

**>> TERRAFAME LTD.  
INTERIM REPORT Q4 2016**

## **Terrafame's EBITDA positive in the fourth quarter of 2016 - Full-year net sales exceeded EUR 100 million**

### **Key figures in January–December 2016**

- 14.2 million tonnes of ore was stacked on the primary leaching heaps.
- 11,584 tonnes of nickel and 27,868 tonnes of zinc were leached.
- 9,554 tonnes of nickel and 22,575 tonnes of zinc were produced.
- Net sales totalled EUR 100.8 million.
- EBITDA was negative EUR 120.4 million.

### **Key figures October–December 2016**

- 4.1 million tonnes of ore was stacked on the primary leaching heaps (Q3 2016: 4.3).
- 4,885 tonnes of nickel (Q3 2016: 3,046) and 10,697 tonnes of zinc (Q3 2016: 8,720) were leached.
- 3,875 tonnes of nickel (Q3 2016: 2,370) and 8,680 tonnes of zinc (Q3 2016: 6,328) were produced.
- Net sales totalled EUR 47.4 million euros (Q3 2016: 21.2).
- EBITDA was EUR 16 million (Q3 2016: -38.5).

### **Key events in October–December 2016**

- In the fourth quarter, the EBITDA and operating profit were positive for the first time during Terrafame Ltd.'s operations. The improvement of the EBITDA and operating profit resulted mainly from the change in value of work in-process, which was EUR 47.2 million. The change in value was affected by the decrease in costs after the second metals production line was put into operation, an increase in the amount of metals in the production process, and the increases in the price of nickel and zinc.
- Production on both production lines in the metals recovery plant was temporarily suspended in the fourth quarter in 16–31 December 2016 due to a fire at the hydrogen sulphide plant. The costs resulting from the fire totalled approximately EUR 0.5 million.
- At the end of the year, altogether 18.3 million tonnes of ore had been stacked on the primary leaching heaps during Terrafame's operations from 15 August 2015 to 31 December 2016. Approximately 75% of the surface area of the primary bioleaching area had been put into operation by the end of December.
- The trial use of the new centralised water treatment plant started in November.
- The environmental impact assessment (EIA) programme, which evaluates the environmental impacts of continuing and developing the mining operations, as well as the alternative closing of the mine, was published. The EIA concerning water treatment progressed to the report drafting phase.

- The amount of water stored in the mining area decreased from approximately 5.5 million cubic metres to approximately 3.8 million cubic metres.
- The Ministerial Committee on Economic Policy decided that negotiations aimed at securing private financing for Terrafame can be continued also after 31 December 2016. In addition, the Ministerial Committee decided that an additional capitalisation of EUR 100 million can be granted to Terrafame Ltd.'s parent company Terrafame Group Ltd. to finance future operations. To date, this financing has not been utilised.

### Events following the reporting period

- After the fire at the metals recovery plant, gradual ramp-up of operations was started at the beginning of 2017. The plant was re-started on 13 January 2017.
- The Regional State Administrative Agency of Northern Finland granted an environmental permit and license to begin operations for the new centralised water treatment plant on 4 January 2017.

### Financial and production figures

	2016 Q4	2016 Q3	2016 Q2	2016 Q1	2016	Change 2016 Q3-Q4 (%)
<b>Finances</b>						
Net sales, EUR million	47.4	21.2	18.0	14.2	100.8	123.6
EBITDA, EUR million	16.0	-38.5	-44.8	-53.1	-120.4	141.6
Operating profit/loss, EUR million	12.2	-42.5	-48.0	-56.1	-134.4	128.7
Investments, EUR million	20.2	18.1	35.2*	10.8	84.3*	11.6
<b>Production</b>						
Ore to primary heap, million tonnes	4.1	4.3	3.1	2.7	14.2	-4.7
Nickel to heap, tonnes	11,757	10,894	7,761	6,630	37,042	7.9
Zinc to heap, tonnes	22,144	20,612	14,767	12,776	70,299	7.4
Nickel leached, tonnes	4,885	3,046	2,158	1,495	11,584	60.4
Zinc leached, tonnes	10,697	8,720	5,873	2,578	27,868	22.7
Nickel produced, tonnes	3,875	2,370	1,754	1,555	9,554	63.5
Zinc produced, tonnes	8,680	6,328	4,070	3,497	22,575	37.2

\*) Includes the lime plant, laboratory and geodata purchased in June (EUR 15.4 million).

## CEO Joni Lukkaroinen's review

"We continued the determined ramp-up of operations and achieved a positive EBITDA and operating profit for the first time in the fourth quarter of the year, taking into account the change in the value of work in-process. Our net sales in 2016 totalled more than EUR 100 million.

In ore mining and processing, we held a pace of approximately 1.4 million tonnes per month during the fourth quarter. This is close to the monthly target of 1.5 million tonnes on average that we have set for 2017. During 2016, we also broke the mine's records in ore extraction and processing.

In October, we completed the third primary leaching heap. Approximately 75% of the primary leaching area was in use at the end of the year. Bioleaching continued to work well in October–December, and the leaching results met the target that we had set for total recovery. The cost efficiency of the metals recovery plant improved significantly in October which was when we began to use both of the plant's production lines. Measured in sales volumes and income from nickel and zinc products, the fourth quarter was Terrafame's best to date, as planned.

Due to the fire at the hydrogen sulphide plant in December, the production of nickel was approximately 650 tonnes below target in the fourth quarter. We aim to catch up on the production lost in December during the first quarter of 2017.

In 2016, we succeeded in further developing our occupational safety, although we fell somewhat behind on the target we had set for lost-time injury frequency. Our environmental safety continued to improve and is at a good level, which supports our ongoing EIA and environmental permit processes."

## Market development

During the fourth quarter of 2016, the average price of nickel was USD 10,810 per tonne, which is 5.3% higher than in the third quarter and 14.5% higher year on year. The positive price development reflected the growth in demand for nickel, which was about 7.5% globally in 2016. China's strong stainless steel production and the increased use of nickel in, for instance, batteries for electric cars, drove the demand. Simultaneously, nickel mine production decreased globally and nickel production decreased by approximately 1% in 2016. Despite the sharp decline in nickel price at the end of December, the average price of the month was USD 11,009, which is above the quarterly average.

In 2016, nickel stock levels at the London Metal Exchange (LME) and the Shanghai Futures Exchange (SFE) decreased by approximately 30,000 tonnes, totalling approximately 470,000 tonnes at the end of the year. The market for intermediate nickel products also developed favourably during the last quarter of the year.

During the last quarter of 2016, the average price of zinc was USD 2,517 per tonne, which is 11.6% higher than in the third quarter and 56% higher year on year. The price development of zinc was driven by the 2.4% increase in global demand and the nearly 6% decrease in the mining production of zinc. Also zinc price decreased towards the end of December, and the average price of the month was USD 2,672 per tonne.

LME's zinc stock levels decreased by approximately 35,000 tonnes to 428,000 tonnes during 2016. The levels of other zinc stocks as well as stocks of zinc concentrate and intermediate products also fell significantly, which had a positive effect on the treatment charges paid by mines.

During the last quarter of 2016, the U.S. dollar has strengthened against the euro, which has improved the prices of metal products sold in euros.

## Investments

In January–December 2016, Terrafame Ltd.'s investments totalled EUR 84.3 million. Of this sum, investments of the October–December period were EUR 20.2 million (Q3 2016: 18.1).

The most significant investments of the fourth quarter of 2016 include the construction work of the two secondary bioleaching areas, the planning of the third hydrogen sulphide production line, and the centralised water treatment plant which entered trial use in November.

## Environmental safety

The water situation in the Terrafame mining area became sustainable already in the third quarter of 2016. The water situation developed positively in the fourth quarter, as well. At the end of 2016, the water stored in the mining area amounted to approximately 3.8 million cubic metres (end of Q3: 5.5 and end of Q4 2015: 10.1).

The sulphate quota of 15,000 tonnes per year for the water led into the Nuasjärvi discharge pipe fell below quota by about 1,400 tonnes, 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 set limit values on average. Reverse osmosis has been used to lead effluent into bioleaching circulation since March. In March–December, a total of 5,700 tonnes of sulphate included in the effluent was led into bioleaching circulation, which is of great importance for the sufficiency of the sulphate quota and the water balance of the mining area.

Based on the conducted measurements, the autumn circulation of Lake Nuasjärvi was normal and no layering remained in the lake. The changes in the sulphate concentration of the lake's water corresponded to predictions, and metal concentrations were very low also in the vicinity of the discharge pipe. The metals analyses of the fish in Lake Nuasjärvi, concluded in December, showed that no effects caused by the discharge pipe can be detected in the fish.

The amount of solution in bioleaching circulation increased due to a stoppage of the metals recovery plant. After the continuation of production, the amount of solution in the circulation will return to an optimal level.

In March 2016, Terrafame started the trial use of its new centralised water treatment plant. In the future, rain and run-off waters in the mining area as well as the process waters of the metals recovery plant will be treated using the centralised water treatment plant and the reverse osmosis plant. In special circumstances, field units for decentralised water treatment can be used to support this arrangement.

In its decision issued in April 2016, the Vaasa Administrative Court required Terrafame to apply for a new environmental permit for its operations by the end of August 2017. Therefore, the company has initiated two environmental impact assessment (EIA) processes. In the fourth quarter, Terrafame published the EIA programme on continuing and developing the mining operations, as well as the alternative closing of the mine. Opinions on the programme can be submitted to the Kainuu ELY Centre until 23 January 2017. The submission date for opinions on the EIA programme on water management closed in October. The preparation of an EIA report for this process was started in the fourth quarter of the year.

### **Personnel and occupational safety**

At the end of December, Terrafame Ltd. employed 645 people (end of Q3: 641). In addition, approximately 70 partner companies employing approximately 550 people operated in the mining area in the fourth quarter.

Terrafame Ltd.'s lost-time injury frequency, meaning the number of injuries per one million person-hours worked, was 8.4 for the whole year of 2016 (end of Q3: 10.3), while the target was to decrease the number to less than 7.0. However, Terrafame reached 80 days without a single lost-time injury during the year, a record in the mine's history.

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

In December, Kainuu Regional Rescue Authority and Terrafame Ltd. announced an agreement to expand rescue collaboration. With this agreement, Terrafame's fire brigade and its equipment has been available for use in various emergency assignments also outside of the mining area since the beginning of 2017.

### **Financing for future operations**

In November, the Ministerial Committee on Economic Policy revised its decision made in the spring by allowing negotiations aimed at securing private financing to continue also after 31 December 2016. In addition, the Ministerial Committee on Economic Policy decided to endorse an additional capital injection of EUR 100 million to Terrafame Group Ltd.

“The process to acquire private financing, which started in fall 2016, continued at the end of 2016 as planned. The decision of the Ministerial Committee on Economic Policy to cancel the turn-of-the-year deadline for the negotiations has supported us in our efforts to reach the best possible result in the negotiations for Terrafame’s future as well as for the State. The goal is to reach an appropriate financing arrangement from the state owner’s point of view. Active negotiations and preparations are still ongoing,” says Matti Hietanen, CEO of Terrafame Group Ltd.

## Near-term outlook

Terrafame will continue its work based on the company’s values: safety, efficiency and commitment.

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.

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 curb the increase of the price of nickel, but stocks are expected 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 financial information for 2016 presented in this release are unaudited FAS figures.*

## Further information:

Joni Lukkaroinen, CEO of Terrafame Ltd., tel. +358 50 590 0720

---

*Terrafame Ltd. is a Finnish multi-metal company producing nickel, zinc and cobalt at its mine and metals production plant located in Sotkamo. Our aim is to conduct environmentally sustainable, safe and profitable operations. Terrafame is owned by Terrafame Group Ltd., which is wholly owned by the State of Finland.*