182	111	293	37.9%
Turkey	567	118	685	17.2%
United Kingdom	760	136	896	15.2%
<b>Total</b>	<b>16,914</b>	<b>9,192</b>	<b>26,106</b>	<b>35.2%</b>

Fig 2: Type of Locomotive in Europe by country

Source: SCI Verkehr - Europe Rail Freight Transport Market 2019

## 1.3 Emissions factors

Each type of fuel has a part of its emissions corresponding to the upstream phase (i.e. production, extraction...) and an operating phase. Based on CBI recommendations, scope 1 emissions for electricity is null:

Non-Road Diesel		Heavy Oil		Road Diesel	
DIESEL		in kgCO <sub>2</sub> e / unit		DIESEL	
in kgCO <sub>2</sub> e / unit		in kgCO <sub>2</sub> e / unit		in kgCO <sub>2</sub> e / unit	
Operating	2.98	Operating	3.14	Operating	2.51
Upstream	0.78	Upstream	0.5	Upstream	0.66
<b>TOTAL</b>	<b>3.76</b>	<b>TOTAL</b>	<b>3.64</b>	<b>TOTAL</b>	<b>3.17</b>
<b>SCOPE 1:</b>	<b>79.3%</b>	<b>SCOPE 1:</b>	<b>86.3%</b>	<b>SCOPE 1:</b>	<b>79.2%</b>

Fig 3: Discount for Diesel Scope 1

Source: [https://www.ecologie.gouv.fr/sites/default/files/Information\\_GES%20-%202019.pdf](https://www.ecologie.gouv.fr/sites/default/files/Information_GES%20-%202019.pdf) / p47

## 1.4 Modal Split

As mentioned, Tank Containers travel using several modes of transportation. Thanks to market research and compiling data from several experts we understand that over the course of its life a tank container will spend the following part of its time using each transportation mode:

	% of total KM for TC	
	Deep Sea	Regional
Road	10.0%	15.0%
Rail	30.0%	40.0%
Sea	60.0%	45.0%

Fig 4: Modal split - Source: Market experts

## Description of main accidents

### Railcars

- March and September 2020

#### Description

A man died after falling from a platform of an Ermewa wagon in Grosskorbetha (Germany). The driver could not stop the train in time. The police ruled it a suicide.

A young man was electrocuted and died after climbing on an Ermewa wagon in Heilbronn station (Germany).

#### Action Plan

In both cases, regulatory stickers informing the risk of electrocution by climbing on the wagon were visible. Ermewa has not been held liable. Since 2018, Ermewa launched an action plan to remove ladders on existing wagons.

Among the 22 "level 3" incidents which occurred in 2020, we can detail those which required a wide action plan

- April 2020

#### Description

Damage on axle box detected during loading at Baborow Station in Poland ("hot box")

A screw of the thrust plate has loosened, then carved a hole in the axle box cover.

#### Action plan

Ermewa identified the workshop which revised this wheelset and found out that 775 wheelsets might potentially be involved; all of them will be checked. An audit was carried out in the workshop concerned. Ermewa stopped the wheelsets revision in this workshop.

- June 2020

#### Description

The Polish National Authority (UTK) reported a cracked bogie frame on a Fal wagon (not from Ermewa). Bogies type is Y25 Cs built in the 70s/80s. The cause is an incorrect welding process during assembly.

#### Action plan

UTK sent a Safety Alert asking all the keepers to check if that type of bogie was part of their fleet. Ermewa potentially identified 36 wagons which had no accurate information on the bogie type in the ERP system. All those wagons will be inspected, and the ERP system updated. At the end of 2020, 90% of the fleet inspected: no wagon involved.

- August 2020

### **Description**

Derailment of 10 wagons in Wales (UK), freight train catches fire, intervention of the fire brigade.

No injuries but 330,000 liters of diesel had spilled. Strip down of the brake equipment revealed that the relay valve was loose. Two small O rings were displaced, and one had migrated and wedged between two larger ports, possibly creating a pathway for air give an unsolicited brake application.

### **Action plan**

No Ermewa wagon involved. The RAIB (Railway Accident Investigation Branch) published an Urgent Safety Advice about the maintenance arrangements for wagons that primarily carry dangerous goods. Ermewa, as ECM, confirmed that the contents of the advice are communicated to our relevant maintenance contractors and that our instructions and documentation in the light of the safety advice to identify areas which might benefit from greater clarity, are regularly reviewed.

- October 2020

### **Description**

Brake shoe keys with cracks detected by a manufacturer on an Ermewa's grain wagon equipped with IBB10 compact brake. The brake shoe key has to be replaced.

### **Action plan**

Ermewa identified 434 wagons potentially involved. In partnership with the brake manufacturer, the wagons will be stopped, and the brake shoe keys systematically replaced.

Main incidents still under investigation

- 2016 – Incident in Hitrino, 1 tank wagon whose Keeper and ECM were Ermewa (level 4)

### **Description**

On 10 December 2016, a train with 22 railcars transporting HazMat derailed in Hitrino station, Bulgaria. An Ermewa railcar (number 10 in the consist) was hit by a surrounding object during the derailment, which caused the tank to be punctured. This puncture produces a gas leakage which caused an explosion shortly after the derailment. Human toll is heavy with 7 casualties.

### **Action Plan**

In accordance with our SMS procedure, Ermewa triggered the Crisis Core Team on 10 December 2016, managed by the CEO and assisted by the Group Safety Manager. Ermewa's experts went to Hitrino the day after the accident to gather all the data relevant for the enquiry. As ECM and keeper, Ermewa produced all the maintenance documentation required. Ermewa also made a FEM (Finite Element Modelling) study of the dynamic impact which caused the tank puncture. This study showed that the involved wagon built in 1971 has mechanical characteristics at least as high-performance as a modern railcar.

The enquiry from the Bulgarian authorities concluded that the main cause of the accident was the high speed. Ermewa's railcar was left free from any charge.

As a result of the investigation carried out by the Bulgarian authorities, criminal proceedings were instituted against the two engine drivers by the Shumen Regional Court. The two drivers were found guilty by the court at first instance and have received long prison sentences.

An appeal has been requested and accepted by the Court.

- 2017 - Cracks on wheelsets BA004/ZDB29

On November 2019, the JNS (Joint Network Secretariat) Task Force formed by EUAR issued a final report with long term mitigation measures to implement. Ermewa already applies stricter guidelines and is thus fully compliant with those recommendations.

- Cracks on bogies AFR22

### **Description**

On 10th November 2017, the French NSA, Etablissement Public de Sécurité Ferroviaire (EPSF) published a safety alert about cracks damage that could affect AFR22 bogies. Ermewa's fleet has potentially 1,221 railcars involved by this alert.

### **Action Plan**

Crisis core team has immediately been triggered. Thanks to the involvement of the whole Ermewa team in Europe, 100% of the bogies were controlled before the end of 2017.

During the control, cracks were detected and confirmed.

Ermewa prepared an action plan and presented it to the French NSA. EPSF validated the action plan from which Ermewa made a fatigue analysis by finite elements which confirmed the anticipated damage risk of this bogie. Based on these conclusions and in order to determine the cause of this damage, Ermewa implemented a repair and modification methodology certified by a notified body and validated by the French NSA at the end of the year 2019.

Exceptional measures were deployed by Ermewa's Technical Department to monitor the behavior of the risk area as long as the wagons have not been repaired.

Based on all the elements provided, the French National Safety Authority accepted to lift restrictions on the repaired bogies

- 2018 – Derailment of a railcar, transport of chloroform in Italy

### **Description**

Derailment took place in the center of Rapallo. No human or environmental damage, only materials. A legal investigation against the owner (Ermewa Ferroviaria), the railway undertaking (Captrain IT) and the infrastructure manager (RFI) is opened.

### **Action plan**

Crisis management triggered, Ermewa made the decision to check all the wagons with same year and manufacturing characteristics. In 2020, investigations are still ongoing through a legal action in Italy.

## **Containers**

9 incidents occurred in 2020. Eurotainer or Raffles were not held responsible. 2 examples

- February 2020

Loss of a tank container loaded with Alfol810 alcohol in Mexico.

### **Description**

While loaded isotank was being transferred from a deposit to a plant on a chassis truck, an accident occurred on the highway when the driver tried to make a turn, he lost control of the vehicle due to the cargo and the highway conditions resulting in the overturn of the truck with the loaded isotank. No spills were reported.

- October 2020

Loss of a tank container loaded with product (Sodium hypochlorite) in Huelva, Spain.

### **Description**

This unit imploded while being discharged. Cause: human error during the unloading (airline not opened).

