

Table of contents

The year 2016	3
CEO's review	4
Chairman's review	7
Owner's review	10

Business activity	
Strategy	12
Production	14
Business relations	17
Investments	20
Research and development	23

Responsibility	26
Key issues	30
Stakeholders	38
Economic impact	43
Tax contribution	47
Safety	53
Occupational safety	55
Product, chemical and process safety	57
Risk management and exceptional situations	58
Environment	60
Water management	63
Emission control	69

Permit processes	77
Workforce	79
Metals and society	84

Management	86
Report on Corporate Governance	87
Board of Directors	94
Management Team	97
Salary and remuneration report	101

Financial statements	105
Annual review of Terrafame Ltd.	106
Annual review of Terrafame Group Ltd.	120
Consolidated income statement	132
Consolidated balance sheet	134
Consolidated cash flow statement	136
Consolidated statement of changes in equity	138
Accounting policies for consolidated financial statements, and notes	139
Dividend proposal and signatures	178
Auditors' report	179
Key financial figures	183
Definitions of key financial figures	184

The year 2016

An eventful year of ramp-up

2016 was Terrafame's first full year of operations. During the year, Terrafame increased its nickel and zinc production, expanded its customer base, developed the quality of its products, improved occupational safety, made significant investments and achieved net sales of more than EUR 100 million.

With perseverance and strong team spirit, the ramp-up proceeded as planned through the year.

- Terrafame mined, crushed and agglomerated 14.2 million tonnes of ore of consistent quality
- 9,554 tonnes of nickel and 22,575 tonnes of zinc were produced
- The amount of water at the mine area decreased to 3.8 million cubic metres from 10.1 million cubic metres at the beginning of the year

Q1 / 2016

- The ramp-up proceeded according to set targets
- Joni Lukkaroinen appointed as Terrafame Ltd.'s CEO
- New staff hired and expertise strengthened

Q2 / 2016

- Results of the bioleaching were in line with expectations also in the second quarter
- The efficiency of the ramp-up improved as planned
- Terrafame acquired the lime plant, laboratory and rights to the geological data of the mine
- Water management adapted to the decisions of the Vaasa Administrative Court

Q3 / 2016

- The prerequisites for profitable mining operations strengthened
- The water situation at the mine area improved significantly
- The EIA procedures concerning the mine's water management and operations began

Q4 / 2016

- The second production line of the metals production plant entered use
- Trial use of the new centralised water treatment plant began
- Operating margin and profit were positive for the first time during Terrafame Ltd.'s operations

CEO's review

CEO's review

Eventful year of ramp-up

Terrafame's first full year of operations in 2016 was, above all, a year of ramp-up. We persistently increased the production of nickel and zinc in each quarter, achieving over EUR 100 million in net sales in 2016. We expanded our customer base and found the right end-use applications for which customers are willing to pay a premium based on excellent product features. On the basis of our own quality monitoring and feedback from customers, we succeeded very well in developing our product and service quality.

The demand for nickel increased clearly during the year. The global growth of 7.5 per cent was especially due to the increased demand for stainless steel and the growth of manufacturing batteries for electric cars. In the same period, nickel mine production decreased globally by around one per cent. The average price (London Metal Exchange) in the fourth quarter of 2016 was USD 10,810 per tonne, which is 14.5 per cent higher than the average price during the corresponding period in 2015. In 2016, the demand for zinc grew by around 2.4 per cent, while zinc mine production fell by nearly 6 per cent. The average price of zinc (London Metal Exchange) in the fourth quarter of 2016 was USD 2,517 per tonne, which was 56 per cent higher than the average price during the corresponding period in 2015.

Good development in production and process control

Terrafame broke all previous annual production records for ore mining and processing. We mined, crushed and agglomerated 14.2 million tonnes of ore. The ore quality remained homogeneous, and 37,042 tonnes of nickel were stacked on the primary leaching heap. In the third quarter, we got very close to our long-term target of 3,750 tonnes of nickel stacked per month, and then proceeded to exceed this target in the fourth quarter.

Approximately 75 per cent of the primary bioleaching area was in use by the end of 2016. The bioleaching process functioned better than expected. The changes made in the construction of the bioleaching heaps, the quality assurance of agglomeration and

process control proved successful. During 2016, 11,584 tonnes of nickel and 27,868 tonnes of zinc were leached by Terrafame.

Metals production was enhanced considerably in October when the second production line was put into operation. In total, 9,554 tonnes of nickel and 22,575 tonnes of zinc were produced during 2016. However, in late 2016, the metals production plant's production volume was affected by the fire at the hydrogen sulphide plant.

Efforts in quality, environmental and safety work are bearing fruit

At the beginning of 2016, we launched the development of our management system for quality, environmental and occupational health and safety management. We jointly clarified roles and responsibilities, and started to make more efficient use of the process-based way of working. In addition to our own organisation, we linked external service providers to our quality work. On the basis of an independent audit carried out in November, our management system was granted certification according to international standards in early 2017.

Significant progress was made in the development of occupational safety during 2016. Terrafame's lost time injury frequency, i.e., the number of accidents per million working hours, fell to 8.4 from 23.3 at the end of the previous year, which was not far from our target of less than 7.0. At the turn of the year, we achieved a record-breaking 113 days without any lost-time injuries.

One of the major challenges for Terrafame has been the water situation at the mining site, which was passed down to us from the previous operator. From the early summer to the end of the year, our determined efforts improved the water situation considerably. At the end of the year, 3.8 million cubic metres of water was stored at the site, which came very close to the targeted level of 3 million cubic metres. During the year, the sulphate content of the released purified water was, on average, less than half of the limit value, and metal concentrations were, on average, less than a tenth of the limit values set for them. In November, we began the trial use of a new centralised water treatment plant that will make water purification more cost-effective and the quality of the purification results more consistent.

Positive operating profit in the fourth quarter

Terrafame's net sales in 2016 totalled EUR 100.8 million. The expenses relating to work in progress at the end of 2016 totalled more than the net realisable value of work in progress. For this

reason, work in progress was valued at EUR 49.6 million, according to the net realisable value.

Operating expenses amounted to EUR 267.5 million, which was EUR 24.0 million below the budgeted level. The main reason for staying under budget was the improvement in the chemical efficiency of the metals production plant. EBITDA was negative EUR 120.4 million, and operating loss was EUR 124.9 million.

Terrafame's investments were significant in 2016, at EUR 84.3 million. The most important of these were the centralised water treatment plant, the base structures of the secondary bioleaching heaps 3 and 4, the modernisation of the hydrogen sulphide plant and lime plant, as well as the acquisitions of the lime plant and the laboratory from Talvivaara Mining Company Plc.

Strong team spirit will take us far

In business operations, we have trusted that a reasonable solution would be found for the financing required for the company's ramp-up. Our ownership base was expanded in early 2017, and the future is looking bright for Terrafame. Alongside the ramp-up, we can continue our development work relating to the commercialization of copper and further processing of nickel, launched in 2016.

Over the past year, Terrafame has grown into a major export and mining company, on the Finnish scale. This would not have been possible without a strong team and fighting spirit. I would like to warmly thank the staff's commitment to their daily work under any conditions. Our business partners have also been a great support during Terrafame's ramp-up, and the good feedback we have received from our customers has kept us going. Residents of the nearby areas, other stakeholders and the authorities have provided us with valuable feedback for developing our operations.

Joni Lukkaroinen

CEO

Terrafame Ltd.

Chairman's review

Chairman's review

Terrafame proved its credibility and operating capability in 2016

2016 can be considered successful in the history of Sotkamo's mine for several good reasons. It was Terrafame's first operating year during which we achieved several key goals.

The ramp-up of the mine, bioleaching and metal production proceeded seamlessly, safely and efficiently. This was a great achievement in the processing industry in general. Terrafame's employees managed and executed the ramp-up of operations through 2016 according to plan, pre-emptively and diligently. The cornerstones of our operations – safety, efficiency and commitment – were strongly present in all our work.

The starting point for the ramp-up last year was less than ideal. In the beginning of the year, the mining area still had 10.1 million cubic metres of excess water, which is why water management was one of the key tasks at the mine alongside the ramp-up. As Terrafame's operations began, securing environmental safety was set as one of our most important goals. In 2016, we achieved a considerable improvement in the water situation, and the amount of water at the mine area was near the target level of 3 million cubic metres at the end of the year. Thanks to determined work and successful progress of the ramp-up, we were able to decrease the risk level associated with the operations significantly by autumn 2016.

During its first year of operations, Terrafame's mine achieved several records in its history when ore mining and processing reached an all-time peak in annual output. Terrafame mined, crushed and agglomerated 14.2 million tonnes of ore. 37,042 tonnes of nickel and 70,299 tonnes of zinc were stacked on the primary leaching heaps, and 75% of the primary leaching area was in production at the end of the year. It is worthwhile to mention that the bioleaching process proved its functionality beyond expectations. The well-functioning bioleaching has enabled the steady operations of the metals production plant. As a result, the quality of the commercial products has been very consistent and has met expectations.

In addition to production-related achievements, Terrafame continued the target-oriented work to improve occupational safety in 2016. When operations started in August 2015, the starting point for occupational safety was poor. Improving occupational safety was thus chosen as a special target area, alongside environmental safety. Our production processes are rather complex and contain several risk factors typical for the chemicals industry. Managing these risk factors is one of the fundamentals of safety. Safety at work is a key ingredient of efficient operations and has a considerable effect on productivity.

Occupational safety developed positively as lost-time injury frequency fell from 23.3 (end of 2015) to 8.4 in 2016. We did not reach our goal for 2016 which was less than 7 accidents resulting in absence per one million work hours. However, Terrafame's employees made history in summer 2016, when Terrafame achieved 80 days without work-related accidents resulting in absence.

The uncompromising and systematic work for environmental and occupational safety during the ramp-up which we have done since August 2015 as well as the good operational results achieved in 2016 led to a preliminary agreement for private financing arrangement to complete the ramp-up, signed on 19 December 2016. The final agreement was signed on 10 February 2017.

The state owner was joined by Trafigura Group, one of the world's largest trading companies, as a minority shareholder. Trafigura also has its own mining operations. This brings more industry expertise as well as commercial and technical know-how to Terrafame. The financing and ownership arrangement of EUR 250 million is clear proof that Terrafame fulfils the prerequisites for profitable and environmentally sustainable business operations. It should also be noted that the commercial cooperation agreement with Trafigura is very substantial: Trafigura will buy 100% of the nickel-cobalt and 80% of the zinc sulphide produced by Terrafame for the next seven years.

I am very happy to say that 2016 was a year where we proved the functionality of our processes and our organisation as well as the commitment of the management and all of our employees to complete Terrafame's ramp-up successfully. The year was very busy. I would like to convey my warm thanks to all Terrafame employees for your efforts towards reaching our common goals. During the journey, we have heard doubtful comments about the company's future and chances to succeed, but together we have shown that it is possible to build a new future for Sotkamo's mine and multi-metal plant. I also want to thank our partners and stakeholders whose

support and contribution have been extremely important in achieving the good results of 2016.

In 2017, our target is to continue ramping up production and delivery volumes and further improving cost efficiency. At the same time, we commit to continuing the work for environmentally sustainable and safe operations. We will also continue to invest strongly in occupational safety and, through it, in continuous improvement of our operations.

Lauri Ratia
Chairman of the Board of Directors
Terrafame Ltd.

Owner's review

Terrafame Group Ltd.'s review

Terrafame's year 2016 from the owner's perspective

The start of Terrafame's operations has been strongly marked by two things: the methodical ramp-up of the mine as well as advancing the financing and ownership negotiations. These matters have also been strongly present in 2016 – the year when Terrafame's good operational results truly became concrete.

The ramp-up of mining and metal production started in August 2015, and Terrafame provided the first expected proof of the functionality of the process soon after. We have been happy to see how the professional and uncompromising efforts of Terrafame's employees and the company's partners produced the expected results in 2016: the ramp-up proceeded towards the full level of operations, set for 2018, according to plan.

During the year, several significant leaps were made in water management, production and occupational safety. Net sales of more than EUR 100 million signify considerable business with many multiplier effects locally in the Kainuu region as well as in entire Finland. The effects on economy and employment will expand further when Terrafame makes progress towards full production.

The notebook on 2016 also has entries about challenges. The additional discharges of purified waters in order to ensure dam safety, the decisions of the Vaasa Administrative Court on the Nuasjärvi discharge pipe and other matters concerning the environmental permits, preparing for the proposed early shutdown of the mine as well as the fire in the H₂S reactor in December were issues that demanded special efforts from Terrafame.

However, 2016 will be remembered as Terrafame's first full year of operations. Achieving the planned results of the ramp-up have been absolutely essential for Terrafame's future operating prerequisites. Thus, we want to convey the state owner's thanks to each employee

of Terrafame and the company's partners for their efforts to ensure Terrafame's future.

Alongside the ramp-up, the negotiations to secure the financing necessary for completing the ramp-up stood out in 2016. During the year, Terrafame Group made preparations for strengthening and expanding the mine's ownership base according to the state owner's aims.

In early autumn 2016, financing negotiations began from a new starting point: with the good progress of the ramp-up, the key risks associated with Terrafame as an investment had decreased significantly when compared with the situation in 2015 when operations started. Due to Terrafame's achievements, the state owner has since then retracted the requirement of the 2016 year end as the deadline for the financing negotiations, which supported achieving the best possible result in the negotiations.

The ownership and financing negotiations, which continued intensively throughout the autumn, were sealed in February 2017 when Terrafame Group, Terrafame, Trafigura Group and Galena fund, part of Trafigura, agreed on a financing solution and long-term commercial cooperation. Sampo acted as a co-investor in the arrangement alongside Terrafame Group. We were happy to find that international and Finnish investors trust Terrafame's operations – the private financing arrangement ensured that Terrafame's ramp-up can now be completed according to plan.

2016 was a year of strong and positive development for Terrafame. The goals for environmental safety, stable ramp-up and private financing were achieved. The ramp-up process is still ongoing. Thanks to the advances in 2016, the outlook for Terrafame's operations and the ramp-up's progress for 2017 are favourable and inspire confidence.

Janne Känkänen
Chair of the Board of Directors
Terrafame Group Ltd.

Matti Hietanen
CEO
Terrafame Group Ltd.

Strategy

Terrafame aims to be among the top quarter in the industry

Terrafame is building a more sustainable world with high-quality metal products. Our vision is to be among the top quarter of the industry globally in cost effectiveness. Safety, efficiency and commitment guide our long-term operations as well as our day-to-day work.

Terrafame has access to extensive mineral resources that enable decades of operation. In summer 2016, an updated assessment of mining area mineral reserves indicated that they total 1,458 million tonnes.

The company utilizes energy- and cost-efficient bioleaching technology for extracting metals from ore. Competitive advantages also arise from our favourable logistical location as well as skilled personnel.

Strategic themes 2016–2020

Terrafame has five strategic themes for the 2016–2020 period.

Ore handling

By mining the planned amount of quality ore, we can ensure that the metals are adequately stacked and expedited to the metals production plant for separation. During the strategy period, Terrafame's objective is to mine about 18 million tonnes of ore per year, as well as optimise the mining and crushing costs from the pit to leaching.

Leaching yield

Terrafame's business plan is based on a moderate 70 per cent nickel and zinc leaching yield. During the strategy period, the company's target is to further improve this yield. Yield refers to the primary and secondary leaching recovery in proportion to the amount of metal

stacked to the bioleaching heaps.

Metals production efficiency

Metals production is increased in proportion to the progress of leaching ramp-up. An additional aim is to improve the cost efficiency of the metals production plant. Terrafame will also clarify the commercialization potential of copper and uranium as well as the further processing of nickel.

Category management

Category management is to be utilised in the procurement of production supply, materials and services required to achieve cost-efficient operation. Resource efficiency is being constantly developed, for instance, in the use of energy, fuels and chemicals.

Uptime

At Terrafame, teams are responsible for maximising uptime, combining expertise from production and maintenance departments. During the strategy period, the aim is to ensure the high availability of production lines and improve the management of spare parts.

Production

Ramp-up year in production

During the operational year 2016, Terrafame continued its strong ramp-up in production. Nickel and zinc stacking and leaching quantities grew during every quarter. Production also increased at the metals production plant from one quarter to the next.

Terrafame continued to increase the production volumes of metals throughout 2016 and the production year was successful. The zinc production was in line with the company's annual production plan and the nickel and cobalt production somewhat behind the plan.

Ore mining and stacking to the primary leaching heap totalled 14.2 million tonnes during the year. Primary heaps 2 and 3 were completed, and heap 4 was built for the most part. By the end of the year, 75 per cent of the primary leaching area was taken into production.

New layers to secondary leaching

In the secondary leaching area, a second ore layer was completed during the year to heap 2, as well as a third layer to heap 1. Approximately 13.5 million tonnes of ore stacked by the previous operator was reclaimed and transferred to the secondary leaching heap during the year.

One of Terrafame's largest investments in 2016 was the construction of the foundations for secondary leaching heaps 3 and 4. These new leaching areas will double the secondary leaching area and are due to be commissioned in 2017 and 2018.

Bioleaching worked as planned

The primary and secondary bioleaching performance was in line with the plan throughout the year. As an exothermic process, bioleaching can be successfully carried out also in the winter. The

primary leaching heaps stacked by Terrafame generated substantial heat during the year as a whole. As a result, the company's chemical production efficiency improved and brought significant savings over the course of the year.

In metals recovery, metal sulphides – i.e., metal and sulphur compounds – are separated from the process solution with chemicals. In Terrafame's production, copper is first extracted from the solution, then zinc, and finally nickel and cobalt. Copper leaches from the ore at a later stage than zinc, and nickel and copper production is planned to begin in 2017.

Both lines at the metals production plant deployed

The production speed at the metals production plant was adjusted to the production of bioleaching heaps. The plant was first run at an unhurried pace, using only one of the two production lines. With the increase in bioleaching heap production volumes, the second production line was taken into use in October. By the end of the year, the cost-efficiency improved significantly as the production volume increased. During the operational year, the plant produced 9,554 tonnes of nickel and 22,575 tonnes of zinc.

In 2016, both lines at the metals production plant were stopped on 16–31 December, due to a fire in a hydrogen sulphide reactor. During this unplanned shutdown, the bioleaching continued and the metals production was moved to 2017.

Centralised water treatment plant completed at end of year

The new centralised water treatment plant was completed in late 2016, and the trial was started in November. The centralised water treatment plant simplifies the site's water purification process leading to a more cost-efficient purification as well as further improved consistency of purification results.

At the centralised water treatment plant, the same best available technology is utilised as has been in use until now in the field purification units. The cleaning process is now concentrated into one automated production unit. The cleaning capacity is 1,400 cubic metres of purified water per hour.

The new plant was taken into use in early 2017 based on the environmental permit.

Reverse osmosis plant is a key step in sulphate management

In March 2016, a reverse osmosis plant reject was for the first time pumped into the leaching process. With this method, approximately 5,700 tonnes of sulphate accumulated into the process water was returned and led to the bioleaching heaps in March–December. This had a significant impact on the adequacy of Terrafame’s sulphate quota and the water balance at the site.

Reverse osmosis has been utilised in industrial use for decades, particularly in the production of clean water. Terrafame in Finland has one of the largest reverse osmosis plants at its disposal.



Picture 1. Nickel production volumes in 2016.



Picture 2. Zinc production volumes in 2016.

Business relations

Business relations built on solid foundation

Terrafame's strong business relationships were further developed in 2016. Our customer base was expanded successfully and our network of business partners was strengthened to meet and sustain growth.

2016 was also Terrafame's year for ramping up commercial operations. During the operational period, our customer base was extended and our business partner network was strengthened as planned. Our aim has been to ensure a business foundation on which long-term development can be continued.

During the year, Terrafame opened direct contacts with major nickel and zinc refineries and built a market intelligence system for its main products. Commercial deliveries, which started in the end of 2015, were continued in the beginning of 2016, and delivery volumes grew throughout the year, following an increase in nickel-cobalt and zinc production volumes. The company also participated in conferences and events, especially in Europe and Asia.

Net sales of more than EUR 100 million

After the first full year of operations, Terrafame is a major export company on a Finnish scale, and its significance is growing. The company's annual export is estimated to exceed EUR 450 million for the period 2019 to 2023, in accordance with its strategy at full capacity.

In managing supply chain and logistics, Terrafame relies on domestic infrastructure, such as an electrified railway network and modern port facilities. An efficiently functioning infrastructure provides a clear competitive advantage over a number of competitors globally.

During the year 2016, Terrafame's net sales exceeded EUR 100 million. The prices of the main products, nickel and zinc, developed positively, and the US dollar strengthened against the euro during

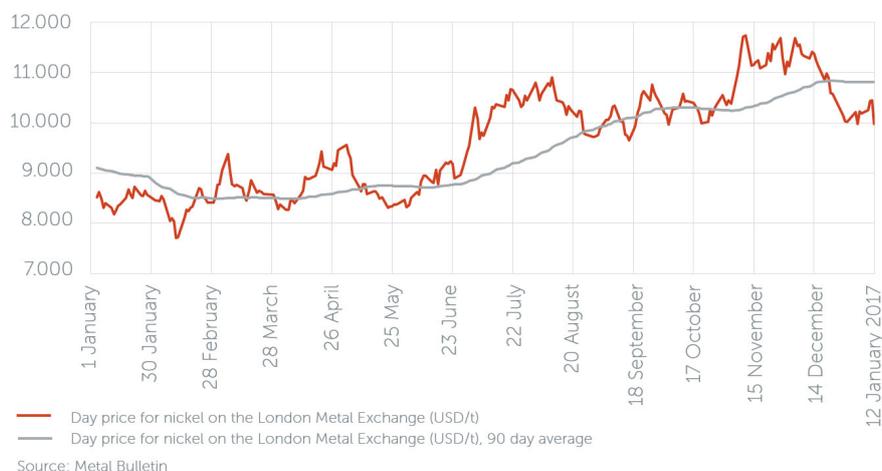
the last quarter of the year, which had a positive impact on the company's results.

Category teams support procurement

Alongside the management of customer relationships, Terrafame devoted itself to the assessment of potential business partners and the development of cooperation. Our aim is to maintain a network of partners that will be able to meet and sustain business growth in the long term.

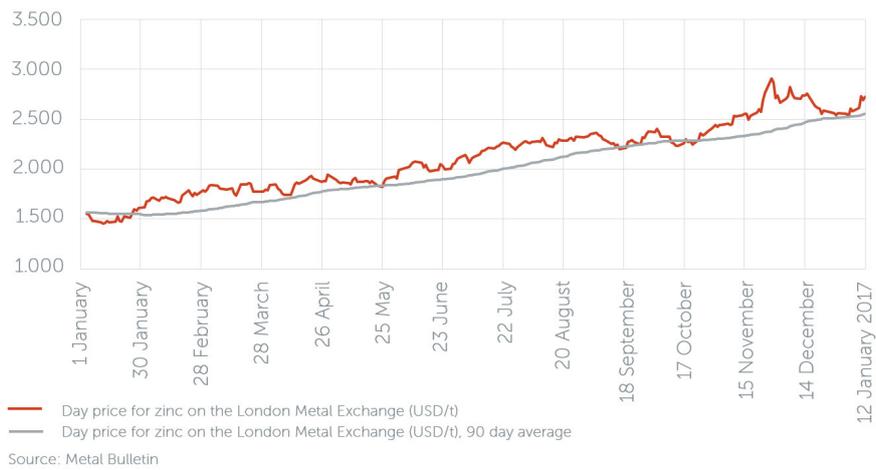
In the procurement, Terrafame introduced category teams made up of experts assembled from various operations. The task of these teams is to plan and manage the company's procurement as efficiently as possible. Operational costs can still be reduced, particularly in wear parts and chemicals.

Price development of nickel 1 January 2016 - 12 January 2017, USD/t



Price development of nickel in 2016. (USD/t)

Price development of zinc 1 January 2016 - 12 January 2017, USD/t



Price development of zinc in 2016. (USD/t)

Investments

Significant investments in production

During the year, Terrafame invested heavily in the development of production. As a whole, investments were in excess of EUR 84 million when taking into account the purchase of the lime plant and laboratory.

Terrafame began preparatory work in the commercialization of copper in 2016, and aims to begin its sale in 2017. Copper sulphide precipitation is the first step of the production process at the metals production plant. In bioheapleaching, however, copper leaches from the ore at a later stage than zinc and nickel, so its commercialization is of interest now, since production has already been at the ramp-up phase for some time.

During the year under review, the design work and procurements of the copper commercialization investment project were brought to completion. Construction work will be carried out in 2017. As a whole, copper commercialization is an investment project reaching almost EUR 1 million.

Secondary leaching a substantial investment

The construction of the base structures of the new secondary heaps 3 and 4 was continued during 2016. Capital expenditure totalled EUR 35 million. The heap 3 base structures were brought to approximately 70 per cent completion and the heap 4 base structures to approximately 40 per cent.

Secondary heap 3 will be ready for production in the spring of 2017 and secondary heap 4 at the turn of 2017 and 2018. When the secondary bioleaching cycle, lasting for 3–4 years, has been brought to completion, the leaching heaps will function as final disposal place for dissolved ore.

Waste rock area under

construction

Waste rock has so far been utilised in the construction of bioleaching areas, but from 2017 onwards it is to be transferred to a separate waste rock area located east of the Kuusilampi open pit. In an area located within the vicinity of the Kuusilampi ore body, two areas – KL2 and KL1 – have been planned. In the autumn of 2016, Terrafame applied for an environmental permit for KL2, whereas KL1's permit will become relevant later.

Earth removal in area KL2 was initiated in 2016, and the preparation of the base structures is continuing by compacting and coating as well as with construction work of a pumping station in 2017. During the year, investments in the waste rock area totalled approximately EUR 1.7 million.

Eight million to centralised water treatment plant

The construction work related to the centralised water treatment plant was completed by the end of 2016, and trial use of the plant began in November 2016. The centralised water treatment plant will simplify the water purification process, making purification more cost-efficient and providing consistent quality in purification results.

The purification process of the new plant is automated and its capacity is 1,400 cubic metres of water per hour. The purification technology represents the best available technology and is based on lime neutralization. Metals present in the water are precipitated and the water is purified. The centralised water treatment plant represented an investment of EUR 8 million.

Terrafame acquires a lime plant, laboratory and geodata

In July, Terrafame announced the acquisition of the lime plant situated in the mining area in Sotkamo, in addition to a laboratory and mine-related geological data from Talvivaara Mining Company Plc.

After the acquisition, process improvements were made to the lime plant in the early autumn, and as part of this work the limestone silos were renewed. As a whole, improvement investments amounted to

EUR 1.8 million.

Third hydrogen sulphide line brings more operational reliability

In October, the second production line was started at the metals production plant. The use of two production lines as well as the increase in metal production volumes will require more capacity from hydrogen sulphide production. For this reason, engineering work began in August on the third hydrogen sulphide line, which will be commissioned in the beginning of 2018.

During the year, several small-scale improvement investments were made to production. For example, the efficiency of the sulphur pulper was increased.

Research and development

A practical approach to research and development

Terrafame focused on its research and development work during the year to assist its production organisation. In addition to the daily work, broader research projects were also continued.

In 2016, Terrafame continued its nickel-cobalt and zinc production ramp-up programme, and the main task of research and development was to support production. In practice, the work was done in close cooperation with the various stages of production.

Terrafame's production is based on bioleaching, which is utilised in the extraction of metals from ore. Production technology based on microbial activity has been in industrial use round the world. Terrafame, in turn, has systematically developed its unique expertise in pyrrhotite-concentrated bioleaching of ores under northern conditions.

Support for the different stages of production

At the outset of the production process, in mining, mineralogical surveys were carried out in 2016. Based on this work, it will be possible in the future to plan and control the ore output value of metals and mineral compositions more precisely.

During the ore processing, the research and development aimed at defining the measures for agglomeration and improving the quality of the agglomerate. The homogeneity and permeability of the agglomerates are important factors in the bioleaching stage of the production process.

In the bioleaching, the focus was in securing the consistent process conditions as well as in optimising the microbial activity. During the year, the possibilities to measure the internal electrochemistry and temperature of heaps were also studied. The research and

development department also designed and built a leaching colony unit to be prepared for new types of bioleaching studies.

At the metals production plant, the production ramp-up phase was supported by research and development work. Running parameters were optimised so that the start-up of the plant after shutdowns is as smooth as possible. At the same time, development work was carried out on the ramp-up phase of the plant in order to eliminate the odour of hydrogen sulphide gas emissions.

Pre-study on further nickel processing brings encouraging results

Terrafame's main product during the entire period of its operations has been nickel-cobalt sulphide (NiCoS). However, the company's goal is to find ways to increase the value of its products. One possibility is to further process NiCos into nickel oxide. In this form, nickel could be sold in further processed form directly to steel works.

In 2016, Terrafame performed a pre-feasibility study on further processing nickel. The results were encouraging. In addition, further processing of the company's nickel was tested successfully by a third party in a full-scale test run.

In practice, nickel oxide production requires the addition of a roaster in Terrafame's production process after the metals precipitation phases. Roasting the by-product of the sulphur dioxide produced can, in turn, produce sulphuric acid suitable for leaching the metals. Nickel oxide production was also introduced in November in the EIA programme covering the company's mining operations.

Landscaping requires research

The closure of mining areas in Finland is controlled by legislation and permit decisions. Terrafame's operations are set to continue for decades, but during the past year, the company carried out research and development work on covering gypsum ponds and secondary leaching areas as well as in connection with landscaping.

Terrafame's environmental monitoring is carried out by an independent third party. In addition, the company takes its own samples, by which it monitors the mining area on a daily basis.

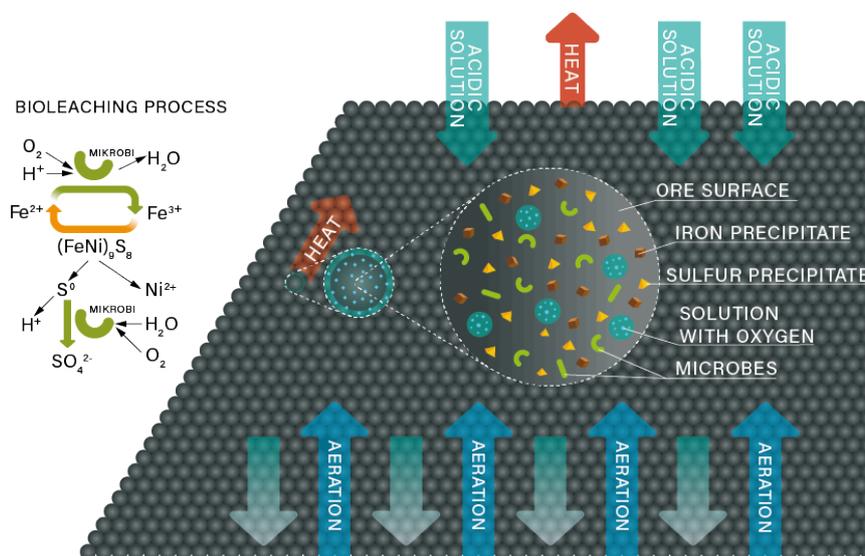
During 2016, the research and development laboratory was also utilised in the analysis of these environmental samples.

In 2016, Terrafame also conducted research cooperation with external research institutes and universities, mainly in Finland.

Water management research further developed

In the autumn of 2015, Terrafame's parent company Terrafame Group Ltd. launched a development project to support the environmental work at Terrafame mine. In the spring of 2016, the cooperation project progressed from conceptualisation to trial activity stage, and in November four process water management pilots were launched in the mining area. With the pilot projects, possibilities are being sought to further reduce the environmental impacts of the mine, improve production efficiency, and create new business opportunities.

During the year, Terrafame Group Ltd applied for a patent for a new overall concept on water management, as well as for a collection of individual inventions. In addition, the operators involved in the development project filed their own patent applications related to their specific technologies.



In bioleaching, microbes are utilised to catalyse iron and sulphur chemical reactions.

Responsibility

Good progress in safety and environmental affairs

The number of lost-time injuries dropped significantly in 2016, and the target set for the amount of water stored at the mine was nearly reached.

When Terrafame began operations in autumn 2015, developing company safety culture was selected as one of the key focus areas. Another key goal was to reduce the risks associated with water management. Excellent progress was made in both respects during 2016.

The management system was built as planned

The ability to perform one's work safely and effectively is founded on being systematic. Terrafame's management system was built according to plan during the year under review.

When operations began in autumn 2015, certain targets and practices for budgeting and monitoring costs were set for Terrafame. These targets were specified and practices developed during 2016. The key tasks for building the management system included, for example, describing the various production and support processes, determining objectives and indicators, and establishing the practices for meetings and reporting. Systematic practices were also created for project management.

The systematisation of operations was also extended to partners. The processes for purchasing and procurement were developed and, among other requirements, the safety standards required by Terrafame were determined. Audits of 10 key contractual partners, with safety as the main priority, were conducted during 2016.

The building of the management system reached the external auditing phase in October–November. In the external audit, experts from DGS Finland evaluated the functionality of Terrafame's management system and its conformity with the requirements of the

standards. The external audit proceeded as planned, and in February 2017, Terrafame was awarded certifications for its quality management (ISO 9001 : 2015), environmental management (ISO 14001 : 2015), and occupational health and safety management (BS OHSAS 18001: 2007) systems.

Safety culture developed in the right direction

The systematic development of a safety culture was launched already in 2015, and the work continued actively throughout 2016. During 2016, weekly safety rounds, safety meetings and lessons-learned discussions became part of the weekly routines at Terrafame. In addition, management training aimed at better safety management was organised for all supervisors.

During 2016, a total of 9 lost-time injuries happened to Terrafame's employees, making the lost-time injury frequency (LTIFR) 8.6 injuries per million hours worked. This was not far from the targeted LTIFR, which was set at less than 7.0. Although the target was not reached, progress was made compared to the end of 2015 when the LTIFR was 23.3. In 2017, the LTIFR has continued to develop in the right direction.

Systematic promotion of safety work was also initiated with business partners operating at the mining site and in the plant area. Quarterly meetings have been organised for representatives of all key partners. The key themes discussed at the meetings have been safety and the operating practices required by Terrafame.

Although safety work has been promoted with business partners, the LTIFR of partners operating at Terrafame's sites during the year under review was 19.4. The promotion of safety at work among partners will be intensified during 2017.

Risk level of water management reduced significantly

Terrafame began operations in August 2015 under very difficult circumstances. Approximately 10 million cubic metres of water was stored at the mining area, and the safety ponds for the bioleaching solution were full. As a result, the risks associated with water management and leaching solution management were high.

In order to ensure dam safety, the company had to resort to additional discharges at the end of 2015 and again in the spring of 2016. Additional discharges were used to release purified water that met all the concentration limits set in the environmental permit through old discharge routes and the Nuasjärvi discharge pipe. Due to the discharges, the sulphate concentration of the old routes exceeded the maximum limit set in the environment permit. Despite the additional discharges, the amount of water stored at the mining area at the end of the spring flood season was very close to the maximum limit.

The amount of water stored at the mining area dropped rapidly during the summer and autumn of 2016. This was mostly due to the use of the Nuasjärvi discharge pipe at full capacity, the binding of water to stacked ore, the efficient use of the reverse osmosis plant, and the additional evaporation caused by bioleaching. Since March 2016, the effluent from the reverse osmosis plant has been released to bioleaching circulation. In 2016, 5,700 tonnes of sulphate was released back to the leaching heaps with the effluent. The amount of water stored at the mining area fell throughout the summer and autumn, so that at the end of the year, the amount of stored water was down to 3.8 million cubic metres.

Valid permits enabled the ramp-up of the mine

At the beginning of 2016, all the key environmental permit processes relating to operations at the mine were waiting for a decision by the Vaasa Administrative Court. On 28 April 2016, the Vaasa Administrative Court issued its decisions on the mining operations (including the recovery of uranium), the discharge pipe into Lake Nuasjärvi, and the treated waters to be released to the old routes in the direction of Oulujoki and Vuoksi rivers. After the decision of the Vaasa Administrative Court, the processing of the permits has continued at the Supreme Administrative Court, which is expected to issue its decisions during 2017.

The sulphate quota set for the Nuasjärvi discharge pipe by the Administrative Court was 15,000 tonnes per year, which was clearly lower than the quota set in the permit issued by the Regional State Administrative Agency for Northern Finland. In 2016, less than 14,000 tonnes of the quota was used, i.e., the quota was sufficient and enabled the reduction of the amount of water stored at the mining area, which was essential for safely implementing the ramp-up of the mine.

In its decisions issued in April 2016, the Vaasa Administrative Court required Terrafame to apply for new environmental permits by the end of August 2017. The existing permits remain valid until the new permits enter into force.

With a view to any future permit processes, Terrafame launched two EIA (environmental impact assessment) procedures in the autumn of 2016. The EIA procedure for water management reached the report preparation phase in 2016. Terrafame also submitted an EIA programme for continued mining operations and their development as well as an alternative for implementing a managed closure of the mine, to the Centre for Economic Development, Transport and the Environment for the Kainuu region, for gathering statements and opinions. The EIA procedures are scheduled for completion during the spring and summer of 2017. The new environmental permit applications will be submitted to the Regional State Administrative Agency for Northern Finland within the time limit prescribed by the Vaasa Administrative Court.

Veli-Matti Hilla

Chief Sustainability Officer, Terrafame Ltd.

Key issues

Safety, efficiency and commitment guide our actions

The cornerstones of Terrafames operations – safety, efficiency and commitment – also guide the company's activities in the field of sustainability. We are committed to continuous improvement in both internal and external processes.

Nearly 1,200 regular employees worked at our mine in Sotkamo in 2016. Slightly more than half of these were Terrafame's own employees, and the remainder were those of our business partners. In addition to the safety of Terrafame employees, we also want to ensure that the employees of our business partners perform their work safely.

At Terrafame, safety begins with planning and foresight. We address all shortcomings and investigate the underlying causes of risks and accidents. We also require all personnel working in the area to observe the same principles and guidelines.

The environment and local people in focus

Industrial activities always have an impact on the environment. This applies to Terrafame, too. We are constantly striving to decrease the environmental impact of our daily work. We are developing our production methods, which will bring economic benefits, reduce emissions and decrease energy consumption. Our goal is to outperform the regulatory minimum requirements.

Terrafame wants to meet the expectations of stakeholders through open and honest communications based on correct information. We pay particular attention to timely environmental communications. For example, both the real-time results of water body analyses and reports based on monitoring results are available on our website.

The ramp-up of operations has increased Terrafame's significance.

We provide prosperity to our employees and partners in Kainuu and everywhere else in Finland.

Management system developed systematically

Terrafame's management system is based on international standards and is driven by the sustainable development policy approved by the Board of Directors. We have set clear targets for EHSQ, i.e., environmental, health, safety and quality issues. EHSQ issues are monitored in operational activities and by the Management Team and Board of Directors.

In 2016, the entire organisation contributed to the development of our management system, and in February 2017, we received environmental (ISO 14001), safety (OHSAS 18001) and quality management (ISO 9001) certificates. Cooperation with external service providers has also been incorporated into our quality assurance work.

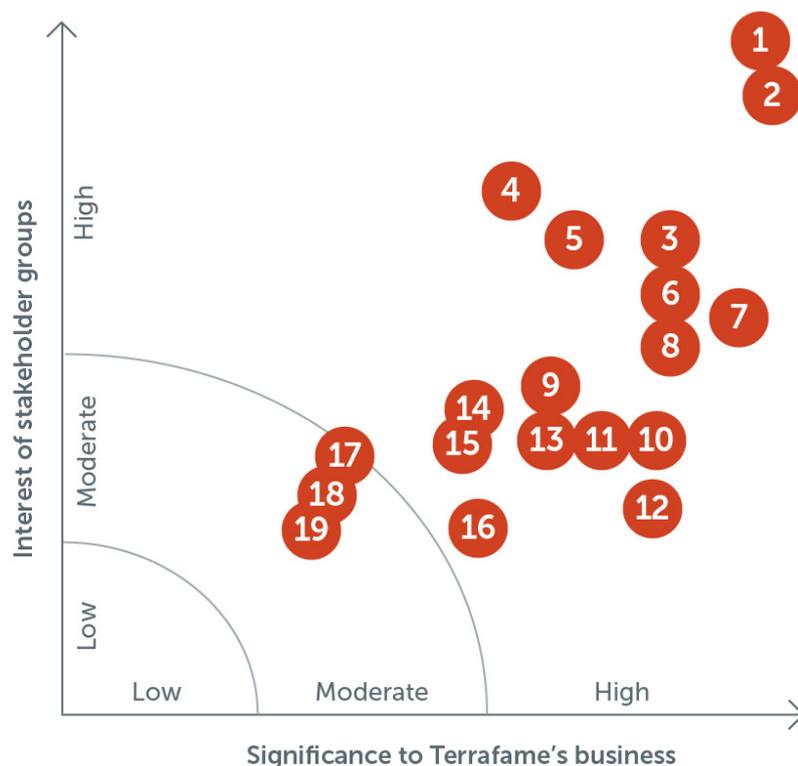
Sustainability analysis emphasises water management and profitability

Terrafame's materiality analysis is a compilation of the views of the company's management and stakeholders on the aspects of corporate responsibility that are particularly essential to the company's operations. In early 2016, we updated the materiality analysis for both management and stakeholders. The analysis is based on surveys, the views of key employees and feedback obtained through different interactions. The results of the analysis were ratified by the Management Team.

According to the results of the materiality analysis, Terrafame's main themes of responsibility are related to water management and economic viability. Other key areas identified included employment as well as competent and committed personnel, management included. Apart from these, emission control, safety, communication and customer satisfaction were identified as key issues.

The identified themes will be emphasised in our communications and corporate responsibility report. Environmental subjects are also covered in the annual environmental monitoring reports published

on our website.



1. Water management
2. Economics
3. Competent and committed management and staff
4. Employment
5. Interaction and communications
6. Emission control
7. Occupational health and safety
8. Customer satisfaction
9. Impacts on biodiversity
10. Risk management
11. Emergency preparedness
12. Employee satisfaction
13. Legal requirements, permits and good governance
14. Research and development
15. Raw material efficiency
16. Energy efficiency
17. Environmental investments and expenditure
18. Life cycle of mines
19. Product safety

Five main sections of the corporate responsibility report

Our corporate responsibility report is divided into five main sections: stakeholders, finance, safety, the environment and personnel. The report is intended for Terrafame's business partners, local residents and communities, and others interested in the company's operations. Naturally, the report also includes useful information for our personnel.

We report annually on the progress and results of our responsibility efforts. This report covers the year 2016. With regard to Terrafame's business operations and safety figures, the report also includes the details of our partner companies that operate in the area. Any exceptions to this are indicated in connection with the figures in question. Most of the financial responsibility figures can be found in our Financial Statements.

We apply the G4 reporting guidelines of the Global Reporting Initiative (GRI) Foundation and the guidelines for the extractive industry's Mining and Metals sector to our social responsibility reporting. This report has not been verified by an external party.

KEY SUSTAINABILITY FIGURES

		15 Aug - 31 Dec 2015	2016
Financial			
Nickel production	t	578	9,554
Zinc production	t	1,812	22,575
Net sales	€ '000	2,524	101,042
Operating profit (loss)	€ '000	-93,090	-136,722
Return on investment	%	-77.9%	-79.2
Income tax expense	€ '000	0	0
Environmental	M€	3.8	37.2

investments			
Environmental operating costs	M€	17.3	38.8
Provisions for environmental restoration	M€	162.1	162.1
Collaterals for environmental restoration **	M€	34.4	41.3
Sponsoring	€	0	36,000
Employee wages and salaries	€ '000	9.9	28,387
Environment			
Ore	Mt	4.1	14.2
Waste rock	Mt	4.4	18.4
Chemicals	t '000	147.1	475.0
Limestone CaCO ₃	t '000	42.5	112.1
Sulphuric acid H ₂ SO ₄ (93%)	t '000	53.0	150.2
Caustic soda NaOH (50%)	t '000	12.3	47.9
Burnt lime CaO	t '000	30.1	110.8
Sulphur	t '000	2.0	22.2
Chalk	t '000	1.7	6.3
Explosives	t '000	2.6	11.0
Hydrogen peroxide (50%)	t '000	0.8	3.7
Other	t '000	2.2	10.8
Total energy use	TJ	531.4	1,757.8
Electricity	TJ	360.6	1,133.9
Light fuel oil	TJ	124.5	494.7
Heavy fuel oil	TJ	46.3	129.2
Total water use	Mm ³	3.2 *	3.4
Lake Kolmisoppi	Mm ³	0.6 *	0.9
Household water	Mm ³	0.02 *	0.02
Recycled water	Mm ³	2.4 *	2.6
Total recycled water	%	74.7 % *	71.0 %

Volume of water directed to surface waters	Mm ³	8.4 *	9.6
Nickel loading	kg/a	223.3 *	295.7
Zinc loading	kg/a	368.4 *	396.4
Copper loading	kg/a	18.1 *	16.1
Manganese loading	t/a	7.0 *	4.1
Sulphate loading	t/a	14,812 *	17,547
Sodium loading	t/a	3,049 *	3,703
Non-hazardous waste	t	904 *	2,778
Hazardous waste	t	164 *	275
Waste utilised as materials or energy	%	70.0% *	77.0%
Process waste	t'000	4,670	18,952
Gypsum	t'000	272.0	522.6
Precipitate from preneutralization	t'000	4.3	37.3
Waste rock	t'000	4,393	18,392
Utilisation of process waste	%	94%	97%
CO2 emissions	tCO ₂ e	90,774	283,167
Direct CO ₂ emissions (Scope 1)	tCO ₂ e	39,888	110,651
Indirect CO ₂ emissions from purchased electricity generation (Scope 2)	tCO ₂ e	27,244	85,593
Other indirect CO ₂ emissions (Scope 3)	tCO ₂ e	23,642	86,923
Sources of greenhouse gas emissions			
Limestone	%	25 %	21 %
Electricity	%	30 %	30 %
Light Fuel Oil	%	11 %	14 %
Propane	%	3 %	0
Burnt lime	%	26 %	31 %

Heavy Fuel oil	%	4 %	3 %
Chalk	%	1 %	1 %
New land used during the year	ha	0	153
Cumulative land used	%	100	100
Neighbours' environmental observations	no.	17	9
PERSONNEL			
Number of personnel at end of period	no.	529	584
Average age of personnel	year	40.2	40.3
Percentage of permanent employees	%	97.54 %	97.5 %
Percentage of female employees	%	7.7 %	9.6 %
Percentage of employees from Kainuu	%	85.5 %	84.0 %
Blue-collar employees' training days	days/ person	1	2
Employee turnover	person	21	48
Ratio of basic salary women to men		1:1	1:1
OCCUPATIONAL HEALTH AND SAFETY			
Number of accidents (LTI)	no.	19 *	9
Number of accidents (LTI)	no./million hours worked	23.3 *	8.4
Number of accidents (TRI)	no.	63 *	52
Accident frequency (TRIF)	no./million hours worked	77.2 *	47.6
Seriousness of accidents	days/LTI accidents	1.7	6.7
Occupational diseases	person	0 *	0
Accidental deaths at work	person	0 *	0
Sickness Absences	days/ person	4.2	14.0
Sickness Absences	%	5.0	5.3

NA = not available

CO2 = carbon dioxide

LTI = accidents leading to more than one day's absence, does not include accidents during commuting (Lost Time Injury)

LTIFR1 = accidents leading to more than one day's absence per million hours worked,

does not include accidents during commuting (Lost Time Injury Frequency)

TRI = number of accidents (Total Recordable Injury)

TRIF = number of accidents per million hours worked (Total Recordable Injury Frequency)

* Number include full-year 2015 volumes

** Excluding collaterals for starting operations despite appeal

Stakeholders

Emphasis of stakeholder relations was on nearby residents

Terrafame has an open approach to interacting with various stakeholders. In 2016, we put effort into collaborating with local stakeholders. Many other groups from all over Finland and around the world also came to see how we operate. During the year under review, Terrafame was owned by Terrafame Group Ltd., which is wholly owned by the State of Finland.

Terrafame's stakeholders include our own staff and the employees of our business partners, people of the nearby areas, customers, policy-makers, and the media. In addition, various groups, ranging from student guilds to organisations of senior citizens, visited us each week to see how we operate.

The visits began with a general presentation of the company and a safety briefing. From there, the discussion usually turned to topics of interest to the visitors, such as occupational safety, logistics, or environmental issues. Then it was time to put on the mandatory safety gear and take a tour of the mining site and plant area to take a look at the daily operations of Terrafame.

Information to people working in the area and their close ones

Internal communications is part of safety work at Terrafame. There are many communication channels in use, such as the Intranet, Terrafame's own video channel, as well as information displays placed all around the site. Information is also distributed at meetings, for example, in connection with shift changes, as well as during interdepartmental meetings.

Terrafame's management team and staff met at six staff events during 2016. Safety issues and the progress of the ramp-up were among the topics discussed at these events. In 2016, business

partners were invited to four contractor events, one of which was a joint meeting of Terrafame employees and those of its business partners.

From April 2016 onward, Terrafame ViikkoNews, a weekly staff magazine, has been published as UrakoitsijaExtra once a month. In addition to Terrafame staff, UrakoitsijaExtra is also distributed to business partners.

A Family Day was organised in August during which the family members of Terrafame's employees were invited to a workplace visit. The theme of the event was production and presenting the different stages of the production process. Approximately 170 people, ranging from babies to grandparents, visited the site during Family Day.

Networks and monitoring groups support operations

During the year under review, we participated in the activities of the Network for Sustainable Mining. The Network provides a forum for cooperation between the mining industry and various stakeholders, helping the mining industry act in a manner that is sustainable to the environment, people, and the economy. Terrafame is preparing to adopt the sustainability standard for mining – the Finnish TSM (Towards Sustainable Mining) standard – by the end of 2017.

In 2016, Terrafame launched two environmental impact assessment (EIA) procedures. The EIA procedure for water management was launched in July, and the EIA procedure for production, i.e., the continuation and development of mining operations or, alternatively, implementing a managed closure of the mine, in September. As part of the procedure, inter alia, nearby residents may submit their opinions on the environmental impact assessments to the coordinating authority.

A monitoring group was established for both EIA procedures, tasked with promoting the flow and exchange of information among Terrafame, the authorities and other stakeholders. The monitoring groups are composed of citizens and groups whose living conditions or interests may be affected by the project, including residents from the nearby areas, representatives of the municipalities impacted by mining activities, landowners, owners of water areas, and local associations.

Meetings were held with the monitoring groups three times during the autumn. In addition, events that were open to the public were

held on both EIA procedures in the autumn. The EIA procedure for water management was presented in Kajaani, and the EIA procedure for production in Sotkamo.

Reliable operator with security of supply

Terrafame's goal was to lay the foundation for stable commercial operations in 2016. In its first full year of operation, the company expanded its customer base worldwide. Security of supply and effective logistical solutions are key priorities in the cooperation activities that Terrafame has launched with its customers.

As a client, Terrafame is committed to developing cooperation and acting in full compliance with its contractual obligations. Deepening partnerships with suppliers will ensure the profitability of the investments made in the partners' supply chains and service production.

Terrafame.fi and terrafame.com were revamped in the autumn

Terrafame's websites were revamped to better serve customers and others interested in our products. Topical news is also conveyed through the pages on environmental issues. The EIA procedures have their own section on the website, including progress reports and schedules. The documents related to both EIA procedures, such as the memos of the monitoring groups and the materials for the public events, are also available on these pages (only in Finnish).

Terrafame's Finnish-language website, terrafame.fi, and English-language website, terrafame.com, had a total of 45,800 visitors during 2016.

Most visited pages:

1. [Homepage](#)
2. [Terrafame Oy](#) – Terrafame's strategy and governance
3. [Ajankohtaista](#) – News and releases
4. [Meille töihin](#) – Job opportunities
5. [Ota yhteyttä](#) – Terrafame's contact information and contact message form

Partnering with local sporting

clubs

Terrafame sponsored two sporting clubs in 2016: Sotkamon Jymy (a top-level Finnish baseball team) and Kajaanin Edustushokki (plays in the second-highest ice hockey league in Finland). In addition, the company supported financially the Red Feather campaign of Lions Club, which helps young people in life management skills, welfare matters and prevention of social exclusion.

Terrafame sponsored the above-mentioned bodies with a total of approximately EUR 36,000 in 2016.

Terrafame's stakeholders and their expectations

Stakeholders	Stakeholder expectations	Terrafame's response to expectations
Personnel and potential new employee	Safe and permanent job, well-being at work, training, employee development and career opportunities, equal opportunities	Safe employer, taking care of work ability and well-being at work, opportunity to improve competence, continuity of operation
Neighbours, landowners and local communities, civil organisations	Responsible business operations, risk management, interaction and communications, employment, good corporate governance	Responsible operations, stabilisation of production, cooperation, active interaction, up-to-date and transparent communications
Shareholders, investors, financiers and analysts	Risk management, economic performance, good corporate governance, interaction and communications, responsible business operations	Development and stabilisation of production, consolidation of long-term profitability, responsible operations regarding both safety and the environment, active and up-to-date communications
Customers	Product quality and reliable deliveries, responsible business operations, risk management, economic performance, interaction and communications	Stabilisation of production, high-quality products and customer satisfaction, cooperation and interaction, responsible operations
Business partners	Good corporate governance, economic performance, responsible business operations,	Cooperation development and interaction, stabilisation of production, maintenance of a safe

	risk management, interaction and communications, long-term partnerships	work environment, responsible operations, active communications
Educational and research institutes	Innovations, responsible business operations, good corporate governance, research cooperation and employment	Development of R&D work, providing jobs and traineeships, responsible operations
Representative bodies, authorities and the society	Responsible business operations, risk management, interaction and communications, good corporate governance, regional well-being, industry development, tax income and employment	Responsible operations, cooperation and interaction, communications and transparency, stabilisation of production
Media	Interaction and communications, responsible business operations	Development of cooperation and interaction, up-to-date and transparent communications, responsible operations

Economic impact

Terrafame has a significant impact on the Kainuu and Finnish economy

In autumn 2016, a report on Terrafame's economic impact on the area was published. This report reviewed the company's direct economic impact and the multiplier effects of production and consumption in Kainuu and elsewhere in Finland.

In autumn 2016, the consulting company Ramboll Finland carried out a survey of Terrafame's impact on the regional economy. The conclusion was that Terrafame's multi-metal mine and metals production plant are highly important to the vitality of the Kainuu region in Finland. In addition, the impacts on employment and economy extend widely to other parts of Finland and to various industries.

The report evaluated the annual impact of Terrafame's activities during 2019–2023 with the assumption that the company will be operating at full capacity in accordance with its strategy. The effects were compared to a situation in which Terrafame's mine and metals recovery plant did not exist.

Significant increase in the total output of Kainuu and Finland

According to the report, the total production value (total output) of Terrafame's mine and metals production plant, together with the relevant multiplier effects, will rise to around EUR 1.1 billion per year.

Together with the multiplier effects, the impact on the total output of Kainuu will amount to approximately EUR 600 million per year. Compared to the 2013 figures, this is approximately 16.7% of the total output of the Kainuu region. Regarding the total output of other parts of Finland, Terrafame's impact was estimated to be

approximately EUR 510 million.

The multiplier effects of production are estimated to be EUR 77 million in Kainuu and EUR 415 million elsewhere in Finland. The multiplier effects of consumption are estimated to be EUR 43 million in Kainuu and approximately 93 million elsewhere in Finland.

Nearly 11 per cent of Kainuu's gross domestic product

The Terrafame mine and metals production plant have a major impact on the GDP of Kainuu and Finland as a whole. According to the report, Terrafame's impact on Finland's GDP will amount to approximately EUR 430 million. Of this, EUR 225 million will be generated in Kainuu, which is equal to 10.9% of Kainuu's GDP compared to the 2013 level. Approximately EUR 210 million will be generated elsewhere in Finland. In total, compared with the 2015 level, this corresponds to 0.2% of Finland's GDP.

Employment impact of about 4,300 person-years

The employment effects of Terrafame's operation are substantial both for Kainuu and the entire country. According to the report, in a production situation that is in line with the company's strategy, and with the multiplier effects included, Terrafame's mine and metal production plant will employ approximately 1,500 people in Kainuu. Elsewhere in Finland, including the entire supply chain, the employment effects will amount to approximately 2,800 person-years. Consequently, operations in accordance with Terrafame's strategy will create employment amounting to more than 4,300 person-years in total.

Almost EUR 140 million in various tax revenues

The report states that operations in accordance with Terrafame's strategy will generate, on an annual basis, a total of nearly EUR 140 million in tax revenue from real estate tax, corporate tax, local income tax, value-added tax, product tax and tax linked to production.

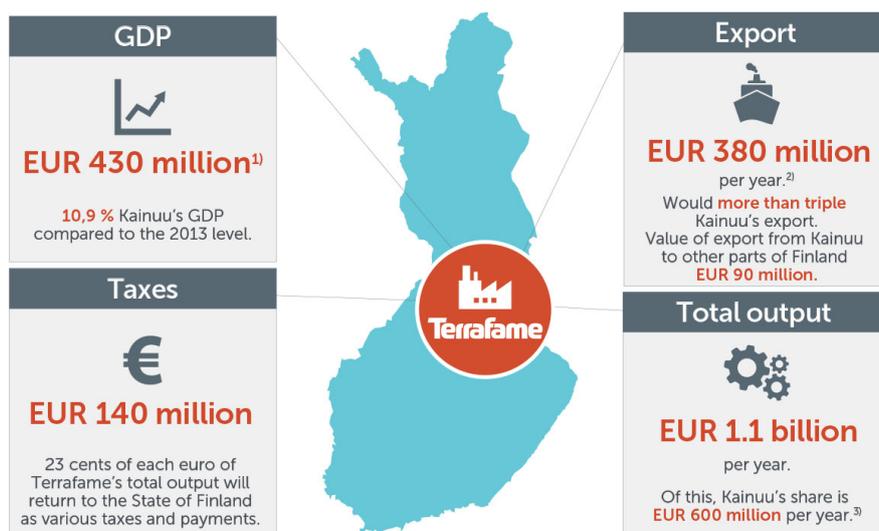
In Kainuu, the amount of annual local taxes will be approximately EUR 11 million. Elsewhere in Finland, local taxes will amount to around EUR 16 million. As for value-added tax, the total amount will be around EUR 91 million. With their multiplier effects, product and production-related taxes will amount to approximately EUR 11 million in Kainuu. Elsewhere in Finland, product and production-related taxes will amount to approximately EUR 8 million.

Kainuu's exports more than tripled

The default applied in the report is the year 2016 situation, where 75% of nickel and 100% of zinc produced by Terrafame are exported. Based on the autumn 2016 price forecasts, the annual value of Terrafame's exports is estimated to be approximately EUR 380 million. This would result in Kainuu's overseas exports increasing to approximately EUR 475 million. If mining operations continue in accordance with the autumn 2016 plans, Kainuu's exports will increase by approximately 230%.

In addition, if mining operations continue in accordance with the company's strategy, the annual value of exports from Kainuu to elsewhere in Finland will be approximately EUR 90 million. This consists of the sale of nickel, copper and cobalt for further domestic processing.

According to the report, each euro of Terrafame exports would generate EUR 2.88 of the total output in Finland, and each euro of Terrafame imports would generate EUR 7.62 of exports.



Terrafame's impact on Kainuu and Finland's economy.

Tax contribution

Terrafame's commitment to accountability also extends to tax matters

Terrafame Group is publishing information about its tax status in 2016. The reports are based on the guidance on tax reporting issued on 1 October 2014 by the Government Ownership Steering Department of the Prime Minister's Office.

Terrafame Group Ltd. is a special assignment company owned by the Finnish government and is subject to ownership steering by the Ministry of Economic Affairs and Employment. At the end of the financial year, Terrafame Group included Terrafame Ltd., a company wholly owned by the parent company. During the financial year 2016, the Terrafame-owned subsidiary, Winttal Ltd., was dissolved and its assets available for distribution were transferred to the parent company. The dissolution was registered on 29 December 2016.

Terrafame Ltd. was entered into the Trade Register on 5 June 2015 under the name Terrafame Mining Ltd. The company's name was changed to Terrafame Ltd. in August 2015. Terrafame commenced its actual operations on 15 August 2015 after having acquired the business of Talvivaara Sotkamo Ltd.'s bankruptcy estate and the related inventories and fixed assets. The financial year from 1 January to 31 December 2016 is the company's second financial year and the first full year of operation.

This report includes information about the management of tax matters within the Group and an itemisation of taxes paid to Finland. Terrafame Group only operates in Finland and therefore, does not pay taxes in other countries.

Terrafame Group has an important social role to play especially in the Kainuu region in Finland. The ramp-up of the mine and metals production plant has required extensive recruitment. The number of Terrafame Ltd.'s employees increased from 529 persons at the end of 2015 to 645 persons at the end of 2016.

In addition to its own employees, 550 people through 70

subcontractor companies worked full-time at the site at the end of 2016. On 31 December 2016, Terrafame Group Ltd. employed five people directly.

Strategy and principles for the management of tax matters

Terrafame Ltd. is focused on environmentally sustainable, safe and financially profitable operation. The business is based on three cornerstones: safety, efficiency and commitment.

Both Terrafame Ltd. and Terrafame Group Ltd. also act responsibly from the perspective of corporate governance. The companies and their management as well as personnel are committed to observing all applicable laws and regulations in their work. The company is also committed to implementing corporate social responsibility in accordance with the state ownership policy. As an unlisted company, Terrafame Ltd. also observes, as applicable, the Finnish Corporate Governance Code (2015) for listed companies issued by the Securities Market Association.

Terrafame companies fulfil their obligations to pay and report taxes in a timely manner, and their objective is to resolve any significant tax issues in advance in cooperation with the tax authorities. The Terrafame companies strive to minimise tax-related uncertainties and to respond promptly to any regulatory changes. The companies ensure the professional competence of personnel who deal with tax issues and, if necessary, use the best possible external expertise so as to supplement their personnel's know-how.

Organisation and management of tax matters

The division of responsibilities in tax matters complies with Finnish company legislation. The most important tax-related matters are dealt with by the Boards of Directors of the companies.

The CEO of Terrafame Group Ltd. and the CEO of Terrafame Ltd. are responsible for the organisation of tax matters together with the CFO of Terrafame Ltd. In 2016, the Group engaged external experts in the management of tax matters and focused on active cooperation with the tax administration of Finland.

The operations of Terrafame companies are guided by principles that

emphasise responsibility. The companies do not plan their operations with the aim of gaining tax benefits, and they have no operations abroad. The companies strive to investigate the tax consequences of crucial business decisions in advance and operate in an economically justified manner, provided that their practices are acceptable from the perspective of taxation.

Reporting principles

The report is based on financial statements and accounting documents drawn up in accordance with the Finnish Accounting Act (1336/1997 of 30 December 1997). The reported taxes are based on account-specific and voucher-specific accounting. We report our taxes in thousands of euros.

The report excludes mandatory insurance premiums that are included in salary costs. These insurance premiums, which are directly related to salaries, are dealt with as direct salary costs due to the nature of these kinds of insurance. The Terrafame companies do not report small amounts of value-added tax included in foreign travel and training costs.

Itemisation of taxes paid by Terrafame Ltd. and Terrafame Group Ltd.

Due to the ramp-up stage of the operations, the company has not yet accumulated taxable earnings. However, a considerable amount of tax expenses have accumulated due to the energy and fuel taxes related to the operations. In addition, the companies have paid taxes related to the acquisition and ownership of assets, as normal. Due to value-added tax refunds related to the founding stage, the total amount of taxes paid, collected and accounted for is many times the amount of the net sales. Terrafame Group Ltd.'s subsidiary Winttal Oy had no taxes to report in 2015.

2016

Key figures	Terrafame Group Ltd.	Terrafame Ltd.	Group total
Net sales, EUR 1,000	207	101,042	101,249
Earnings before tax, EUR, 1,000	-2,451	-124,912	-127,363
Average number of personnel during the financial year	3	626	630

2015

Key figures	Terrafame Group Ltd.	Terrafame Ltd.	Group total
Net sales, EUR 1,000	111*	2,524	2,634
Earnings before tax, EUR 1,000	-1,210	-91,748	-92,958
Average number of personnel during the financial year	2	480	482

*) In 2015, the service sales of Terrafame Group Ltd. was registered under other operating income.

The table below presents the tax categories per company – first for 2016 and then for 2015, which is the year of comparison.

2016

EUR 1,000	Terrafame Group Ltd.	Terrafame Ltd.	Group total
Taxes paid			
Direct taxes paid	10	1,419	1,429
Income taxes, operating at a loss	0	0	0
Asset transfer taxes	0	212	212
Property tax	0	487	487
Employer's social security contributions	7	545	552
Parafiscal charges	3	175	178
Indirect taxes paid	1	6,611	6,612
Electricity taxes, net	0	2,906	2,906

Electricity taxes	0	3,273	3,273
Electricity taxes, return	0	-367	-367
Insurance premium tax	1	390	391
Fuel taxes, net	0	3,267	3,267
Fuel taxes	0	3,463	3,463
Fuel taxes, return	0	-197	-197
Waste tax	0	48	48
Taxes collected and accounted for	-210	-51,892	-52,102
Tax withheld in advance	158	6,170	6,328
Value-added tax, net	-368	-58,062	-58,430
Value added tax, sales	61	10,570	10,631
Value-added, purchases	-419	-68,632	-69,061
Total	-199	-43,862	-44,061
Ratio of tax payments to net sales	-96.14%	-43.41%	43.52%

The table below presents the tax categories per company – first for 2016 and then for 2015, which is the year of comparison.

2015

EUR 1,000	Terrafame Group Ltd.	Terrafame Ltd.	Group total
Taxes paid			
Direct taxes paid	63	285	348
Income taxes, operating at a loss	0	0	0
Asset transfer taxes	61	5	66
Property tax	0	104	104
Employer's social security contributions	2	90	92
Parafiscal charges	0	86	86
Indirect taxes paid	7	2,766	2,773
Electricity taxes, net	0	1,522	1,522
Electricity taxes	0	1,522	1,522

Electricity taxes, return	0	0	0
Insurance premium tax	7	120	127
Fuel taxes, net	0	1,110	1,110
Fuel taxes	0	1,110	1,110
Fuel taxes, return	0	0	0
Waste tax	0	14	14
Taxes collected and accounted for	-192	-17,936	-18,128
Tax withheld in advance	51	1,001	1,052
Value-added tax, net	-243	-18,937	-19,180
Value added tax, sales	27	693	720
Value-added, purchases	-270	-19,631	-19,901
Total	-122	-14,885	-15,007
Ratio of tax payments to net sales	-110.05%	-589.83%	-596.64

On 41 December 2016, the Terrafame companies had unrecognised deferred tax assets of approximately EUR 41.5 million, which consisted of estimated loss for the financial year 2016 (EUR 23.6 million), the confirmed loss for the financial year 2015 (EUR 17.2 million) and deferred depreciations (EUR 0.7 million).

Safety

Safety culture developed in the right direction

Terrafame strove to build a new kind of safety culture throughout the year, and the company's accident frequency rate fell to a third of the rate at the end of the previous year. The successes enjoyed by the plant site's fire brigade paved the way for expanding collaboration with the local rescue authority, enabling better service for the surrounding area.

Safety was in focus at Terrafame in 2016. The aim was to change the safety culture for the better and substantially reduce the number of occupational accidents. Our safety culture was built through comprehensive, safety-oriented managerial training, which was attended by management, production managers and shift supervisors alike. The training reinforced the safety regulations and standards that are applied at Terrafame.

Thanks to the positive development of our safety culture, the number of lost-time incidents was halved to nine in 2016. The frequency of lost-time incidents decreased to 8.4 per million working hours, a reduction of roughly two thirds from the previous year. The objective for 2016 was a maximum of 7 lost-time incidents per million hours worked, so we fell slightly short of the target.

Terrafame has two key rules for occupational safety:

- Work is to be performed safely or not at all.
- Time is not an obstacle to performing tasks safely, carefully and in accordance with instructions.

We follow the golden rules in our work:

1. **Protective equipment** – Always use the agreed-on protective equipment!
2. **Disconnection from the power supply** (zero energy) – Always do this according to instructions!
3. **Traffic** – Always follow the traffic regulations of the mine!
4. **Hazardous substances** – Always follow the handling instructions!

Terrafame requires its operations to be safe for its own employees and business partners alike, in all conditions and situations. The safety objective and monitoring of safety indicators also apply to our business partners that operate in the mine and plant area. During the year under review, we held quarterly safety meetings with our partners, with the safe cooperation and joint resolution of potential problems as key themes.

During the year 2016, we also reviewed our risk assessments and prepared for a new risk assessment round in 2017. We also improved our change management process to include all the required risk assessments, the HAZOP procedure (Hazard and Operability Study procedure), cooperation with authorities and permit processes.

Rescue service duties expanded with cooperation agreement

Terrafame strengthened its own plant fire brigade in May 2016. The optimal strength of the fire brigade at all hours is five persons with rescue service training. This is achieved through close cooperation between our own personnel and the personnel of our site access control service provider.

The reinforced plant fire brigade has succeeded very well in the performance of its duties and in joint exercises with authorities. This has led to closer cooperation with the Kainuu Rescue Services through a cooperation agreement signed in December. Since the beginning of 2017, Terrafame's plant fire brigade has served as a contract fire brigade for the Kainuu Rescue Services, also providing emergency services outside the plant area.

This improved rescue service contributes to the safety of local residents and traffic. First responders can now reach the accident site in 10 to 15 minutes instead of the earlier 35 to 45 minutes.

Terrafame's internal emergency plan was also updated in 2016.

Occupational safety

Occupational safety improved in many ways

In 2016, Terrafame updated its work permit procedure and improved its safety instructions. In addition to video training, we focused on safety inspection rounds. The staff was rewarded with monthly and quarterly bonuses for accident-free work.

In 2016, we improved our work permit procedure in order to ensure the safety of maintenance work everywhere in the mine and plant area. The cornerstones of the work permit procedure are advance notification of upcoming maintenance work, preparations carried out by production, such as isolation and safety locking, work permit approval and notification of the starting and finishing of work by maintenance personnel. Naturally, the work permit also addresses risks that may arise during work and guarding against them.

The past year also brought significant changes to occupational safety activities. We were able to eliminate cuts caused by the use of knives by banning the use of ordinary knives everywhere in the area. Knives were replaced with safety knives and other tools more suitable for cutting.

Efficient safety and driving training through video tutorials

The level of safety training was improved further by the introduction of video training materials, which can also be delivered in advance to third parties that operate in our area. We prepared a one-hour video tutorial on safety for our personnel and business partners as well as a five-minute version for visitors. Towards the end of the year, we also published an internal driving training video that everyone working in the mine or plant area will be required to complete annually.

In early 2016, we adopted the Hopealuoti text message system for emergency communications. The system is used to make announcements to our own personnel, service providers and neighbours. The system makes it possible to reach staff and other specified stakeholders in a matter of seconds, so emergency

communications are technically possible in almost real time.

Support from safety rounds and bonuses

Terrafame supported occupational safety with weekly safety rounds conducted by management as well as by weekly departmental cleanliness and safety inspections. The Management Team also started every meeting with a safety review, and middle management held safety meetings every other week, reviewing near misses and accidents and their root causes. At the end of the year, we also started accident and near miss review meetings with our business partners.

Terrafame rewarded employees for good safety performance in 2016. A monthly bonus was paid for accident-free months. In the longer term, Terrafame encouraged the improvement of safety by rewarding employees with a safety bonus for accident-free quarters. The amounts and award criteria of the bonuses have been kept transparent and at a level that will not incur detrimental effects of safety rewards, such as the concealment of accidents.



Development of occupational safety 2013-2016.

LTIFR = Lost-time incident frequency. Number of injuries per one million person-hours worked.

Product, chemical and process safety

Maintenance of statutory REACH documents continued

The maintenance of the REACH documents concerning existing products continued, and the preparation of the documents related to copper product development started at Terrafame in 2016.

The development of product safety continued at Terrafame as part of daily routines in 2016. Statutory changes and regulatory proposals were updated for all REACH documents. REACH-related expertise was fortified based on external expertise.

Terrafame is still the lead registrant for nickel sulphide for REACH documents, acting as a representative of European nickel producers to the European Chemicals Agency (ECHA). In practice, the lead registrant is tasked with updating the information of the registration documents in accordance with the latest research results. During 2016, Terrafame attended two meetings organised by an interest group and a product safety stakeholder.

With regards to product development, Terrafame initiated the preparation of new product safety documents. The classification of all test and process samples sent for external processing in accordance with the GHS/CLP rules for classification and labelling began in 2016, and their safety data sheets will be updated in 2017.

Risk management and exceptional situations

Production process supported through risk assessments and contingency plans

Terrafame's safety risk management process includes a wide range of risk assessments and contingency plans. Activities are assessed comprehensively, and the reviewed risks include occupational safety, environmental, fire and process safety risks.

Terrafame reviews its risks at regular intervals and monitors the realisation of corrective measures for lowering the risk level several times a year. The assessments make use of in-house expertise and external specialists from, for example, occupational health care, insurance companies, security consultancies and projecting companies.

The assessment of non-financial risks is coordinated by the EHSQ department, i.e., the company's own department for the environment, health, safety and quality, in cooperation with other departments and experts. Risk assessments are conducted with statutory and standardised methods to enable the comparison of risk magnitudes.

Accident scenarios and emergency plan updated

In 2016, Terrafame updated its accident scenario modelling. These models will be used as a basis to update our safety document in 2017. Terrafame is an industrial site subject to the SEVESO Directive on the prevention of major industrial accidents involving dangerous substances.

During the year under review, Terrafame also updated its rescue

plan, to be reviewed with all employees and Terrafame's business partners that operate in the mine and plant area. At the same time, the company introduced a crisis management procedure, which allows for smooth decision-making in serious emergencies.

Non-conformity notifications and observations reviewed with care

Terrafame continuously collects observations and non-conformity reports related to safety, the environment and quality. Every employee can log an observation or non-conformity notification in the internal information system. All observations and non-conformities are dealt with under the direction of the responsible department, and the root causes of non-conformities are analysed.

The observation and non-conformity system allows for continuous risk assessment with the participation of the entire staff. All observations and non-conformities provide lessons that will help develop the company's safety, environmental and quality management activities.

Crisis readiness tested with a complete loss of power

In the autumn of 2016, Terrafame tested the company's readiness for a crisis. A complete blackout lasting four hours was arranged in connection with a maintenance shutdown.

During the blackout, Terrafame tested the area's reserve power capacity and its gradual connection to the company's internal power grid. At the same time, we also tested the behaviour of other battery-assisted systems. At the end of the blackout, the company grid was gradually reconnected to the national grid.

The blackout operation provided valuable information on the functioning of production and back-up systems and identified shortcomings that were immediately rectified after the blackout.

Environment

Controlled mining operations require proactivity

From an environmental viewpoint, well-managed mining operations require a proactive approach that looks beyond the coming season and year. We believe that efficient mining operations are the best way to avoid environmental risks.

Terrafame has an open and professional collaboration with environmental authorities. We communicate openly and conversationally also with our close neighbours in the mine and plant area in accordance with our principle of good neighbourly relations.

During its period of operation, Terrafame has kept the environmental situation at the mine under control. In 2016, there have been no major leaks or other environmental incidents in the area.

We ensure environmental safety

The biggest environmental risk of Terrafame's mine is posed by the circulating solution of the bioleaching process, which must be kept under control in all circumstances. The heat produced by the new leaching heaps, which have been built during Terrafame's operations, has prevented the freezing of the heaps and the circulating solution piping even during very cold frosts. At the same time, the solution directed to the metals production plant has remained warm, which has enabled the metals production plant to operate at a good efficiency level regarding the use of chemicals. During 2016, the solution circulation has also stayed well under control. We have succeeded in maintaining the amount of solution circulating in the process at a safe level, the back-up ponds are empty, and about 2.5 million cubic metres of water has been directed to the solution circulation due to strong evaporation from the bioleaching heaps. With the replacement water (RO plant reject

and water from the pit), we have been able to bind a significant amount of sulphate into the bioleaching.

In January–April 2016, water was directed to the old discharge routes under the valid permit. However, this was not enough to ensure that the spring melt waters would fit in the storage ponds. As a result, Terrafame had to perform additional discharges in April–May 2016. Due to the additional discharges, the 2016 loading quotas for sulphate and sodium were exceeded on the old discharge routes.

The annual environmental monitoring reports are available on our website.

Key environmental aspects

The key environmental aspects of Terrafame’s mine are water management and water emissions, odour emissions from the recovery of metals as well as noise, dust and vibration caused by mining operations. The following table shows the most important environmental aspects, their impacts and our responsibilities.

	Aspect	Effects	Our responsibility
	Discharges into water Purified drainage and catchment water is directed into the surrounding surface waters mainly via Nuasjärvi discharge pipe.	There have been no significant changes in the status of small lakes close to the mine, which have become stratified as a result of the earlier mining operations. In those lakes that are important for recreational purposes, concentrations have decreased. The impacts of the discharge pipe on Lake Nuasjärvi include factors such as higher electrical conductivity, but this has not affected the use of the lake for recreational purposes.	We recycle the plant's process water and make sure that any water directed away from the mine site complies with the environmental permit's requirements. We monitor our impact on bodies of water.
	Use of energy The mine uses electric energy and fossil fuels.	The manufacturing of products is energy-intensive due to the required ore crushing, solution pumping and aeration of leaching heaps.	We seek to optimise our energy use and acquire energy-efficient equipment.
	Suppliers and raw materials The production process uses ore, chemicals and water.	The process requires a considerable amount of supplies, but they are used, stored and transported in a controlled fashion.	We seek to optimise the use of chemicals and water and to utilise the ore efficiently. The transport of chemicals mostly takes place by rail.
	Process waste Our operations generate gypsum and water treatment precipitate and waste rock.	Gypsum is deposited in its own pond and waste rock is used in construction in the mine area.	We reduce the amount of waste generated by making efficient use of ore and waste rock. We have started to plan a new waste rock area. An environmental permit application concerning the final disposal of deposits from water treatment is pending before and authority.
	Noise Noise is caused by production and construction operations.	The operations cause low background noise and occasional noise peaks. The sound caused by the blowers can be heard outside the mine area as narrowband noise. No noise values in excess of the guideline values have been measured.	We plan and implement our operations so as to ensure that noise emissions remain below the guideline values.
	Vibration The blasting of ore and waste rock in the mine causes vibration.	Vibration spreads into the environment via the rock and/ or as blast waves in the air. According to continuous vibration measurement, the vibration does not cause damage to buildings in the surrounding area.	We plan and implement all blasting operations so as to ensure that the vibration values are below the limits defined for the risk of damage.
	Dust emissions Point-source dust emissions are generated during crushing. Internal traffic and blasting generates fugitive emissions.	Dust can spread into the vicinity of the mining concession, causing slight nuisance	We are continuously limiting dust emissions in order to minimize any detrimental effects.
	Odour emissions Sulphur compounds may be released into the air from metals production	Hydrogen sulphide may occasionally be carried beyond the mining concession and may cause odour nuisance due to its low odour threshold.	We are continuously developing our production processes to minimise odour nuisance.
	Landscape and soil The natural environment is transformed into an industrial zone	The mine causes permanent changes to the landscape and the industrial environment generates light pollution. Of the mining concession, 15 km ² has been developed.	We will restore the area in accordance with the restoration plan for the mine. We investigate and develop covering solutions suitable for the area.

Water management

Good achievements in water management in 2016

Good progress was made with regards to water management during the year under review. The construction of the new centralised water treatment plant was completed and the amount of water stored at the mining area nearly reached the target level. The water discharged from the site clearly fulfilled the conditions set in the environmental permit.

The total size of the areas allocated for production and water treatment at Terrafame's site is approximately 16 square kilometres. Approximately 6 million cubic metres of water falls as precipitation annually at the mining area, and that water needs to be purified before releasing it from the mining area.

Accurate measurement of precipitation has been carried out at the mining area since summer 2013. During the last three years, rainfall has been higher than the average in the Kainuu region. The annual average rainfall (mm/year) measured at the mining area in 2014–2016 was 847 mm, while the corresponding figure for the Kainuu region as a whole was 650 mm. Terrafame's mine is thus located in an area where it is likely to rain more than in the Kainuu region on average.

The rainfall measured at the mining area in 2015 – 1,042 mm – was exceptionally high. In 2016, the measured rainfall 701 mm at the mining site was lower than in the previous year, which is likely to be close to the long-term average for the region.

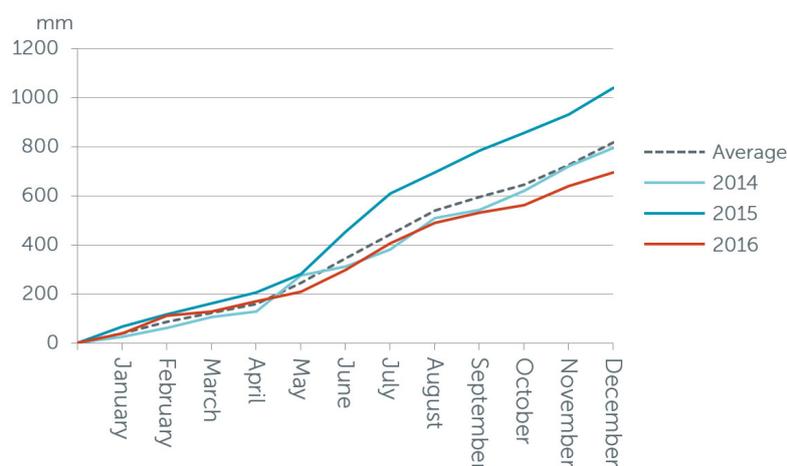


Figure 1: Rainfall measured at the mining area in 2014–2016.

Trial use of centralised water treatment plant began in late 2016

Terrafame's water purification process includes the purification of process waters and the purification of collected rainwater.

The company's metals production plant plays a key role in the purification of process water, as most of the precious metals are removed from the solution at the plant. Since the autumn of 2013, water has been directed from the metals production plant to a reverse osmosis (RO) plant, which produces water for the most demanding water usage applications at the metals production plant. Up to March 2016, the RO plant's reject water, which contains sulphate, was discharged to a gypsum pond, from where part of the sulphate ended up in the water treatment process. Since March 2016, the RO plant's reject water has been discharged to the bioleaching solution circulation in which sodium sulphate precipitates as sodium jarosite in the leaching heaps.

During 2016, Terrafame used field treatment plants based on lime neutralisation to manage collected rainwater. A centralised water treatment plant was built in 2016. The plant was in trial use in November and December and was taken into actual use at the beginning of 2017.

Both the old field treatment plants and the new centralised facility are based on lime neutralisation. Using lime neutralisation to purify

water is very common in Finland and elsewhere in the world. In neutralisation, the pH of water is raised to approximately 10 by feeding lime milk to the water, which will cause the metals to precipitate. The precipitation generated in field treatment plant processes has been stored in geotubes and in intermediary storage ponds to await final disposal. With the new centralised water treatment plant, precipitation will be generated in one location and can be placed into the gypsum ponds.

The water treatment plants have functioned very well: the effectiveness of purification has typically fluctuated between 95 and 99 per cent. During 2016, for example, the waters run through the discharge pipe contained on average 0.024 milligrams of nickel per litre (mg/l), when the limit set in the permit was 0.3 mg/l. The average concentration of sulphate in 2016 was 1,917 mg/l, when the limit set in the permit was 4,000 mg/l.

Figure 2 shows the main substance concentrations in the water run through the discharge points in 2015 and 2016 compared to the permit limits. Figure 3 presents the average substance concentrations in the water directed into the discharge pipe as compared to the permit conditions. As shown in figures 2 and 3, in both years, the water discharged from the mining area met the conditions set in the environmental permit for all substances. The concentrations have remained virtually unchanged in 2016.

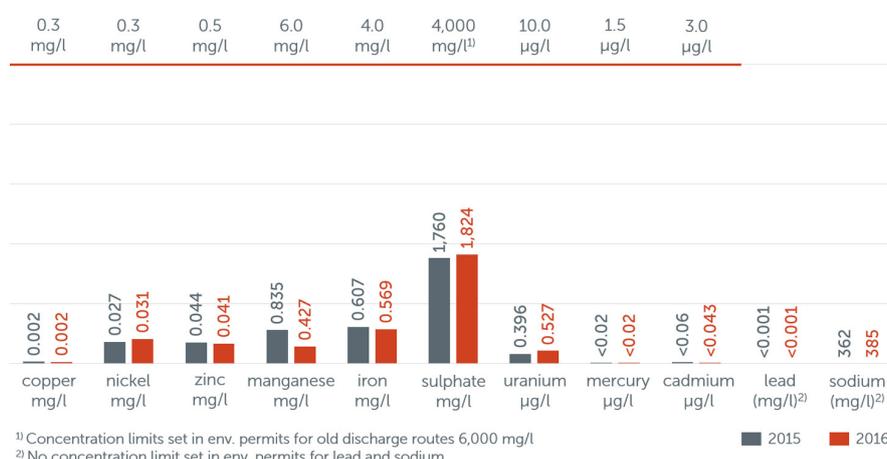


Figure 2: Concentrations measured from water run through all discharge points in 2015 and 2016 in relation to the limits set in the permit. Despite Terrafame having a partial year of operation – from 15 August to 31 December – the 2015 concentration data is presented for the whole year.

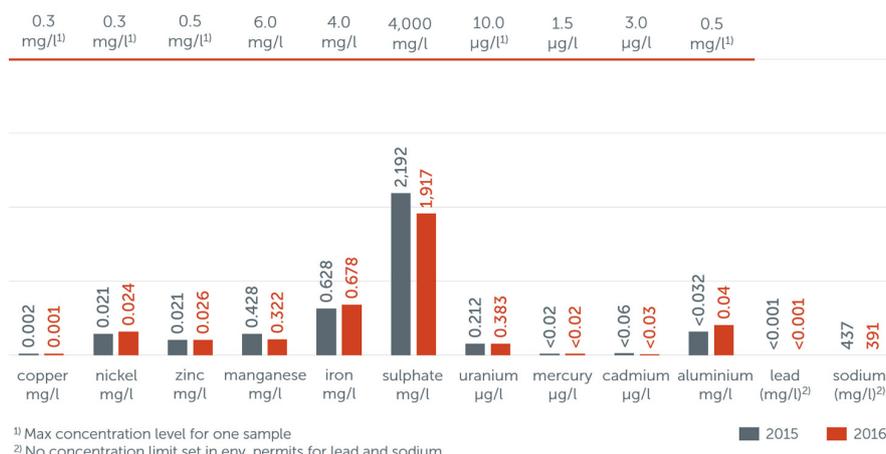


Figure 3: Concentrations measured from water run through the discharge pipe in 2015 and 2016 in relation to the limits set in the permit. The trial run of the discharge pipe began in September 2015, and the discharge pipe was taken into use in November 2015.

Ariel – a development and pilot project at the mine

Efficient water management at the mine is a common goal for Terrafame and its owners. In November 2015, the Terrafame Group launched a development and pilot project Ariel, seeking to identify new technological solutions for purifying mine waters and reducing their sulphate levels. Terrafame Group invested two million euros in this project.

The project reached the test run phase in the spring of 2016, during which the proposed solutions were tested in practice at Terrafame's mine. The project's steering group comprised Finland's leading water specialists from organisations such as VTT Technical Research Centre of Finland, the Geological Survey of Finland (GTK), the Finnish Water Forum, Aalto University, Lappeenranta University of Technology and the University of Oulu.

Significant reduction in the amount of water stored at the mine

In January–April 2016, Terrafame discharged a total of 670,000

cubic metres of water through the old discharge routes in accordance with the environmental permit. This was not sufficient to ensure that the water melting in the spring would fit in the storage ponds. For this reason, in April–May 2016, the company had to resort to additional discharges of approximately 1.9 million cubic meters of water.

Additional discharges were used to release purified water that met all the concentration limits set in the environmental permit through the old discharge routes and the Nuasjärvi discharge pipe. Due to the discharges, the sulphate concentration of the old routes exceeded the maximum limit set in the environment permit by 2,605.9 tonnes. Despite the additional discharges, the amount of water stored at the mining area at the end of the spring flood (8.4 million cubic meters) was very close to the maximum limit.

On 28 April 2016, the Vaasa Administrative Court issued a final decision regarding the Nuasjärvi discharge pipe and water emissions along the old discharge routes (concerning the permit issued in 2013). In its decision, the Court defined essentially stricter annual sulphate quotas (15,000 tonnes per year) for the Nuasjärvi discharge pipe than in the original permit decision of the Regional State Administrative Agency for Northern Finland (24,000 tonnes per year). On the other hand, the monthly load limit set in the interim decision issued by the Vaasa Administrative Court for the melting season was raised to 2,000 tonnes a month, thus making it possible to use the discharge pipe at its full capacity during the open water season.

After the additional discharges that ended in the spring of 2016, purified waters have been run through the Nuasjärvi discharge pipe only in accordance with the quotas set in the decision of the Vaasa Administrative Court. The amount of water stored at the mining area dropped rapidly during the summer and autumn of 2016. This was mainly due to the use of the Nuasjärvi discharge pipe at full capacity, the binding of water to stacked ore, the efficient use of the reverse osmosis plant, and the additional evaporation caused by bioleaching.

Since March 2016, the reject water generated by the RO plant has been discharged to the circulating bioleaching solution. The total amount of reject water discharged to the circulating solution during 2016 is approximately 0.5 million cubic metres, including 5,700 tonnes of sulphate going back to the leaching heaps. The sodium sulphate in the reject water precipitates as sodium jarosite in the leaching heaps. In addition to reject water, 1.9 million cubic metres of additional water was discharged from the quarry to the circulating bioleaching solution, including approximately 16,000 tonnes of sulphate.

In total, 7.1 million cubic metres of water was directed through the discharge pipes and 2.5 million cubic metres through the old discharge routes in 2016, the amount of discharged water thus totalling 9.6 million cubic metres. The amount of water at the mine continued to decrease throughout the summer and autumn of 2016, so that at the end of 2016, the amount of water stored at the mining area was down to 3.8 million cubic metres, which was very close to the target level.

Pond	Volume of water, m ³	
	31 Dec. 2015	31 Dec. 2016
Kortelampi*	1,923,066	471,326
Majava	476,038	363,840
Haukilampi	173,121	159,242
Kärsälampi	64,818	48,911
Mine	4,363,201	1,629,540
Contaminated waters in total**	7,000,244	2,672,859
Latosuo	1,353,551	557,286
Kuusilampi	740,334	546,265
Kulju	972,160	58,320
Purified waters in total**	3,066,045	1,161,871
Total volume of water in the area	10,066,289	3,834,730
<i>* Including the Urkki pond</i>		
<i>** Excluding the water in the gypsum ponds</i>		

Water stored at the mining area at the end of 2016.

Emission control

Emissions and environmental impacts are monitored in accordance with the approved programme

Terrafame's mine has a detailed and comprehensive environmental monitoring programme approved by the supervisory authorities for the environment and the fishing industry, i.e. the Centres for Economic Development, Transport and the Environment of Kainuu, North Savo and Lapland. The purpose of this programme is to monitor the operations and emissions of the mine as well as the resulting environmental impacts.

Emission monitoring covers monitoring of the mining process, discharge and sanitary waters of the mine and emissions into the air. Environmental impact monitoring covers the biological and physico-chemical monitoring of surface waters; groundwater, sediment and fishery monitoring; the biological monitoring of terrestrial ecosystems; and the monitoring of suspended dust, dust fallout, noise and vibration. Furthermore, the waste components produced in the production process are assessed.

In practice, monitoring is carried out by an external consulting company that uses individually certified samplers for collecting samples and an accredited environmental laboratory for analysing the samples. In addition to statutory monitoring, we implement our own environmental monitoring programme. This involves analysing the samples collected by Terrafame staff at the company's laboratory.

Aerial emissions remained below permit limits

As part of the emission monitoring performed in 2016, aerial

emission measurements covered the hydrogen sulphide levels of exhaust gases from the metals production plant. The limit for hydrogen sulphide levels decreed by the environmental permit is 50 milligrams per cubic metre (mg/m³). The hydrogen sulphide levels were clearly below the limit in 2016, as already in 2015.

Loading on water systems in Oulujoki and Vuoksi are monitored

As part of Terrafame’s statutory monitoring programme, the monitoring of discharged water covered concentrations in purified water as well as the environmental load resulting from the discharge of water. In 2016, water purified in accordance with the environmental permit was directed to the Nuasjärvi discharge pipe as well as the so-called old discharge routes, i.e. to River Kalliojoki and Lake Kolmisoppi, which form part of the Oulujoki watercourse area, as well as past Lake Ylä-Lumijärvi into the River Lumijoki, which form part of the Vuoksi watercourse area. In April–May 2016, Terrafame had to make additional discharges of purified water in order to ensure environmental and dam safety, in accordance with the notification filed to the Kainuu ELY Centre. The flow-weighted monthly averages of metal and sulphate concentrations in the water directed to the discharge pipe as well as to the old discharge routes remained below the limits detailed in the environmental permit.

In 2016, a total of approximately 7.1 million cubic metres of water was directed into the Nuasjärvi discharge pipe. In addition, 2.5 million cubic metres of water was directed to the old discharge routes. The concentrations in the discharge water remained clearly below the permit limits in 2016. The sulphate and sodium loading exceeded the quota of the old discharge routes, due to the additional discharges in the spring. The sulphate loading of the water discharged through the Nuasjärvi discharge pipe remained below the sulphate quota. The metals concentrations remained clearly within the annual quotas, both for the discharge pipe and the old discharge routes.

Loading		Discharged Time	Copper [kg]	Manganese [kg]	Nickel [kg]	Zinc [kg]	Sulphate [t]	Sodium [t]
1 Jan - 31 Dec 2016	[m ³]							
Old		674,208	1.1	316.0	19.1	31.7	1300.0	264.3

discharge routes 52/2013/1 in total	1							
	Jan-9							
South	Apr	269,930	0.5	152.8	8.2	17.5	512.0	91.8
	1							
North	Jan-9							
	Apr	404,278	0.6	163.2	10.9	14.2	788.0	172.5
Permit limit 52/2013/1			150	2,600	250	300	1,300	650

Discharge pipe (43/2015/1) in total	1 Jan - 31 Dec	7,032,638	8,5	2,212,7	166	174,4	13,493.1	2,750.7
	1 - 31							
January	Jan	405,202	1.1	112.4	11.5	6.6	977.7	192.2
February	1 - 29							
	Feb	357,241	0.6	158.4	12.0	14.5	1,002.0	193.6
March	1 - 31							
	Mar	322,724	0.4	115.5	9.7	8.9	1,005.1	227.0
April	1 - 27							
	Apr	500,132	0.5	324.6	17.2	22.9	999.8	205.6
May	1 - 31							
	May	712,027	0.9	454.6	21.3	35.7	908.8	223.5
June	1 - 30							
	Jun	729,654	0.7	170.8	14.3	11.5	893.8	219.4
July	1 - 31							
	Jul	751,282	0.8	192.5	10.6	5.3	1,247.6	246.3
August	1 - 31							
	Aug	748,878	0.7	97.2	11.5	7.1	1,225.1	263.8
September	1 - 30							
	Sep	722,077	1.0	96.9	15.2	12.9	1,031.7	270.9
October	1 - 31							
	Oct	736,182	0.7	123.8	16.0	20.3	1,524.4	260.4
November	1 - 30							
	Nov	692,836	0.9	185.4	13.9	14.5	1,665.1	293.0
December	1 - 31							
	Dec	354,403	0.2	180.6	12.5	14.2	1,012.0	155.0

52/2013/1 and 43/2015/1 in total		7,706,846	9.6	2,528.7	184.8	206.1	14,793.1	3,015.0
	Time	Discharged [m³]	Copper [kg]	Manganese [kg]	Nickel [kg]	Zinc [kg]	Sulphate [t]	Natrium [t]
Additional discharge in spring 2016 in total		1,910,796	6.5	1,580.7	111.0	190.2	2,753.9	687.9
South	9 Apr - 6 May	732,480	4.4	1,024.8	84.0	161.4	1,025.2	268.6
North	9 Apr - 6 May	1,096,123	2.0	479.5	23.4	21.4	1,580.8	650.7
Old discharge routes in total		1,828,603	6.4	1,504.2	107.4	182.7	2,605.9	919.3
Discharge pipe	27 Apr - 30 Apr	82,193	0.1	76.4	3.6	7.5	147.9	2,783.6
TOTAL in 2016 (1 Jan - 31 Dec)		9,617,642	16.1	4,109.5	295.7	396.4	17,547.1	3,702.9
South	1 Jan - 6 May	1,002,410	4.9	1,177.5	92.2	178.8	1,537.1	268.6
North (without discharge pipe)	1 Jan - 6 May	1,500,401	2.5	642.7	34.3	35.6	2,368.8	650.7
Old discharge routes in total		2,502,811	7.5	1,820.2	126.5	214.4	3,905.9	919.3

Discharge pipe	1 Jan								
	- 31 Dec	7,114,831	8.7	2,289.3	169.2	182.0	13,641.2	2,783.6	

Figure 1: Loading on water bodies resulting from the mine's operations in 2016.

The condition of water bodies is constantly monitored

In 2016, no significant changes were observed in water quality along the water discharge routes in the direction of River Oulujoki, compared to the previous year. The results are based on surface water monitoring, which is part of environmental impact monitoring.

In nearby water bodies (Salminen, Salmisenpuro, Kalliojärvi, Härkäpuro, Kuusijoki, Kalliojoki, Kolmisoppi, Tuhkajoki), the impacts of water discharged from the mine include higher electrical conductivity and sulphate concentrations compared to natural water bodies, particularly in water layers near the bottom where concentrations were higher than in the surface layer. Lake Salminen has been permanently stratified since 2011, and no signs of destratification have been observed. Lake Kalliojärvi also continues to be permanently stratified. Meanwhile, the water masses in Lake Kolmisoppi mixed during the spring and autumn circulation periods.

Loading has also been observed in Lake Jormasjärvi, where sulphate concentrations were found to be higher than the levels typical for the area. However, seasonal circulation continues to occur quite normally. Sulphate concentrations in the River Jormasjoki are higher than the levels typical for the area. The sulphate loading on Nuasjärvi through Jormasjoki in 2016 decreased from the previous year. The sulphate loading on Nuasjärvi through Jormasjoki will decrease in the coming years as the sulphate loading directed to old routes has decreased and will continue to decrease from the current level.

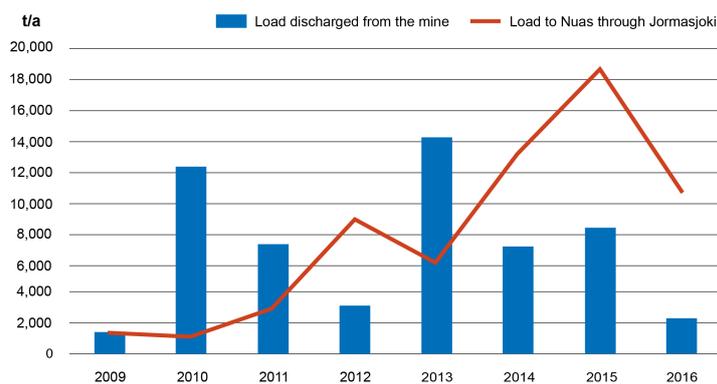


Figure 2: The sulphate loading from the mine on Lake Nuasjärvi, through Jormasjoki, in 2009–2016.

The impacts of water run through the discharge pipe into Lake Nuasjärvi have also been monitored through statutory monitoring performed by an external expert body. During 2016, samples were collected from depressions in Lake Nuasjärvi at an increased rate.

In the depressions closest to the discharge pipe, the sulphate level was found to be approximately 100 milligrams per litre (mg/l) during the winter. In May–June, the sulphate concentration was found to have increased in a minor depression (Selkäsaari depression) to 200 mg/l, which corresponds to the estimates presented in the environmental permit application for the discharge pipe. Similar sulphate concentrations were observed in a depression in Lake Nuasjärvi before the discharge of mine waters into the lake began (Figure 3). Based on the analysis results, spring circulation mixed the waters in the depressions of Lake Nuasjärvi, excluding areas of more than 20 metres deep in the Selkäsaari depression. Autumn circulation was completed in September–October in the entire Lake Nuasjärvi when water overturned in the Selkäsaari depression as well.

The metal concentrations of Lake Nuasjärvi have been low also in depressions close to the discharge pipe. For instance, the nickel concentration has clearly decreased during the last 10 years, and the same development has continued during use of the discharge pipe.

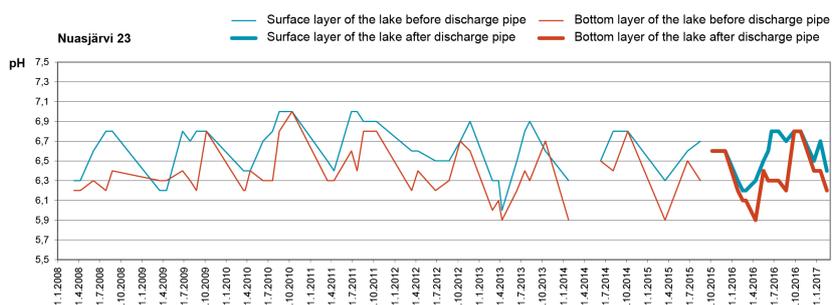


Figure 3: Water pH in the depression near the Lake Nuasjärvi discharge pipe (Nj 23).

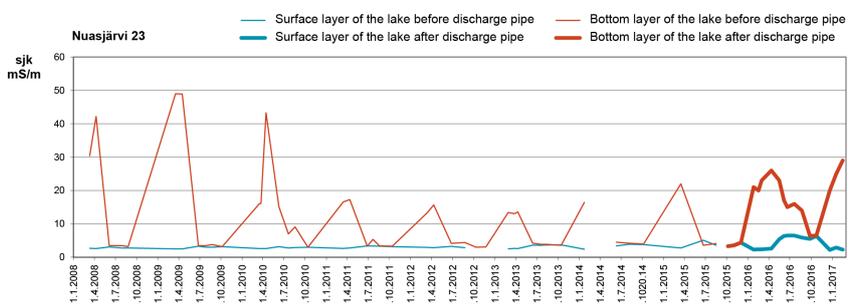


Figure 4: Water conductivity in the depression near the Lake Nuasjärvi discharge pipe (Nj 23).

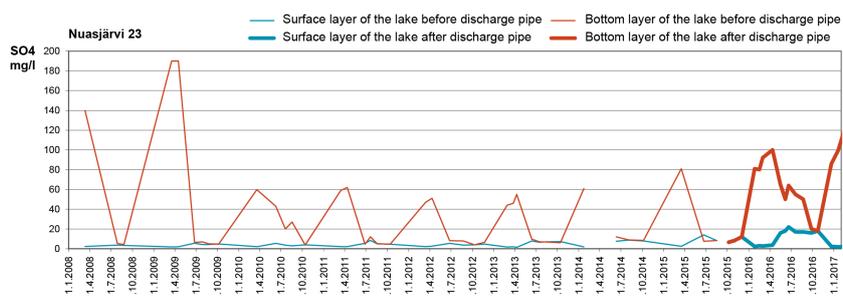


Figure 5: Water sulphate concentration in the depression near the Lake Nuasjärvi discharge pipe (Nj 23).

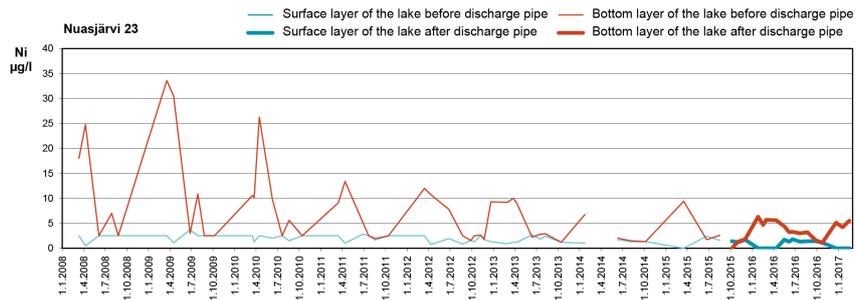


Figure 6: Water nickel concentration in the depression near the Lake Nuasjärvi discharge pipe (Nj 23).

Permit processes

Preparations for new environmental permit applications

Terrafame received several key permit decisions from the Vaasa Administrative Court in 2016.

When Terrafame began operations, the main environmental permit processes were pending in the Vaasa Administrative Court (VAC). These included the environmental and water management permit that covers all mining operations including uranium recovery (RSAA decision No. 36/2014/1), an environmental permit for water emissions along the old discharge routes (RSAA decision No. 52/2013/1) and an environmental permit for the Nuasjärvi discharge pipe (RSAA decision No. 43/2015/1).

Decisions made by the Vaasa Administrative Court in 2016

On 28 April 2016, the VAC issued decisions on all of the key permit processes. At the same time, the VAC ordered that the above-mentioned environmental and water permits would be valid until the end of 2018, or until new environmental permits have been given legal force. In this context, the VAC ordered Terrafame to apply for new environmental and water management permits from the Regional State Administrative Agency for Northern Finland (RSAA) by 31 August 2017. Since the company has appealed against the VAC decisions on the permits, the process will continue in the Supreme Administrative Court, which is expected to give its ruling during 2017 at the earliest.

The sulphate quota set for the Nuasjärvi discharge pipe by the VAC was 15,000 tonnes per year, which was clearly lower than the limit specified in the permit issued by the Regional State Administrative Agency. In 2016, 13,600 tonnes of the quota was used, i.e., the quota was sufficient and enabled the reduction of the amount of water stored at the mining are, which was essential for safely implementing the ramp-up of the mine.

With a view to any future permit processes, Terrafame launched two

EIA (environmental impact assessment) procedures in the autumn of 2016. The EIA procedure for water management reached the report preparation phase in 2016. We also submitted an EIA programme for the continuation and development of mining operations, as well as an alternative for implementing a managed closure of the mine, to the Centre for Economic Development, Transport and the Environment for the Kainuu region for comments. The new EIAs will be completed in the spring and summer of 2017, and Terrafame will submit them to the Regional State Administrative Agency for Northern Finland within the time limit prescribed by the Vaasa Administrative Court.

Other permit processes pending in 2016

In addition to the above-mentioned permit processes, Terrafame has a number of individual environmental permit matters pending with the RSAA. In March 2015, the previous mine operator filed an application with the RSAA concerning the final disposal of deposits from water treatment. The matter is being considered by the RSAA, and Terrafame expects to get a decision during 2017. The timetable for the final disposal of deposits depends on the timetable for the emptying of the water storage facilities.

In March 2016, Terrafame filed a permit application for a centralised water treatment plant. The plant's processes were started and adjusted according to the trial operation report submitted to the RSAA in November and December. An environmental permit decision (No. 3/2017/1) was obtained for the plant on 4 January 2017, after which the plant was put into operation.

In October 2016, the company filed an application with the RSAA for the construction of a separate waste rock area to be located east of the quarry. The permit decision is expected in the spring of 2017, which would enable construction of the required water-tight structures during the summer of 2017 and use of the first parts of the waste rock area in late 2017.

In addition to the actual environmental permit processes described above, compensation cases related to both water intake and water emissions were pending at the RSAA in 2016. These processes were transferred from the previous mine operator to Terrafame in connection with the transfer of environmental permits and the related liabilities. Terrafame has settled the matter related to water-power compensations and also seeks to settle other compensation cases directly with the parties concerned where possible.

Workforce

Strengthening our human resources further

Terrafame hired new employees for the intensive ramp-up phase in 2016. We also utilised the labour force provided by approximately 70 partners at our site.

To grow and succeed in business, Terrafame needs competent employees who are committed to continuous improvement. As a workplace, Terrafame seeks to provide its employees with a safe and healthy working environment, with opportunities for personal development at work and a broad range of career paths.

The development of Terrafame's operations requires purposeful and systematic management. Leadership plays a central role in guiding performance and coaching employees to achieve their objectives.

Terrafame has significant impact on local employment

At the end of 2016, Terrafame had 645 employees (2015: 529), of which 629 were in permanent positions. Turnover of permanent employees has levelled off at 8.1 per cent. 90 per cent of the employees were men and 10 per cent were women. We also employed approximately 70 students as summer interns.

Terrafame has significant impact on employment in the Kainuu region in Finland. At the end of the year, about 84 per cent of our employees lived in municipalities in the Kainuu region, mostly in Kajaani and Sotkamo. At the end of the year, our partners employed approximately 550 people at the site on a regular basis. Of these, an estimated 60 per cent were from Kainuu.

The average age of Terrafame's employees was around 40 years in 2016. During the year, we strengthened our human resources and nearly reached the level required by our production target and the development of operations. Since the launch of operations in August 2015, the number of Terrafame's permanent employees has grown by approximately 200. We will continue our recruitment to attract

more specialists and production workers.

The composition of Terrafame's Management Team changed and was complemented by new, experienced professionals, mainly recruited from outside of the company. Joni Lukkaroinen M.Sc. (Technology) took up his post as the CEO on 15 February 2016. During the year, Ville Sirviö M.Sc. (Economy) was appointed to the post of Chief Financial Officer, Petri Parjanen M.Sc. (Psychology) to the post of Chief HR Officer, Antti Arpalhti M.Sc. (Technology) to the post of Chief Technology Officer and Katri Kauppila M.Sc. (Social Sciences) to the post of Chief Communications Officer.

Development of competences in supporting change

Terrafame meets the educational needs of individuals in the various stages of their careers by developing, for instance, its supervisor and safety training. We continued to develop our induction process, particularly to improve and ensure occupational safety.

All newly recruited employees complete the general induction, which includes topics such as chemical and personal protection training, an introduction to mining and a tour of the site. All Terrafame employees must complete a first aid training and obtain an occupational safety card. Partner employees are also required to have a valid occupational safety card, and at least one person per team must be trained in first aid.

Terrafame invested strongly in the professional development of its employees and supervisor training. In 2016, training arranged in the workplace amounted to an average of 2.6 days per employee. Employees also completed other training, such as supported independent study and further vocational qualification modules. During the year, nearly all supervisors participated in the Frontliner programme coaching. The programme includes, in addition to professional competencies obtained at work, coaching in small groups, support material, workshops and peer induction.

Focus on work wellbeing and ability to work

Terrafame employees have access to extensive occupational health care services and controls. The company has an occupational health care surgery with occupational nurses and a doctor. In 2016,

employee sick leave accounted for an average of 5.3 per cent of theoretical regular working hours.

During the reporting period, Terrafame focused on the promotion of the ability to work and wellbeing at work, in addition to staff training. Early support and replacement work models were introduced. Terrafame was also proactive in carrying out employee work ability reviews. Replacement work and transfers to different work were found useful in dozens of cases, following a temporary reduction in the ability to work or to prevent risks that could affect the ability to work.

Employee surveys guide the future development

Terrafame's employee survey was carried out in May 2016. It provided guidelines for development measures throughout the organisation. The survey was carried out by an external employee survey company in the form of a confidential online survey.

All in all, Terrafame's employee survey results were close to the norm level. Compared to the previous study, carried out four years ago, the results improved in all respects. The PeoplePower® index describing the overall result increased to 64.2 (2012: 58.9). According to the survey, Terrafame's strengths include supervisor work, management culture and employer image. Thus Terrafame has succeeded in transforming the earlier, clear development areas – employer image and operational culture – into relative strengths.

Performance capacity was identified as an area of development. This includes matters such as working conditions, work arrangements and decision-making. In the 2016 survey, Terrafame's future outlook was the only major factor that had taken a negative turn.

Based on the results, more than a hundred measures were drawn up to be implemented at the corporate, departmental and shift levels. The implementation of these measures is monitored on a regular basis, and the survey will be carried out again in 2017.

Safety bonus for accident-free periods

Employees are rewarded for a job well done and for initiatives which improve operations and safety. In 2016, Terrafame paid all

employees a safety bonus for accident-free periods. The development of our remuneration systems will continue in cooperation with employee group representatives.

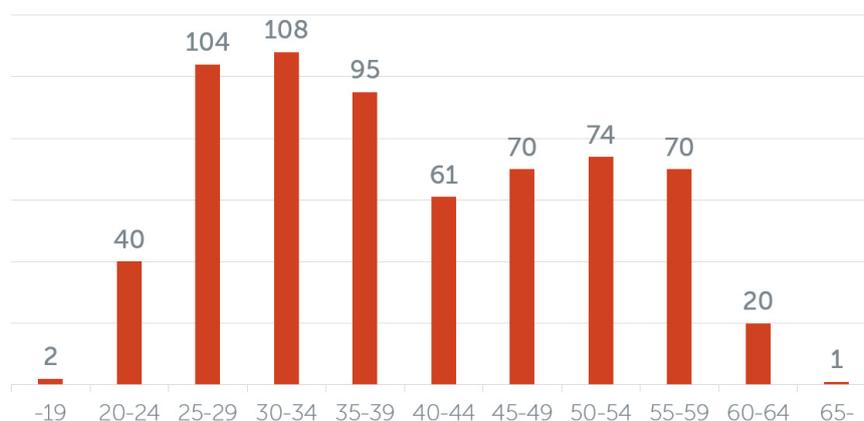
We respect equality and the terms and conditions of employment

In its human resources management, Terrafame complies with national rules and regulations as well as international conventions on human rights and labour markets. The company respects the freedom of association and abides by legally binding collective agreements. Employee participation and consultation have been organised in accordance with national rules and regulations. Employee group representatives actively participate in the work of Terrafame's co-operation advisory board, the labour protection committee and other bodies.

Terrafame promotes equal opportunities and equal employment and career development in the spirit of the Act on Equality between Women and Men and in compliance with Terrafame's Equality Plan.

Picture 1. In 2016, Terrafame's number of employees increased slightly as the operations were ramped up.

Picture 2. Approximately half of the employees worked in 12-hour shifts, with four days at work followed by six days off.



Picture 3. Terrafame's personnel structure is fairly balanced, the average age of employees being approximately 40 years.

Metals and society

Metals are needed in everyday life

Metals have an important role in modern society. Terrafame produces nickel, cobalt and zinc sulphides which are needed for manufacturing corrosion-resistant and long-life materials. The company is involved in creating a more sustainable world with its high-quality metal products.

Terrafame's metal sulphides are mainly used for production of nickel, zinc and cobalt. In 2017, Terrafame aims to commercialise copper as well. These metals are used as alloying elements in long-life and durable materials.

Nickel is needed as an alloying element for stainless steel, and zinc is used to prevent corrosion in, for instance, construction and automotive industries. Cobalt is needed for alloys which must withstand high temperatures and hard use, for instance, in aircraft turbines. Most applications of metal allow for 100% recycling of the metal materials.

Nickel

Two thirds of the world's nickel production is used directly or indirectly for the manufacturing of stainless steel and metal alloys. Stainless steel is used in applications that are meant to be corrosion-resistant. In addition, stainless steel surfaces are easy to clean, which is important, for instance, in the work environments of the food industry.

A third of nickel is used as various chemicals in, for instance, battery manufacturing. Nickel batteries are used in mobile phones, hybrid vehicles, computers and auxiliary power supplies for buildings, among other things.

Zinc

Zinc is one of the most used metals in the world, alongside iron, aluminium and copper. Of the zinc produced, about two thirds are

used for protecting various metals, mostly steel, against corrosion. Galvanised, that is, zinc steel is used in applications that demand durability in fluctuating conditions as well as long service life, for instance in the automotive and construction industries.

In addition, zinc is used for zinc alloys in the foundry industry, for the manufacturing of brass and bronze as well as in zinc oxide and zinc sulphide composites. Zinc oxide is needed, for instance, for manufacturing rubber, whereas zinc sulphide is needed for televisions and x-ray equipment. Zinc is also used in batteries.

Cobalt

Most of the cobalt produced is used for the battery industry. The second most common use for cobalt is in various metal alloys. Cobalt has a high melting point, and it withstands wear. It is used, for instance, with nickel and iron in metal alloys for applications that are exposed to high temperature and hard use, for instance, in jet engines.

Cobalt is also used for different types of magnets in, for instance, computer drives as well as colours and pigments.

Copper

Construction, electricity and electronics industries are the largest users of copper produce. Copper is known for its good electrical and heat conductivity. It is used in buildings, for instance, in water pipe systems due to its antibacterial properties. Combined with other metals, copper is also used for the aesthetic finishing touches on building facades.

Copper's electrical and heat conductivity, corrosion resistance and recyclability make it a sought-after metal for the automotive industry, particularly for electric vehicles. One application that everyone is familiar with is coins. Additionally, copper is used for industrial production machines and equipment.

Management

We are committed to observing the principles of good governance in all of our operations. Our administration and decision-making are guided by the Articles of Association, the Limited Liability Companies Act and other legislation in force. Terrafame Ltd. also complies, as applicable, with the Finnish Corporate Governance Code for listed companies issued by the Securities Market Association.

See the report on our Corporate Governance in 2016 in this section. The section also includes our remuneration report.

Report on Corporate Governance 2016

Terrafame's Corporate Governance principles

The administration and decision-making of Terrafame Ltd. ("Terrafame" or "company") are guided by the Articles of Association, the Limited Liability Companies Act and other legislation in force as well as the decision in principle concerning the State's ownership policy, given on 13 May 2016. In 2016, Terrafame as an unlisted company complied, as applicable, with the Corporate Governance Code for listed companies approved by the Finnish Securities Market Association (2010). The Code is available at <http://cgfinland.fi/en/>.

The deviations from the Corporate Governance Code are related to the Annual General Meeting (recommendations 1–4), composition of the Board of Directors regarding representation of both genders (8), diversity of the Board of Directors (9), self-evaluation of the operations of the Board of Directors (13), and the rules of procedure and composition of the Environment and Safety Committee (recommendation 14). In addition, the company deviates partly from the Corporate Governance Code reporting requirements.

The deviations from the Governance Code recommendations are due to the fact that Terrafame Ltd. only had one shareholder in 2016, Terrafame Group Ltd., that in 2016 the company was still in the ramp-up phase and that the company's securities are not publicly traded.

This report on Terrafame's Corporate Governance in 2016 is issued separately from the Board of Directors' review.

Terrafame's administration and operations are governed by the Annual General Meeting, the Board of Directors and the Chief Executive Officer (as of 15 February 2016).

General Meeting

At the Annual General Meeting, the shareholder confirms the company's financial statements and decides on the distribution of

profits as well as on the election of board members and auditors and on their bonuses. The Annual General Meeting also elects the Chairman of the Board and a possible Vice-Chairman.

Board of Directors

Duties and responsibility

Terrafame's Board of Directors is responsible, in accordance with the Limited Liability Companies Act, for the company's governance and the appropriate organisation of its operations. The Board of Directors shall also ensure that the company's accounting and financial management are appropriately supervised. The Board of Directors shall promote the interests of the company and its shareholder. One of the Board's main duties is making significant decisions relating to the company's operating principles, strategy, investments, organisation and finance.

According to the Articles of Association, the Board of Terrafame has three to seven members. The members are elected at the Annual General Meeting for a term ending at the close of the next Annual General Meeting. The proposal on the composition of the Board of Directors is prepared by the only shareholder of the company, Terrafame Group Ltd.

Key content of the Board of Directors' Rules of Procedure

The Board of Directors has confirmed Rules of Procedure for itself, the key content of which is described below and which define the duties of the Board, its chairman and the Committees. The Rules of Procedure include the following issues: composition of the Board of Directors, election of Board members, responsibilities of the members and the Chairman, meetings and decision-making of the Board, disqualification of members, committees, self-assessment of operations, as well as remuneration of the members.

The Board's responsibilities include:

- Preparing the annual operating plan, business plan and budget
- Approving financial reports, financial statements and annual report
- Approving the organisational structure and compensation system
- Appointing and dismissing the Chief Executive Officer
- Appointing the Management Team
- Deciding on the terms and conditions of employment and remuneration of the Chief Executive Officer and key personnel

- Appointing Committee members and confirming the Committees' Rules of Procedure
- Directing and supervising the executive management
- Supervising the company's operations with respect to compliance with laws and regulations
- Approving long-term objectives and strategies
- Approving the company's values, principles and practices concerning the control and risk management system
- Convening the Annual General Meeting

The Board of Directors has quorum when more than half of its members are present in the meeting. The Board seeks to achieve consensus in its decision-making on all occasions. If this cannot be sensibly achieved, the decisions of the Board are made in accordance with the provisions of the Limited Liability Companies Act. According to the Limited Liability Companies Act, the decisions of the Board require a simple majority. In the event of a tie, the chairman casts the deciding vote. With regards to disqualification of Board Members, the provisions of the Limited Liability Companies Act are complied with.

The Board of Directors convenes about ten times a year in accordance with a previously agreed schedule. If necessary, the Board holds additional meetings.

Committees

In 2016, Terrafame's Board of Directors had an Environmental and Health and Safety Committee. According to the Board's rules of procedure, the Committee is responsible for ensuring that Terrafame complies with the principles of good corporate and social responsibility, taking into account the critical environmental issues related to mining operations as well as occupational health and safety perspectives in the mining area. In addition, the Committee is responsible for ensuring compliance with environmental laws and regulations as well as permits granted to operate the mine.

The Committee shall ensure that the health and safety processes and reporting systems introduced by the company are used in such a way that the mine can reach the level of its international competitors. The Committee also controls that stakeholder information is appropriately acquired and that the local community is kept informed of the events in the mining area and its surrounding areas.

Given the small size of the Board of Directors and the Committee,

the duties of the Committee were carried out for practical reasons by the Board in 2016. The Board's Environmental and Health and Safety Committee did not have confirmed rules of procedure in 2016 because the work of the Committee was combined with the work of the Board of Directors.

In 2015, the Board of Directors established a Steering Group for the mine's ramp-up phase whose duty was to guide and supervise the development of operations. The work of the Steering Group has been combined with the work of the Board of Directors. The Project Management Office (PMO) was responsible for the accuracy of reporting and for the Steering Group having access to all relevant information at regular intervals until the spring of 2016. The Steering Group was dissolved in the end of April 2016.

The Board of Directors, at its discretion, may establish an Audit Committee and a joint Organisational Structure and Compensation Committee, and elect the chairmen for these committees. The Board did not set up such committees in 2016, and the Board was responsible for the duties of these committees.

Operational management

Chairman of the Board

Until the appointment of a Chief Executive Officer in February 2016, the Executive Chairman of Terrafame Ltd.'s Board of Directors also participated in the management of the mine's operations in addition to the duties of the Chairman of the Board.

Chief Executive Officer

The CEO is responsible for the day-to-day management of the company in accordance with the guidelines and regulations given by the Board of Directors (general authority). The CEO is responsible for ensuring the legal compliance of accounting practices and the reliable organisation of asset management.

The CEO is responsible for the operational management of the business in accordance with the strategic plans, budgets, action plans, guidelines and regulations approved by the Board of Directors. The CEO presents operational issues to the Board and is responsible for the implementation of the decisions made by the Board.

Management Team

Terrafame Ltd.'s Management Team manages the attainment of the company's operational and financial objectives. The Management

Team reports to Terrafame Ltd.'s CEO and convenes on a regular basis every week.

Control systems

The Board of Directors is responsible for organising internal control, risk management and internal audit processes. Terrafame Ltd.'s Board of Directors has confirmed the company's principles concerning internal control and risk management.

Internal control

The aim of Terrafame's internal control is to ensure that the company's operations are efficient and results will be achieved, that business risks are adequately and appropriately managed and that the information produced is reliable. The internal control system is also used to monitor compliance with the company's policies and guidelines.

Risk management

Terrafame evaluates risks and opportunities as part of business planning and decision-making processes. In order to limit unnecessary and excessive risk-taking, risks related to the company's operating environment, operational activities, environment and financial position are assessed regularly when planning and managing the business operations. The Board of Directors regularly reviews the risk information collected by the operative management.

Main features of the internal control and risk management systems related to the financial reporting process

Terrafame Ltd. seeks to ensure that the company's financial reporting complies with the requirements in force in such a way that the company's financial statements provide a true and fair view of the company's activities and financial position. The system for monitoring compliance with the requirements is based on the reporting process constructed during the mine's ramp-up phase, on the company's values and on its business culture emphasising honest and transparent activities. In 2016, financial reporting was further developed as the company's operations became more established.

Audit

The task of the statutory external audit is to verify that the financial statements and the Board of Directors' report provide accurate and adequate information on the company's result and financial position.

In addition, auditing includes the audit of the company's accounting and administration.

The auditor has issued a statutory auditor's report to the shareholder of Terrafame Ltd. in connection with the company's financial statements and has reported on his findings to the company's Board of Directors.

According to the Articles of Association, the auditor of Terrafame Ltd. shall be an audit firm authorised by the Audit Board of Finland Chamber of Commerce. The auditor's term of office expires at the close of the next Annual General Meeting following the auditor's election.

Corporate Governance in 2016

General Meeting

In 2016, the Annual General Meeting was held on 3 May 2016. Five extraordinary General Meetings were held in 2016.

Board of Directors and Committees

As of 14 August 2015, the Board of Directors consists of Lauri Ratia (Chairman), Esa Lager and Tuomo Mäkelä.

The Board of Terrafame has assessed the independency of its members. Of the members, Ratia, Lager and Mäkelä are independent of the Company and its only shareholder, Terrafame Group Ltd. At the end of the financial period 2016, Terrafame Ltd. was fully owned by Terrafame Group Ltd., and the Board members or the corporations over which the Board members exercise control did not have shares nor share-based rights in Terrafame.

In 2016, the Board of Terrafame convened eleven times, including one telephone conference. Each Board member had 100% attendance rate at all Board meetings. In 2016, the Board's work continued to focus on controlled ramp-up of the mine according to plan, building on the premise of ensuring occupational and environmental safety and the company's core values of safety, efficiency and commitment.

The Environmental and Health and Safety Committee of the Board comprised Tuomo Mäkelä and Lauri Ratia. For practical reasons, the Committee's duties were carried out by the entire Board of Directors.

Executive Chairman of the Board

Chairman of the Board of Directors of Terrafame Ltd. Lauri Ratia acted as the Executive Chairman of the Board in addition to his duties as the Chairman of the Board until February 2016, participating in the management of the mine operations as well as acting as the Chairman of the Management Team.

Steering Group

The meetings of Terrafame Ltd.'s Steering Group were combined with the meetings of Terrafame's Board of Directors. The Steering Group consisted of Terrafame Ltd.'s Board members as well as Terrafame Group Ltd.'s Chairman of the Board Janne Kähkönen and Chief Executive Officer Matti Hietanen. In 2016, Mr. Kähkönen participated in eight and Mr. Hietanen in ten Steering Group meetings of Terrafame Ltd.

Management Team

In 2016, Terrafame's Management Team consisted of Joni Lukkaroinen (Chief Executive Officer since 15 February 2016), Harri Natunen (Chief Production Officer until October 2016, Chief Technology Officer since October 2016), Reijo Uusitalo (Chief Mining Officer), Janne Palosaari (Chief Commercial Officer), Veli-Matti Hilla (Chief Sustainability Officer), Matti Rautiainen (Chief Maintenance Officer), Ville Sirviö (Chief Financial Officer since February 2016), Petri Parjanen (Chief HR Officer since March 2016), Katri Kauppila (Chief Communications Officer since October 2016) and Antti Arpalahti (Chief Production Officer since October 2016). Pertti Pekkala as Chief Technology Officer was a member of the Management Team until May 2016.

In 2016, the Management Team continued to focus particularly on safe and efficient ramp-up of the mine.

The Board members or the corporations over which the Board members exercise control did not have shares nor share-based rights in Terrafame at the end of the financial period 2016.

Audit

Terrafame's Annual General Meeting elected KPMG Oy Ab as the company's auditor with Antti Kääriäinen, APA, as the principal auditor. Until the 2016 Annual General Meeting, Ernst & Young Oy, a company of Authorised Public Accountants, acted as the auditor with Ulla Nykky, APA, as the principal auditor.

The auditor's fee and possible expenses are reimbursed according to invoice approved by the company. In 2016, the fees paid to the auditor were EUR 83,646 for auditing and EUR 38,172 for services unrelated to the audit.

Terrafame Ltd. Board of Directors 31 December 2016



Lauri Ratia

Chairman of the Board 2015–
Born 1946, M.Sc. (Tech.), Industrial Counsellor
Professional Board Member

Current positions of trust

Member of the Board, NHP Yhtymä Oy 2015–
Member of the Industrial Advisory Board, Armada Mezzanine Capital Oy 2010–
Member of the Advisory Board, CV Group 2015–
Member of the Finnish Advisory Board, Ratos Abp 2008–

Previous key positions of trust

Member of the Board, Meyer Turku Oy 2014–2015
Member of the Board, STX Finland Oy 2013–2014
Chairman of the Board, Paroc Group Oy Ab 2010–2015
Member of the Board, Inspecta Group Oy 2007–2015
Chairman of the Board, Sponda Plc 2007–2013
Chairman of the Board, Nordic Morning Plc / Edita Plc 2005–2013
Chairman of the Board, VR-Yhtymä Oy 2008–2011
Chairman of the Board, Medisize Oy 2006–2011
Member of the Board, YIT Plc 2009–2011
Member of the Board, Olvi Plc 1999–2010
Member of the Board, LSR Group OJSC 2007–2009
Chairman of the Board, Tecnomen Plc 2001–2009
Vice Chairman of the Board, Kemira Grow How Plc 2004–2007
Vice Chairman of the Board, Stala Group Oy 2003–2004
Member of the Board, TT / Confederation of Finnish Industries (EK) 1998–2004
Chairman, Confederation of Finnish Construction Industries RT (CFCI) 2003–2004

Primary work experience

CRH Plc, Senior Advisor, Russia, 2007–2008
Lohja Rudus Oy Ab, CEO, 1994–2007
Scancem International ANS, Deputy Executive Director of the Cement Industry, 1996–1997
Euroc Abp, Head of the Concrete and Aggregate Division, 1994–1996
Kone Plc, Regional Director of the Crane Division, 1993–1994
Euroventures Nordica Ab, Partner 1990–1993
Nokia Plc, different management positions in the U.S. and Finland 1978–1990
Various positions in the forestry and engineering industry 1970–1978



Esa Lager

Member of the Board 2015–

Born 1959

Master of Laws, M.Sc. (Economics)

Professional Board Member

Current key positions of trust

Member of the Board, Alma Media Plc 2014–

Member of the Board, Fennovoima Oy 2014–

Member of the Board 2011–, Vice Chairman of the Board 2014–, Ilkka-Yhtymä Plc

Member of the Board, Vice Chairman of the Board, Olvi Plc 2002–

Vice Chairman of the Board and Member of the Board 2014–2015,

Chairman of the Board 2015–, SATO Plc

Member of the Board 2014–2015, Chairman of the Board 2015–,

Suomen Teollisuussijoitus Oy

Previous key positions of trust

Member of the Board 1996–2000, 2003–2008, Vice Chairman of the Board 2010–2011 Okmetic Plc

Primary work experience

Deputy CEO, Outokumpu Group 2011–2013

CFO, Outokumpu Group 2005–2013

Director, Financing and Administration, Outokumpu Group 2001–2004

Director, Financing, Outokumpu Group 1995–2000

Vice President, Outokumpu Group 1991–1994

Various specialist and managerial positions, Kansallis-Osake-Pankki, 1984–1990



Tuomo Mäkelä

Member of the Board 2015–
Born 1950
M.Sc. , Geologist
CEO and Senior Advisor, Mining, Escanor Oy

Current positions of trust

Chairman of the Board, Saga Mining Oy, 2008–

Previous key positions of trust

Member of the Board, Viscaria AB 2009–2016
Chairman of the Board, Outokumpu Metals Off-Take Oy 2011–2016
Member of the Board, Talvivaara Sotkamo Oy 2008–2014
Member of the Board, Endomines AB 2006–2011
Member of the Board, Northland Resources S.A. 2007–2013
Member of the Board, Scandinavian Minerals Oy 2008
Chairman of the Board, OAO Kola Mining 2002–2006
Chairman of the Board, OAO Kivijarvi 2002–2003
Member of the Board, Cia. Minera Zaldívar 1996–1999
Senior Mining Advisor, Suomen Teollisuussijoitus Oy 2004–2014
Representative for the Confederation of Finnish Industries, Mining Board 2009–2011

Primary work experience

Expert and management positions, Outokumpu Group 1975–2/2016
(incl. CEO, Outokumpu Mining Oy 2002–2015)

[See our current Board of Directors here](#)

Terrafame Ltd. Management Team 31 December 2016



Joni Lukkaroinen

Born 1965, M.Sc. (Tech.)

CEO (as of 15.2.2016)

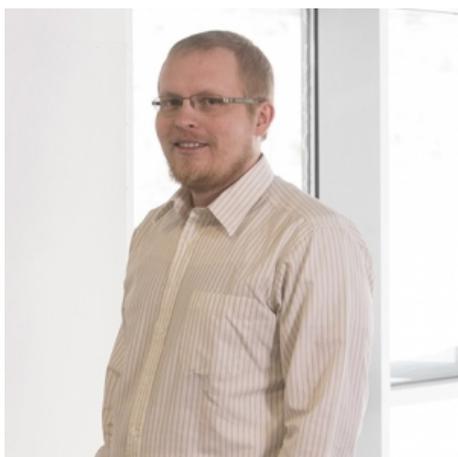
Primary work experience:

Managing Director, Extron Engineering Oy

CEO of the chemical industry (Kronochem) of Kronospan

Senior Vice President, Metsäliitto Osuuskunta Finforest, Timber and Upgrades division

Senior Vice President, Dynea Panelboard Nordic



Antti Arpalahti

Born 1983, M.Sc. (Tech.)

Chief Production Officer

Primary work experience:

Head of Department, bioleaching process, Terrafame Ltd.

Head of Department, bioleaching process, Talvivaara LLC



Katri Kauppila

Born 1965, M. Sc. (Soc.)

Chief Communication Officer

Primary work experience:

Different titles at business unit and Metsä Board levels

Marketing Manager, Metsäliitto Cooperative



Veli-Matti Hilla

Born 1971, M.Sc.

Chief Sustainability Officer

Primary work experience:

Environmental Manager and EHSQ department head, Talvivaara Mining Company Plc

Manager positions, Ramboll Finland Oy

Project Manager, Consulting Engineers Paavo Ristola Ltd



Harri Natunen

Born 1955, M.Sc. (Tech.)

Technology Officer

Deputy to the CEO

Current positions of trust:

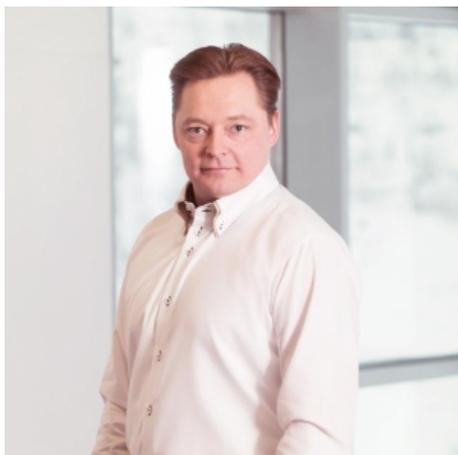
Member of the Board, Voimaosakeyhtiö SF 2013

Primary work experience:

Executive positions, Talvivaara Mining Company Plc

Director, zinc operations, Boliden

Executive positions, Outokumpu Oyj



Janne Palosaari

Born 1976, M.Sc (Tech.)

Chief Commercial Officer

Primary work experience:

Manager and director positions, Rautaruukki Plc

Commercial positions, Boliden Commercial AB



Petri Parjanen

Born 1969, M.Sc. (Psychology)

Chief HR Officer

Primary work experience:

Chief HR Officer, UPM Kymmene Wood Ltd, UPM Plywood Business Area

HR management positions, Outokumpu/Boliden Harjavalta Ltd.

HR management and development positions from 1990's



Matti Rautiainen

Born 1963, Technician

Chief Maintenance Officer

Primary work experience:

Several manager positions, incl. department head of maintenance, Talvivaara Sotkamo Ltd and the bankruptcy estate of Talvivaara Sotkamo Ltd

Manager positions, UPM-Kymmene Plc (21 years)



Ville Sirviö

Born 1982, M.Sc. (Econ.)

Chief Financial Officer

Primary work experience:

Financial Manager, Mondo Minerals B.V.

Financial Manager, Talvivaara Mining Company Plc



Reijo Uusitalo

Born 1955, M.Sc. (Tech.)

Chief Mining Officer

Primary work experience:

Manager and director positions, Outokumpu Plc and other mining companies



Jari Väisänen

Born 1971, M.Sc. (Tech.)

Chief Development Officer

Primary work experience:

Director, Sito Oy

Director, Pöyry Mining & Metals

Foreign projects manager, Mondo Minerals B.V.

[See our current Management Team here](#)

Salary and remuneration report 2016

Terrafame's salary and remuneration report

The remuneration practises of Terrafame Ltd. ("Terrafame" or "Company") comply with the guidelines and principles detailed in the decision in principle concerning the State's ownership policy, given on 13 May 2016.

The management of Terrafame Ltd. consists of a Board of Directors and a Management Team.

The Annual General Meeting of Terrafame Ltd. decides annually on the remuneration payable to Board members. The Board of Directors decides on the remuneration payable to the Management Team. In 2016, Terrafame Ltd. did not use the services of any external advisors for preparations related to remuneration.

Remuneration and other benefits of the Board of Directors

Remuneration payable to the Board of Directors and its Committee members is paid in cash. The Board members do not have share incentive plans or share-based compensation plans. They are also excluded from the other remuneration or pension plans of the Company.

As of 14 August 2015, the annual fee payable to the Chairman of the Board is EUR 72,000 and the meeting fee is EUR 600 per meeting. From the same date onwards, a Board member receives a fee of EUR 36,000 per year and a meeting fee of EUR 600 per meeting. Meeting fees for Committee meetings are of the same amount.

The members of the Board of Directors were paid a total of EUR 162,000 in monthly remuneration and meeting fees in 2016. The fees were paid as follows:

Member	Attendance in Board meetings	Monthly fees in 2016, EUR	Meeting fees in 2016, EUR	Total in 2016, EUR
Esa Lager	10/10	36,000	6,000	42,000
Tuomo Mäkelä	10/10	36,000	6,000	42,000
Lauri Ratia	10/10	72,000	6,000	78,000
Total		144,000	18,000	162,000

Advisor remuneration

Terrafame Ltd.'s parent company Terrafame Group Ltd. has a consulting agreement with a company owned by the immediate circle of Lauri Ratia, Chairman of the Board of Terrafame Ltd. The agreement concerns consulting and advisory services associated with Terrafame's ramp-up and operations as well as the ownership and financing arrangements which are not part of the usual responsibilities of the Chairman of the Board (for instance, the execution and management of the ramp-up of the mine operations as well as assisting in work to secure private financing).

Based on the consulting agreement, fees totalling EUR 180,000 were paid to the company owned by Ratia's immediate circle in 2016. The advisory services were priced at fair value. No other consultation services were acquired from companies owned by the Board members or their immediate circle in 2016.

Salary, remuneration and other benefits of the CEO and the Management Team

Details of the CEO's contract of employment

The CEO Joni Lukkaroinen started in his position on 15 February 2016. The retirement age of the CEO is 63 years, and the pension is determined on the basis of the Employees Pensions Act. The CEO does not have a supplementary pension plan.

The CEO's period of notice is six months. When the employment is terminated by the employer, severance pay equivalent to six months'

basic salary is payable on top of the salary for the notice period. No other compensation is payable based on termination of employment.

Remuneration of the CEO and the Management Team

The remuneration of the CEO and the other members of the Management Team in 2016 was based on fixed monthly salaries paid. In addition to mobile phone and internet service benefits, the members of the Management Team had no other fringe benefits, nor any contribution-based or other supplementary pension plan in 2016.

The salaries paid to Terrafame Ltd.'s Management Team in 2016 amounted to EUR 1,198,661. The CEO's share of the salaries paid was EUR 264,421.

The Management Team did not receive performance-related remuneration in 2016 related to operations in 2015, as the Management Team had no bonus or share-based compensation plans in 2015.

In 2016, Terrafame Ltd. introduced a performance-related payment system for the Management Team and certain key persons. Terrafame Ltd.'s Board of Directors decides on the bonus system, its principles and measurements of the performance-related remuneration, and also monitors the achievement of the targets that the remuneration is based on. Targets related to the production, financial development and safety of Terrafame's operations function as measurements in the bonus system. In addition, each person within the bonus system has a personal target. The targets of the bonus system have been selected so that their achievement materially contributes to the long-term development and success of the Company.

The maximum amount of the CEO's bonus payment is 40% of a sum corresponding with the yearly salary. The maximum amount of the bonus payment of the Management Team members is a sum corresponding with three months' salary. The maximum amount of the bonus payment for other persons within the bonus system is a sum corresponding with two months' salary.

In 2016, no bonuses were paid to the Management Team. In March 2017, the Management Team received bonuses of EUR 91,263 in total (7.6% of the total salaries paid to the Management Team in 2016) related to their performance in 2016. The CEO's share of the bonuses paid was EUR 31,301 (11.8% of the total salary paid to the CEO in 2016).

In addition to performance-related pay, Terrafame has no financial incentive schemes for the Management Team or other key personnel.

Remuneration of other personnel

Salaries and remuneration paid to personnel in 2016 totalled EUR 26.7 million. The salaries paid to personnel are in accordance with the terms and conditions of the collective agreements of each personnel group.

As of November 2015, a safety bonus plan covering all personnel has been in effect, which is paid if no lost-time accidents occur in the following functions: 1) mining and materials handling, 2) bioleaching and metals production plant, and 3) maintenance and office. In 2016, safety bonuses paid totalled EUR 570,735.

Financial statements

In the financial statements section, we present the Board of Directors' reviews of Terrafame Ltd and Terrafame Group Ltd. The section also includes the consolidated financial statements of the Terrafame Group for 2016.

The Financial Statements section is an English translation of the Finnish auditor's report. Only the Finnish version of the report is legally binding.

Annual review of Terrafame Ltd.

Terrafame Ltd.'s annual review for 1 January–31 December 2016

Terrafame Ltd. was registered in the Trade Register on 5 June 2016 under the name Terrafame Mining Ltd. The company's name was changed to Terrafame Ltd. (Terrafame) in August 2015. Terrafame commenced its actual operations on 15 August 2015 after having acquired the business of Talvivaara Sotkamo Ltd.'s bankruptcy estate, including the related inventories and fixed assets. The reporting period 1 January–31 December 2016 is the company's second reporting period and its first full year of operations.

Operating environment

Demand for nickel grew quite significantly during 2016. Increased demand, particularly in the manufacturing of stainless steel and batteries for electric cars, drove the growth which was 7.5% globally. Nickel mine production decreased globally by about 1% in 2016. In the last quarter of 2016, the average price of nickel (LME) was USD 10,810 per tonne, which is 14.5% higher than in the last quarter of 2015. In 2016, nickel stock levels at the London Metal Exchange (LME) and the Shanghai Futures Exchange (SHFE) decreased by approximately 30,000 tonnes, totalling approximately 470,000 tonnes at the end of the year.

In 2016, global demand for zinc grew by about 2.4%. Simultaneously, mine production of zinc decreased by almost 6%. The average price of zinc (LME) in the last quarter of 2016 was USD 2,517 per tonne which was 56% higher than in the fourth quarter of 2015. LME's zinc stock levels decreased by approximately 35,000 tonnes to 428,000 tonnes during 2016.

At the end of 2015, the exchange rate between the euro and the U.S. dollar was at 1.089. The average monthly dollar exchange rate during January–October 2016 was approximately 1.115. Strengthening of the dollar at the end of the year had a positive effect on Terrafame. The average euro exchange rate in November

was 1.080 U.S. dollars, and in December the average euro rate was 1.054 U.S. dollars.

The production ramp-up continued in 2016 as planned. In May, the company completed Section 2 of the primary leaching area and, in October, Section 3. During 2016, Terrafame mined, crushed and agglomerated 14.2 million tonnes of ore. Approximately 75% of the primary leaching area was in production at the end of the year.

18.4 million tonnes of waste rock was excavated and used for the base structures of the secondary leaching heaps 3 and 4, which are under construction. At the beginning of the year, mining was carried out in the northern part of the Kuusilampi open pit. In April, the water stored in the central part was moved to the northern part with the permission of the Centre for Economic Development, Transport and the Environment. Mining moved to the central part, that is, the so-called main pit. As a result, the cost-efficiency of the ore and waste rock mining improved significantly. By the end of 2016, the water was successfully removed from the north pit, and the northern part of the pit was connected to the main pit.

During the year, we introduced two new Hitachi EH3500ACII dump trucks, the ninth dump truck in January and the tenth one in May. The utilisation rate of the fleet reached 82%, which is a clear improvement compared to the previous result and exceeds the target of 80%.

Reclaiming of the heaps in the primary leaching area slightly limited stacking of new ore in the first half of the year. In February, a second surface miner was introduced, and a third one was introduced in June. Regarding reclaiming of the heaps, Terrafame came close to the long-term target of monthly production of 1.5 million tonnes. The availability of the reclaiming conveyor system caused issues throughout the year. The utilisation rate of the conveyor system was 62%, which is clearly below target. Changes made to the feeder system at the end of the year have improved the availability of the conveyor system significantly.

Nickel and zinc content of ore remained at a good level. During 2016, 37,042 tonnes of nickel and 70,299 tonnes of zinc were stacked onto the primary leaching heaps.

Safeguarding the quality of the agglomerate and the construction of the leaching heaps were key targets in ensuring the good operation of bioleaching. The target quality of agglomerate was reached 99% of the time at the end of the year. For the whole year, 95% of the quality target reached. Regarding the quality targets of the construction of the primary and secondary leaching heaps, we

reached levels of 95% and 92%, respectively, for the whole year. Issues related to heap aeration, drainage and irrigation during the previous operator have been resolved by enhancements in agglomeration, as well as in drainage of the primary heaps by way of improvements made in the assembly methods regarding the accuracy of aeration and irrigation piping.

Primary leaching has performed as expected. In Section 1 of the primary leaching area that was taken into production in November 2015, the leaching recovery was 40% for nickel and 50% for zinc. Both metals had a recovery target of 35% in primary leaching. The leaching recovery of Section 2 has developed somewhat less efficiently than Section 1, and Section 3 has made better progress than Section 1. Secondary leaching has performed according to expectations. The good and even particle size achieved using surface miners in reclaiming has contributed greatly to the efficiency of the secondary leaching. During 2016, 11,584 tonnes of nickel and 27,868 tonnes of zinc were leached.

Annual stoppages at the metals production plant took place as planned in May and at the turn of September and October. Otherwise, the metals production plant was run with one precipitation line until July and with two precipitation lines in July–September. As of October, the metals production plant was run with full solution feed and with two hydrogen sulphide lines, which enabled larger production capacity. The well-functioning bioleaching has enabled steady operation of the metals production plant. As a result, the quality of nickel and zinc products has been very consistent and has met expectations. The customer deliveries of nickel and zinc products have met the company's quality specifications. The nickel content of the nickel-cobalt product was 49.6% on average and the cobalt content was 1%. The zinc content of the zinc product was 60.7% on average.

Production at the metals production plant had to be suspended for four weeks due to a fire at the hydrogen sulphide plant on 16 December 2016. The costs resulting from the fire totalled approximately EUR 0.5 million. As a result of the fire, the December production was clearly below the planned level. The nickel production of the metals production plant was 9,554 tonnes and the zinc production was 22,575 tonnes.

A term sheet regarding the financing arrangement to secure the financing needed for the completion of the ramp-up of Terrafame Ltd.'s production was signed on 15 December 2016. The ownership and financing arrangement that complied with the term sheet was completed in February 2017. The ownership and financing

arrangement totalled EUR 250 million.

Financial review and key figures

Terrafame's net sales totalled EUR 101.0 million. Customer deliveries of nickel product were 9,544 tonnes nickel contained. Customer deliveries of zinc product were 25,707 tonnes zinc contained.

EBITDA was EUR -120.4 million, and the result for the accounting period showed a loss of EUR 124.9 million.

Capital expenditure in 2016 was EUR 84.3 million. This included the lime plant, laboratory operations and the geodata acquired from Talvivaara Mining Company Plc. worth EUR 15.4 million. Other major investments were the centralised water treatment plant, which began its trial operation in November, the base structures for the third and fourth secondary areas, investments into blower and pumping plant buildings, retooling two fine crushers, and the investments into modernising of the hydrogen sulphide plant as well as the lime plant. Other significant investments included taking over the HSH lease equipment, two surface miners and two dumper trucks.

At the end of the accounting period, Terrafame's inventories totalled EUR 76.2 million. On 31 December 2016, the value of work in progress totalled EUR 50.1 million, the gross value of raw material and spare part inventories was EUR 29.1 million, the value of the chemicals stock was EUR 2.4 million and the value of the finished product inventory was EUR 0.6 million. A reserve for slow-moving inventory of about EUR 6.0 million was allocated to raw material and spare parts inventory on 31 December 2016.

Trade receivables on 31 December 2016 totalled approximately EUR 15.8 million. Other receivables, mainly value added tax receivables, totalled about EUR 8.3 million and receivables carried forward totalled EUR 2.7 million on 31 December 2016.

At the end of 2016, cash and cash equivalents totalled EUR 44.7 million. Shareholders' equity on 31 December 2016 was EUR 165.1 million.

Summary of the key financial figures is presented in the table below.

	2016	2015
Net sales	101,041,812.64	2,523,629.03
Operating loss	-134,533,354.73	-91,753,412.40
Equity ratio %	45%	4%
Balance sheet	370,656,468.24	201,946,750.51
Personnel, average	626	480
Salaries and wages	27,934,434.97	8,035,241.50

Financing

In the financial year 2016, the operating cash flow was negative EUR 176.8 million. Cash flow from investing activities was EUR 74.0 million. Terrafame Group Ltd. has supported the ramp-up of Terrafame Ltd.'s operations during 2016.

Increase in the unrestricted equity amounted to EUR 281.8 million during the financial year 2016. At the end of the financial year 2016, the invested unrestricted equity was EUR 379.8 million. Number of shares increased with 1,380,000 shares to 2,380,075 shares at the end of 2016.

Research and development

Terrafame's research and development activity focused on ensuring and developing the bioleaching as well as developing the efficiency of the metals production plant. In addition, a report was commissioned on further processing possibilities of nickel as well as the possibilities of recovering rare earth metals. The company also participated actively in the Ariel development initiative for new water purification technology, led by its parent company, Terrafame Group.

The production plan is based on 15-month primary leaching period. In the primary leaching phase, it is crucial that leaching recovery and speed are as high as possible. We continued research collaboration with an international consultant specialising in heap leaching. The target was to ensure that the measures and improvements made in primary leaching will lead to the desired results. We will continue this collaboration and will expand it to include the analysis and development of secondary leaching.

The process development of primary leaching was continued in collaboration with Finnish experts. Electrochemical measurements of the heap were started, and monitoring of the heap's temperature profile was continued. Precise mineralogical monitoring of the feed ore was started. The target of this development work is to ensure as consistent and controlled process conditions as possible for primary leaching.

Leaching columns were constructed to optimise bioleaching parameters and to conduct more in-depth research. With leaching columns, it is possible to test different process conditions in pilot scale.

Further upgrades of nickel product through roasting process looks highly interesting based on a preliminary feasibility study.

Uncertainties and risk management

In accordance with good corporate governance guidelines on risk management, Terrafame Ltd. complies with the risk management policies approved by the Board of Directors. Risks are identified, their impact on the company's operations is evaluated and an appropriate action plan is created. In the beginning of 2016, key business risks were assessed, and this assessment will be updated on an annual basis.

The company's business and operations are affected by various risks common to the mining industry, including risks on the availability of environmental and other permits, as well as risks concerning the production ramp-up of the new company which include risks on securing sufficient financing for the ramp-up. The most significant business risks are the market development of nickel and zinc, nickel and zinc prices, counterparty risks related to customers and other business partners, risks linked to the price of major raw materials and of electrical energy, changes in foreign exchange rates, and the cost of the ramp-up and the adequacy of its funding, as well as risks concerning the production process and costs, and permits granted by the authorities.

Terrafame's risk management regarding process safety, the environment and occupational safety has been based on the risk assessment done during the previous operator's time in 2012–2015. During 2016, the risk assessment was updated extensively to correspond with Terrafame's current operations as well as the company's current practices and requirements. During 2016, work

by an external expert for a comprehensive assessment of the environmental risks was launched.

We have succeeded in reducing operational risks during 2016. The most important measures include the systematic update of the PI diagrams and a clearer labelling for the process equipment. By the end of 2016, 60% of the work on PI diagrams had been completed. During the summer, a new operating model for the management of process changes was introduced in the metals production plant. The model was updated based on experiences gathered during the autumn, and, during 2017, the operating model will be implemented in all departments. The good functionality and speed of bioleaching is a key operational risk. During 2016, three external expert reports were commissioned to ensure the proper performance of the bioleaching.

Occupational safety

When Terrafame started its actual operations on 15 August 2015, it defined as its key guiding principles safety, efficiency and commitment. The most important target is safety, with a particular emphasis on both occupational and environmental safety.

The work to improve occupational safety continued during 2016. When the company started operations, the number of lost-time accidents was much too high, and the attitude towards safe and responsible work and working methods had deteriorated. In 2016, the safety work was continued with management safety walks introduced in 2015, which were conducted weekly at different parts of the mine and plant areas. In addition, regular safety and housekeeping walks were started at different departments. Safety meetings, held every other week, were continued. In addition, all safety issues have been discussed as the first item on the agenda of the meetings of the Board of Directors, the Management Team, and in operational meetings. In 2016, we also introduced the CEO's accident and near-miss meetings. Persons involved in the accidents and near misses and supervisors are invited to these meetings to discuss the root cause which led to the situation and the necessary measures to take. If the accident concerns a contractor working at the site, the contractor's management is also invited to the meeting. During 2016, these coffee meetings were held almost every month.

During 2016, lost-time injury frequency developed positively and fell from 23.3 (end of 2015) to 8.4. However, we did not reach our goal of less than 7. In summer 2016, Terrafame achieved a new record of 80 accident-free days.

We continued the safety bonus programme introduced in 2015. The company is divided into three sections: the mine and materials processing, bioleaching and metals production plant, and administration and maintenance. If a section had zero lost-time injuries during a one-month period, a bonus of EUR 100 was paid to all employees of the section, excluding management. In June, we enhanced the programme until the end of 2016 so that an additional bonus of EUR 100 per person was paid if no lost-time injuries occurred in the section during the quarter.

The emphasis and importance allocated to occupational safety are result of Terrafame's complex production chain and the fact that several of the process phases and the raw materials used in production entail risk factors typical of the chemicals industry. Managing these risk factors appropriately is one of the cornerstones of our safety. On the other hand, a safety-driven approach to work leads to better and more efficient working methods and thus to higher productivity.

Environmental safety

In 2015, Terrafame took over responsibility for the mining operations in very challenging conditions in which the bioleaching solution volumes were 840,000 cubic metres, exceeding the level considered safe. In addition, there were more than 10 million cubic metres of stored waters at the mine area.

The use of the discharge pipe into Lake Nuasjärvi, which is critical for the management of the water situation, began in November 2015. The permit granted by the Regional State Administrative Agency for the use of the discharge pipe set the sulphate quota to 24,000 tonnes per year, and would have enabled the purification and removal of extra waters from the area within three years. In September 2015, the Vaasa Administrative Court issued an interim decision, halving the sulphate quota of the discharge pipe from the mining area into Lake Nuasjärvi to 1,000 tonnes per month. Due to this, the volume of waters accumulated in the mining area could not be reduced during the winter as planned and in accordance with the environmental permit granted. In spring 2016, the Vaasa Administrative Court issued its final decision regarding the discharge pipe permit. According to the final decision, the sulphate quota of the discharge pipe is limited to a maximum of 15,000 tonnes per year. The maximum monthly sulphate quota is 2,000 tonnes per month during the summer season and 1,000 tonnes per month during the winter months.

In early April 2016, the water at the dams of Kortelampi and Latosuo ascended to a level where the risk of uncontrollable leakage of water had risen too high, according to Terrafame's assessment. Thus, Terrafame decided to start additional discharges of purified waters from Kortelampi and Latosuo water reservoirs. Between 8 April and 6 May, the additional discharges were carried out until the water surface reached the level that could be considered safe in view of dam and environmental safety. A total of 1.9 million cubic metres of water were discharged both to old discharge routes and through the discharge pipe. The waters discharged had been purified and the sulphate and metals concentrations were clearly below the limits stipulated in the environmental permit.

At the end of 2016, there was approximately 3.8 million cubic metres of water stored at the area, 6 million cubic metres less than in the beginning, and approximately 500,000 cubic metres of pregnant leach solution (PLS) in the process ponds. Thanks to continuing mining operations and improved water balance, a total of 1.9 million cubic metres of water has been pumped to the bioleaching circulation during 2016.

The water released into the Nuasjärvi discharge pipe was below the sulphate quota of 15,000 tonnes per year by approximately 1,400 tonnes in 2016, despite the additional discharges carried out in the spring. The sulphate load on the old discharge routes was 3,906 tonnes in 2016, meaning that the annual load quota of 1,300 tonnes was exceeded by 2,606 tonnes due to the additional discharges in the spring.

The quality of the purified waters discharged from the mining area was good in 2016. The sulphate concentration of the waters was less than half of the limit value on average, and the metal concentrations were less than a tenth of the stipulated permit limit values on average. Reject effluent from reverse osmosis has been directed into bioleaching circulation since March. In March–December, a total of 5,700 tonnes of sulphate included in the reject was led into bioleaching circulation, which is highly significant regarding the sulphate quota and for the water balance management of the mining area.

The company estimates that there is no need for extra discharges of purified water in spring 2017 when the snow melts.

Based on measurements performed in Terrafame's mandatory environmental monitoring, the autumn circulation of Lake Nuasjärvi has been successful. The water layers at the surface and at the bottom have intermixed well, meaning that there is no permanent

layering in the lake. The concentrations in the water directed into the lake the discharge pipe have remained clearly below the limits stipulated in the environmental permit.

Permit processes

All permits regulating mining operations were transferred to Terrafame Ltd. when it took over operations. These include permits such as a mining permit, chemicals handling and storing permit as well as environmental and water permits.

When Terrafame began operations, the main environmental permit processes were under appeal at the Vaasa Administrative Court. The Regional State Administrative Agency issued a permit decision in the spring of 2013 regarding water discharge along the old discharge routes. In the spring of 2014, the Agency issued a permit decision covering all of the mining operations and the extraction of uranium. In the spring of 2015, the Agency issued a permit decision concerning the discharge pipe to Lake Nuasjärvi. All of the above permits were pending at Vaasa Administrative Court at the beginning of 2016.

In April 2016, the Vaasa Administrative Court issued its decision regarding the appeals made on the discharge pipe into Lake Nuasjärvi and other issues related to Terrafame's environmental permits. The Administrative Court decided to increase the sulphate quota of the discharge pipe from the 12,000 tonnes in its earlier interim decision to 15,000 tonnes per year. In addition, it required Terrafame to apply for a new environmental permit by the end of August 2017. Terrafame operates according to valid environmental permits and follows the emission quotas decreed by the Administrative Court.

Continuing the operations and further development of the mine is feasible in accordance with the current permits. However, Terrafame did not find the decisions of the Vaasa Administrative Court fully acceptable, and consequently, an appeal has been submitted to the Supreme Administrative Court. At the same time, the company is preparing to apply for new environmental permits by the end of August 2017. The new permit process is preceded by two environmental impact assessment (EIA) procedures, one for water management and the other for the entire mining operation. Terrafame started the water management EIA procedure in September and the other EIA procedure in November.

In autumn 2015, Terrafame launched a project to build a centralised water treatment plant. In March, the company submitted the related

environmental permit application to the Regional State Administrative Agency. In addition, the company prepared a permit application related to the processing and final disposal of sediment generated in water treatment processes. This permit decision is expected to be released in 2017. In October 2016, the company submitted a permit application for a separate waste rock area. The company is also preparing permit applications for the use of sulphur dioxide in metals production and for a third hydrogen sulphide production unit. In addition, having obtained a permit for experimentation, the company started testing the gypsum pond cover structure in 2016.

Personnel

The ramp-up of the mine and the metals production plant have required a large number of recruitments. The total number of employees increased from 529 persons at the end of 2015 to 645 persons at the end of 2016. In addition to Terrafame personnel, approximately 70 partner companies employing approximately 550 people operated full-time in the mining area at the end of 2016.

The average age of Terrafame personnel is 40 years. The company strives to meet the educational needs of individuals in their various career stages by developing, for instance, its supervisor and safety training. Terrafame has also developed a new-employee orientation process.

In December, the company agreed with the personnel on extending working hours for 2017, in accordance with the nationwide Competitiveness Pact. Depending on the personnel group, the work hours will be extended by decreasing accumulated working hour balance, extending shift change times and by adding unpaid training days.

Shares and shareholders

Terrafame Ltd. has one series of shares. At the end of 2016, the company had 2,380,075 shares outstanding, a share capital of EUR 2,000,000 and total equity of EUR 165,139,635. Terrafame Ltd. is a wholly-owned subsidiary of Terrafame Group Ltd.

Corporate governance

Terrafame Ltd.'s administration and operations are the responsibility of the Annual General Meeting, the Board of Directors, and the Chief Executive Officer (as of 15 February 2016). As an unlisted company, Terrafame Ltd. follows, when applicable, the Finnish Corporate Governance Code (2015) for listed companies issued by the Securities Market Association. The company will publish a corporate governance statement as part of its Annual Report 2016.

The Chairman of the Board of Directors of Terrafame Ltd. is Lauri Ratia, and members of the Board are Esa Lager and Tuomo Mäkelä. Joni Lukkaroinen has been the CEO as of 15 February 2016.

Terrafame Ltd.'s auditor is the Authorised Public Accountants KPMG, with Antti Kääriäinen, APA, as the principal auditor.

Future outlook

In summer 2016, Terrafame commissioned external experts to complete a mineral resource and ore reserve evaluation on Terrafame's deposits in Sotkamo, to be undertaken in compliance with the JORC Code. The mineral resources of Kuusilampi total 656 million tonnes of which measured resources amount to 379 million tonnes and indicated resources to 277 million tonnes. Respectively, Kolmisoppi's mineral resources total 802 million tonnes of which measured resources amount to 144 million tonnes, indicated resources to 170 million tonnes and inferred resources to 488 million tonnes.

The mineral resources contain approximately 3.9 million tonnes of nickel, 7.9 million tonnes of zinc, 0.3 million tonnes of cobalt and 2.1 million tonnes of copper.

In the conversion of mineral resources into ore reserves, only proven and probable resources have been recognised. The techno-economic parameters used are from the mine's history, Terrafame's mining plans and the defined cost parameters. The ore reserves total 530.5 million tonnes of which proven reserves total 356.5 million tonnes and probable reserves 174.0 million tonnes. The large ore reserves provide good basis for mining and metals production for several decades.

The global nickel market developed favourably in 2016, and the positive development is expected to continue also in 2017. High stock levels will continue to limit the increase of the price of nickel,

but stocks are expected to continue decreasing during 2017.

With zinc, the deficit in mine production and low stock levels are expected to contribute to the favourable development of the price of zinc and the processing charges. In addition to zinc, the market outlooks for cobalt and copper are also positive.

The 2017 target for the lost-time injury frequency rate is less than 5, referring to the number of accidents resulting in absence per one million person-hours worked. The criteria and methods used to develop the occupational safety of Terrafame's personnel are also used in developing the occupational safety of the personnel of partner companies working in the mine and plant area.

Terrafame's target is to continue ramping up production and delivery volumes and improving cost efficiency. The company is preparing for the commercialisation and sales of copper during 2017. Thanks to the good water situation in the mining area, there will be no need for additional discharges of treated waters in spring 2017.

Events after the review period

The repairs following a fire at the hydrogen sulphide plant were completed as planned at the beginning of the year, and operations at the metals production plant were re-started on 13 January 2017.

Terrafame Ltd. and its parent company Terrafame Group Ltd. have been preparing an ownership and financing arrangement to secure the financing needed for the completion of the ramp-up of Terrafame Ltd.'s production. A term sheet regarding the financing arrangement was signed on 15 December 2016. In connection with the financing arrangement under preparation and continuation of the mining operations, the state-owner allocated an additional capitalisation of EUR 100 million to Terrafame Group Ltd.

Negotiations for an ownership and financing agreement that complied with the above-mentioned term sheet were completed in early 2017, with final agreements with Trafigura Ventures V B.V. and Galena Private Equity Resources Investment 2 L.P. fund, which are part of the Trafigura Group, being signed on 3 February 2017 and the transaction being closed on 10 February 2017. Sampo plc and Terrafame Group Ltd. act as co-investors in the transaction. The funding arrangement totals EUR 250 million. With the financing arrangement, Terrafame Ltd. has the funds to complete the ramp-up of production and achieve a positive cash flow.

Board of Directors' proposal for profit distribution

Terrafame Ltd.'s result for the financial year 2016 shows a loss of EUR 124,912,129.51. On 31 December 2016, Terrafame Ltd.'s distributable equity totalled EUR 163,139,635.16. The Board of Directors proposes that the loss be recorded on the profit/loss account and that no dividend be distributed.

Annual review of Terrafame Group Ltd.

Terrafame Group Ltd.'s annual review for 1 January – 31 December 2016

Terrafame Group Ltd. is a special assignment company owned by the State of Finland and is subject to ownership steering by the Ministry of Economic Affairs and Employment. Terrafame Group Ltd. was entered into the Trade Register on 9 February 2015 as part of the preparations of the State of Finland for the arrangements concerning Talvivaara Sotkamo Ltd.'s bankruptcy estate. At the end of the accounting period, the Terrafame Group included Terrafame Ltd., wholly owned by the parent company. The subsidiary Winttal Oy, wholly owned by Terrafame Group Ltd., entered voluntary liquidation as dispensable and was dissolved during the 2016 accounting period. The liquidation of Winttal Oy was registered on 29 December 2016.

Key events of the period

Terrafame Group Ltd.'s most important asset item is its subsidiary, Terrafame Ltd. Terrafame Ltd. has continued the ramp-up of production at its multi-metal mine, located in Sotkamo. During 2016, the ramp-up continued as planned.

During 2016, Terrafame mined, crushed and agglomerated 14.2 million tonnes of ore. The company completed Section 2 of the primary leaching area in May and Section 3 in October. Approximately 75% of the primary leaching area was in production use at the end of the year. At the beginning of the year, mining was carried out in the northern part of the Kuusilampi open pit. In April, the water stored in the central part was moved to the northern part with the permission of the Kainuu Centre for Economic Development, Transport and the Environment (hereinafter "ELY

Centre"). Mining moved to the central part, that is, the so-called main ramp. As a result, the cost-efficiency of the ore and waste rock mining improved significantly. By the end of 2016, the water from the north pit was removed successfully, and the northern part of the pit was connected to the main ramp. The nickel and zinc concentrations of the ore remained at a good level. During 2016, 37,042 tonnes of nickel and 70,299 tonnes of zinc were heaped at the primary leaching heap.

Reclaiming of old heaps in the primary leaching area slightly limited stacking of new ore in the first half of the year. In February, a second Wirtgen surface miner was introduced, and a third one was introduced in June. Regarding reclaiming of heaps, Terrafame came close to the long-term target of monthly production of 1.5 million tonnes.

Primary leaching has worked as expected. In Section 1 of the primary leaching area, taken into production in November 2015, the leaching recovery rate was 40% for nickel and 50% for zinc at the end of 2016. Both precious metals had a recovery rate target of 35% in primary leaching. The leaching recovery rate of Section 2 has developed somewhat less efficiently than Section 1. However, Section 3 has made better progress than Section 1. Secondary leaching has worked as expected. The good, even particle size achieved in surface mining has contributed greatly to the efficacy of secondary leaching. During 2016, 11,584 tonnes of nickel and 27,868 tonnes of zinc were leached.

As of October, the metals production plant was run at full solution stream and with two H₂S reactors, which enabled a larger production capacity. The well-functioning bioleaching has enabled the steady operation of the metals production plant. As a result, the quality of the saleable products has been very consistent and has met expectations. The customer deliveries of nickel and zinc have met the quality specifications. The nickel concentration of the nickel-cobalt product was 49.6% on average and the cobalt concentration was 1.0%. The zinc concentration of the zinc product was 60.7% on average.

Production in the metals production plant had to be suspended for four weeks due to a fire in a H₂S reactor on 16 December 2016. The costs resulting from the fire totalled approximately EUR 0.5 million. As a result of the fire, the December production was clearly below the planned level. The nickel production of the metals production plant was 9,554 tonnes and the zinc production was 22,575 tonnes in 2016.

The ramp-up of production has been covered in more detail in Terrafame Ltd.'s annual review of the Board of Directors.

In accordance with the agreement between the companies, Terrafame Group Ltd. produced Terrafame Ltd. services concerning, for instance, legal matters and communications, during the accounting period. The water treatment technology project has been described below in connection with research and development activities.

In December 2015, Terrafame Group Ltd. acquired Winttal Oy, where Nyrstar Sales & Marketing AG had moved its receivables from Talvivaara Mining Company Plc. The receivables in question were moved to Terrafame Ltd. in June 2016, and they were used as compensation when Terrafame Ltd. acquired the proprietary rights of the lime plant, the laboratory and the geological data, necessary for the production process. As dispensable for the Group's business, Winttal Oy entered voluntary liquidation on 5 August 2016, and it was registered as dissolved on 29 December 2016.

In May 2016, the state owner decided that private financing, necessary for completing the ramp-up and achieving positive cash flow, must be secured by the end of 2016. At the same time, it was decided that preparations must be made for the mine's controlled, early shutdown. In November 2016, the state owner revised its decision, enabling negotiations aimed at securing private financing to continue also after 31 December 2016. At the end of summer 2016, Terrafame Group Ltd. and Terrafame Ltd. started a project aimed at securing private financing. The preliminary agreement on ownership and financing arrangements was signed on 15 December 2016.

Financial review and key figures

In the 2016 accounting period, Terrafame Group's net sales totalled EUR 101 million (2015: EUR 2.5 million) and operating loss totalled EUR -136.7 (2015: EUR -93.1 million). The Group's result before profit-adjusting entries and taxes totalled EUR -127.2 million (2015: EUR -93.1 million). The loss for the accounting period was EUR -127.2 million (2015: EUR -93.1 million).

Terrafame Group's balance sheet total was EUR 377 million (2015: EUR 309.7 million). The Group's return on equity was -88.52% (2015: -80.26%) and equity ratio was 45.44% (2015: 37.45%).

The Group's equity totalled EUR 171.3 million (2015: EUR 116.0 million), liabilities totalled EUR 43.6 million (2015: EUR 31.6 million)

and provisions totalled EUR 162.0 million (2015: EUR 162.0 million). The Group had EUR 1.3 million of external capital (2015: EUR 3.5 million) of which EUR 1.3 million was short-term (2015: EUR 2.2 million) and EUR 0 million was long-term external capital (2015: EUR 1.3 million).

Key financial figures

Group	2016	2015
Net sales	EUR 101.0 million	EUR 2.5 million
Profit/Loss	EUR -136.7 million	EUR -93.1 million
Operating profit %	-135%	-3689%
Equity ratio	45.44%	37.45%
Balance sheet total	EUR 377 million	EUR 309.7 million
Salaries	EUR 28.4 million	EUR 8.1 million
Personnel	629	482
Parent company		
Net sales	EUR 0.2 million	0.0 million
Profit/loss	EUR -2.3 million	EUR -1.2 million
Operating profit %	-1088%	N/A
Equity ratio	99.94%	99.91%
Balance sheet total	EUR 388.2 million	EUR 208.1 million
Salaries	EUR 0.5 million	EUR 0.1 million
Personnel	3	2

Personnel

At the end of the accounting period, Terrafame Group Ltd. employed 5 people and Terrafame Ltd. employed 645 people. Part of Terrafame Group Ltd.'s personnel are within a performance-based bonus system. Terrafame Ltd. reports on the remuneration of its

personnel in its annual review of the Board of Directors and in its remuneration report.

Environmental factors

Terrafame Ltd. assumed responsibility of the mine in 2015 in a highly challenging situation where the solution volumes of the bioleaching pools were 840,000 cubic metres, which is above a level considered safe. In addition, there were nearly 10 million cubic metres of excess water stored in the area.

In early April 2016, the water at the dams of Kortelampi and Latosuo climbed to a level where the risk of uncontrollable leakage of water into the environment had become too high, according to Terrafame's assessment. Thus, Terrafame decided to perform additional discharges of purified waters from Lake Kortelampi and Lake Latosuo between 8 April and 6 May until the water surface at the water reservoirs reached a level that can be considered safe in view of dam and environmental safety. A total of 1.9 million cubic metres of water was discharged to the old discharge routes and into the discharge pipe. The water discharged in the additional discharges was purified and its concentrations were clearly below the limits stated in the environmental permit.

Thanks to continuing mining operations and good efficacy of the bioleaching process, Terrafame has been able to decrease the amount of water stored at the mine area significantly during summer and autumn 2016 and within the terms of the environmental permit. At the end of 2016, there was approximately 3.8 million cubic metres of water stored in the area and approximately 500,000 cubic metres of solution in the circulating bioleaching solution.

The quality of the purified waters discharged from the mining area was good in 2016. The sulphate concentration of the waters was less than half of the limit value on average, and the metal concentrations were less than a tenth of the set limit values on average.

According to Terrafame Ltd.'s estimate, there will be no need for additional water discharges in spring 2017 as the snow melts.

Research and development

Of the capital injected into Terrafame Group Ltd. by the state owner, EUR 2 million has been reserved for a pilot project on water treatment. As part of this work, Terrafame Group Ltd. launched a special R&D project in September 2015 in order to identify new

technological solutions for the treatment of the water at the mine. The primary goal is to reduce the sulphate levels of water discharged from the mine. The new technologies being sought may involve production process optimisation, process technology or new water treatment methods.

At the first stage of the project in November 2015, Terrafame Group Ltd. announced a call for mini demonstrations which was open to all actors, such as businesses, research institutions and universities. Eight solutions, which partially complement each other, were selected for execution. The projects were completed during the beginning of 2016. Based on the projects and other reports, Terrafame Group Ltd. formulated a plan and a concept for comprehensive sulphate management. The solution and connected unit operations were protected with patent applications and were published at a seminar held in June 2016. The concept is based on changes in chemistry done in the recovery of metals as well as changes in the mine's post-processing. This way, the sulphate is mainly either recycled in the process or recovered as a by-product. Preparations for the concept's pilot-scale demonstration started in July 2016. The pilot tests started in October 2016. Results and concept reviews based on them can be expected during the next operating period. The costs of the project totalled about EUR 1,040,000 in the 2016 accounting period (2015: EUR 120,000).

A steering group has been appointed for the water management pilot project, with a wide representation of Finland's leading water expertise from actors such as universities and research institutions. The steering group includes:

- Päivi Kinnunen, Chair of the Steering Group; Research Team Leader, Material Recycling and Geotechnology, VTT Technical Research Centre of Finland
- Pekka Oinas, Professor, Plant Design, Aalto University
- Riitta Keiski, Dean of the Faculty of Technology, Professor of Process and Environmental Engineering, University of Oulu
- Tuomo Sainio, Professor, Separation Processes, Lappeenranta University of Technology
- Marja-Liisa Räisänen, Senior Scientist, Geological Survey of Finland
- Timo Koski, Senior Advisor, Finnish Water Forum
- Tommy Jacobson, CEO, CLIC Innovation Oy
- Harry Sandström, Programme Director, Geological Survey of Finland

Assessment of significant risks and uncertainties

The Board of Directors is responsible for arranging internal control, risk management and internal audit.

The internal audit of the Terrafame Group companies is performed under the supervision of the Board of Directors and the CEO of each company.

Terrafame Group Ltd.'s key risks from the viewpoint of ownership value concern the success of the ramp-up and the development of the business of Terrafame's mine, availability and terms of external financing as well as environmental permit terms concerning the mine.

Terrafame Group Ltd.'s Board of Directors monitors and assesses the risks and risk management concerning the company's operations on a regular basis.

Terrafame Ltd.'s risk management and risks concerning its operations are described in Terrafame Ltd.'s annual review the Board of Directors.

The financial statements for 1 January – 31 December 2016 were prepared on a going concern basis, assuming that the financial position of Terrafame Ltd. and its parent company Terrafame Group Ltd. can be secured and their business operations continued in the foreseeable future. The possibilities for this are considered good since the ramp-up of Terrafame Ltd.'s mine has proceeded according to plan, and key objectives for 2016 were achieved. The business plan of Terrafame Ltd. has been drafted applying the prudence concept. The company has great potential to improve the cost-effectiveness of its processes and optimise its process yields and product quality.

During the accounting period, Terrafame Group Ltd. and Terrafame Ltd. have been preparing an ownership and financing arrangement in order to secure the financing required for completing the ramp-up of Terrafame Ltd.'s production. The term sheet on the matter was signed on 15 December 2016. Related to the financing arrangement being prepared and continuing the mining operations, the state owner allocated EUR 100 million in the 2017 draft supplementary budget to be used as capitalisation for Terrafame Group Ltd.

The negotiations concerning the ownership and financing

arrangement detailed in the aforementioned term sheet were closed in the beginning of 2017, with the result that the final agreements with Trafigura Ventures V B.V. and Galena Private Equity Resources Investment 2 L.P. fund, both part of the Trafigura Group, were signed on 3 February 2017 and the arrangement was implemented on 10 February 2017. Sampo plc and Terrafame Group Ltd. acted as co-investors in the arrangement. In total, the scope of the financing arrangement is EUR 250 million. With the financing arrangement, Terrafame Ltd. has the funding to complete the ramp-up of production and to achieve positive cash flow.

Shares and shareholders

The State of Finland owns Terrafame Group Ltd.'s entire share capital consisting of 391,600 shares. Each share entitles its holder to one vote.

Corporate governance

The main set of rules applied to a special assignment company owned by the State is the Limited Liability Companies Act of Finland (624/2006) as well as the State Shareholdings and Ownership Steering Act (1368/2007). In addition, Terrafame Group Ltd.'s corporate governance is guided by the Resolution on State Ownership Steering Policy (13 May 2016) as well as the Articles of Association and the principles and guidelines defined by the company's Board of Directors.

The Annual General Meeting, the Board of Directors and the CEO are responsible for Terrafame Group Ltd.'s governance and operations.

The Chair of the Terrafame Group Ltd.'s Board of Directors was Janne Kähkönen. The other members of the Board of Directors were Juha Majanen and Minna Pajumaa.

The Board of Directors has no committees.

All Board members are independent of the company. Board members are not independent of the company's sole shareholder, the State of Finland.

Terrafame Group Ltd. complies with the rules of procedure adopted by the Board of Directors.

KPMG Oy Ab, with Chartered Accountant Antti Kääriäinen as the

responsible auditor, is the auditor of Terrafame Group Ltd. and its subsidiaries.

Remuneration of the Board of Directors and other executives

During the period 1 January – 31 December 2016, the monthly remuneration of the Chair of the Board was EUR 2,500 and that of the members of the Board was EUR 700, in addition to which an attendance fee of EUR 500 was paid for each meeting of the Board of Directors, its committees and the steering group of the subsidiary, Terrafame Ltd. (the operation of the steering group is combined with the meetings of the Board of Directors of Terrafame Ltd.). Board members do not own shares in the company and the company has no share option scheme.

In 2016, Terrafame Group Ltd.'s Board of Directors had a total of 23 meetings (of which 8 by decision minutes, no attendance fees). All of the Board members attended all of these meetings. Board member Janne Kähkönen participated in a total of eight meetings of the steering group of the subsidiary, Terrafame Ltd. A total of EUR 46,800 was paid to Terrafame Group Ltd.'s Board members in monthly remunerations and EUR 26,500 in attendance fees.

	Monthly remunerations, EUR	Attendance fees, EUR	Total remuneration, EUR	Board meetings	Subsidiary's steering group
Janne Känkänen	30,000	11,500	41,500	23/23	8/11
Juha Majanen	8,400	7,500	15,900	23/23	
Minna Pajumaa	8,400	7,500	15,900	23/23	
Total remuneration 2016	46,800	26,500	73,300		

The subsidiary Terrafame Ltd. reports the remunerations paid to its Board members and other executives in its own annual review of the Board of Directors. During the 2016 accounting period, Terrafame Group Ltd. bought expert services worth a total of EUR 180,000 from a company owned by the related parties of Lauri Ratia, Chair of the Board of Terrafame Ltd. The expert services purchased were related to matters such as the start-up of the operations of Terrafame Group, the ramp-up of mining operations and stabling and reorganising operations as well as consultation related to the acquisition of financing. Purchasing the services in question was necessary at the start-up and ramp-up phase of Terrafame Group's operations as well as for the financing negotiations, ongoing at the time. The expert services were priced at current value.

Matti Hietanen, CEO of Terrafame Group Ltd., was the sole member of the Board of Directors of Winttal Oy in 4 December 2015 – 22 June 2016. No separate remuneration was paid for this position.

The CEO's duties entitle him to a fixed monthly remuneration, which was EUR 13,000 on 31 December 2016. The CEO has no performance bonus system and receives no fringe benefits. Neither is he covered by a contribution-based or other additional pension insurance. The total amount of remuneration paid to the CEO in 2016 was EUR 165,360. The CEO's period of notice is one month without a separate severance pay. The CEO does not own shares in the company, and the company has no share option scheme.

Key events after the accounting

period

On 3 February 2017, Terrafame Group Ltd., Terrafame Ltd. as well as Trafigura Ventures V B.V. and Galena Private Equity Resources Investment 2 L.P. fund, both part of the Trafigura Group, signed an agreement on an ownership and financing arrangement concerning Terrafame Ltd. The arrangement was put into effect on 10 February 2017. The financing arrangement totals EUR 250 million. Thus, the financing arrangement covers the EUR 150–200 million needed to complete the ramp-up of Terrafame's operations. In the arrangement, Terrafame's pre-transaction value before the equity investment is EUR 381.8 million, which is equivalent to capitalisations made by Terrafame Group Ltd. into Terrafame Ltd. before the arrangement.

In the arrangement, the Galena fund made an equity investment of EUR 75 million into Terrafame Ltd. and gained an equity stake of approximately 15.5% in the company. Terrafame Group Ltd. made an additional equity investment of EUR 25 million in Terrafame Ltd. Terrafame Group Ltd.'s share of ownership in Terrafame at the time of the arrangement's execution is 84.2%. In addition, Terrafame Group Ltd. made an equity investment commitment of EUR 50 million to Terrafame Ltd., available for use until the end of 2018.

As part of the arrangement, Trafigura granted Terrafame Ltd. a loan of EUR 75 million, and, in addition, Sampo plc granted a loan facility of EUR 25 million with terms similar to Trafigura's. With the loan, Galena and Sampo plc get the right to subscribe for Terrafame's shares with a sum that is equal to the capital of the loan as well as the accrued interest. The option rights agreement is valid for a period of 5 years. The 1.5% drawdown fee was paid in shares of Terrafame Ltd.

As part of the agreement, it was also agreed that Trafigura will buy 100% of the nickel-cobalt and 80% of the zinc sulphide that Terrafame Ltd. produces for the next seven years.

The arrangement has no effect on Terrafame Ltd.'s business plan, management or personnel.

The work to repair the damage caused by the fire in the H₂S reactor was completed in the beginning of the year as planned. The production of the metals production plant was resumed on 13 January 2017.

Estimate on future development

Put into effect on 10 February 2017, the financing and ownership arrangement concerning Terrafame Ltd. enables completing the ramp-up of the mine's production and achieving positive cash flow. Terrafame Group Ltd. continues its operations as the Group's parent company as well as offering research and development concerning the Ariel project and expert services to Terrafame Ltd.

In summer 2016, Terrafame Ltd.'s mineral resource and ore reserve evaluation was updated. The ore reserves of Kuusilampi and Kolmisoppi total 530.5 million tonnes of which proven reserves total 356.5 million tonnes and probable resources 174.0 million tonnes. The large ore reserves provide conditions for mining and metals production for several decades. The world market price of nickel is estimated to continue to develop favourably in 2017. High stock levels will continue to curb the increase of the price of nickel, but stocks are expected to continue decreasing during 2017. With zinc, the deficit in mine production and low stock levels are expected to contribute to the favourable development of the price of zinc and the processing premiums. In addition to zinc, the market outlooks for cobalt and copper are also positive. Terrafame Ltd.'s lost-time accident frequency goal is below 5, when the goal stands for the number of accidents resulting in absence per one million work hours. Terrafame's target is to continue ramping up production and delivery volumes and improving cost efficiency. The company is preparing for the commercialisation and sales of copper during 2017. Thanks to the good water situation in the mining area, there will be no need for additional discharges of treated waters in spring 2017 according to the current estimates.

The Board of Directors' proposal for the result

Terrafame Group Ltd.'s result for the accounting period 2016 shows a loss of EUR -2,451,035.57. On 31 December 2016, the Group's distributable equity totalled EUR 385,681,155.28.

The Board of Directors proposes to the Annual General Meeting that Terrafame Group Ltd.'s loss for the accounting period be recorded as a reduction in the profit/loss account and that no dividend be paid.

Consolidated income statement

Consolidated income statement	Note	1/1–31/12/2016	9/2–31/12/2015
		EUR	EUR
Net sales	1.1	101,041,812.63	2,523,629.03
Cost of goods sold	1.3	-215,787,129.25	-85,295,689.19
Gross profit		-114,745,316.62	-82,772,060.16
Other operating income	1.4	925,169.13	30,000.00
Sales and marketing expenses		-476,651.29	-93,553.70
Administrative expenses	1.5–6	-16,634,017.20	-9,640,409.77
Other operating expenses		-5,790,806.90	-614,086.25
Operating profit/loss		-136,721,622.88	-93,090,109.88
Finance income and finance cost	1.7		
Other finance income		10,204,729.62	3,845.02
Interest and other finance income		-209,685.56	-28,717.39
Foreign exchange gains and losses		-425,094.54	12,213.40
		9,569,949.52	-12,658.97
Profit/loss before tax		-127,151,673.36	-93,102,768.85
Income taxes	1.8	-13,453.47	0.00
Profit/loss for the period		-127,165,126.83	-93,102,768.85

Consolidated statement of comprehensive income

Other comprehensive income		
Items that may be subsequently transferred to profit or loss	0.00	0.00
Other comprehensive income, net	0.00	0.00
Total comprehensive income for the period	-127,165,126.83	-93,102,768.85

Distribution of profit for the period

Owners of the parent	-127,165,126.83	-93,102,768.85
Non-controlling interests	0.00	0.00

Earnings per share calculated from the profit attributable to the owners of the parent

Basic earnings per share	1.9	-412.05	-445.25
Diluted earnings per share		-412.05	-445.25

Average number of shares:

undiluted		308,616.44	209,100.00
diluted		308,616.44	209,100.00

Consolidated balance sheet

Consolidated balance sheet	Note	31/12/2016	31/12/2015
ASSETS			
Non-current assets		EUR	EUR
Intangible assets	1.11	1,593,357.32	185,610.97
Property, plant and equipment	1.12	216,157,252.06	147,277,950.90
Biological assets	1.13	5,178,695.36	5,111,428.01
Deferred tax assets	1.14	0.00	0.00
Total non-current assets	-	222,929,304.74	152,574,989.88
Current assets			
Inventories	1.15	76,235,004.94	23,267,815.28
Trade receivables and other receivables	1.16	26,952,568.81	14,013,898.36
Cash and cash equivalents	1.17	50,899,926.66	119,887,712.78
Total current assets	-	154,087,500.41	157,169,426.42
TOTAL ASSETS	-	377,016,805.15	309,744,416.30
EQUITY AND LIABILITIES			
Equity attributable to equity holders of the parent	1.18		
Share capital		2,257,500.00	2,257,500.00
Invested unrestricted equity fund		389,342,500.00	206,842,500.00
Profit/loss from previous periods		-93,102,768.85	0.00
Profit/loss for the period		-127,165,126.83	-93,102,768.85
Total equity	-	171,332,104.32	115,997,231.15
Non-current liabilities			
Deferred tax liabilities	1.8	13,453.47	0.00

Interest-bearing liabilities	1.22	0.00	1,287,712.01
Provisions	1.23	162,078,025.00	162,078,025.00
Total non-current liabilities	-	162,091,478.47	163,365,737.01
Current liabilities			
Interest-bearing liabilities	1.22	1,287,951.44	2,246,779.48
Trade and other payables	1.23	42,305,270.92	28,134,668.66
Total current liabilities	-	43,593,222.36	30,381,448.14
TOTAL EQUITY AND LIABILITIES		377,016,805.15	309,744,416.30

Consolidated cash flow statement

Consolidated cash flow statement

EUR	Note	1/1–31/12/2016	9/2–31/12/ 2015
Cash flow from operating activities			
Operating profit/loss		-136,721,622.88	-93,090,109.88
Adjustments to operating profit/loss	1.24	-149,616.09	280,000.00
Depreciation and amortisation		13,981,938.48	3,731,424.89
Change in net working capital		-52,160,352.39	12,847,383.43
Interest paid		-209,685.56	-28,717.39
Interest received		27,540.61	3,845.02
Realised foreign exchange gains and losses		9,077.01	12,213.40
Net cash flow from operating activities		-175,222,720.82	-76,243,960.53
Cash flow from investing activities			
Investments in tangible and intangible assets		-74,248,525.25	-8,948,318.18
Proceeds from sale of tangible and intangible assets		230,000.00	30,000.00
Investments in subsidiaries		0.00	-3,802,500.00
Net cash flow from investing activities		-74,018,525.25	-12,720,818.18
Cash flow from financing activities			
Subscription issue, share capitals		182,500,000.00	209,100,000.00
Repayment of loans		-2,246,540.05	-247,508.51
Cash flow from financing activities	-	180,253,459.95	208,852,491.49
Change in cash and cash equivalents	-	-68,987,786.12	119,887,712.78
Cash and cash equivalents at beginning of year	-	119,887,712.78	0.00

Cash and cash equivalents at end of year	-	50,899,926.66	119,887,712.78
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Consolidated statement of changes in equity

Consolidated statement of changes in equity

	Share capital	Invested unrestricted equity fund	Retained earnings	Total
Equity 9 Feb. 2015	10,000	90,000		100,000
Profit/loss for the period			-93,102,768.85	-93,102,768.85
Directed share issue	2,247,500	206,752,500		209,000,000
Equity 31 Dec. 2015	2,257,500	206,842,500	-93,102,769	115,997,231
Equity 1 Jan. 2016	2,257,500.00	206,842,500.00	-93,102,768.85	115,997,231.15
Profit/loss for the period			-127,165,127	-127,165,127
Directed share issue	0	182,500,000	0	182,500,000
Equity 31 Dec. 2016	2,257,500	389,342,500	-220,267,896	171,332,104

Accounting policies for consolidated financial statements, and notes

Basic information about the Group

Terrafame Group Ltd. is a mining and minerals group. The Group operates internationally and is engaged in the exploration, recovery and excavation of ores as well as other mining and quarrying operations, the purchase and sale of mining rights and any other business based on or related to knowledge acquired in these areas or otherwise suitable for the aforementioned areas. The Group comprises the parent company Terrafame Group Ltd. (business ID 2674050-9), its wholly-owned subsidiary Terrafame Ltd. (business ID 2695013-5) and Winttal Oy (Business ID 2723959-9).

The parent company's domicile is Helsinki and its visiting address is Aleksanterinkatu 17, 00100 Helsinki, Finland. The Group's subsidiary Terrafame Ltd. was registered in the Trade Register on 5 June 2015 and its address is Talvivaarantie 66, 88120 Tuhkakyli, Finland. Winttal Oy was registered on 11 November 2015 and its operations were discontinued on 15 December 2016.

Terrafame Group Ltd.'s Board of Directors approved these financial statements in its meeting on 29 March 2017. According to the Limited Liability Companies Act of Finland, shareholders may approve or reject the financial statements in the Annual General Meeting held after their publication. The General Meeting may also decide to amend the financial statements.

Copies of the consolidated financial statements are available at Terrafame Group Ltd.'s office, and they can be viewed on the Company's website at www.terrafamegroup.com.

ACCOUNTING POLICIES FOR CONSOLIDATED FINANCIAL STATEMENTS

Basis of preparation

The consolidated financial statements of Terrafame Group have been prepared in accordance with International Financial Reporting Standards (IFRS) as well as the IAS and IFRS standards and SIC and IFRIC interpretations effective at the date of closure of the accounts, 31 December 2016. The International Financial Reporting Standards refer to standards and their interpretations approved for adoption within the EU in accordance with the procedure enacted in EU regulation (EC) 1606/2002, included in the Finnish Accounting Act and regulations based on it. The notes to the parent company's financial statements also comply with Finnish accounting and corporate legislation.

The consolidated financial statements have been prepared on a historical cost basis. The assets, liabilities and obligations acquired in a business transaction have been valued at fair value on the acquisition date.

The preparation of financial statements under IFRS means that Group management must make certain estimates and judgements concerning the application of the accounting principles. Information about such considerations made by the management when applying the corporate accounting principles with the greatest influence on the figures presented in the financial statements are explained under the item 'Accounting policies requiring consideration by management and crucial factors of uncertainty associated with estimates'.

Operational continuity (going concern)

The financial statements for 1 January–31 December 2016 were prepared on a going concern basis, assuming that the financial position of Terrafame Group Ltd. and its subsidiaries can be secured and their business operations will continue for the foreseeable future.

The possibilities for this are considered good since the ramp-up of Terrafame Ltd.'s mine has proceeded according to plan and the main objectives for 2016 were achieved. Terrafame Ltd. drew up a prudent business plan and the company has great potential to improve the cost-effectiveness of its processes as well as optimise its process yields and product quality.

During the financial year, Terrafame Group Ltd. and Terrafame Ltd. have, in order to secure the required funding, prepared ownership and financing arrangements for finishing the ramp-up of Terrafame Ltd.'s production. A term sheet on the matter was signed on 15 December 2016. In connection with the financing arrangement currently under preparation and the continuation of mining

activities, the state-owner reserved EUR 100 million in the 2017 budget to be used for the capitalisation of Terrafame Group Ltd.

The ownership and financing arrangements in accordance with the preliminary agreement were finalised in early 2017, allowing the final contracts with Trafigura Ventures V.B.V. company and Galena Private Equity Resources Investment 2 L.P. fund – which both belong to Trafigura Group – to be signed on 2 March 2017. The arrangements were executed on 10 February 2017. Sampo plc and Terrafame Group Ltd. are acting as co-investors in these arrangements. The financing arrangement totals EUR 250 million. As a result of the financing arrangement, Terrafame Ltd. has the funding necessary to complete the ramp-up of production as well as achieve positive cash flow.

Subsidiaries

Subsidiaries are entities controlled by the Group. Control exists when the Group owns more than half of the voting rights or otherwise has a controlling interest. The existence of potential voting rights is also considered when assessing the existence of control in the case that the instruments entitling to potential control are currently exercisable. Control refers to the power to govern the financial and operating policies of an enterprise so as to obtain benefits from its activities.

Acquired subsidiaries are consolidated from the date on which the Group gains control. The consolidation ends on the date on which control ceases.

Intra-group transactions, balances and unrealised gains on intra-group transactions are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset item transferred.

Translation of items denominated in foreign currencies

Figures in the consolidated financial statements are shown in euros, the euro being the functional and presentation currency of the parent company, Terrafame Group Ltd.

Transactions in foreign currencies are entered in euros at the rates prevailing at the transaction date or average rates provided by central banks. Monetary foreign currency items are translated into euros using the rates prevailing at the balance sheet date. Foreign exchange gains and losses related to business operations are included in the corresponding items of net sales, operating expenses or financial income and expenses. Hedge accounting has not been

applied.

Operating profit

IAS 1 Presentation of Financial Statements does not define the concept of operating profit. The Group has defined it as follows: an operating profit is a net amount derived from net sales plus other operating income, fewer purchase expenses from which change in finished goods inventory and work in progress is subtracted, adjusted for expenses from production for own use, fewer employee benefit expenses, depreciation, amortization and any impairment losses and other operating expenses. All other items in the income statement are shown below the operating profit. Exchange rate differences are included in the operating profit if they arise from items related to operations with third parties. Otherwise they are recognised in financial items.

Classification of current and non-current assets and liabilities

An asset or liability is classified as a current asset or liability when it is expected to be realised during the normal operating cycle or within 12 months of the balance sheet date, or when it is classified as an asset or liability recognised at fair value through profit or loss. Liquid assets are classified as current assets. All other assets and liabilities are classified as non-current assets and liabilities.

Revenue recognition

Revenue is recognised from a sale when evidence of an arrangement exists, the title has been transferred to the customer, the price is determinable and collection of the sales price is reasonably assured. Revenue is recognised net of treatment charges, foreign exchange gains and losses resulting from the settlement and any applicable sales taxes. Most sales are priced in US dollars, and revenue recognition is affected by the terms of delivery used, among other things.

A large proportion of the company's production is sold under long-term contracts, but sales revenue is only recognised on individual sales when persuasive evidence exists that all of the following criteria are met:

- all material risks and rewards of ownership have been transferred to the buyer;
- there is no continuing managerial involvement to the degree usually associated with ownership or effective control over goods sold;

- the amount of revenue can be measured reliably;
- the costs incurred or to be incurred in respect of the sale can be measured reliably; and
- the flow of future economic benefits is probable.

Nickel and cobalt products are “provisionally priced”, i.e. the sales price is subject to final adjustment at the end of a quotational period. The quotational period is approximately three months, and the final sales price is determined based on the average market price of the second month after delivery. The provisional invoice accounts for 90% of the delivered volume, while the final invoice accounts for the remaining 10% of the relevant delivery and the final sales price adjustment.

The principal risks associated with recognition of sales on a provisional basis include metal price fluctuations between the date initially recorded and the date of final settlement. If a significant decline in metal prices occurs between the provisional pricing date and the final settlement date, it is reasonably possible that the Group could be required to return a portion of the sales proceeds received based on the provisional invoice.

For this purpose, the selling price can be reasonably estimated by using forward prices from an active and freely traded commodity market

such as the London Metals Exchange (“LME”) or other relevant market information. The marking to market of provisionally priced sales contracts is recorded as an adjustment to sales revenue. For changes in metal quantities upon receipt of new information and assay, also the provisional sales quantities are adjusted.

Pension obligations

The Group companies have pension schemes in accordance with the local conditions and practices. The schemes are generally funded through payments to insurance companies. Currently all pension schemes are defined as contribution plans. A defined contribution plan is a pension plan under which the Company pays fixed contributions to a separate entity. The Company has no legal or constructive obligations to pay further contributions if the entity does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods. Under defined contribution plans the payments are accounted for as an expense for the period for which the payment is made.

Leases (accounting by lessee)

Finance leases, which transfer to the Group substantially all the risks and benefits incidental to ownership of the leased item, are capitalised at the commencement of the lease at the fair value of the leased property or, if lower, at the present value of the minimum lease payments.

Lease payments are apportioned between finance charges and reduction of the lease liability so as to achieve a constant rate of interest on the remaining balance of the liability. Finance charges are recognised in the income statement. Leased assets are depreciated over the useful life of the asset. However, if there is no reasonable certainty that the Group will obtain ownership by the end of the lease term, the asset is depreciated over the shorter of the estimated useful life of the asset and the lease term.

The Group had no finance leases on 31 December 2016.

Impairments

The Group assesses at each balance sheet date whether there is an indication that an asset may be impaired. If any such indication exists, the asset's recoverable amount is estimated.

The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. The value in use refers to the estimated future net cash flows obtainable from the asset or cash-generating unit, discounted to their current value. The value in use is forecast on the basis of circumstances and conditions prevailing at the time of testing. The discount rate takes into account the time value of money as well as the special risks involved for each asset, different industry-specific capital structures in different lines of business, and the investors' return expectations for similar investments. An impairment loss is recorded when the carrying amount of an asset is greater than its recoverable amount. If the impairment loss is allocable to a cash-flow-generating unit, it is allocated first to reduce the goodwill of the unit and subsequently to reduce other assets of the unit.

An impairment loss is reversed if a change has occurred in circumstances and the recoverable amount of the asset has changed since the impairment loss was recognised.

Borrowing costs

Borrowing costs are recognised as an expense in the period during which they are incurred.

Income taxes

Tax expenses on the income statement consist of the tax based on taxable income for the year and deferred taxes. Taxes based on taxable income for the year are calculated using the applicable tax rates. Taxes are adjusted with any taxes arising from previous years. Deferred taxes are calculated for all temporary differences between the carrying amount and taxable amount.

Deferred taxes are calculated using the tax rates set at the balance sheet date. Deferred tax assets arising from taxable losses carried forward are recognised up to the amount for which there is likely to be taxable income in the future, and against which the temporary difference can be used.

Property, plant and equipment

Property, plant and equipment, which on 31 December 2016 include, among others, buildings and infrastructure, machinery and equipment used in mining operations, laboratory equipment, vehicles, roads, and structures for environmental protection, are stated at historical cost less accumulated depreciation and any accumulated impairment losses. Historical cost includes expenditure that is directly attributable to the acquisition, construction or production of the item.

Where parts of an item of property, plant or equipment have different useful lives, they are accounted for as separate items of property, plant or equipment.

In open pit mining operations, it is necessary to remove overburden to access ore from which minerals can economically be extracted. The process of mining overburden and waste materials is referred to as stripping. Costs arising from the removal of overburden are recorded as an expense as they are incurred.

Work in progress and land are not depreciated. Depreciation on other assets is calculated using the straight-line method to allocate their cost to their residual values over their estimated useful lives, as follows:

Roads	25 years
Buildings and structures	10-40 years
Leaching heap foundations	10-15 years
Machinery and equipment	4-25 years
Furniture, fixtures and fittings	5-10 years
Vehicles	5-10 years
Structures for environmental protection	25 years

Useful lives of assets, depreciation methods and any residual values are re-assessed on each reporting day. The reassessment is based on the company's estimates of ore reserves, mineral resources, production capacity and other relevant factors. Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognised within other operating income or expenses, respectively, in the income statement.

Intangible assets Other intangible assets

Other intangible assets are recorded at cost if the cost is reliably measurable and the future economic benefits for the Group are probable. Other intangible assets mainly consist of IT applications supporting the Group's business operations, which are amortised over 3–5 years.

Biological assets

Biological assets, i.e. living trees, are measured on initial recognition and at each balance sheet date at their fair value less estimated point-of-sale costs. The fair values of biological assets other than young seedlings are based on quoted prices in active markets for biological assets. Biological assets that are physically attached to land are recognised and measured at their fair value separately from the land.

The fair value of harvest, measured as its value at the point-of sale, is deducted from the fair value of the biological assets. The estimated growth of trees is recognised as gains in the fair value of the biological assets. The changes in the fair value of biological assets are included in the operating profit.

Research and development expenditure

Research expenditure is recognised as an expense as incurred.

Inventories

The Group classifies its inventories into three groups: raw materials and consumables, work in progress, and finished products.

Raw materials and consumables are valued at the average acquisition cost of the goods in stock, which does not include freight or shipping costs. An obsolete inventory provision has been made for slow-moving items. The provision for slow-moving items in Terrafame Ltd.'s balance sheet of 31 December 2016 as well as in the consolidated balance sheet was EUR 6.0 million.

Costs that are incurred in or benefit the production process are accumulated as work in progress and finished products. Work in progress represents ore that has been excavated and crushed and is under leaching, as well as metals that are under leaching or in the precipitation and filtering process. Finished products comprise a mixed nickel-cobalt sulphide, zinc sulphide and copper sulphide. The cost of work in progress and finished products include the fixed and variable costs of production and maintenance that supports production, which are based on the refining process normal operating capacity and the related production costs. The acquisition cost excludes borrowing costs.

Normal operating capacity is determined with consideration to the production facilities' actual capacity – particularly during the ramp-up phase – and potential capacity, and it reflects the achieved and forecast production at any given time.

Work in progress (metals in the processing chain) is valued at average production cost, but no more than the metal's net sales price, which equals the net sales price at the date of closure of the accounts less the average production costs incurred in turning work in progress into ready-for-sale products.

The valuation of work in progress is based on the estimated quantities of metal in the production process. The quantities of metal are continuously monitored throughout the production process, which consists of four main phases: mining, crushing and stacking, bioheapleaching and metals recovery. The mining method selected for use at Terrafame is open pit mining. The mined ore is crushed in four stages, followed by agglomeration in the circulating bioleaching solution in order to consolidate the fine particles with coarser ore particles. After the agglomeration, the ore is conveyed and stacked on the primary heap pad for bioheapleaching. Later, the ore is conveyed from the primary heap pad and re-stacked onto the secondary heap pad for the second phase of bioheapleaching. The circulating leach solution is continuously led to the metals

production plant, where nickel, zinc, cobalt and copper are precipitated from the pregnant leach solution as saleable metal sulphides.

The recoverable quantities of nickel, zinc, copper and cobalt are determined on the basis of the estimated grade of ore based on geological studies, the metals recovery percentage based on best present knowledge of the bioheap leaching process, and the estimated metals recovery percentage of the metals production plant.

Finished products (saleable metals) are valued at average production cost or at a value that does not exceed the net sales price at the date of closure of the accounts.

Net sales price refers to the estimated sales price obtained in the ordinary course of business, less applicable variable selling expenses.

Financial assets

Financial liabilities within the scope of IAS 39 are classified as financial liabilities at fair value through profit or loss, loans and receivables, held-to-maturity investments, and available for sale financial assets. The Group classifies its financial assets at initial recognition. All financial liabilities are recognized initially at fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition.

All purchases and sales of financial assets are recognised on the transaction date, which is the date on which the Group commits to purchasing or selling the financial instrument. Financial assets are derecognised from the balance sheet when the Group has lost the contractual right to the cash flows or when it has transferred a significant part of the risks and yield outside the Group.

Financial assets at fair value through profit and loss are assets held for trading or financial assets designated upon initial recognition at fair value through profit and loss. Derivatives are also classified as 'at fair value through profit or loss'. The Company does not apply hedge accounting.

Available-for-sale financial assets are financial assets that are either designated in this category or not classified in any of the other categories. These are included in non-current assets, unless they are intended to be held less than 12 months from the end of the reporting period, in which case they are included in current assets.

Loans and receivables are financial assets with fixed or determinable payments that are not quoted in an active market, and which the Group does not hold for trading or designate on initial recognition as available for sale. They are included on the balance sheet under current or non-current assets as determined by their nature, under the latter if maturing in more than 12 months.

Financial assets at fair value through profit or loss are recognised in the balance sheet, and changes in fair value are recognised in financial income or expenses. Fair value changes on available-for-sale financial assets are recorded in the statement of other comprehensive income and reported as fair value reserve within equity, adjusted with the after-tax effect. Accumulated changes in fair value are transferred from equity to the income statement when the investment is sold or if it is subjected to impairment and an impairment loss must be recognised on the investment. Loans and receivables are carried at amortised cost using the effective interest method.

At the date of closure of the accounts, 31 December 2016, the Group had no investments or derivatives.

Cash and cash equivalents

The Group's cash and cash equivalents consist of cash at bank and in hand.

Trade receivables

Trade receivables are amounts due from customers for products sold in the ordinary course of business. If collection is expected in one year or less, they are classified as current assets. If not, they are presented as non-current assets.

Trade receivables are recognised initially at fair value and are subsequently measured at amortised cost reduced by any provision for impairment. A provision for impairment of trade receivables is established when there is objective evidence that the Group will not be able to collect all amounts. Any impairment is recognised in the income statement within operating expenses. When a trade receivable is uncollectible, it is written off against the allowance account. Subsequent recoveries of amounts previously written off are credited against operating expenses in the income statement.

Financial liabilities

Liabilities are classified as current and non-current, and include both interest-bearing and interest-free liabilities. Interest-bearing liabilities are liabilities that either include a contractual interest

component, or are discounted to reflect the fair value of the liability.

Financial liabilities within the scope of IAS 39 are classified as financial liabilities at fair value through profit or loss, or loans and borrowings. The Group classifies its financial liabilities at initial recognition. All financial liabilities are recognized initially at fair value, and in the case of loans and borrowings, plus directly attributable transaction costs. The Group's financial liabilities include trade and other payables.

Provisions, contingent liabilities and contingent assets

Provisions are recognised when the company has a present legal or constructive obligation as a result of past events, and when it is probable that an outflow of resources will be required to settle the obligation and a reliable estimate of the amount of the obligation can be made. If the effect of the time value of money is material, provisions are discounted using a current pre-tax rate that reflects, where appropriate, the risks specific to the liability. Where discounting is used, the increase in the provision due to the passage of time is recognised as a finance cost.

Rehabilitation provision for mine closure and environmental clean-up costs

A rehabilitation provision for mine closure costs is made with respect to the estimated future costs of closure and restoration, and for environmental restoration and rehabilitation to the condition required by the environmental permits granted for mining operations.

Prevention of the threat of environmental pollution entails environmental and landscaping obligations. After the mining operations have ended, any machinery and equipment, chemicals, fuels and waste involving the risk of environmental pollution must be removed from the area. This will be carried out as part of the normal mining operations. In addition, open pits must be restored to the condition required by public safety.

The majority of the estimated restoration costs arises from the closure of waste rock dumps and primary and secondary leaching areas, the treatment and clean-up of primary and secondary leaching solution channels, the covering and landscaping of gypsum ponds, the clean-up of waters and precipitates caused by the gypsum pond leak of 2012, the treatment of rock drainage, the fencing of open pits and the ex post supervision of the mine area.

The mine closure plan is based on the covering of areas with water-

and oxygen-impermeable material and long-term aftercare. Environmental monitoring of the mine is assumed to continue for 30 years after the closure of the mine.

Restoration costs have been estimated in accordance with the cost level at the date of closure of the accounts. The costs of restoration and rehabilitation have been calculated based on the cost level on the balance sheet closing date. A rehabilitation provision of EUR 162.1 million was recorded in Terrafame Ltd.'s balance sheet of 31 December 2016 as well as in the consolidated balance sheet.

Accounting policies requiring consideration by management and crucial factors of uncertainty associated with estimates

Estimates and assumptions regarding the future have to be made during the preparation of the financial statements, and the outcome may differ from the estimates and assumptions. Furthermore, the application of accounting policies requires consideration.

The estimates made when preparing the financial statements are based on the management's best knowledge at the balance sheet date. The estimates are based on prior experience, as well as future assumptions that are considered to be the most likely on the balance sheet date with regard to issues such as the expected development of the Group's economic operating environment in terms of sales and cost levels. The Group monitors changes on a regular basis using both internal and external sources of information, and any changes to these estimates and assumptions are entered in the accounts for the period in which the estimate or assumption is adjusted and for all periods thereafter.

Tangible and intangible assets

Terrafame Group's management is required to use its consideration when determining the capitalisation bases and useful lives of tangible and intangible assets, which affect the consolidated balance sheet and the amount of depreciation. Similarly, management is required to use its discretion in determining the useful lives of intangible assets identified in accordance with IFRS 3, and in determining the amortisation period. This affects the financial result for the period through depreciation and change in deferred taxes.

For tangible assets, comparisons have been made of the market prices of similar assets, and the depreciation of the acquired assets due to aging, wear and other similar factors has been estimated. The fair value measurement of intangible assets is based on estimates of the future cash flows associated with the assets.

Management considers the assumptions and estimates to be sufficiently accurate to provide a basis for estimating the fair value. Furthermore, the Group reviews any indication of impairment loss of tangible and intangible assets at each closing day of the financial statements.

Valuation of mineral resources and ore reserves

In the Group's mining operations, estimates have to be applied in recognising mineral resources acquired in business combinations as assets on the consolidated balance sheet. In the recognition and measurement of mineral resources and ore reserves, the Group utilises available third party analyses of the quantities, mineral content, estimated production costs and exploitation potential of the resource.

The reliability of the evaluation and calculation basis for mineral resources and ore reserves is also a key consideration. In the mining and minerals business, mineral resources and ore reserves are commonly classified into categories such as 'proven' and 'probable' ore reserves, and 'measured' and 'indicated' mineral resources. The measurement of ore reserves is based on estimated market prices and estimated production costs. The measurement of mineral resources is based on the identification of classification and calculation bases enabling their conversion into economically viable actual ore reserves. As a result, the company's management is required to use its consideration in applying valuation and recognition principles to ore reserves and mineral resources. Due to the low global market prices of metals, production costs are higher than selling prices. Therefore, mineral and ore reserves have no value on the balance sheet of 31 December 2016.

Rehabilitation provisions

The Group assesses the rehabilitation liabilities associated with its mines and production facilities annually. The amount of provision reflects the management's best estimate of the rehabilitation costs. In determining the amount of provision, the Group has listed matters that it will rehabilitate and/or restore to the condition required by the licence terms in accordance with the nature of its operations and the official permit conditions. The Group estimates that it will take rehabilitation measures in connection with its mining operations or, at the latest, in connection with mine closure. These measures are estimated to take a few years after the mine closure.

On the balance sheet date, the Group has estimated the extent and unit cost of the various matters requiring rehabilitation

and calculated the rehabilitation provision accordingly. In estimating the extent and unit cost of the various matters, the Group has used its best in-house experts in the matters in question.

In determining the fair value of the provisions, assumptions and estimates are made in relation to discount rates, the expected cost to rehabilitate the area and remove or cover the contaminated soil from the site, the expected timing of those costs, and whether the obligations stem from past activity. These uncertainties may cause the actual rehabilitation costs to differ from the provision which has been made.

New and amended standards and interpretations to be applied in future

In 2016, the Group has adopted the following standards and interpretations whose application was not yet mandatory in the financial statements of 2015.

Amendments to IAS 1 Presentation of Financial Statements. The amendments clarify guidance in applying the concept of materiality and presenting information in financial statements and notes. The change has no material impact on the consolidated financial statements.

Amendments to IAS 16 Property, Plant and Equipment and IAS 38 Intangible Assets. Revenue-based depreciation methods are not applicable to property, plant and equipment, and only rarely to intangible assets. The changes had no material impact on the consolidated financial statements.

Amendment to IFRS 11 Joint Arrangements. The amendment requires the use of business combination accounting for the acquisition of an interest in a joint operation that constitutes a business. The change has no material impact on the consolidated financial statements.

Annual Improvements to IFRSs 2012–2014. The changes have no material impact on the consolidated financial statements.

Changes that will enter into force later:

The Group will adopt the following IASB standards and standard amendments later than for the financial year beginning on 1 January 2016, provided that the EU will approve them.

IFRS 9 Financial Instruments (effective from 1 January 2018). IFRS 9 will replace the current standard IAS 39 Financial Instruments: Recognition and Measurement. The standard contains new

provisions relating to the classification of financial instruments, valuation, impairment and hedge accounting. The Group is currently evaluating the effects of the changes.

IFRS 15 Revenue from Contracts with Customers (effective from 1 January 2018). The standard includes a new five-step model for the recognition of sales revenue. Revenue is recognised when control of a good or service transfers to a customer. Disclosure requirements will also expand significantly. The Group is currently evaluating the effects of these changes.

IFRS 16 Leases (effective from 1 January 2019). The draft standard defines a lease as an agreement whereby the lessor conveys to the lessee in return for a payment or series of payment the right to use an asset for an agreed period of time. Following the new standard, all over-one-year lease obligations will, as a rule, be entered as liabilities in the lessee's balance sheet. The Group estimates that the standard will have an impact on the consolidated financial statements.

Annual Improvements to IFRSs 2014–2016. The changes are not expected to have a material impact on the consolidated financial statements.

1.1 Net sales	1/1–31/12/2016	9/2–31/12/2015
Breakdown by sector		
Metal	101,041,812.63	2,523,629.03
Total	101,041,812.63	2,523,629.03
Geographical breakdown		
Europe	44,216,591.39	2,523,629.03
Asia	49,853,953.47	0.00
United States	6,395,805.68	0.00
Australia	575,462.10	0.00
Total	101,041,812.63	2,523,629.03
Production restart was initiated in August 2015, and only small trial lots were delivered to Europe during the		

financial year that ended on
31 December 2015.

1.2 Employee benefit expenses

Salaries and wages	28,386,614.28	8,171,190.01
Pension costs	5,303,759.72	1,527,078.77
Other social security expenses	1,799,789.04	408,477.86
	35,490,163.04	10,106,746.64

The Group's average number
of employees during the
financial year

629 482

The Group's number of
employees at the end of the
financial year

649 531

1.3 Cost of goods sold

Materials and services

Raw materials and
consumables

Purchases during the financial year	102,863,407.00	37,148,449.12
Change in inventory	-7,236,696.63	-3,987,082.60
	95,626,710.37	33,161,366.52
External services	67,256,145.99	14,459,129.66
Total	162,882,856.36	47,620,496.18

Personnel expenses

Wages and salaries	27,934,434.97	8,035,241.50
Pension costs	5,234,468.11	1,509,106.04
Other social security expenses	1,784,805.68	404,359.92
Total	34,953,708.76	9,948,707.46

Depreciation, amortisation and impairment charges

Intangible rights	244,455.11	18,040.35
Tangible assets		
Buildings and structures	3,177,136.06	945,247.13
Machinery and equipment	8,073,754.22	1,983,354.33
Other tangible assets	2,486,593.09	784,783.08
Total	13,981,938.48	3,731,424.89

Other costs of goods sold	3,968,625.65	23,995,060.66
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Total	215,787,129.25	85,295,689.19
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1.4 Other operating income

Revaluation of biological assets	67,267.35	0.00
Insurance claims	208,019.06	0.00
Proceeds from sale of tangible and intangible assets	106,492.48	30,000.00
Refund on the energy tax of fuel oil	196,601.90	0.00
Other fees and compensation, including sales of scrap metal and proceeds from tree felling	346,788.34	0.00
Total other operating income	925,169.13	30,000.00

1.5 Administrative expenses	16,634,017.20	9,640,409.77
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Administrative expenses include the following expenses:

Salaries and wages	3,880,595.73	1,142,379.49
Wage-related costs	1,231,934.46	0.00
Depreciation and amortisation	166,776.20	43,080.99
External services	5,262,399.56	5,606,401.91
Insurance	2,651,330.33	606,622.37
Experts' fees	467,545.84	494,374.62
Other legal and consulting	371,130.99	570,780.88

services		
Other expenses		
General administration	991,664.50	281,125.48
Finance and IT	562,919.13	173,999.02
EHSQ, others	357,668.67	161,701.65
HR, others	668,828.09	86,675.07
Communication	89,077.28	21,151.01
Shared	-67,853.58	264,491.61
	16,634,017.20	9,452,784.10

Research and development costs

Total research and development costs recognised as an expense	1,306,072.47	121,125.67
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1.6 Auditor's fees - EC

Auditing	109,293.91	43,200.00
Audit-related services	0.00	0.00
Certificates and statements	0.00	11,300.00
Tax advisory services	0.00	0.00
Other services	38,172.43	12,000.00
	147,466.34	66,500.00

1.7 Finance income and finance cost

Finance income

Interest income from other deposits	16,502.30	3,845.02
Foreign exchange gains	0.00	14,744.83
Other finance income	10,188,227.32	0.00
Total finance income	10,204,729.62	18,589.85

Finance cost		
Other interest expenses	-209,685.56	-28,717.39
Foreign exchange losses	-425,094.54	-2,531.43
	-634,780.10	-31,248.82

Total finance income and finance cost	9,569,949.52	-12,658.97
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The finance income includes a finance income of EUR 10,168,100, which derives from the transaction with Talvivaara Mining Company Plc on 30 June 2016 as a short-term receivable was settled.

1.8 Income tax

Income taxes in the income statement

Tax based on taxable income for the financial period	0.00	0.00
Taxes from previous periods	0.00	0.00
Tax based on taxable income for the period	0.00	0.00

Deferred taxes	-13,453.47	0.00
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Income tax expense	-13,453.47	0.00
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The Finnish corporate tax rate in the financial year 2016 and the reference year was 20.0%

Deferred tax on the balance sheet	-13,453.47	0.00
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1.9 Earnings per share

Basic earnings per share are calculated by dividing the profit attributable to equity holders of the parent

with the weighted average number of ordinary shares in issue during the year.

Profit/loss for the period attributable to owners of the parent	-127,165,126.83	-93,102,768.85
Weighted average number of shares during the period	308,616	209,100
Basic earnings per share, EUR/share	-412.05	-445.25

1.10 Business acquisitions and divestitures

Acquisitions during the financial year 2016

The Group made no business acquisitions in the financial year 2016.

Acquisitions during the financial year 2015

In August 2015, Terrafame Ltd. acquired the business operations and assets of Talvivaara Sotkamo Ltd. from the bankruptcy estate and will thus continue its mining operations. The rapid start-up of mining operations is also the best way to ensure environmental safety. In connection with the acquisition, a total of 433 employees transferred to Terrafame Ltd. as so-called existing employees. The transaction entered into force on 15 August 2015. A cash payment of EUR 135,001 was made, of which EUR 135,000 was allocated to certain land areas included in the acquisition. Furthermore,

Terrafame assumed responsibility for environmental liabilities transferred alongside the object of acquisition in accordance with Finnish legislation. The asset and liability items acquired in connection with the business transfer have been measured at fair value. The deal included tangible assets worth EUR 138,489,897.26.

In the measurement of the fair value of a piece of machinery, its historical cost, estimated economic life and physical condition are taken into account. Tangible assets are depreciated over their estimated useful lives based on management's judgement, taking into account the depreciation principles applied in the Group. A rehabilitation provision of EUR 162,078,025 was made. The provision is based on estimates of future liabilities. The corresponding estimated costs are presented in more detail in Note 1.21.

The deferred tax asset of approximately EUR 32 million arising from the rehabilitation provision has not been recorded in the accounts since its utilisation involves uncertainties.

ACQUISITION COST CALCULATION OF THE MINING BUSINESS AS PER 15 AUGUST 2015

Assets	
Tangible assets	138,489,897.26
Intangible assets	109,772.32
Biological assets	5,111,428.01
Inventories	18,501,928.41
Other receivables	1,082,094.65
Cash and cash equivalents	0.00
Total assets	163,295,120.65

Debts and liabilities	
Deferred tax liabilities	0.00
Other liabilities	1,082,094.65
Provisions	162,078,025.00
Financial liabilities	0.00
Debts and liabilities	163,160,119.65

Net assets	
Consideration transferred	135,001.00
Identifiable net assets of the object of acquisition	135,001.00
Profit gained from the	0.00

acquisition

A total of EUR 494,374.62 in advisory and consulting fees related to the acquisition has been recorded. These costs are included in administrative costs within the consolidated income statement.

Terrafame Ltd. has agreed to pay to Talvivaara Sotkamo Ltd.'s bankruptcy estate a conditional additional consideration if the accumulated EBITDA of the acquired mining operations, determined in accordance with Finnish Accounting Standards, exceeds EUR 200 million during the reference period extending to the end of 2020. Terrafame Ltd. has also agreed to pay additional consideration to the seller during the said reference period in the case of certain M&A situations. The maximum additional consideration is EUR 15 million. The conditional additional consideration has not been recognised because the management finds it unlikely that its payment will materialise.

Acquisition of Winttal Oy

On 4 December 2015, Terrafame Group Ltd. acquired the entire share capital of a limited liability company named Winttal Oy from Nyrstar Sales & Marketing AG. Winttal Oy owns and manages receivables from Talvivaara Mining Company Plc whose original creditor was Nyrstar Sales & Marketing AG. The balance sheet value of receivables is EUR 3.8 million and their nominal value is EUR 216.2 million. The acquisition of the entire share capital of Winttal Oy, and the management of the above-mentioned receivables achieved through that acquisition, supports the opportunities of Terrafame Group to negotiate with Talvivaara Mining Company Plc on the acquisition of those asset items owned by the latter which are related to the operations of the Terrafame mine, with the aim of achieving an agreement that will be approved by all parties. After the end of the financial year, a preliminary agreement was signed on the said asset items. As part of the agreement, the afore-mentioned receivables owned by Winttal Oy will be rescheduled.

The acquisition of Winttal Oy has been treated as an acquisition of asset items, not as a business acquisition referred to in IFRS 3 Business Combinations.

Assets

Other receivables	3,800,000.00
Cash and cash equivalents	2,500.00
Total assets	3,802,500.00

Debts and liabilities	0.00
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Deferred tax liabilities	0.00
Other liabilities	0.00
Contingencies	0.00
Financial liabilities	0.00
Total liabilities	0.00

Net assets

Consideration transferred	3,802,500.00
Identifiable net assets of the object of acquisition	3,802,500.00
Profit/loss gained from the acquisition	0.00

The operations of Winttal Oy were discontinued on 15 December 2016, as a result of which the company's assets and liabilities were transferred to Terrafame Group Ltd. Winttal Oy's loss of EUR -202.85 for the financial period 1 January 2016–15 December 2016 was consolidated in the consolidated financial statements.

1.11 Intangible assets

	Intangible rights	Other long-term expenditure	Total
Acquisition cost 9 Feb. 2015	0.00	0.00	0.00
Increase	184,438.21	19,213.11	203,651.32
Acquisition cost 31 Dec. 2015	184,438.21	19,213.11	203,651.32
Accumulated depreciation and write-downs 31 Dec. 2015			
9 Feb. 2015	0.00	0.00	0.00
Depreciation for the year	-15,193.96	-2,846.39	-18,040.35
Accumulated depreciation 31 Dec. 2015	-15,193.96	-2,846.39	-18,040.35
Carrying amount 31 Dec. 2015	169,244.25	16,366.72	185,610.97
Acquisition cost 1 Jan. 2016	184,438.21	19,213.11	203,651.32
Increase	1,652,201.46	0.00	1,652,201.46
Acquisition cost 31 Dec. 2016	1,836,639.67	19,213.11	1,855,852.78
Accumulated depreciation and write-downs 31 Dec. 2016			
31 Dec. 2016	-15,193.96	-2,846.39	-18,040.35
Depreciation for the year	-235,915.95	-8,539.16	-244,455.11
Accumulated depreciation 31 Dec. 2016	-251,109.91	-11,385.55	-262,495.46
Carrying amount 31 Dec. 2016	1,585,529.76	7,827.56	1,593,357.32

1.12 Property, plant and equipment

	Land	Buildings	Machinery and equipment	Other tangible assets	Advance payments and acquisitions in progress	Total
Acquisition cost 9 Feb. 2015	0.00	0.00	0.00	0.00	0.00	0.00

Business acquisition	0.00	0.00	0.00	0.00	11,639,822.70	11,639,822.70
Increase	144,285.00	45,728,018.73	42,797,835.19	42,910,542.30	7,770,831.52	139,351,512.74
Transfers between items	0.00	1,871,523.41	2,103,233.04	6,326,044.79	-10,300,801.24	0.00
Acquisition cost 31 Dec. 2015	144,285.00	47,599,542.14	44,901,068.23	49,236,587.09	9,109,852.98	150,991,335.44
Accumulated depreciation and write-downs 9 Feb. 2015	0.00	0.00	0.00	0.00	0.00	0.00
Depreciation for the year	0.00	-945,247.13	-1,983,354.33	-784,783.08	0.00	-3,713,384.54
Accumulated depreciation 31 Dec. 2015	0.00	-945,247.13	-1,983,354.33	-784,783.08	0.00	-3,713,384.54
Carrying amount 31 Dec. 2015	144,285.00	46,654,295.01	42,917,713.90	48,451,804.01	9,109,852.98	147,277,950.90
Acquisition cost 1 Jan. 2016	144,285.00	47,599,542.14	44,901,068.23	49,236,587.09	9,109,852.98	150,991,335.44
Increase	520.00	5,413,951.91	9,563,557.08	0.00	67,786,406.79	82,764,435.78
Decrease	0.00	0.00	-157,674.26	0.00	0.00	-157,674.26
Transfers between items	0.00	465,258.11	23,788,569.48	487,549.24	-24,741,376.83	0.00
Acquisition cost 31 Dec. 2016	144,805.00	53,478,752.16	78,095,520.53	49,724,136.33	52,154,882.94	233,598,096.96
Accumulated depreciation and write-downs 1 Jan. 2016	0.00	-945,247.13	-1,983,354.33	-784,783.08	0.00	-3,713,384.54
Accumulated depreciation on decreases and transfers	0.00	0.00	10,023.00	0.00	0.00	10,023.00
Depreciation for the year	0.00	-3,177,136.05	-8,073,754.22	-2,486,593.09	0.00	-13,737,483.36
Accumulated depreciation 31 Dec. 2016	0.00	-4,122,383.18	-10,047,085.55	-3,271,376.17	0.00	-17,440,844.90
Carrying amount 31 Dec. 2016	144,805.00	49,356,368.98	68,048,434.98	46,452,760.16	52,154,882.94	216,157,252.06

Finance leasing agreements

There are no finance leasing agreements in the financial statements of 31 December 2016 and 31 December 2015.

Finance leases

The financial statements of 31 December 2016 and 31 December 2015 include no finance leases.

1.13 Biological assets

In connection with the business acquisition, the company became the owner of a mining concession, which includes biological assets (forest).

The forests are managed in accordance with a forest management plan.

Approximately one third of the mining concession area has been taken into production use. As the mining operations continue, more areas will be taken into use and, at the same time, forests will be cleared.

Biological assets have been measured at fair value based on a third-party estimate, less sales-related costs.

Growing stock and seeding stand have been measured at fair value, separately from land. Seeding stands have no value in timber trade since the trees will not be saleable until after 25–30 years.

The value of seeding stands has been taken into account in the value of forests by discounting them at 31 December 2015 (time 25 years, interest rate 5%).

Biological assets	31 Dec. 2016	31 Dec. 2015	
Value of growing stock	5,061,702.30	5,000,544.77	According to estimates of forest holdings
Value of seeding stands	116,993.05	110,883.24	Present discounted value
	5,178,695.36	5,111,428.01	
Balance at 9 Feb. 2015			0.00
Business acquisition			5,111,428.00
Sales during the period			-30,378.51
Gains and losses on fair value measurement (due to growth)			0.00
Gains and losses on fair value measurement (due to changes in prices)			30,378.52
Balance at 31 Dec. 2015			5,111,428.01
Balance at 1 Jan. 2016			5,111,428.01
Business acquisition			0.00

Sales during the period	0.00
Gains and losses on fair value measurement (due to growth)	0.00
Gains and losses on fair value measurement (due to changes in prices)	67,267.35
Balance at 31 Dec. 2016	5,178,695.36

1.14 Deferred assets

On 31 December 2016, the Group had unrecognised deferred tax assets of approximately EUR 37.0 million, which consisted of the estimated loss for the financial year 2016 (EUR 23.6 million), the confirmed loss for the financial year 2015 (EUR 12.7 million) and deferred appreciations (EUR 0.7 million). The losses will expire in 2025 and 2026. With respect to the rehabilitation provision recorded in connection with the acquisition of the mining business, a deferred tax asset of approximately EUR 32 million has not been recognised. The utilisation of deferred tax assets involves uncertainties. Deferred tax assets have not been recognised in the balance sheet.

1.15 Inventories	2016	2015
Raw materials and consumables	25,497,419.94	18,260,723.28
Work in progress	50,120,000.00	481,376.00
Finished products	617,585.00	4,525,716.00
	76,235,004.94	23,267,815.28

A computational depreciation entry on the value of the raw materials and consumables inventory has been made in accordance with a calculation based on the use of spare parts. The depreciation on obsolete and slow- or zero-moving items was EUR 6.0 million on the balance sheet date of 31 December 2016, and EUR 9.7 million on 31 December 2015.

1.16 Trade receivables and other receivables

Current	2016	2015
Trade receivables	15,765,017.00	3,183,593.21
Prepayments and accrued income	2,788,114.26	2,077,242.47
Collateral	212,015.60	207,440.48
Other receivables	8,187,421.95	8,545,622.20
	26,952,568.81	14,013,898.36

Aging of trade receivables and items recognised as credit loss

	2016	2015
Undue	13,450,056.62	3,183,593.21
Overdue		
Under 30 days	2,302,882.46	0.00
30–60 days	12,077.92	0.00
61–90 days	0.00	0.00
Over 90 days	0.00	0.00
	15,765,017.00	3,183,593.21

Recognised as credit loss	0.00	0.00
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Current receivables by currency, EUR	2016	2015
USD	13,760,602.90	3,233,418.43
EUR	13,191,965.91	10,780,479.93
	26,952,568.81	14,013,898.36

Other receivables consist of the following items:

Loan receivable	0.00	3,800,000.00
Value added tax receivables	8,187,421.95	4,745,622.20
	8,187,421.95	8,545,622.20

1.17 Cash and cash equivalents

	2016	2015
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Cash at bank and in hand	50,899,926.66	119,887,712.78
Security deposits	0.00	0.00
	50,899,926.66	119,887,712.78

1.18 Notes on shareholders' equity

	Number of shares	Share capital
Share capital		
9 Feb. 2015	100	100,000.00
Share issues	209,000	2,157,500.00
Share capital 31 Dec. 2015	209,100	2,257,500.00

Invested unrestricted equity fund

The invested unrestricted equity fund comprises other investments in the nature of equity and the subscription price of shares insofar as this is not credited to the share capital on the basis of a specific decision.

9 Feb. 2015	100	90,000.00
Share issues	209,000	206,752,500.00
Invested unrestricted equity fund 31 Dec. 2015	209,100	206,842,500.00

The shares have no nominal value.

Profit/loss for the period		-93,102,768.85
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Equity 31 Dec. 2015		115,997,231.15
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Calculation of distributable funds 31 Dec. 2015

Invested unrestricted equity fund		206,842,500.00
Profit/loss for the period		-93,102,768.85
		113,739,731.15

	Number of shares	Share capital
Share capital		
1 Jan. 2016	209,100	2,257,500.00
Share issues	182,500	0.00
Share capital 31 Dec. 2016	391,600	2,257,500.00

Invested unrestricted equity fund

The invested unrestricted equity fund comprises other investments in the nature of equity and the subscription price of shares insofar as this is not credited to the share capital on the basis of a specific decision.

1 Jan. 2016	209,100	206,842,500.00
Share issues	182,500	182,500,000.00
Invested unrestricted equity fund 31 Dec. 2016	391,600	389,342,500.00

The shares have no nominal value.

Profit/loss for the period		-127,165,126.83
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Equity 1 Jan. 2016		115,997,231.15
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Equity 31 Dec. 2016		171,332,104.32
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Calculation of distributable funds 31 Dec. 2016

Invested unrestricted equity fund		389,342,500.00
Earnings from previous periods		-93,102,768.85
Profit/loss for the period		-127,165,126.83
		169,074,604.32

1.19 Contingent liabilities and other liabilities
2016
2015
Amounts payable on rental and leasing agreements

Not later than 1 year	153,140.18	646,045.96
Later than 1 year and not later than 5 years	23,252.95	6,864.95
Total	176,393.13	652,910.91

Other liabilities
Contractual liabilities transferred in connection with a business acquisition

Not later than 1 year	3,144,249.36	15,180,762.69
Later than 1 year and not later than 5 years	1,156,306.00	572,378.88
Total	4,300,555.36	15,753,141.58

Fixed assets serving as collateral for hire-purchase debt	2,605,208.33	2,986,458.33
Amount of debt		
Not later than 1 year	1,287,951.44	2,246,779.48
Later than 1 year and not later than 5 years	0.00	1,287,712.01
Total	1,287,951.44	3,534,491.49
Bank deposits	212,015.60	207,440.48
Total	5,976,915.53	20,147,984.46

Securities complying with environmental permits

Beneficiary	Type of security	Amount of security	
			Total
Kainuu Centre of Economic Development, Transport and the Environment; securities in accordance with permit condition 101	Credit insurance	31,940,000.00	
	Bank guarantee	2,450,000.00	34,390,000.00
Kainuu Centre of Economic Development, Transport and the Environment; securities in accordance with permit condition 10	Bank guarantee		1,750,000.00
Regional State Administrative Agency for Northern Finland, security in accordance with permit condition 99	Bank guarantee		1,500,000.00
Security in accordance with permit decision no. 52/2013/1	Bank guarantee		1,250,000.00
Security in accordance with permit decision no. 33/07/1	Bank guarantee		1,500,000.00
Security in accordance with permit decision no. 43/2014/2	Bank guarantee		6,000.00

Security in accordance with permit decision no. 43/2015/1	Bank guarantee	260,000.00
Security in accordance with permit decision no. 43/2015/1	Bank guarantee	100,000.00
Decision of the Finnish Safety and Chemicals Agency Tukes, 30 June 2014, KaivNro: 2819	Bank guarantee	100,000.00
Decision of the Finnish Safety and Chemicals Agency Tukes, 30 June 2014, KaivNro: 2819	Bank guarantee	35,000.00
Decision of the Finnish Safety and Chemicals Agency Tukes, 30 June 2014, KaivNro: 2819	Bank guarantee	50,000.00
Total		40,941,000.00

	2016	2015
Real estate investments' VAT refund liability	10,496,542.94	15,052,386.02

1.20 Financial risk management

The nature of Terrafame Group's business exposes the company to foreign exchange, interest rate, credit and liquidity risks. The goal of the Group's financial risk management is to minimise the negative effects of changes in financial markets on its result and cash flow.

Terrafame Ltd.'s commercial and finance department identifies and assesses risks, acquires the instruments needed to hedge against risks, and reports on risks and any changes therein to the CEO and the Board of Directors.

Hedging transactions are carried out in accordance with the principles approved by the Board of Directors. If necessary, forward exchange agreements, foreign currency loans, interest rate swaps and nickel and zinc forwards are used in financial risk management. The financial structure of Terrafame Group's subsidiaries is planned, assessed and controlled while taking financial risk management into account.

Currency risks

Since Terrafame Group operates in the euro area and sales are made in USD, the company's business operations involve currency risks.

In 2016, the Group had USD-denominated sales worth approximately EUR 101.0 million. Reasonably possible changes in the USD exchange rate would not have had a significant effect on the Group's result and shareholders' equity. The changes would have affected the valuation of uncompleted production and thereby also equity. The net realisable value principle was applied to the valuation of uncompleted production.

Interest rate risk

At the date of closure of the accounts, the consolidated balance sheet showed EUR 1.3 million in interest-bearing liabilities. On the same date, the repayment period of interest-bearing liabilities was 0.8 years. This calculation includes all of the liabilities for which a repayment period can be defined. The company has not taken any special measures to hedge against interest rate risks during the financial year. Reasonably possible changes in the interest rate level would not have had a significant effect on the Group's result and shareholders' equity.

Credit risk

Terrafame Group's documented procedures and practices define the principles and responsibilities of credit control. Once a new customer agreement has been signed, the Group estimates its expected annual volume and share of net sales, as well as the customer's creditworthiness.

By the end of 31 December 2016, no credit losses have been recorded. Credit insurance has not been applied to secure trade receivables.

The age distribution of trade receivables is presented in Note 1.16.

Capital management

The aim of the Group's capital management is to support business through an optimal capital structure and increase shareholder value by aiming at the highest possible return. An optimal capital structure also ensures smaller capital costs.

Developments in capital structure are monitored through gearing and the equity-to-assets ratio. At the start-up phase of operations and at the end of the first financial year, part of the key figures are presented. The equity-to-assets ratio was 45.4% (2015: 37.5%).

Liquidity risk

Terrafame Group continuously assesses and monitors the amount of financing required for business operations, so that the Group has sufficient liquid funds to finance its operations.

The maturity distribution based on debt contracts is as follows:

31 Dec. 2016	Carrying amount	Cash flow	0–6 mos	6 mos–1 yr	1–2 yrs
Interest-bearing liabilities	1,287,951.44	1,287,951.44	770,291.88	517,659.56	0.00
Accounts payable	32,840,186.50	32,840,186.50	32,840,186.50	0.00	0.00

31 Dec. 2015	Carrying amount	Cash flow	0–6 mos	6 mos–1 yr	1–2 yrs
Interest-bearing liabilities	3,534,491.49	3,590,999.82	1,511,727.09	779,727.21	1,299,545.52
Accounts payable	20,370,311.31	20,370,311.31	20,370,311.31	0.00	0.00

Liquidity risk related to business continuity is described in the accounting policies.

Market risk

In 2016, the Group's sales amounted to EUR 101 million. The sales price is affected by the world price of nickel and zinc. Reasonably possible changes in sales prices due to fluctuations in global nickel and zinc prices would not have had a significant effect on the Group's result for the financial year 2016 and shareholders' equity. The changes would have affected the valuation of uncompleted production and thereby also equity. The net realizable value principle was applied to the valuation of uncompleted production.

1.21 Provisions – rehabilitation provision

Long-term provisions on the balance sheet are related to the environmental and rehabilitation liabilities associated with the Group's mines and production plants.

The provisions are based on estimates of future liabilities.

Non-current

Rehabilitation provision, in EUR	31/12/2016	31/12/2015
At beginning of year	162,078,025.00	0.00
Increase	0.00	162,078,025.00

At end of year	162,078,025.00	162,078,025.00
Total non-current	162,078,025.00	162,078,025.00
Estimated cost of the rehabilitation provision		
Rehabilitation of primary and secondary heaps and gypsum pond area	145,195,025.00	134,595,025.00
Repair of damages resulting from gypsum pond leak in 2012	10,300,000.00	23,600,000.00
Rehabilitation and fencing of the open pit area	2,583,000.00	883,000.00
Monitoring of mining site after completion of rehabilitation measures	4,000,000.00	3,000,000.00
Estimated rehabilitation costs	162,078,025.00	162,078,025.00

1.22 Interest-bearing and non-interest bearing liabilities

	2016	2015
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Non-current financial liabilities measured at amortised cost

Other payables – hire-purchase debt	0.00	1,287,712.01
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Current financial liabilities measured at amortised cost

Other payables – hire-purchase debt	1,287,951.44	2,246,779.48
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The fair values of current and non-current liabilities do not differ significantly from their carrying amount.

1.23 Provisions, trade and other payables

	2016	2015
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Current

Accounts payable	32,840,186.50	20,370,311.31
Accruals and deferred income	8,424,849.22	4,119,881.66
Other payables	1,040,235.20	3,644,475.69
	42,305,270.92	28,134,668.66

Non-interest bearing liabilities by currency, EUR

USD	159,831.89	8,601.08
GBP	15,408.02	0.00
EUR	42,130,031.01	28,126,067.58
	42,305,270.92	28,134,668.66

At the date of closure of the accounts in 2015 and 2016, the company had no financial assets or liabilities at fair value through profit or loss.

1.24 Adjustments to cash flows from operating activities

	2016	2015
Transfer of gains from sales of tangible assets to cash flows from investing activities	-82,348.74	-30,000.00
Other income and expenses that do not include payments	-67,267.35	310,000.00
	-149,616.09	280,000.00

1.25 Related party transactions
Executives' benefits

	2016	2015
Salaries and other short-term benefits	429,780.66	55,120.00
Termination benefits	0.00	0.00
Post-employment benefits	0.00	0.00
Other long-term benefits	0.00	0.00
Share-based payments	0.00	0.00
	429,780.66	55,120.00

Salaries and remuneration

	2016	2015
Parent company		
CEO	165,360.00	55,120.00
Members of the Board of Directors		
Janne Känkänen	41,500.00	17,000.00

Juha Majanen	15,900.00	9,300.00
Minna Pajumaa	15,900.00	9,300.00
Matti Hietanen	0.00	6,000.00
Subsidiaries		
CEO	264,420.66	0.00
Members of the Board of Directors		
Lauri Ratia	78,000.00	25,257.14
Esa Lager	42,600.00	13,228.57
Tuomo Mäkelä	42,000.00	13,828.57
Total remuneration of the Board of Directors	665,680.66	149,034.28

During the financial year 2016, Terrafame Group Ltd. bought expert services worth a total of EUR 180,000 from a company owned by the related parties of Lauri Ratia, Chairman of the Board of Terrafame Ltd.

During the financial year 2015, Terrafame Group Ltd. bought expert services worth a total of EUR 150,000 from a company owned by the related parties of Lauri Ratia, Chairman of the Board of Terrafame Ltd., and worth a total of EUR 27,500 from a company owned by Tuomo Mäkelä, a member of the Board of Terrafame Ltd.

At the end of the financial year 2016, Terrafame Ltd.'s CEO, members of the Board of Directors and their related parties do not hold any shares in the company.

The Group's related parties include the Finnish government, which owns 100 per cent of the parent company, as well as the CEOs and Board members of the parent company and subsidiaries.

The pension provision of key personnel is determined on the basis of statutory pension provision.

Terrafame Ltd. has no bonus or other incentive schemes for its management.

1.26 Parent company and subsidiary relationships of the Group

Company	Domicile	Holding (%)	Share of votes (%)
Terrafame Group Ltd. – parent company	Finland		
Terrafame Ltd.	Finland	100%	100%

Winttal Oy – operations discontinued on 15 December 2016	Finland	100%	100%
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During the financial year 2016, the Group parent company offered services to parties considered as related parties worth a total of EUR 207,210.82.

1.26 Events after the balance sheet date

The agreements on the ownership and financing arrangements between Terrafame Ltd. and Trafigura Ventures V.B.V. company and Galena Private Equity Resources Investment 2 L.P. fund, which both belong to Trafigura Group, were signed on 3 February 2017, and the arrangements were executed on 10 February 2017. Sampo plc and Terrafame Group Ltd. are acting as co-investors in these arrangements. The financing arrangement totals EUR 250 million. As a result of the financing arrangement, Terrafame Ltd. has the funding necessary to complete the ramp-up of production as well as achieve positive cash flow. In the arrangement, pre-transaction value of Terrafame Ltd. before the equity investment is EUR 381.8 million, which corresponds with the capitalisation of Terrafame by Terrafame Group Ltd. before the arrangements.

As a result of the arrangement, the Galena fund now holds approximately 15.5 per cent of the shares of Terrafame Ltd. against an equity investment of EUR 75 million. Terrafame Group Ltd. made an additional equity investment of EUR 25 million to Terrafame Ltd. At the time of implementing the arrangement, Terrafame Group Ltd. holds approximately 84.2 per cent of Terrafame shares. Terrafame Group Ltd. also committed EUR 50 million capital investment into Terrafame Ltd., which is valid until the end of 2018.

As part of the arrangement, Trafigura granted a loan of EUR 75 million to Terrafame Ltd., in addition to which Sampo plc granted EUR 25 million for the loan arrangement under the same conditions as Trafigura. The loans entitle Galena and Sampo to subscribe to Terrafame's shares with an amount that corresponds to the loan equity and the interest on the loan. The subscription option is valid for five years. The 1.5 per cent loan drawdown fee was paid in Terrafame Ltd. shares.

It was also agreed in the arrangement that Trafigura will purchase all the nickel-cobalt sulphide that Terrafame produces, as well as 80 per cent of zinc sulphide for the next seven years.

The arrangement had no effect on the business plan, management or personnel of Terrafame.

The repairs of the damages caused by the fire in the H₂S reactor were completed in early 2017, and production started at the metals production plant on 13 January 2017.

Dividend proposal and signatures

The Board of Directors' proposal for the result

Terrafame Group Ltd.'s result for the financial year 2016 shows a loss of EUR 2,451,035.57. Terrafame Group Ltd.'s distributable equity was EUR 385,681,155.28 on 31 December 2016.

The Board of Directors proposes to the Annual General Meeting that Terrafame Group Ltd.'s loss be recorded on the profit/loss account and that no dividend be distributed.

Helsinki, 29 March 2017

Janne Känkänen
Chairman of the Board

Juha Majanen

Minna Pajumaa

Matti Hietanen
CEO

Auditor's confirmation

A report on the audit has been issued today.

Helsinki, 10 April 2017

KPMG Oy Ab
Authorised Public Accountants

Antti Kääriäinen
Authorised Public Accountant

Auditors' report

To the Annual General Meeting of Terrafame Group Oy

Report on the Audit of the Financial Statements

Opinion

We have audited the financial statements of Terrafame Group Oy (business identity code 2674050-9) for the year ended 31 December 2016. The financial statements comprise the consolidated balance sheet, income statement, statement of comprehensive income, statement of cash flows and notes, as well as the parent company's balance sheet, income statement, statement of cash flows and notes.

In our opinion

- the consolidated financial statements give a true and fair view of the group's financial performance, financial position and cash flows in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU
- the financial statements give a true and fair view of the parent company's financial performance and financial position in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements.

Basis for Opinion

We conducted our audit in accordance with good auditing practice in Finland. Our responsibilities under good auditing practice are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the parent company and of the group companies in accordance with the ethical requirements that are applicable in Finland and are relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of the Board of Directors and the Managing Director for the Financial Statements

The Board of Directors and the Managing Director are responsible

for the preparation of consolidated financial statements that give a true and fair view in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU, and of financial statements that give a true and fair view in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements. The Board of Directors and the Managing Director are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors and the Managing Director are responsible for assessing the parent company's and the group's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the parent company or the group or cease operations, or there is no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance on whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the parent company's or the group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of the Board of Directors' and the Managing Director's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the parent company's or the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the parent company or the group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events so that the financial statements give a true and fair view.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Other Reporting Requirements

Other Information

The Board of Directors and the Managing Director are responsible for the other information. The other information comprises information included in the report of the Board of Directors. Our opinion on the financial statements does not cover the other information.

In connection with our audit of the financial statements, our responsibility is to read the information included in the report of the Board of Directors and, in doing so, consider whether the information included in the report of the Board of Directors is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. Our responsibility also includes considering whether the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

In our opinion, the information in the report of the Board of Directors is consistent with the information in the financial statements and the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed, we conclude that there is a material misstatement in the information included in the report of the Board of Directors, we are required to report this fact. We have nothing to report in this regard.

Other Statements

We support the adoption of financial statements with consolidated financial statements. We support the discharge from liability of the Members of the Board of Directors of the parent company and the Managing Director for the financial period audited by us.

Helsinki (Finland), 10 April 2017

Antti Kääriäinen
Authorised Public Accountant

Key financial figures

Key financial figures

Net sales	101,041,812.63
Operating profit/loss	-136,721,622.88
Operating profit %	-135%
Total assets	377,016,805.15
Salaries and wages	28,386,614.28
Average number of employees	629
Return on equity, %	-88.26
Return on investment, %	-79.21
Equity-to-assets ratio, %	45.44
Net gearing, %	-28.96

Definitions of key financial figures

Definitions of key financial figures

Return on equity, %	$\frac{100 \times \text{Profit/loss for the financial year}}{\text{Average total equity during the financial year}}$
Return on investment, %	$\frac{100 \times (\text{Profit/loss for the financial year} + \text{finance cost})}{\text{Total equity} + \text{interest-bearing financial liabilities}}$
Equity-to-assets ratio, %	$\frac{100 \times \text{Total equity}}{\text{Total assets} - \text{advances received}}$
Net gearing, %	$\frac{100 \times \text{interest-bearing net financial liabilities}}{\text{Equity}}$

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