Befesa Aluminio, S.L.

Erandio plant

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This document contains the environmental declaration of Befesa Aluminio, S.L. – Erandio plant for 2016. It has been drawn up as per regulation (EC) 1221/2009 on the European Eco-Management & Audit Scheme (EMAS).

Contents

1. EMAS registration

1.1 Regulation (EC) nº 1221/2009

Regulation nº 1221/2009 on the EMAS (Eco-Management and Audit Scheme) enables organisations to sign up voluntarily to a community environmental management and audit system.

This regulation envisages three main undertakings:

- Internal control of environmental impacts of processes and registration under the basic assumption of compliance with the environmental legislation applicable.
- Continual reduction in impacts, defining, publishing and meeting goals and targets and monitoring results via regular environmental audits.
- Full transparency with regard to society and institutions.

1.2 Environmental declaration

This is the core element of the system, since it means making the company's environmental data available to society:

- Consumption of raw materials, water, electricity and fuel; emissions, effluents, waste, etc.

- Corporate environmental policy for assuring compliance with applicable regulations and a commitment to continuous improvement based on quantifiable targets and the prevention of pollution.
- Validation of system audits and certification of compliance with the said Regulation by an accredited certification organisation.

In short, it means telling society what we do, providing key data and assuring that we comply with environmental requirements.

1.3 Befesa Aluminio, S.L. as a member of the system

Befesa Aluminio, S.L. with NACE Code 2453 (casting of light metals) joined the system voluntarily as a way of demonstrating to society that it is committed to the environment in its day-to-day operations. Those operations comprise the following:

"Solid and liquid aluminium alloys production. Aluminium waste treatments. Design, development and installation of equipment and technology for the aluminium industry. Trading of by-products of aluminium and other non-ferric metals".

2. The company's activities, products and services

Befesa Aluminio, S.L. comprises 4 internationally renowned plants allocated in Erandio (Bizkaia), Les Franqueses del Vallés (Barcelona), Bernburg (Germany) and Valladolid. The first three ones are aluminium refineries and the last one a salt slag recovery plant. All these plants work in the eco-industry sector, recycling, recovering and valorising aluminium industry waste of all types. The total recycling process operated enables the free metal to be recovered from all the materials processed, along with the oxide always found with it. This provides an important alternative to primary aluminium (which takes a great deal of energy to obtain) and an endless source of metals that do not need to be mined, thus helping slow the depletion of the earth's natural resources.

Operations at Befesa Aluminio, S.L. are an essential step in the life-cycle of aluminium. Operations at primary aluminium production, processing and finishing plants and aluminium foundries in general would be unviable without firms such as Befesa Aluminio, S.L. to treat, recover and recycle the waste that they produce. Befesa Aluminio, S.L. turns that waste into usable raw materials. From the outset, it has focused on producing aluminium alloys to a wide range of specifications for the injection moulding of parts for the automotive industry, domestic appliances and construction.

All this has made Befesa Aluminio, S.L. the leading company in its field in Spain and one of the biggest in Europe. The company's links with world-renowned corporations and groups and its use of the knowledge that it has acquired has helped it to secure suppliers and customers all over the world, including automotive manufacturers and the foundries that act as their suppliers.

3. Environmental management system

Our EMS comprises the following:

- Environment policy: this formally describes the guidelines and targets of Befesa Aluminio, S.L. in regard to the environment.

- Environmental management programme: this lists the operations required for those targets to be met.

- EMS documentation, consisting of:

  - Environment manual: this describes the company's responsibilities and how checks are run on all operations and parties that have or may potentially have an impact on the environment.

  - Procedures: these describe how the operations listed in the environment manual must be carried out.

- Internal environmental audits as a way of helping the management to assess the implementation and effectiveness of the EMS in place and to identify opportunities for improvement.

- Annual management reviews of the system to assess its implementation and effectiveness and set new targets for continuous improvement. Assessment of environmental aspects.

- A list of legislation and an indication and assessment of all the applicable requirements of law.

And there are three main objectives:

- An undertaking to comply with the legal and other requirements applicable to the plant.
- To conduct our recycling operations in an environmentally-friendly manner, paying particular attention to those activities and products that may entail risks for the environment.
- Continuous improvement in environmental terms.

These objectives are drawn from the guidelines laid down in our management integrated policy which has been revised at the beginning of 2016.

Quality, safety, environment and energy policy

Values

We promote the Quality of our products and processes, the Safety and Health of our employees and subcontractors and the defend and sustainable development of our environment.

Policy

Befesa Aluminio, S.L. aims for becoming a global reference in the aluminium industry sector in relation to Quality, Safety, Health, Environment and Energy Management, considering that like the only way to excellence productivity.

Principles

The General Manager of the company and all the Processes Responsible must be the first example of compromise, image and zero tolerance and we assume the final responsibility in the Quality, Health, Safety, Environment and Energy Management of the company.

We consider our human resources the main and key factor of our economical business so we train them and give them action availability in the Quality, Health, Safety, Environment and Energy Management. of the company.

We assume all employees' involvement as the main question for the company´s success, pushing the dialog and continuous and active participation.

To keep Health and Safety of our employees and the preservation of our Environment is part of the diary work of each of our employees.

We do never put ahead Production of Economic benefit to Health and Safety.

We assume as objective of the company the principle of "Zero accidents".

We consider that all accidents are avoidable and that all accidents and incidents must be communicated and investigated as a way to the continuous improvement.

We assume the compromise of getting all the necessary human and technical resources to ensure the continuous protection of our Environment and the development of a safety and free accidents place of work.

We ensure the fulfilment of all the applicable legislation as well as all the s external and internal stablished standards and requirements,

We develop a Quality, Health, Safety, Environment and Energy integrated management system which is periodically revised and audited according to well-known international standards.

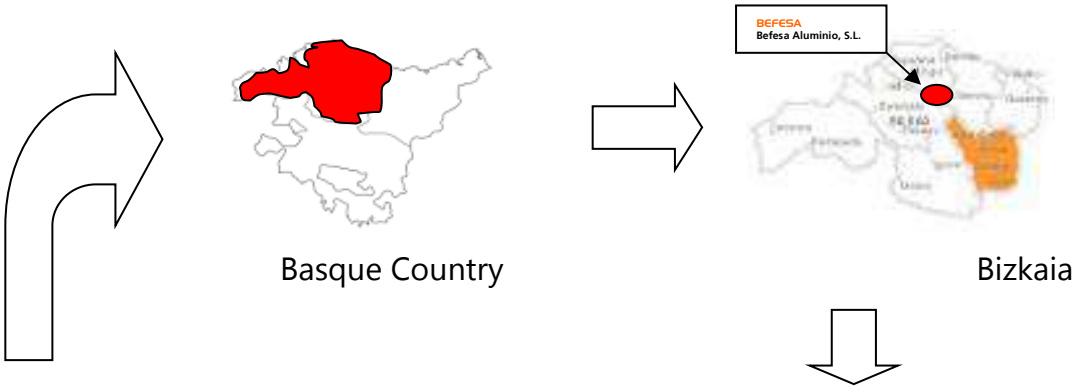
Erandio, November 2016

Pursuant to ISO standard 14001: 2004, the managing director of Befesa Aluminio, S.L. has appointed the following person to oversee the application and maintenance of the environmental management system in place:

- **Oskar de Diego Rodríguez, Environmental Manager,** as the management representative in the establishment, implementation and upkeep of the environmental management system, with responsibility for ensuring compliance with all applicable environmental requirements.

Quality, risk prevention and environmental matters are currently managed as an integrated system at the company, to simplify efforts, to achieve joint progress in all three areas and at the same time maintain strict standards in all three individual concepts, so as not to compromise on welfare of future generations.

4. Befesa Aluminio, S.L.- Erandio plant



Basque Country

Bizkaia

Spain

Befesa Aluminio, S.L.- Erandio

The Befesa Aluminio S.L. plant in Erandio makes the following end products:

* 10 kg ingots of aluminium and aluminium alloys for moulding.
* 1,000 kg ingots for remelting.
* Aluminium in liquid form.

The Erandio plant also builds and develops its own in-house technology for recycling aluminium in all phases, and has built turnkey facilities in over 40 countries all around the world.

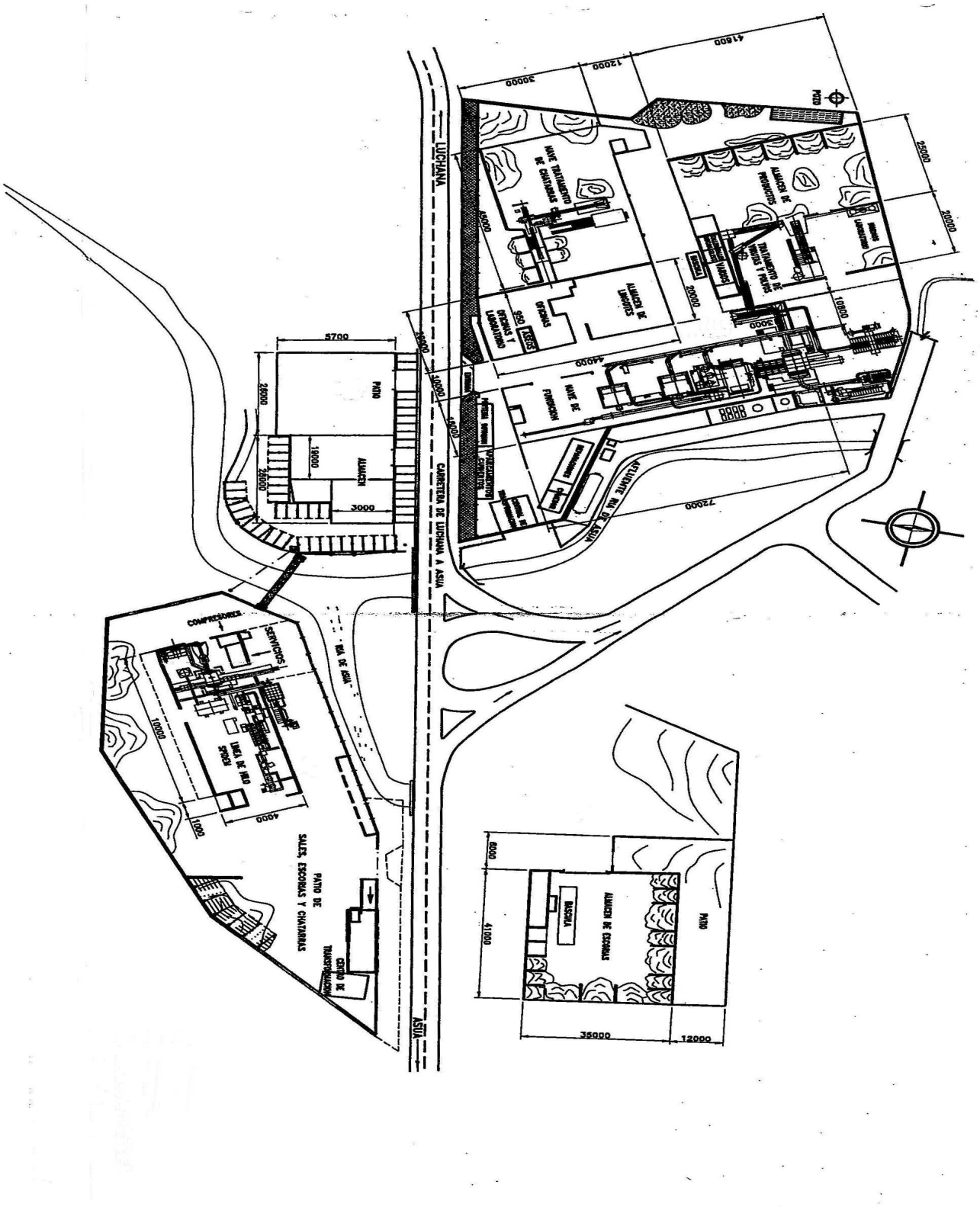


Illustration 1: Layout of the facilities at the Erandio plant.

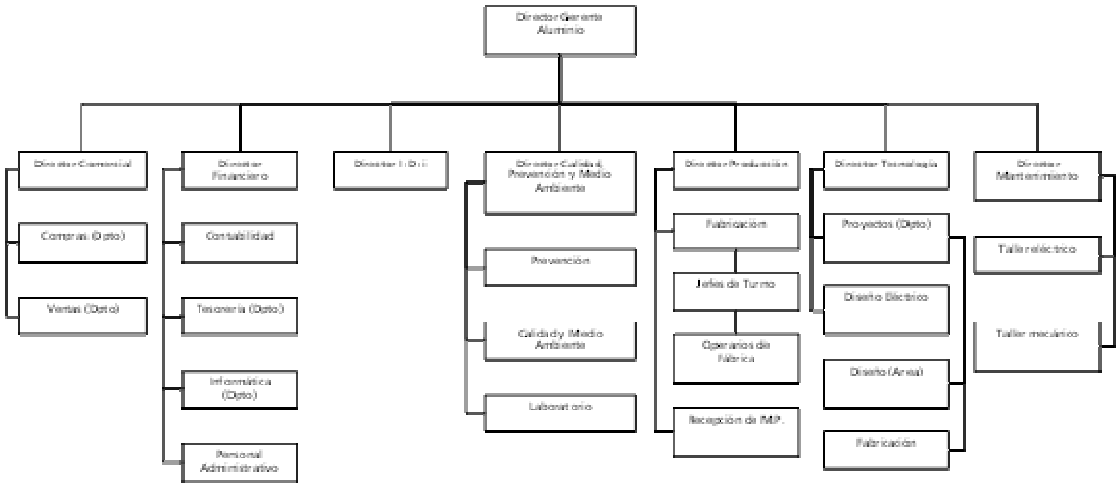


Illustration 2: Organization chart of Erandio plant.

The recycling and recovery operations at the Erandio plant comprise two main processes: smelting of material in rotary furnaces and then refining of the end products in reverberatory furnaces. Both these processes are carried out using equipment classed as BAT (Best Available Technology) in the European Commission's Reference Document on Best Available Technologies for non-ferrous metallurgy.

The first step in the production process is a correct selection of the right raw materials. These include offcuts, cables, sumps, pans, cans, foil, chippings, shavings and aluminium industry scrap and waste in general. After selection, these raw materials are smelted to the degree required to obtaining the approximate specification indicated by the end customer, using rotary furnaces to which salts are added as flux and to protect the molten aluminium. This smelting does not just heat the raw materials to molten form: it also dissolved metal elements in suspension and fosters certain reactions that clean the

material. It is this last feature that distinguishes rotary furnaces from other types of furnace. Once it has been confirmed that the furnace temperature is correct, the material is in liquid form and the quality of the supernatant flux is as expected, the furnace is emptied in two stages: first the metal is drawn off and then the molten flux or salt slag.

The fumes produced during smelting are exhausted off by treatment systems that comprise coolers and bag filters where solid particles are retained and, at the same time, acidic combustion fumes are neutralised by the controlled addition of sodium bicarbonate or lime.

All the salt slag produced by the salts used in the smelting process is recycled and recovered to produce an aluminium oxide called Paval, which has numerous uses in different industrial sectors (cement industry, ceramic industry, insulation industry, etc.), thus completing the cycle of aluminium waste recovery.

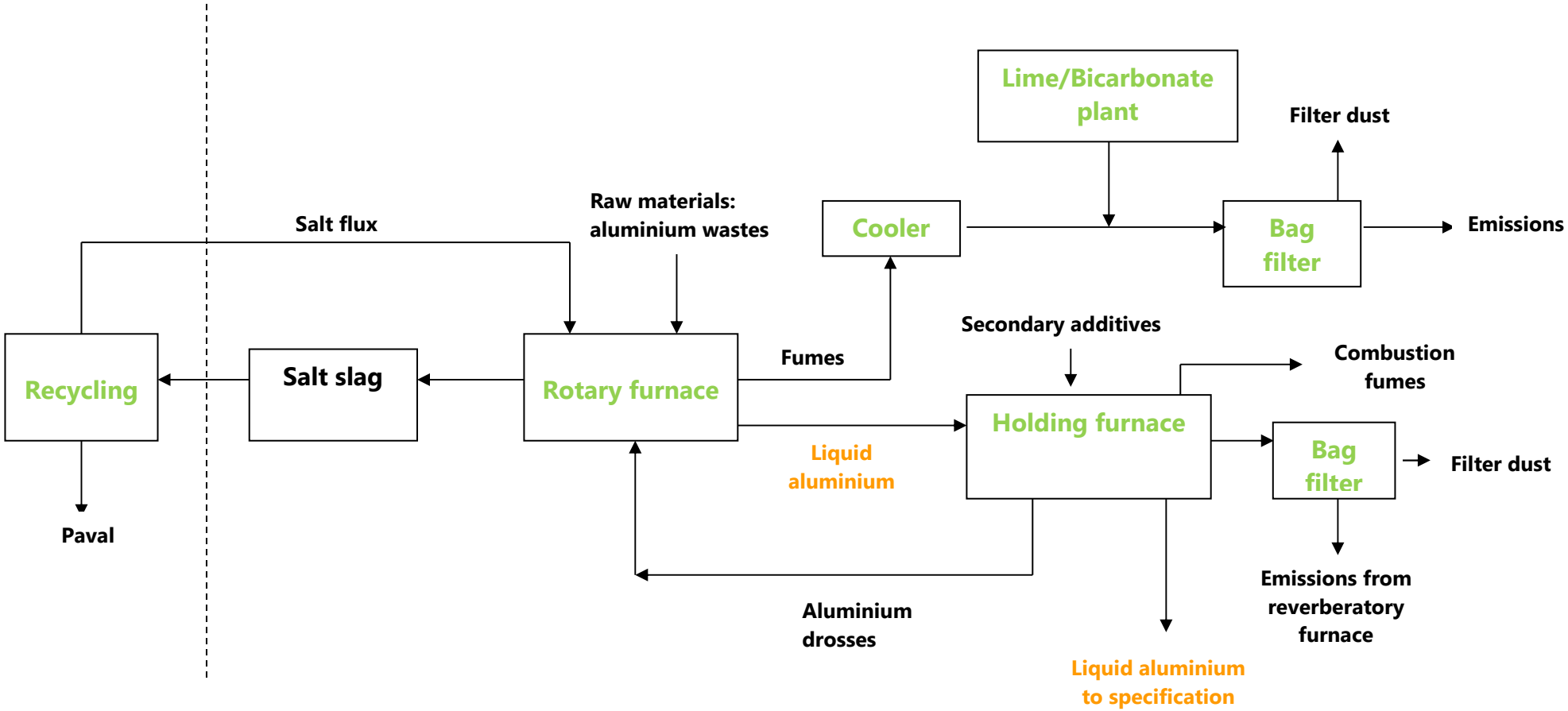


Illustration 3: Flow diagram of the process for obtaining aluminium in liquid form.

Once they have been melted in the rotary furnaces, the raw materials go on to phase two in reverberatory furnaces, where they are adjusted to the exact target specifications by adding secondary additives such as Si, Cu or Mg. Furnaces of this type are particularly suited to this last phase of production, since they provide metal that is at rest and the quality parameters of which can be adjusted under controlled heat conditions.

Once the slag has been skimmed off and the temperature adjusted, the metal is ready for pouring. Depending on the end product desired, the molten metal is sent to the molten aluminium facility for transportation by road, to the pouring wheels for pouring into ingots. The pouring wheels comprise a chain of ingot moulds that guarantee the reliable, rapid production of ingots with high surface quality. The ingots are cooled, tipped out and conveyed to a machine that stacks them fully automatically in tiers, using a powerful computer that can form packages of different shapes to meet the requirements of each customer.

The water used during the cooling process is recirculated via cooling systems fitted with parallel filter. The water used to bleed the filter systems during cleaning is treated to the same standard as run-off water and evacuated to the municipal main sewer via a single discharge point, which meets all the constraints imposed by the relevant integrated environmental authorization.

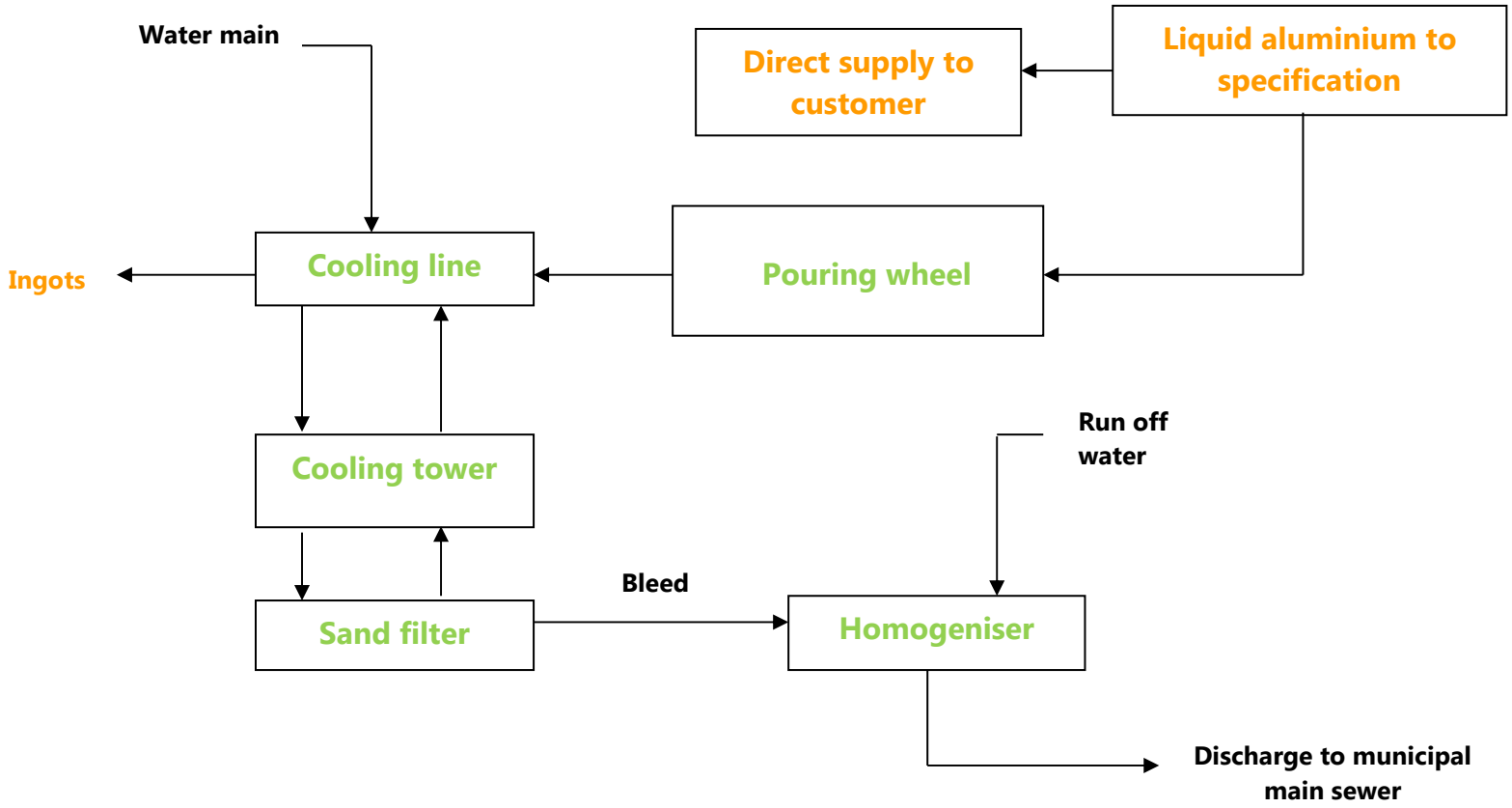


Illustration 4: Flow diagram of the ingot and liquid aluminium manufacturing process.

The company has two manufacturing lines and the average annual output at the Erandio plant from 2014 to 2016 was 59,452 t of finished product (see page 29), 50 % of it destined for foundries in the Basque Country and 30 % for foreign customers.

All products supplied by the company undergo final quality checks before shipping and are perfectly identified to ensure full traceability in terms of manufacturing processes, raw materials used and checks made. All this is handled via the company's quality management system, which has been certified as ISO 9001 compliant since 1995.

Moreover, in line with efforts to conserve natural resources and protect the environment, we believe that our operations should have as little impact on the local area as possible. Accordingly, we decided in 1999 to implement an ISO 14001 compliant environmental management system (EMS). In 2004 this system was verified as per EMAS with registration number ES-EU-000023.

5. Representative environmental aspects of Erandio´s plant

The following environmental aspects are classed as representative:

A) Emissions into the atmosphere

There are currently five hotspots at the plant, in the facilities where the production process takes place: the combustion fumes from rotary furnace nº 1, the combustion fumes from rotary furnace nº 2, fumes from the reverberatory furnace loading pit area, combustion fumes from the reverberatory furnaces and the laboratory furnaces.

An officially authorised certification laboratory (OCA) takes regular samples of emissions at these hot spots, and analyses the compounds required as per the integrated environmental authorization.

In-house procedures have been developed to ensure that the treatment systems associated with these hot spots work properly. These procedures, which form part of the integrated environmental management system, establish what continuous and periodic checks need to be made at plant level to detect any anomaly, and what corrective action is required.

B) Waste production

The company holds an integrated environmental authorization, which includes the previous hazardous and inert waste producer and recycler permit (EU/1/4-97).

- **Hazardous wastes**

The main hazardous wastes produced by the company are the following:

- Salt slag: This originates from the use of salts (ClNa, ClK) as a flux to prevent the molten aluminium from oxidising inside the furnaces on coming into contact with the atmosphere. All this salt slag is recycled in a fully integrated aluminium waste treatment process carried out at Befesa, giving rise to salts that can be reused in production processes and an inert waste rich in aluminium oxide, known as Paval, which has numerous applications in the industry.

- Filter dust: This originates from the combustion fumes run through the treatment systems in place at the plant. It is stored in big-bags in a roofed area until its removal by an authorised waste manager.

- Aluminium dross: This originates from the oxidation of aluminium in the reverberatory furnaces with loading pits. It is used as a raw material in further production processes, and the company holds the relevant permit for managing this material.

- Filter bags: These are part of the combustion gas treatment system. Damaged and spent bags are replaced and managed in-house, for which the company holds the relevant permits.

- Spent oil: This comes from facility and machinery maintenance operations. It is stored in properly identified, dated drums to await shipment to an authorised waste manager.

- Empty metal and plastic packaging: containers that once held paint, solvent, oil, etc. are stored in properly identified dated cages for shipment to an authorised waste manager.

- Industrial aerosols: This waste comes from the sprays used to identify stacks of the finished product in ingot form. They are stored in properly identified, dated big-bags to await shipment to an authorised waste manager.

- Absorbents, rags and contaminated clothing: These come from maintenance operations. They are stored in properly identified, dated drums to await final shipment to authorised waste manager.

- Spent batteries and fuel cells: dry mercury, button-type batteries from calculators and clocks along with salt and alkaline batteries are collected selectively.

- Lamps: lamps changed during maintenance operations (due to breakage, fusing, etc.) are stored in a properly identified container.

The company holds all the relevant acceptance documents from each of the authorised waste managers that handle these hazardous wastes.

- **Inert wastes**

The inert industrial waste produced at the plant comes mainly from repair, renovation and improvement work. It is managed as follows:

- Scrap: This is stored in a designated container. When the container is full a company specialising in the collection of this type of material is called in.

- Refractory bricks, rubble, wood, plastic and rubber: Waste refractory bricks come from maintenance work on the linings of the rotary furnaces and the reverberatory furnaces. Rubble, wood, plastic and rubber waste come from civil work done at the company. This type of waste is correctly treated.

C) Depletion of natural resources

The company's integrated management system includes a method for identifying, monitoring and controlling the resources used during the manufacturing processes,

being the most representative ones, oxygen, natural gas, electricity, water, raw materials and fluxes.

6. Significant environmental aspects of Erandio´s plant

Direct and indirect environmental aspects are assessed yearly as a basis for drawing up environmental targets. The criteria applied include the likelihood and severity, and the degree of significance of each individual aspect is determined. This helps reveal the areas where future efforts need to be focused so as to get environmental impact of the company to be minimised.

Taken into account the criteria of likelihood and severity mentioned before and the methodology used by the company in the internal evaluation process of their environment aspects, the significant direct aspects for 2016 are as follows:

- Filter dust generated in the treatment processes of the combustion gases inside production furnaces.
- Confine emissions of SO_2, NO_x, HCl, HF, heavy metals and solid particles, as a consequence of usual combustion processes in rotary, holding and laboratory furnaces.
- Consumption of natural gas in the melting and maintenance furnaces.
- Consumption of sodium bicarbonate and lime for the treatment of acidic combustion gases.
- Gasoil consumption used for the forklift trucks and front loaders in company.

For all the significant aspects, Befesa Aluminio, S.L. defines a strict and periodic control, associating strategic objectives and environmental indicators of

improvement so as to guarantee the present and the future environmental performance of the company.

Befesa Aluminio, S.L. makes a continuous control and evaluation of its indirect environmental aspects as well to which it has not a total action capacity. The main indirect environmental aspects of the company in 2015 are as follows:

- Generation of oils and batteries related to the transport subcontractors.
- Generation of ammoniac emissions and fumes related to humidity in received raw materials.
- Radioactivity related to received raw materials.
- GHG emissions related to subcontractors and suppliers.

7. Outline of environmental targets and goals 2016

Environmental targets are set annually and laid out in the annual environment plan, which also indicates the goals associated with each target and the human and material resources allocated. The environmental targets set for 2016 are listed below, with a brief outline of the extent to which they were met:

Aspect	Goal	Expected value	Result
CO_2 emissions	To reduce by 2% the emissions of greenhouse gases associated with secondary aluminum production.	-2 %	+2.75 %
Natural gas consumption	To decrease by 2% the total consumption of natural gas used in the activity associated with the production processes of the plant	-2 %	+7.57 %
Salt slag generation	To decrease by 2% the generation of salt slag generated during the activity associated with the production processes of the plant	-2 %	+22.22 %
Electricity consumption	To reduce by 2% the electrical consumption used during the activity associated with the productive processes of the plant	-2 %	+6.41 %
Fluxes consumption	To reduce by 2% the consumption of flux used during the activity associated with the productive processes of the plant	-2 %	+25.64 %
Oxygen consumption	To reduce by 2% the oxygen consumption used during the activity associated with the productive processes of the plant	-2 %	+5.88 %
Diesel consumption	To reduce by 2% the consumption of diesel used during the activity associated with the productive processes of the plant	-2 %	-9.00 %
Total emissions generation	To reduce total chimney emissions by 2%	-2 %	-19.35 %
Water discharge	To reduce by 2% the pollutant content of wastewater discharges	-2 %	+71.15 %
Filter dust generation	To reduce filter dust generation by 2%	-2 %	+21.74 %

- **To achieve a 2 % decrease in total GHG emissions associated with the company's production processes.**

At the commencement of 2016 a joint quantitative target was set for minimising GHG emissions at all three Befesa Aluminio, S.L. plants. This target was associated with the two different scopes envisaged in the company's inventories: (1) direct emissions by the company; and (2) indirect emissions by the company. The calculations for these emissions in 2016 show that the company has not met its emission reduction target, achieving a relative increased percentage of 2.75 % (0.2918 teq CO_2/ t in 2016 vs 0.2840 teq CO_2/ t in 2015). This was due to the production levels of the company (lower than expected) which increased the residence time of the liquid aluminium inside the production furnaces.

- **To achieve a 2 % decrease in total natural gas consumption associated with the refinery's production processes.**

Natural gas consumption in 2016 was 1.42 MWh/ t, lightly over on the figure of 1.32 MWh/ t in 2015. This mentioned increase was due mainly to the decrease in production levels compared to previous years, together with the significant decrease in the average metallic yield of the treated raw materials and the significant increase in the percentage of final product that has been supplied in liquid form (requiring greater overheating) than the one supplied in solid form. This resulted in a decrease of the energy efficiency of the company (in terms of gas consumption) of 7.57 %.

- **To achieve a 2 % drop in the amount of salt slag produced in the course of the refinery's production processes.**

This target was not met, mainly due to the nature of the raw materials used to obtain our final products, with less metallic yield. The amount of salt slag produced in 2016 was 0.99 t/ t, compared with 0.81 t/ t in 2015.

- **To achieve a 2 % drop in electricity consumption associated with the refinery's production processes.**

Electricity consumption in 2016 (0.083 MWh/ t) has increased, compared to that reported in 2015 (0.078 MWh/ t). The objective has not been achieved, due to the mentioned production levels and metallic yields of the raw materials which have been lower to those of previous years, decreasing in that way the electricity efficiency.

- **To achieve a 2 % drop in the amount of flux used in the refinery's production processes.**

Flux consumption in 2016 was 0.49 t/ t, up by 25.64 % on the figure of 0.39 t/ t for 2015. The target set was not achieved due to the same reasons indicated above regarding salt slag, i.e. the type of materials used with less metallic yield.

- **To achieve a 2 % drop in the amount of oxygen used in the refinery**'s **production processes.**

Oxygen consumption in 2016 increased up to 0.18 t/ t, compared to values of 2015 of 0.17 t/ t. Although process management improvements were made throughout the year, the target of reduction was not achieved, due to the lower production levels regarding previous activity.

- **To achieve a 2 % drop in the amount of gasoil used in the refinery** ´s **production processes.**

Gasoil consumption in 2016 was 1.82 L/ t, compares with 2.00 L/ t for 2015. The

objective set at the beginning of the year has been achieved more than ever, due to the optimization and improvement of the management process of the mobile fleet present in the facilities.

- **To cut total fume emissions from smokestacks by 2 %.**

Pollutant emissions from the hotspots at the facilities in 2016 have increased to 0.50 kg/ t which means a decrease of 19.35 % versus 2015 (0.62 kg/ t). This includes HCl, HF, NO_x, SO_2 and solid particles. The target has been achieved.

- **To cut the pollutant load in waste water discharges by 2 %.**

The total pollutant load in the waste water discharged in 2016 including SST, NH_3, Zn, Fe and Cu was 175.6 g/ m^3. The objective has not been achieved compared to data of 2015 (102.6 g/ m^3). The main reason for this is the greater number of final cubic meters discharged during the year as a result of specific inputs of water from the river annexed to the plant during flooding. Although the pollutant load has improved, the increase in the total amount of water discharged has led to an increase in the final pollutant load. However, all the parameters of the wastewater comply with the limit values established in the Company's Integrated Environmental Authorization.

- **To cut the amount of filter dust produced by 2 %.**

The ratio of filter dust to end products produced in 2016 was 0.028 t/ t, 21.74 % up on the figure of 0.023 t/ t recorded from 2015. This increase was mainly due to the use of dustier raw materials used in the manufacturing processes.

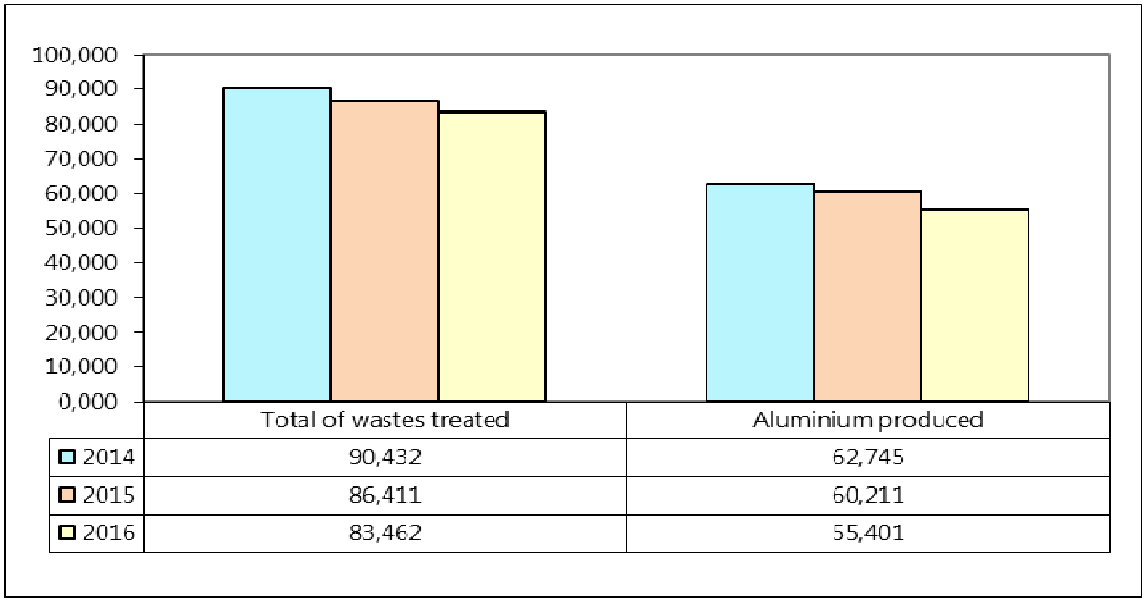
8. Environmental performance of the company

The environmental performance of the company is outlined below.

8.1 **Aluminium waste recycling for aluminium recovery**

All incoming materials except fluxes (NaCl and KCl) are classed as waste products under current Spanish and European regulations. They come mainly from other primary and secondary aluminium smelting facilities and from aluminium scrap dealers who obtain them from the machining, vehicle breaking, domestic appliance and offcut markets. The underlying purpose of our whole production process is to recover all these secondary waste products as a direct alternative to primary aluminium obtained by processing natural resources.

The total quantity of waste processed in the last three years is indicated below, along with the quantity of secondary aluminium obtained from the company's recycling operations.



	Total of wastes treated	Aluminium produced
2014	90,432	62,745
2015	86,411	60,211
2016	83,462	55,401

Graphic 1: Comparison of waste treated and aluminium produced (t) in the last 3 years

8.2 Energy consumption

Energy consumption in the production process over the past three years is indicated below in absolute terms (MWh) and relative terms (amount per tonne of product produced). In 2016 energy consumption from renewable sources accounted for 19.7 %. This is shown as part of the total electricity consumption.

- **Natural gas**

Natural gas is used as fuel in the smelting and refining processes in the rotary and reverberatory furnaces. It is supplied from an RMS (Regulating and Metering Station) with a capacity of 2,825 m^3/ h and distribution pressure of 2.5 kg/ cm^2. The permit for entry into service of the station is dated January 2, 1992.

Natural gas	2014	2015	2016
Consumption (MWh)	77,178.3	79,231.5	78,885.0
Relative consumption (MWh/ t)	1.23	1.32	1.42

The amount of natural gas consumed per tonne of product manufactured has increased from 2015 to 2016, due mainly to the decrease in production levels compared to previous years with an increase in the residence time of liquid aluminum inside the furnaces, together with the significant decrease in the average metallic yield of the treated raw materials and the significant increase in the percentage of final product that has been supplied in liquid form (requiring greater overheating than that supplied in solid form).

- **Electricity**

Electricity is supplied to the plant from a 2,500 kW transformer centre whose control and distribution panel is located in a properly delimited area, and from a 2,000 kW open-air substation which is suitably signposted and separated from the rest of the plant. 220 and 380 V mains voltages are available throughout the plant.

Electricity	**2014**	**2015**	**2016**
Consumption (MWh)	4,593.1	4,688.2	4,605.0
Relative consumption (MWh/ t)	0.073	0.078	0.083

Electricity consumption per tonne of product manufactured has increased in 2016 due to the reduction of the productive levels already mentioned with respect to previous years and to the lower average metallic yield of the consumed raw materials, with the consequent increase of the relative electrical consumption.

8.3 Ancillary material consumption

Energy consumption in the production process over the past three years is indicated below in absolute terms (t) and relative terms (amount per tonne of product produced) for the three main ancillary materials used.

- **Salt flux**

The flux used is mainly a blend of NaCl and KCl which is fed into the rotary furnaces along with the main raw materials. Its job is to protect molten aluminium from unwanted oxidation and to absorb any impurities contained in the raw materials used. This flux gives rise to a hazardous waste known as salt slag, all of which is

recycled within Befesa to produce an aluminium oxide that has numerous applications in the industry.

Salt flux	2014	2015	2016
Consumption (t)	23,113	23,512	26,962
Relative consumption (t/ t)	0.37	0.39	0.49

The amount of flux used relative to the amount of end product increased considerably from 2015 to 2016, mainly due to the nature of the raw materials used in obtaining the final product, which have also presented a lower average metal yield.

- **Oxygen**

There are two oxygen storage tanks at the plant, which are owned by the oxygen supplier. Oxygen is used as part of the fuel for the smelting process in the rotary furnaces. The storage tanks are in a fenced-off area outside the plant itself. An oxygen distribution network runs throughout the plant.

Oxygen	2014	2015	2016
Consumption (t)	10,660.3	10,085.4	10,192.0
Relative consumption (t/ t)	0.17	0.17	0.18

Specific oxygen consumption in 2016 was maintained on the figure for 2015.

- **Gasoil**

Gasoil is used in Befesa Aluminio, S.L. only for the movement of front loaders and forklift trucks. There are two gasoil tanks located in company:

Gasoil	2014	2015	2016
Consumption (GJ)	4,295	4,265	3,631
Relative consumption (GJ/ t)	0.068	0.071	0.066

As can be observed in the table, the specific consumption of diesel in 2016 has decreased compared to 2015, due to the optimization and improvement of the management process of the fleet present in the facilities.

- **Lime and sodium bicarbonate**

Lime and sodium bicarbonate are used for the treatment of acid gases that are generated during the combustion process (HCl and HF).

Lime	2014	2015	2016
Consumption (t)	46.08	77.74	90.76
Relative consumption (kg/ t)	0.73	1.29	1.64

Sodium bicarbonate	2014	2015	2016
Consumption (t)	24.2	48.0	72.0
Relative consumption (kg/ t)	0.39	0.80	1.30

8.4 Water consumption

At the Erandio plant there is no pre-treatment of incoming water. Nor does the

plant take water from any public well, spring or other watercourse. All the water used in the production processes and at the offices is taken from the municipal mains network run by the local water board: Consorcio de Aguas Bilbao-Bizkaia.

Industrial water is used for cooling the molten metal on pouring in the aluminium ingot manufacturing line. It is recycled through semi-enclosed circuits where it is cooled in independent cooling towers to ready it for reuse. Almost 100 % of this water is recirculated (the exception being that used for back-washing the sand filters parallel to the cooling towers). The water consumption figures in the table below thus reflect the amount of water that evaporates during the process described. It is calculated that 90 % of the water used in cooling processes evaporates.

Office water consumption includes the water consumed at offices, the workshop, laboratory and the changing rooms.

The company has a general water meter and a number of subsidiary meters distributed around the plant that indicate the total amount of incoming water and how much is used by each separate facility or process.

Water	**2014**	**2015**	**2016**
Consumption (m^3)	21,750	22,421	31,613
Relative consumption (m^3/ t)	0.35	0.37	0.57

The ratio of water consumption to product output in 2016 was bigger to that in 2015.

8.5 Waste management

Throughout 2016, a total of 56,269 t of hazardous waste and a total of 2,898 t of non-hazardous waste were generated. The evolution of the most representative

hazardous waste generated and managed related to the activity developed over the last 3 years, are shown in the following table

Waste managed	2014	2015	2016
Salt slag produced (t)	48,958	48,773	54,690
Ratio of salt slag to end product (t/ t)	0.78	0.81	0.99
Filter dust produced (t)	1,216	1,357	1,556
Ratio of filter dust to end product (t/ t)	0.019	0.023	0.028
Aluminium dross produced (t) (*)	2,600	2,400	2,000
Ratio of aluminium dross to end product (t/ t) (*)	0.041	0.039	0.036

(*) Estimated figure. All of the aluminum drosses generated as waste was incorporated into the production process

The relative amount generated of salt slag and filter dust has been increased due mainly to the nature of the raw materials used in obtaining the final product, which have also presented a lower metallic yield.

8.6 Impact on the biodiversity

The total occupation of our facilities is 32,614 m^2 of which 12,675.9 m^2 are built. Taking into account that the occupied surface built has not changed in the last 3 years, the relative occupation of soil per ton of product manufactured is the one represented below:

Land area	2014	2015	2016
Relative land area (m^2/ t)	1.33	1.39	1.52

8.7 Emission of pollutants into the atmosphere

8.7.1 Greenhouse gases (GHGs)

Befesa Aluminio, S.L. has implemented a global GHG emissions inventory since 2008 for the three centres that make up the aluminum business line (Erandio, Les Franqueses and Bernburg This inventory calculates both direct and indirect emissions following the methodology indicated in the ISO 14064 standard. An independent verification report of the mentioned inventory is available.

Direct emissions are defined as those associated with those sources that are under the control of society, such as emissions from the combustion process in furnaces, emissions from machinery or vehicles, emissions from process equipment and fugitive emissions from equipment and facilities. Indirect emissions are those derived from the consumption of electrical energy. The direct and indirect emissions of the last three years are shown in the following table:

GHG emissions	2014	2015	2016
Annual total for direct emissions (t CO_2 eq)	31,377.4	32,447.9	48,199.4
Relative annual total for direct emissions (t CO_2 eq/ t)	0.2481	0.2615	0.2645
Annual total for indirect emissions (t CO_2 eq)	2,752.9	2,851.5	4,972.8
Relative annual total for indirect emissions (t CO_2 eq/ t)	0.022	0.023	0.027

8.7.2 Emissions of other pollutants into atmosphere

Total SO_2, NO_x and particle emissions for the past 3 years and the ratio of emissions per tonne of product manufactured are shown in the following table:

Emissions of other pollutants	Year	Emissions (t)	Relative emissions (kg/ t))
SO_2	**2014**	9.15	0.14
	2015	11.76	0.20
	2016	9.44	0.17
NO_x	**2014**	26.71	0.43
	2015	21.46	0.36
	2016	15.94	0.29
Solid particles	**2014**	7.16	0.11
	2015	3.04	0.050
	2016	2.01	0.036
HCl	**2014**	3.31	0.053
	2015	0.87	0.014
	2016	0.33	0.006
HF	**2014**	0.23	0.004
	2015	0.45	0.007
	2016	0.04	0.0007
Heavy metals	**2014**	--	--
	2015	1.08	0.018
	2016	--	--

8.8 Fulfillment of environmental provisions of law

8.8.1 Emission hotspots

The tables below show the measurements taken over the past 3 years at all the hotspots at the plant for the parameters subject to limits as per the integrated

environmental authorization, and a comparison with the maximum permitted levels.

- **Combustion fumes from rotary furnaces nº 1 and nº 2**

  The treated fumes from the rotary furnaces are expelled through these hotspots. These furnaces use a blend of natural gas and oxygen to smelt materials and adjust process temperatures. The first part of the treatment systems comprises a cooler which brings down the temperature of the fumes from the combustion process. In the second part, the cooled fumes are sent through a bag filter where solid particles are retained and acid fumes are neutralised by the controlled addition of sodium bicarbonate or lime.

Parameters		SO_2	NO_x	HCl	HF	CO	Zn+Pb+Cr+Cu+Mn	Ni+As	Cd+Hg	Solid particles
Limit as per integrated environmental authorization (mg/ Nm^3)		130	616.2	30	5	625	5	1	0.2	20
Average for rotary furnace nº1 (mg/ Nm^3)	**2014**	20	149.08	25.4	1.02	270.33	--	--	--	49.88
	2015	27.2	68.48	5.23	0.54	209.25	0.21	0.079	0.0016	16.42
	2016	20.17	45.19	1.05	0.18	375.21	--	--	--	3.24
Average for rotary furnace nº2 (mg/ Nm^3)	**2014**	20	30.81	2.35	0.40	97.98	--	--	--	3.61
	2015	20	30.81	0.41	1.19	97.69	2.39	0.005	0.0019	1.24
	2016	20	30.81	0.31	0.07	104.59	--	--	--	2.31

Throughout 2016, all the measured parameters are below the established limits.

- **Combustion fumes from holding furnaces**

Holding furnaces also use a blend of natural gas and oxygen as fuel. The combustion fumes produced in the combustion chambers of reverberatory furnaces are exhausted directly to the atmosphere, because only clean raw materials with high metal content are smelted in them.

Parameters		**SO_2**	**NO_x**	**HCl**	**HF**	**CO**	**Zn+Pb+Cr+Cu+Mn**	**Ni+As**	**Cd+Hg**	**Solid particles**
Limit as per integrated environmental authorization (mg/ Nm^3)		130	616.2	30	5	625	5	1	0.2	20
Average for holding furnaces (mg/ Nm^3)	**2014**	20	36,80	5.63	2.10	23	--	--	--	8.45
	2015	20	37.79	0.88	0.39	18.75	1.049	0.022	0.0065	5.87
	2016	20	31.16	2.03	0.06	18.75	--	--	--	23.51

Throughout the year 2016 there has been a small uncompliant for the particle parameter in the measurements corresponding to the first semester. After the corresponding internal study, it is verified that the measurements corresponding to the second semester, comply perfectly with all the limits applicable to the measured parameters (6.38 mg / Nm3).

- **Holding furnace loading pit area**

In view of the type of emissions produced at the reverberatory furnace loading pits, the filter system comprises merely a bag filter to eliminate any solid particles in suspension. There is no need for preliminary cooling of fumes.

Parameters		SO_2	NO_x	HCl	HF	CO	Zn+Pb+Cr+Cu+Mn	Ni+As	Cd+Hg	Solid particles
Limit as per integrated environmental authorization (mg/ Nm^3)		130	616.2	30	5	625	5	1	0.2	20
Average for holding furnace loading pits (mg/ Nm^3)	**2014**	20	30.81	0.96	0.06	15.00	--	--	--	5.88
	2015	20	30.81	0.73	0.68	22.06	2.732	0.009	0.0015	3.57
	2016	20	30.81	0.83	0.06	31.68	--	--	--	5.14

In 2016, all measurements were under specification.

- **Laboratory furnaces**

The laboratory facility has two small crucible furnaces which are used to characterise raw materials on arrival. The treatment system in place comprises a bag filter that retains solid particles. Measurements are made every two years.

Parameters		HCl
Limit as per integrated environmental authorization (mg/ Nm^3)		30
Figures for laboratory furnaces (mg/ Nm^3)	**2014**	--
	2015	1.47
	2016	--

8.8.2 Emissions discharge to mains drainage

The water outlets from the plant are grouped by water type as follows:

- Industrial water

  This is water from the semi-enclosed cooling circuits (occasional back-wash bleeds to clean cooling tower filters) and run-off water collected in the plant.

- Domestic water

  This is from the sanitary facilities in the offices and changing rooms.

All these outlets were connected to the Consorcio de Aguas de Bilbao municipal main sewer early in 2007.

The company now has a single discharge point for industrial and domestic water, which flows directly into the municipal sewer. Water discharge for 2016 achieved the figure of 11,325 m^3.

The water discharged is analysed every three months by Consorcio de Aguas de Bilbao itself. Values referred in the following table are averages of the four-analysis made during the year.

The readings taken over the last three years by this organisation are shown below, along with the limits set in the integrated environmental authorization:

Parameters	Limits set in integrated environmental authorization	Average readings for discharges		
		2014	2015	2016
PH	6.5-9.5	8.08	7.90	8.33

Ammonia	300 mg/ L	16.08	8.23	18.34
Oil	50 mg/ L	12.75	8.50	8.25
Zn	15 mg/ L	0.08	0.09	0.50
Cu	7.5 mg/ L	0.07	0.06	0.50
Fe	150 mg/ L	0.50	0.50	2.76
Solids in suspension	600 mg/ L	28.0	93.75	153.50

As it can be seen, none of the parameters analysed exceeds the limits set.

8.8.3 Other environmetal performance indicators

The integrated environmental authorization states a periodicity of three years for the noise levels measurements. In 2015, noise levels measurements were made in 6 different points all over the company. The results obtained were as follows:

Noise levels measurements 2015			
Limits set in integrated environmental authorization db(A)	Morning	Evening	Night
	75	75	65
Point 1	57.4	53.4	51.9
Point 2	66.7	65.5	65.7
Point 3	58.3	57.8	54.8
Point 4	60.5	59.7	59.0
Point 5	74.1	66.5	63.1
Point 6	72.4	66.8	65.9

As can be seen, no point exceeds the legally established limit: the night values in points 2 and 6 are within the range of the uncertainty of the measurement (2 dB).

9. Environmental targets 2017

To meet the company's commitment to continuous improvement in its environmental performance, as per its environment policy and in line with the environmental aspects identified as significant, the following environmental targets have been set for 2017:

- To achieve a 2 % decrease in GHG emissions associated to the secondary aluminium production.
- To achieve a 2 % decrease in total natural gas consumption associated with the plant's production processes.
- To achieve a 2 % drop in the amount of salt slag produced in the course of the plant's production processes.
- To achieve a 2 % drop in electricity consumption associated with the plant's production processes.
- To achieve a 2 % drop in the amount of flux used in the plant's production processes.
- To achieve a 2 % drop in the amount of oxygen used in the plant's production processes.
- To achieve a 2 % drop in the amount of gas-oil used in the plant's production processes.
- To achieve a 2 % drop in total smokestack emissions into the atmosphere.
- To achieve a 2 % drop in the pollutant load of the waste water discharged.

- To cut the amount of filter dust produced by 2 %.

10. Applicable environmental legislation

Befesa Aluminio, S.L. is a member of various sectorial associations that monitor, identify, provide and update applicable legal texts on a monthly basis. This is done to learn about any new requirements or changes, so that the company's in-house database of legislation can be updated with the latest applicable requirements. Befesa Aluminio, S.L. verifies continuously its compliance with all the legal requirements and certifies the lack of non-fulfilments related to environment or Industrial security.

A list of some of the main environmental legislation applicable to the company follows:

- Integrated environmental authorization

  - Resolution of April 30, 2008 granting an integrated environmental authorization to Befesa Aluminio, S.L.

  - Resolution of June 3, 2010 by the Basque Government Environment Office amending and implementing the integrated environmental authorization granted to Befesa Aluminio, S.L. This resolution was passed following an inspection by the said Office.

  - Resolution of July 19, 2011 by the Basque Government Environment Office modifying the integrated environmental authorization granted to Befesa Aluminio, S.L., incorporating the new liquid aluminium line, and the substitution of the fixed rotary furnace for the new tilting rotary furnace. Both non substantial changes.

  - Resolution of November 14th, 2013 by the Basque Government Environment Office modifying the integrated environmental

authorization as a consequence of the inclusion of new LER codes, new noise limits and increase of the production capacity of the company.

- Resolution of February 14th, 2017 by the Basque Government Environment Office, which substantially modifies the integrated environmental authorization of Befesa Aluminio, S.L. as a consequence of the request for an increase in the annual production capacity of the plant.

- Latest modification (in 2010) of the permit from Consorcio de Aguas de Bilbao-Bizkaia to discharge water into the main sewer.

- Legislation applicable to industrial security (firefighting systems, oil installations, high voltage, low voltage, air conditioning, etc.).

- Legionella control associated to cooling systems for the production of solid aluminium alloys.

- Royal Decree 252/2006, of March 3, which revises the recycling and recovery targets established in Law 11/1997, of April 24, on packaging and packaging waste, and which modifies the Regulation for its execution, approved by Royal Decree 782/1998, of April 30..

- Law 22/2011 of Wastes and contaminated floors.

- European Agreement for the international road transport of dangerous goods.

11. Cooperation with environmental organizations

Befesa Aluminio, S.L. is an active member of the following environment-related associations:

- ACLIMA (Basque Environment Industry Cluster Association). The company has signed up to the Commitment to Sustainable Development (1999) and the Declaration of Bizkaia on the Right to the Environment (1999).

- ASERAL (Spanish Aluminium Recovery Association).

- Confemetal (Spanish Confederation of Metal Industry Organisations). The company is an active member of the Environment Committee of this organisation.

- OEA (Organisation of the European Aluminium Recycling Industry).

- ASEGRE (Spanish Association of Special Waste Managers): This association brings together hazardous waste managers based in Spain.

- Technical Committee of AENOR.

Befesa Aluminio, S.L. regularly participates in R&D programmes with various research centres and other European firms, mainly for the improvement of recycling, valorisation and the best possible use of aluminium industry waste.

12. Participation

Befesa Aluminio, S.L. pushes the participation of all their employees in the definition of all the environmental processes. For that purpose, facilitates different ways for

problems and improvements communications, using at the same time the company´s committee to guarantee the communication between all the integrated parts of the company.

13. Availability

This environmental declaration is accessible via the corporate website (www.befesa.es).

14. Next environmental declaration

This environmental declaration is intended to provide information on our management policies to associates, authorities, customers, suppliers, the media and local residents, and to establish a constructive dialogue.

It is a public document validated by Bureau Veritas Certification, S.A. (ENAC-accredited environmental certification body nº E-V-0003), with registered address at calle Valportillo primera 22-24, edificio caoba, 28108 Alcobendas, Madrid.

This environmental declaration is valid for 12 months. The next validated declaration is to be submitted in June 2018.

For more details about Befesa Aluminio, S.L. Erandio plant and its products visit our website at www.befesa.es. If you wish to know more about us at any time, do not hesitate to contact Oskar de Diego Rodríguez on:

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Glossary:

kg: kilogram.

Si: silicon.

Cu: cooper.

Mg: magnesium.

mm: millimeters.

t: ton.

t CO_2 eq: CO_2 equivalent tons.

MWh: megawatt per hour.

m^3: cubic meter.

HCl: hydrochloric acid.

HF: hydrofluoric acid.

NO_x: nitrogen oxides.

SO_2: sulphur dioxide.

SST: solids in suspension.

NH_3: ammonia.

Zn: zinc.

Fe: iron.

g: gram.

NaCl: sodium chloride.

KCl: potassium chloride.

cm^2: square centimeter.

h: hour.

kW: kilowatt.

V: volt.

R&D: research and development.

m^2: square meter.

GHG: greenhouse gases.

mg/ Nm^3: miligram per normal cubic meter.

Pb: lead.

Cr: chromium.

Mn: manganese.

Ni: nickel.

As: arsenic.

Cd: cadmium.

Hg: mercury.