

**>> TERRAFAME LTD
INTERIM REPORT Q4 2018**

Terrafame's net sales EUR 325.8 million - the company achieved its annualised target for nickel production

(The 2018 financial data from Terrafame Ltd presented in this factsheet are unaudited FAS figures. Unless otherwise stated, the figures in parentheses refer to the corresponding period of the previous year.)

January–December 2018 in brief

- Nickel production increased by 31 percent to 27,377 (20,864) tonnes. Zinc production increased by 31 percent to 61,608 (47,205) tonnes.
- Net sales totalled EUR 325.8 (220.0) million.
- EBITDA totalled EUR 32.8 (13.6) million.
- The value of work in progress at year-end was EUR 170.7 (138.0) million.
- Operating profit was EUR 3.0 (-6.2) million.
- The lost-time injury frequency rate, or the number of lost-time injuries per one million person-hours worked, was 7.4 (3.5).
- Production ramp-up and stabilisation proceeded as planned.
- The sulphate load of discharge water for the year was 3,434 tonnes (10,468), which was 21 percent of the permitted load, when the annual quota set in the environmental permit was 16,300 tonnes.

October-December 2018 in brief

- 7,710 tonnes of nickel (5,840) and 15,974 tonnes of zinc (13,772) were produced.
- Net sales totalled EUR 77.4 (67,6) million.
- EBITDA totalled EUR -1.0 (17.3) million.
- Operating loss was EUR -7.5 (11.1) million.
- Metal production levels were good. A new quarterly record was set in nickel production compared to the previous quarter's record level. Zinc production was almost at the previous quarter's level.
- The average price of nickel in the fourth quarter of 2018 was 11,516 USD/t which was 13.2 percent lower than in the third quarter. The average price of zinc increased by 3.7 percent compared with the third quarter and was 2,631 USD/t.
- In October, Terrafame's Board of Directors made the decision to invest EUR 240 million in building a new battery chemicals plant.
- When the investment decision was made, the company's owners agreed on a supplementary funding package of approximately EUR 100 million.

Financial and production figures

	2018 Q4	2017 Q4	2018	2017
Financial figures				
Net sales, EUR million	77.4	67.6	325.8	220.0
EBITDA, EUR million	-1.0	17.3	32.8	13.6
EBITDA excl. change in WIP, EUR million	-8.5	-8.9	0.2	-74.3
Operating profit/loss, EUR million	-7.5	11.1	3.0	-6.2
Work in progress, EUR million	170.7	138.0	170.7	138.0
Capex, EUR million	28.5	22.4	81.5	92.1
Equity, EUR million	365.6	295.6	365.6	295.6
Total assets, EUR million	681.6	618.5	681.6	618.5
Net result, EUR million	-10.2	-9.6	-6.2	-9.6
Ore processing				
Ore mined, million tonnes	10.9	9.2	42.2	35.1
Ore to primary leaching, million tonnes	4.4	4.2	17.9	17.5
Nickel to heaps, million tonnes	11,679	11,900	46,334	46,200
Zinc to heaps, million tonnes	24,940	22,742	97,633	91,827
Metals production				
Nickel produced, tonnes	7,710	5,840	27,377	20,864
Zinc produced, tonnes	15,974	13,772	61,608	47,205

*) Work in progress (WIP) is calculated based on at cost and net realisable values, and valued with the lower of the two.

CEO Joni Lukkaroinen:

“The year 2018 was Terrafame’s third full year of operation. Alongside the ramp-up of production and the stabilisation of operations, work was increasingly directed towards planning the further processing of the main product – nickel.

The net sales in 2018 amounted to EUR 325.8 (220.0) million. EBITDA was EUR 32.8 (13.6) million. A new quarterly record was set in nickel production during the last quarter of 2018, exceeding the previous quarter’s record. Zinc production remained close to the level reached in the third quarter. The average price of nickel in the fourth quarter of 2018 was 11,516 USD/t which was 13.2 percent lower than in the third quarter. The average price of zinc increased by 3.7 percent compared with the third quarter and was 2,631 USD/t. Record production levels did not compensate for the low market price for nickel, which was reflected in the decrease in profitability in the fourth quarter. At the beginning of 2019, the price of nickel has taken an upward turn. Our total operating result for 2018 rose to a profit of EUR 3.0 million (loss of -6.2).

The target production level set for full operations at the time of starting operations was reached during the third quarter of 2018. In annualized production volumes, this equals approximately 30,000 tonnes of nickel and approximately 64,000 tonnes of zinc. In total, 27,377 tonnes of nickel and

61,608 tonnes of zinc were produced in 2018. We also continued to produce our by-products – cobalt and copper.

From the beginning, Terrafame has been studying the opportunities to launch the further processing of nickel-cobalt sulphide, which is currently the company's main product. In October 2018, the company's Board of Directors made the decision to invest EUR 240 million in the further processing of nickel-cobalt into sulphate, which is needed to manufacture batteries for the rapidly growing global electric vehicle industry. Our goal is to start the commercial production of battery chemicals at the beginning of 2021.

In the context of the investment decision, Finnish Minerals Group, Trafigura, Galena fund and Sampo agreed on a supplementary funding package of approximately EUR 100 million.

We have made systematic efforts to develop our operations, and environmental safety is already at a good and sustainable level. The stabilisation of production has also improved process safety. We were not able to achieve the same good level of occupational safety that was reached in 2017. In 2018, Terrafame's personnel experienced 8 (4) lost-time injuries, making the lost-time injury frequency rate (LTIFR) for the whole year 7.4 (3.5) injuries per one million person-hours worked. The safety of workers is one of Terrafame's cornerstones. Continuous improvement will remain as one of the key efforts at Terrafame and it will require everyone to commit to ensuring the sustainability of our operations."

Market developments

Global demand for Terrafame's main products – nickel and zinc – continued at a good level in the market in 2018. The total combined nickel stocks of the London Metal Exchange (LME) and Shanghai Futures Exchange (SHFE) decreased during 2018 by approximately 190,000 tonnes, equalling five (10) weeks' demand at the end of the year. Zinc stock levels decreased by 100,000 tonnes, equalling less than one (1) weeks' demand at the end of the year. Demand was primarily supported by the use of nickel in stainless steel production and the use of zinc in galvanisation. With the rapidly growing supply of electric vehicles, nickel is also increasingly used in the manufacture of electric vehicle batteries.

Over the course of the year, the trade disputes between the USA and China had a negative impact on the development of the world market prices of many metals. At the same time, however, the US dollar strengthened against the euro by 4.5 percent.

The first half of 2018 saw an uptrend in the world market price of nickel, but the price fell sharply lower during the second half of the year. The average price for the year was USD 13,122 (10,411) per tonne, which was 26.0 percent higher in dollars and 20.6 percent higher in euros compared to the previous year's average price. The average price of nickel in the fourth quarter of 2018 was 11,516 USD/t which was 13.2 percent lower than in the third quarter. In euro terms the decrease was 11.6 percent.

The world market price of zinc in US dollars began declining in February 2018, but then levelled off in the fourth quarter. The average price for the year was USD 2,922 (2,896) per tonne, which was 0.9 percent higher in dollars and 3.5 percent lower in euros compared to the previous year's average

price. The average price of zinc increased by 3.7 percent compared with the third quarter and was 2,631 USD/t. In euro terms the increase was 5.7 percent.

Investments

Capital expenditure during 2018 totalled EUR 81.5 (92.1) million. Of this amount, EUR 37.9 million was allocated to improving productivity and capacity.

The key investment targets for capital expenditure relating to improving productivity and capacity were launching the battery chemicals plant construction project, completing the construction of block 4 of the secondary bioleaching area, finalising block 1 of the waste rock area and starting construction work in block 2, and commissioning the third hydrogen sulphide production line. The key investments related to sustaining capex included purchasing a dumper truck, an excavator and a wheel loader.

In the fourth quarter of 2018, capital expenditure totalled EUR 28.5 (22.4) million.

The key investment targets for capital expenditure relating to improving productivity and increasing capacity were excavation works, planning of the plant and main equipment procurements for the battery chemicals plant construction project. Main infrastructure investments related to finalising block 1 of the waste rock area and starting construction work in block 2. Among the key investments related to sustaining capex were the maintenance and modification works for the hydrogen sulphide plant 2.

In October 2018, Terrafame Ltd's Board of Directors made the decision to invest in building a new battery chemicals plant. The aim is that the plant will be completed at the end of 2020 and that commercial production will start at the beginning of 2021. The direct investment costs for the battery chemicals plant amount to approximately EUR 240 million.

Environmental safety and permits

In 2018, it rained 600 mm in the Kainuu region which is less than the normal 700 mm level. As in the previous year, Terrafame's production process functioned well and less water needing purification accumulated in the industrial site over the course of the year. At the end of 2018, 1.8 (2.4) million cubic metres of water was stored at the industrial site.

During the year, the substance concentrations of purified water released from the industrial site were clearly below permit levels, apart from individual exceptions. The metal loads were also clearly below the environmental permit's quotas. The total sulphate load of discharge water during the year was at a very low level of 3,434 (10,468) tonnes and only 21 percent of the annual quota set in the environmental, which is 16,300 tonnes. In the fourth quarter, 0.3 (1.3) million cubic metres of purified water with a sulphate load of 361 (2,477) tonnes was released from the industrial site.

The environmental impact assessment of Terrafame's battery chemicals production, i.e. the EIA procedure, was launched in April 2018. Terrafame aims to file the application for environmental permit for the production of battery chemicals in early 2019.

In the beginning of summer 2018, an environmental permit was granted for a new hydrogen sulphide plant, which was commissioned in the summer.

Terrafame's application for a new environmental permit covering the entirety of its operations, which was filed to the Northern Finland Regional State Administrative Agency (RSAA) in August 2017, was supplemented in July 2018. The company's current environmental and water management permits will remain in force until the new environmental permit covering all operations is legally valid.

Preparations for an EIA procedure concerning the final disposal of the water treatment precipitate placed into interim storage at the mining site by the previous operator, were initiated in early autumn. The procedure is scheduled to start in early 2019.

The decision on the mixing zone in Lake Nuasjärvi was received from the RSAA and the decision on process precipitates from the Administrative Court of Vaasa. Additionally, at the end of the year, Terrafame had claims relating to permit decisions pending with the RSAA.

The year 2018 also saw the preparation of the documentation on uranium recovery. In 2019, the Government is expected to issue a decision on the application for a uranium recovery permit, which was filed in 2017.

Personnel and occupational safety

Just under 1,300 people were regularly employed at Terrafame's industrial site during 2018. Of these approximately half were employed by partner companies. At the end of the year, Terrafame employed 667 people, in addition to which the company gave summer jobs to roughly 90 people.

The decision to invest in the battery chemicals plant prompted the company to start strengthening local industrial expertise by cooperating with educational institutions. Terrafame and Kajaani Polytechnic have agreed on the provision of specialist training programmes in process engineering. In December, a call for applications was announced for apprenticeship training leading to vocational qualifications in the process industry, which will be organised at Terrafame's industrial site.

In 2018, Terrafame's personnel experienced 8 (4) lost-time injuries. The most serious injury occurred during maintenance work in a fall accident after which all related working procedures were reviewed to prevent any similar accidents. The most common types of injuries were contusion injuries of the hands and fingers during maintenance work and lower limb injuries caused by slipping and tripping. The lost-time injury frequency rate (LTIFR) for the whole year 7.4 injuries per one million person-hours worked (3.5). The workers of partner companies operating in Terrafame's industrial site experienced 11 lost-time injuries, which makes the total combined LTIFR for the companies 10.1 (11.7).

Occupational healthcare at Terrafame has been arranged in accordance with the occupational health action plan. It is a requirement of Terrafame that its partners operating at the site organise occupational health care and, to a large extent, biomonitoring. During 2018, key partners delivered to Terrafame a summary of the biomonitoring results of their personnel, according to which occupational hygiene was at a good level within these companies as well.

The new emergency shelter was completed in summer 2018.

Events following the reporting period

The environmental impact assessment of Terrafame's battery chemicals production was completed at the beginning of January 2019. The application for an environmental permit for the production of nickel and cobalt sulphate will be filed in early 2019.

In February 2019, the Board of Directors of Terrafame Ltd decided on the establishment of a long-term incentive scheme for the company's Management Team and other key employees. The scheme consists of annually commencing individual performance-based plans, each with a three-year performance period which is followed by the payment of the potentially earned reward in cash. The incentive scheme is in line with the Finnish state-owner's principles.

Near-term outlook

Terrafame continues to develop production and improve cost-efficiency further. During the first half of 2019, the application for an environmental permit for the battery chemicals plant will be filed and the construction related to the plant will continue.

The data on Terrafame's mineral resources and ore reserves were updated in June in accordance with the 'JORC Code'. According to an assessment by an independent, external body, the measured, indicated and inferred mineral resources amount to 1,525 million tonnes. The ore reserves and mineral resources will enable the production and further processing of metals for many decades. The techno-economic parameters were drawn from the mine's historical data, Terrafame's mining plans and specified cost parameters.

Further information:

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Terrafame Ltd. is a Finnish multi-metal company producing nickel, zinc, cobalt and copper at its mine and metal works located in Sotkamo. Our goal is to conduct environmentally sustainable, safe and profitable operations.