

PRESENTS

Aluminium

# Leader Speak 2019

June - July 2019, Edition No.1, www.alcircle.com



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(EGA)



**Hilde Merete Aasheim**  
(Hydro)



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(Vedanta)



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# BAUXITE ► ALUMINIUM

## Serving the Aluminium value chain

Uniseven Engineering & Infrastructure Pvt. Ltd. services the entire value chain of the aluminium industry from mining to finished products and maintains alliances and preferred supplier agreements with some of the world's largest and most recognised entities. We offer customers truly global capabilities with partners whose advanced technologies, operating strategies, and core value are well matched. We understand the need for constant system monitoring and process refinements to meet the competitive technological and environmental pressures.

### Technology

- ▶ Green and brown field alumina refinery
- ▶ Green and brown field aluminium smelter
- ▶ Carbon plant
- ▶ Retrofit of smelter
- ▶ Cast house

### Complete plant / individual equipment

- ▶ Bauxite mining
- ▶ Power plant
- ▶ Alumina plant
- ▶ Anode plant
- ▶ Anode rodding shop
- ▶ Bath processing & handling system
- ▶ Aluminium pot room
- ▶ Cast house
- ▶ Rolling mill
- ▶ Extrusion
- ▶ Wheel plant
- ▶ Can plant
- ▶ Recycling plant

### Raw material & consumables

- ▶ Bauxite, alumina
- ▶ CPC, CT pitch, aluminium fluoride, bath cryolite
- ▶ Anodes, cathodes
- ▶ Refractory for calciners, bake ovens, pots, cast house
- ▶ Alloying and refining elements
- ▶ Collector bars, yokes
- ▶ Moulds, filters

### Finished product marketing

- ▶ Sows, ingots, billets, slabs, wire rods
- ▶ Flat rolled products
- ▶ Extrusions

### Service

- ▶ Audit
- ▶ Project consultancy
- ▶ Process advisory
- ▶ Feasibility study
- ▶ Human resource benchmarking



UNISEVEN  
ENGINEERING & INFRASTRUCTURE  
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# EDITORIAL



Dear Readers,

As the first five months of 2019 have come to an end with a sense of reconciliation for the global aluminium industry after a year of trade wars, restrictive tariffs, sanctions and capacity cuts; the industry players and market participants are preparing for the second half of the year with uncertainty and anticipation as market fundamentals do not look entirely promising. While easing of supply uncertainties have created optimism, slower demand and overcapacity in China along with the trade conflicts between the U.S. and China are compelling industry participants to tread carefully.

At this juncture, AlCircle has come up with an e-Magazine on the theme “**Aluminium LeaderSpeak 2019**”. Purpose of this exclusive online magazine is to get industry leaders from the complete aluminium value chain on board to share with our readers how they think year 2019 would transpire for themselves as an organization as well as for the industry. Top industry leaders are sharing their business strategies and outlook for 2019 and their perspectives on how the Aluminium Industry is expected to wind up the year 2019.

Being an exclusive portal for the industry, AlCircle is committed to provide a platform where all stakeholders of the aluminium value chain can share their insights & express themselves. “**Aluminium LeaderSpeak 2019**” is one such initiative in this direction. We have tried to cover all the key regions in our edition, while inviting our spokespersons. The magazine covers companies from the raw material sector to recycling and also from the equipment and technology providers. This is further complemented by the insights from key industry associations.

The magazine also includes an AlCircle exclusive industry outlook for 2019 covering all the six verticals from the supply chain.

We present here our first edition of a special initiative titled “Aluminium LeaderSpeak 2019”. We hope you find it equally helpful and insightful like we did!

Send us your feedback, comments, and suggestions- we'll be all ears!

Best Wishes & Happy Reading!

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## AlCircle Aluminium Industry Outlook: 2019

The year 2018 saw the global aluminium industry being impacted by various factors including constraints in supply of raw materials and imposition of various trade restrictions and sanctions by the US Government. Prices saw some never-before-seen highs and lows and a trade war between the U.S. and its allies created concern in the international market.



**Beethika Biswas,**  
**Manager Content & Media**

Now, as the five months of the year 2019 are over, the industry has started consolidating. Most of these issues surrounding the aluminium industry are expected to be resolved and supply as well as price is stabilizing during the first half of the year. The start of 2019 has already witnessed the lifting of sanctions on Rusal by the US Government and trade negotiations between the U.S. and China are taking shape in a positive manner. The US has lifted the tariffs on Canada and Mexico paving the way for an amicable trade equation within the North American supply chain. Concerns over raw material insecurity is also slowing down with Alunorte refinery about to start full production by the second quarter of 2019 and Alcoa's worker issues getting resolved. Going forward, while the outlook for aluminium industry in 2019 is expected to be moderately optimistic on the supply concerns, it is also expected to be bearish on the price part.

Here is an estimated projection on how all the verticals of the aluminium value chain are likely to perform in the rest of the year in terms of demand and supply and prices.

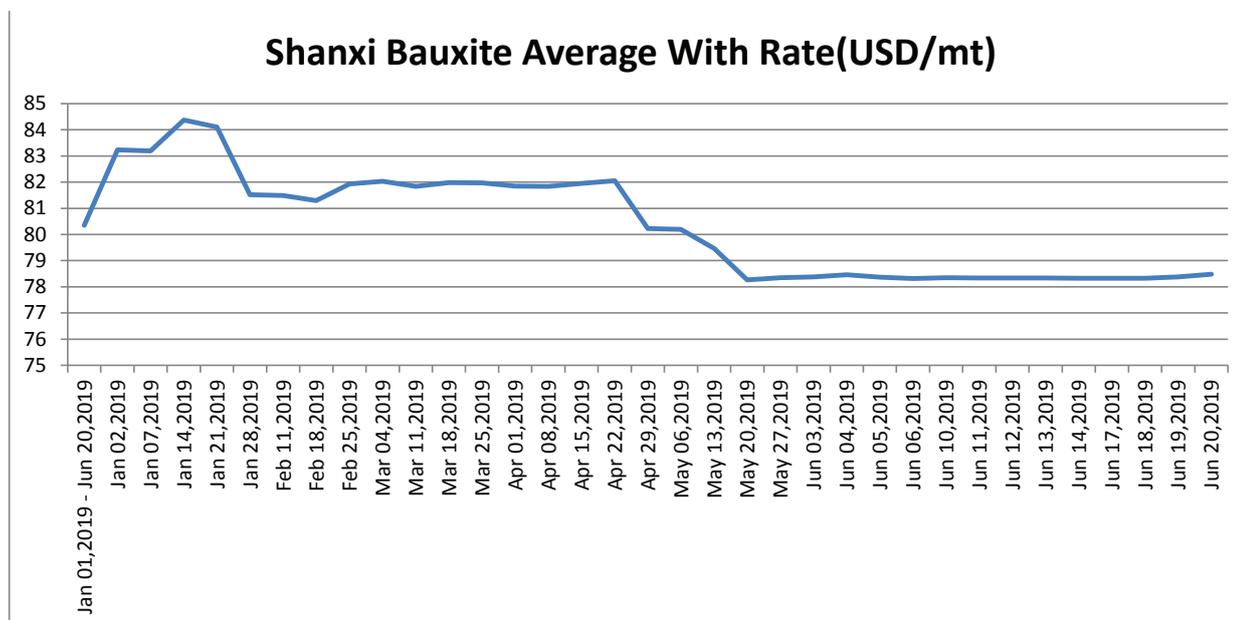
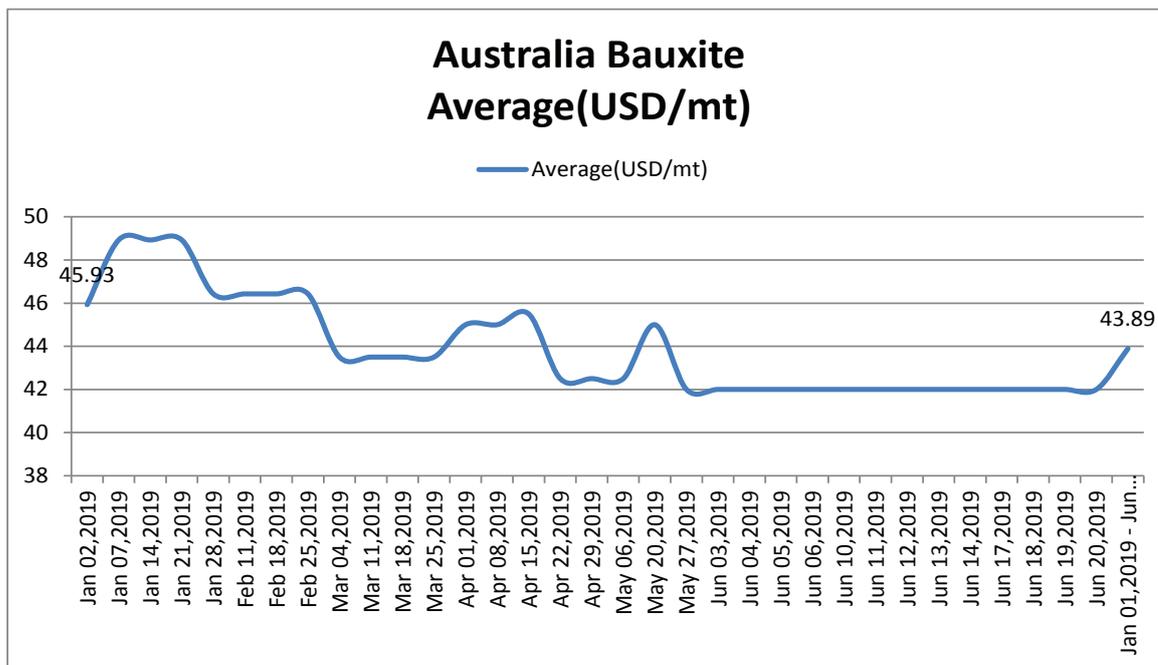
### Bauxite:



Bauxite production in the first five months of 2019 remained stable with all major miners reporting production growth on upward curve. Rio Tinto, Alcoa and Nalco reported production growth. The market had abundant supply and prices continued to slide over the first five months.

CIF China Australian Bauxite price started the New Year 2019 at US\$45.93 per tonne and currently it is staying flat at US\$ 42 per tonne. There was a bullish phase in January and after that the prices continued on a downward curve with occasional rise in April and May. China's domestic bauxite price (Shanxi 6.0≤Al/Si 7.0) continued to hover at US\$83 per tonne from January 2 to January 27, 2019. After moving steadily on a downward curve, currently, the price stands at US\$ 78.35 per tonne.

The domestic market in China will continue to remain bullish compared to the international price as the depleting reserve and environmental shutdown will keep the supply tight. However, there is limited upward movement in 2019, amidst the ample supply of imported bauxite to China with new projects from Alufer and Rio Tinto. China's bauxite import registered 35.9 per cent growth in the first four months of 2019 compared with the same period last year. Total bauxite import came in at 35.58 million tonnes in that period and the import is going to increase further due to upcoming alumina capacities in the country.



Australia, Guinea & Indonesia would continue to lead bauxite mining in 2019 and ahead. The bauxite market is expected to have a surplus ranging between 8 million and 12 million metric tonnes, as higher production would only be partially offset by higher demand in China. We see limited upward movement for global bauxite price in 2019.

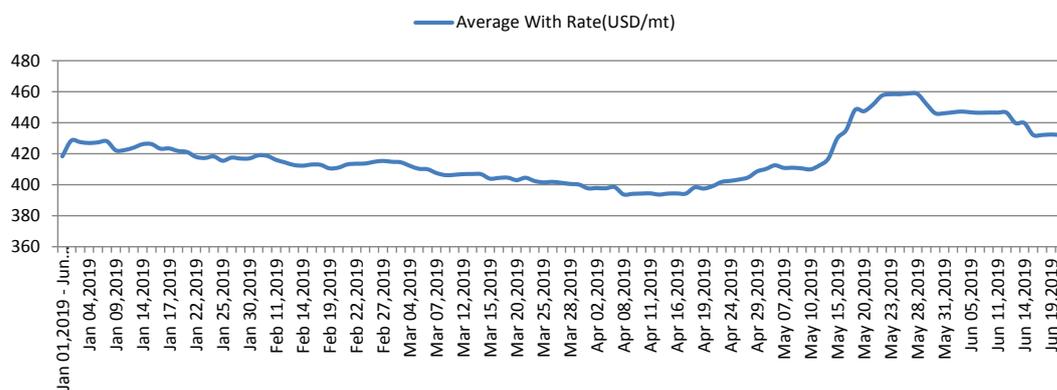


Alumina market got over the price volatility of last year, which was driven by 50% capacity cuts in Alunorte alumina refinery, workers strike and sanctions against Rusal. China's domestic market is also not tight despite the capacity cuts. Alumina output during January-May remained 4.29 per cent higher YoY and stood at 29.56 million tonnes. Global alumina output for the period stood at 43.16 million tonnes, lower than 53.67 million tonnes in the same period of 2018.

As shown by Shanghai Metals Market's data, China's alumina price has been continuing its downward trend. It was predicted that the domestic alumina price will go up after Xinfu's Jiaokou refinery stopped production in June. Despite the output drop of 1.4% in May and expected production drop in June, alumina prices are still on a downward curve. The average spot alumina price at China's domestic market continued to fall through June touching the lowest in April. Though capacity cuts have buoyed the prices, pushing it to a high of US\$ 459 towards the end of May, the price again came down to stand currently at US\$432 per tonne. Australian alumina FOB price also dropped to an average of US\$ 338 per tonne in June starting the year with US\$ 415 per tonne.

Aluminium production in China is expected to drop in 2019 due to a number of factors like suspension and relocation of operations, winter production cuts, and flexible production schedules driven by reduced demand. These factors are likely to lead to a build-up in alumina stocks in China and a drop in prices in 2019.

**Alumina**  
**Average With Rate(USD/mt)**



Alcoa projects a surplus global alumina market in 2019 in the range of 200 thousand tonnes to 1 million tonnes. The company estimates around 1 million tonnes of Chinese alumina surplus in 2019 contributing to it.

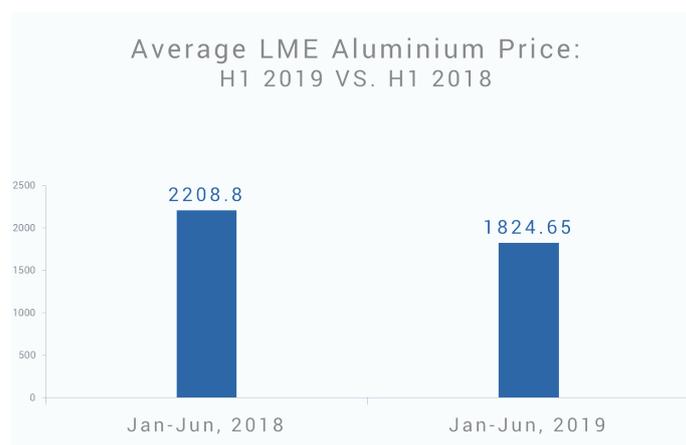
We see a balanced or a slightly surplus alumina market in 2019. Considering all the factors we expect the Australian alumina price to stay within a range of USD 300 per tonne to USD 350 per tonne in Q2 2019. Looking at the trend Chinese domestic alumina prices are likely to be at a range of USD 430 to USD 450 per tonne in Q2 2019.



Base metals prices continued to slide in the in the second quarter of 2019, driven by continuous market uncertainty over the prolonged U.S.-China trade war and a slower demand situation. LME aluminium prices at all-time low due to saturation and low demand and continued high aluminium exports from China. Since the supply shock was ruled out with the lifting of sanctions, which could have supported prices, prices are back to being determined by the trends in global economy, especially China. The projection is not bullish with an indication of oversupply of the metals. Along with that, aluminium is losing the cost support due to ample supply and falling prices of alumina. The tariffs could not stop the flow of aluminium from China as it diverted the export destinations. Currently hovering at a level of US\$1720 to US\$1760 per tonne, it is one of the lowest periods for LME aluminium in last two years. Analysts do not expect a significant recovery of the aluminium price in the second half of the year. LME aluminium price is likely to hover at the US\$ 1800 per tonne level.

Aluminum production in the world in January-May 2019 amounted to 26.40 million tonnes, which is almost flat from the same period in 2018, according to preliminary data from the International Aluminum Institute (IAI). China produced about 14.93 million tonnes, slightly up from 14.88 Mt produced in the same period last year.

We expect a deficit aluminium market in 2019. As of June 2019, inventories of aluminium now stand at 1 million tonnes in warehouses approved by the LME, one of the lowest. Alcoa projects a global aluminium deficit ranging between 1.5 million and 1.9 million tonnes. The company projects a slower global aluminium demand growth of 2 to 3 per cent in 2019, predominantly due to lower transport and electrical demand growth in China. Lower production expectations in Europe and South America are likely to contribute to a global deficit.





Downstream sector of aluminium is growing solid with more and more aluminium producers investing in downstream expansions. Global demand is slightly slow in the first five months due to lacklustre demand from China in the electrical and transport sector. 10% import tariffs on aluminium and punitive sanctions on Rusal by the U.S. have also affected the market dynamics as downstream producers in the U.S. had to pay more to source their metal. Growing demand from the transport sector moved the market and is likely to further support the downstream sector. Demand for aluminium downstream products was up 2.1 per cent in North America in the first quarter of 2019 and is likely to remain strong rest of the year driven by the automotive sector.

Rising production and slowing domestic demand is pushing aluminium product export from China and it is growing year on year. Aluminium products exports by China increased 12.9 per cent year-on-year to 1.94 million tonnes in the first four months of 2019.

On the product side aluminium FRP continues to lead downstream demand. FRP accounts for about 32% of the global aluminium usage followed by extrusions at 31%, castings at 22% and wire rods at 8%. FRP demand will continue to grow in 2019 driven by substitution trend in transport and growth in packaging driven by can stock and foil in emerging markets.

## End Users



Transportation sector will be driving demands for aluminium in the coming decade as the metal is slowly replacing steel for lightweighting, high performance and fuel economy. The proposed tariff by Trump on Auto and auto parts import is looming large on the aluminium parts makers and auto makers of Europe and Japan. Currently Trump has postponed the tariffs for six months to open the door for further negotiations. However, he might impose the tariffs if the trade situations go worse.

EVs have played a big role in driving aluminium demand in China till Q1 2019. In Q1 2019, aggregate sales of electric vehicles and plug-in hybrids remained explosive, growing 110 per cent to nearly 300,000 units. However, in April, sales of EVs and plug-in hybrids rose about 18 per cent to about 97,000. By May, monthly demand for EVs edged up only 1.8 per cent YoY to around 104,000 units. On March 26, 2019 the Chinese government slashed subsidies for EVs and plug-in hybrids by 50 per cent and it plans to phase out the subsidy program completely by the end of 2020.

This has capped the sale of EVs in China and the market is not likely to regain its growth until the policies are changed.

So, aluminium demand from EVs will remain limited in 2019 unless there is a growing demand from Japanese, American or European carmakers.

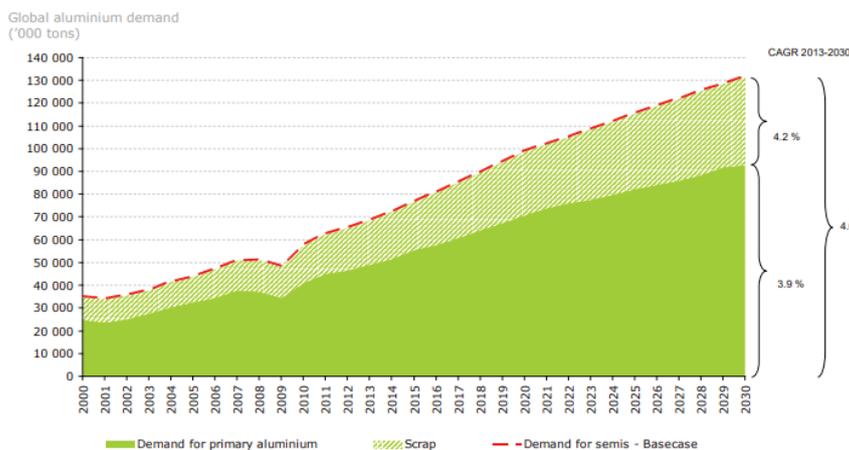
## Recycled Aluminium



Recycled aluminium will continue to play a significant role as more and more end users are focusing on increasing recycled content in their applications. Aluminium primary producers as well as the product manufacturers are investing in expanding their recycling capabilities. Close-loop-recycling will continue to play a significant part.

In 2019 total aluminium demand (Primary plus recycled) is projected to rise to around 90 million tonnes. While primary supply is likely to be around 65 million tonnes, about 25 million tonnes would be recovered from recycled scrap.

### Global demand for aluminium Primary and scrap-based production



As for the trade scenario is concerned, China's strict scrap import policy implemented in 2018 and 50% tariffs on aluminium scrap imported from the US has changed the trade scenario between the two countries. In the first quarter of 2019, the US, the largest scrap exporter, exported 113,000 tonnes of aluminium scrap to China, down 36.5% from 178,000 tonnes exported in Q1 2018.

While the U.S. tried to divert its scrap to other Asian countries, analysts believe that there would be an oversupplied aluminium scrap market in the U.S. in 2019 due to increased automotive and can scraps and lower scrap demand in the domestic market.

Aluminium cannot be seen as an independent commodity as the market is driven by forces that have impact on the entire value chain. The entire value chain moves together to bring about a turnaround in the market. H1 2019 can be seen as the settle down period after the disruptions started in 2018 and the aluminium sector will take it slow to bounce back to normalcy.



Abdulla Jassem bin Kalban (EGA)

**“EGA aspires to be measured amongst the world’s leading metals and mining companies in meeting its environmental and social responsibilities” ~**

**Md. Abdulla Jassem bin Kalban, Managing Director and Chief Executive Officer of EGA**

Emirates Global Aluminium, equally owned by Mubadala Development Company of Abu Dhabi and Investment Corporation of Duabi, is an aluminium conglomerate with interests in bauxite/alumina and primary aluminium smelting. With an annual average production of 2.34 million tonnes, EGA ranks among the five largest aluminium producers in the world. To get more insight into the company’s business activities, its strategies, and forecast, read on the interview of Md. Abdulla Jassem bin Kalban, who has been serving as the Managing Director and Chief Executive Officer of EGA since its formation through the merger of DUBAL and EMAL in 2014.

Md. Kalban had joined the aluminium industry in 1985 and now has 29 years of experience in the sector. Let us see what he has to say about the future of the global aluminium industry and also about the possible business opportunities for EGA.

**Q: EGA produced 2.64 million tonnes of primary aluminium in 2018 making it the largest aluminium producer in Gulf. What is your production forecast for 2019?**

A: We do not make public forecasts for our performance, but as always in 2019 we will be focused on safe production and delivering value for our business and customers. Last year’s production was a record for EGA, and so was our production of value-added products – which reached 87 per cent of our total production and continued to make us the largest ‘premium aluminium’ producer in the world.

**Q: EGA has started production at Al Taweelah alumina refinery on April 10. How is it going to support EGA's upstream business in the aluminium sector?**

A: Al Taweelah alumina refinery and our bauxite mining project in the Republic of Guinea are strategic upstream growth projects for EGA. They deliver new revenue streams and help us secure the natural resources that we need at competitive prices.

Until the start-up of Al Taweelah alumina refinery, EGA was one of the only major aluminium producers without its own alumina assets. Once full ramp-up is achieved, we expect Al Taweelah to meet about 40 per cent of our alumina needs. Since the introduction of API, with the de-linking of alumina prices from the LME aluminium price, investing in alumina production has been shown to be the right strategy.

Most importantly we completed construction safely. The peak construction workforce was 11,542, from 20 countries. Construction took 72 million hours of work, equivalent to one person working for over 25,000 years. Over 280 safety professionals managed onsite safety processes and systems during construction. The rate of recordable safety incidents was far lower than international benchmarks and there were zero fatalities.

**Q: EGA has started a new spent pot lining treatment facility recently and it has become the first company in Gulf to receive Aluminium Stewardship Initiative Certification. What are its sustainability strategies for 2019 and ahead?**

A: EGA aspires to be measured amongst the world's leading metals and mining companies in meeting its environmental and social responsibilities.

Spent pot lining is a global challenge for our industry, and we have made very considerable progress in its management. We believe our work in spent pot lining makes us a world leader in the re-use of this waste.

Since 2010 we have worked with UAE cement companies to develop the potential of spent pot lining as an alternative feedstock in cement manufacturing.

Last year we re-used more spent pot lining with cement companies than we produced, reducing stockpiles from previous years.

Our new crusher and pre-processing facility is the latest milestone in this work. It enables us to deliver spent pot lining ready for use by cement companies, rather than relying on third party pre-processors. This reduces the costs, and also the distances spent pot lining has to be transported within the UAE as it is re-used.

**Q: Sanction on Rusal has opened up more business opportunities for Gulf Aluminium producers including EGA. Now that the sanctions are lifted, do you think it will create a gap in the business?**

A: There have been a number of disruptions in our sector in the last year or so, including sanctions on Rusal but also US tariffs, and disturbances in the alumina market. The return of Rusal metal is impacting some markets, but our strategy is to focus on delivering the value-added products our customers need and on customer and geographical diversification.

**Q: With the aluminium price coming down to a lower level in Q1 2019, how do you see your profitability in 2019?**

A: We disclose our financial performance annually. However everyone is aware that market conditions are unfavourable in our industry at the moment, and many aluminium producers around the world are challenged. EGA has tier one assets in the lowest quartile of the production cost curve, so we are well-placed. But our focus is to maximise our revenue and carefully manage our costs to weather the current situation as well as possible and be well-prepared for when market conditions improve.

**Q: What are your value added strategies for the year 2019?**

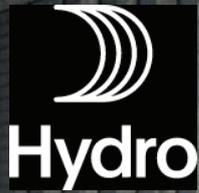
A: We produce the highest volume of value added products – or ‘premium aluminium’ - of any company. Our goal is to maximise our value-added products production and sales, working closely with our customers around the world. For EGA, maximising value-added products increases the value we create from our each tonne of our aluminium production, contributing directly to our bottom line. EGA’s strength in value-added products comes from the high purity metal we produce using our superior technology, excellent process management, and our investments in our Casthouse.

It also comes from our excellent relationships with our customers. We will continue to work with our customers to develop alloys and specifications that better meet their needs for current applications and find new ones, in industries ranging from automotive and electronics, to aerospace and construction.

## Q: What is your outlook for the global aluminium industry in 2019?

A: Globally manufacturing activity has softened in 2019 and we are entering a lower demand period in the cycle. US manufacturing is showing a slowdown, from automotive, to general manufacturing to construction. There are uncertainties created by trade disputes, especially the US-China disputes. In Europe, the manufacturing outlook is weak, and there are uncertainties around Brexit. In Asia the situation looks a little brighter. The consensus is that we are not entering a prolonged slump, but we are in a difficult period. The expectation is that we will begin to see a recovery this year. Meantime, many aluminium producers are experiencing difficulties and we expect that to result in reductions in production which will be positive for aluminium prices. Of course our industry's present difficulties are also related to raw material prices, especially to alumina: here the increase of API prices has resulted in the erosion of smelting margins, given that API is not anymore correlated with LME prices despite the fact that alumina is primarily used for producing aluminium. We believe that alumina prices linked to LME provide a more equitable and fair pricing mechanism for both refineries and smelters.

For all aluminium companies, difficult market conditions are a challenge and an opportunity. The opportunity side is to further improve the efficiency of our business so we can reap the rewards when the situation gets better, which is inevitable in due course.



**Hilde Merete Aasheim (Hydro)**



**“I am optimistic about the long-term prospects for aluminium and Hydro as the world moves towards the low-carbon, circular economy” ~ Hilde Merete Aasheim, President and CEO of Norsk Hydro.**

After serving 11 years as executive vice president and head of Hydro’s Primary Metal business area, Hilde Merete Aasheim assumed her new position in the company as President and CEO on May 8, 2019, with the intention of accelerating the operational excellence by ensuring stricter financial discipline and improved earnings from rolled products.

Ms. Aasheim also happened to be on the board of International Aluminium Institute and Qatar Aluminium Ltd. Starting from her short-term goals to long-term strategies, Aasheim has shared with us her key area of focus to take one of the world’s largest aluminium companies to the next level where it could achieve the benchmark of a sustainable footprint through the value chain and life-cycle of aluminium. To get more insight into our conversation, read the interview:

**Q: You have assumed responsibility as Hydro’s new President and CEO at a very crucial stage. What are your short-term goals for the company to survive this crisis?**

A: My main focus is to lift profitability and drive sustainability. I am optimistic about the long-term prospects for aluminium and Hydro as the world moves towards the low-carbon, circular economy. But we must acknowledge the challenges that must be addressed to strengthen our performance and cash generation. We will therefore increase our ambitions on operational excellence and ensure stricter financial discipline going forward, and we will explore all options to improve earnings from Rolled Products for the future.

**Q: Hydro's production volumes in Q1 2019 dropped YoY due to Alunorte curtailment and the recent cyber-attack that disrupted production. What is your outlook for the company for the full year 2019?**

A: Following the cyber-attack in March the production volumes in Extruded Solutions, which were hit the hardest, fell. Since then, it has gradually been lifted and production volumes are now at normal levels. The embargo on Alunorte means the alumina production is cut by 50 percent, also impacting the Paragominas bauxite mine and the Albras primary plant in Brazil. Until the embargo is lifted, we will not see any change here. When the embargo is lifted, we expect to start ramping up production at Alunorte.

**Q: What is Hydro's long-term prospect for the aluminium industry and how far the company plans to achieve its goals in 2019?**

A: Hydro will increase its efforts within advanced, low-carbon aluminium products and solutions, based on a more sustainable footprint through the value chain and life-cycle of aluminium. Customers are increasingly seeking advanced solutions with the lowest-possible impact, from building and construction to automotive, packaging and electronics. This enables us to commercialize our best-in-class footprint and leading positions within process technology and product innovation.

Hydro is already the only aluminium company able to provide the global building and construction sector with solutions containing at least 75 percent post-consumer scrap through its certified 75R alloy, and also offers low-carbon primary aluminium with a maximum CO<sub>2</sub>-footprint of 4 kilos per kilo aluminium.

**Q: Which will be Hydro's focus area in 2019 for earning improvement?**

A: We are introducing several measures to support this business agenda, including renewing the company's management board, restructuring and strategic review of the Rolled Products business area. We are ensuring stricter capital discipline and capital allocation, as well as revitalizing on-going improvement programs and identifying new improvement ambitions in all business areas and staffs. A reinforced improvement agenda for the company will be developed and presented during the third quarter.

## **Q: Brief us about Hydro's value-added strategies for 2019.**

A: We are continuing our value-add strategy. From our primary operations, we are continuing our focus on making metal products to order for our customers. We are developing alloys and products to meet customer requirements and are working together with customers to make products that can simplify their production processes, while also enhancing the properties of the products.

Downstream, two main markets are the automotive industry and the building systems sector. Our solutions are in demand, where we often are delivering our products to the most complex projects. This includes both extruded products and rolled products.

## **Q: A Brazilian federal court has lifted one of two production embargoes on Alunorte alumina refinery under the civil lawsuit recently. Do you think the refinery will be back to full production by the third quarter of 2019?**

A: The Federal Court in Belém, Brazil, lifted the production embargo on Alunorte under the civil lawsuit on Wednesday, May 15. Alunorte is still subject to a production embargo imposed by the same court in a parallel criminal lawsuit, but Alunorte is expecting an extension of the civil decision to the criminal case shortly. No decision has been taken on the embargos on the new bauxite residue disposal area (DRS2).

## **Q: What is your projection for the global aluminium industry in 2019?**

A: We expect a global balance for primary aluminium being in deficit by 1-1.5 million tonnes for 2019. We see the deficit being balanced between China and the world outside China. In China, we have also seen slower development in supply, as more smelters has curtailed capacity, and our growth expectations for the year have been adjusted down.

The continued macro uncertainty continues, as the trade tariffs are changing and the discussions between the US and China are continuing.

# CREATING THE FUTURE TOGETHER

We aim to stand by our business partners, unconditionally.  
We produce tailor-made solutions for you. We create the  
future together with you, using our reliable,  
flexible and innovative approach.





Abhijit Pati (Vedanta)



**“India is the fastest and most promising growing economy in the world today” ~  
Mr. Abhijit Pati, CEO, Aluminium Division, Vedanta Aluminium – Jharsuguda**

Mr. Abhijit Pati started his career as a budding engineer with Indian Aluminium Company in the year 1989. In 2008, he joined Vedanta and subsequently became Chief Executive Officer of Aluminium Division, Vedanta Aluminium – Jharsuguda, one of the largest Greenfield Aluminium cum Power complexes in the world.

AlCircle had an opportunity to interview him where he shared his strategies to raise Lanjigarh alumina refinery’s capacity to 2 million tonnes in 2019 and his projection for the company as well as the aluminium industry in FY2020. Read his interview here to learn in detail:

**Q: Vedanta Limited has become the largest aluminium producer in India in FY2019, with aluminium production of 1.96 million tonnes. What is your outlook for the company in FY2020?**

A: Last fiscal, Vedanta Ltd.’s Aluminium Business logged highest ever metal production at 1.9 million tonnes, becoming India’s largest primary aluminium producer. At Vedanta Ltd.’s greenfield aluminium & power operations in Jharsuguda, Odisha, we created significant milestones in 2018. Early in February, we entered the global 1 Million Tonne production club, as India’s first single-location aluminium smelter. We closed FY19 at a run rate of 1.35 MTPA, highest ever metal production till date. At 50%, our value added products portfolio is strongly growing towards our vision of 100% VAP. We crossed the 1 million mark in aluminium export volumes. Our stronghold on nearly a fifth of

domestic primary market, is stable and increasing. Our export volume to the American, Asian and European markets have increased significantly between FY18 and FY19. All of these, backed by strong performance in safety and sustainability are encouraging indicators of our performance.

FY20 and onwards, our immediate plans are to operationalize the entire installed capacity of 1.75 MTPA in the next 2 years, post which we intend to ramp up to 2 MTPA production at Jharsuguda complex. On the product front, we intend to strengthen our Value Added Product portfolio, which includes strategic investments and focused research & development, aimed at tapping into the existing potential of the domestic market.

**Q: Supreme Court has recently admitted NALCO's petition for hearing on alumina sales tender to Vedanta. Do you think Vedanta will get to participate in alumina sales tender floated by Nalco in 2019?**

A: The matter is currently sub-judice before Hon'ble Supreme Court of India. We are hopeful for adjudication of the issue in our favour based on merits. We believe it would not only forge avenues for utilization of India's mineral resources inside the country, but will also contribute to economic growth and self-sustenance of the country. It would create a win-win scenario for both companies. It is our firm belief that both companies can work together and contribute to economic prosperity of Odisha and India, so we look forward to a positive turn of events soon.

**Q: Vedanta expects to raise Lanjigarh alumina refinery's capacity to 2 million tonnes in 2019. How do you strategize this move?**

A: Vedanta Ltd.'s Lanjigarh refinery is crucial to the company's aluminium business at Jharsuguda and our BALCO operation at Korba. The Lanjigarh refinery currently has a peak run rate of 1.8 MTPA, and there are plans to ramp up production to 4 MTPA in two stages, with indigenous bauxite forming a significant chunk of raw material requirement. The refinery's ramp up will play a crucial role in our plan to increase production capacity of Vedanta's Jharsuguda based smelters to 1.75 MTPA. We believe that our refinery in Lanjigarh is not only pivotal to the growth of Odisha's aluminium prospects but also is the harbinger to the developmental journey of Kalahandi and Odisha as a whole.

## Q: What is your outlook for the aluminium industry in India for the year 2019?

A: India is the fastest and most promising growing economy in the world today. With the eyes of global superpowers and business houses on us, the time is ripe to capitalize on opportunities that can significantly boost our economy in a sustainable and holistic manner. A quick assessment of the Indian aluminium industry pegs the domestic aluminium demand for FY19 at around 4 million tonnes. The industry has grown at a CAGR of 6.3% in the last 4 years, and with growing domestic consumption, this industry will potentially grow at a CAGR of 7-8% in the coming 2-3 years. This will be supported by the govt.'s infrastructure projects, rise in housing and construction, growth in transport segment and high investment in renewable energies. Indian primary Aluminium is poised to see greater heights given that it gets due attention to be considered as 'Core Sector' and right policy framework is in place to nurture the domestic interest in Aluminium. With Indian Government keen on promoting Make in India, we believe things to improve for better.

## Q: What are the value added strategies for Vedanta for the year 2019?

A: Our value added strategies are based on market movements. Recently, we included PFA and Slab into our product portfolio in order to capture the growing markets of Automobile, Electronics and Packaging, and they have been very well accepted by our customers. Last month we added another value added product into our line, the 10 Kg Cast Bar, becoming the first amongst Indian manufacturers to launch it. These products play a major role in extrusions, castings and rolls/foils production. In the immediate future, we intend to strengthen our value added product line, working towards our vision for 100% VAP portfolio.

## Q: Do you see a deficit in global aluminium market in 2019? How do you think China will influence the market in 2019?

A: According to market intelligence reports, the global primary aluminium market is expected to be in a deficit of nearly 1.6 million tonnes, despite weaker demand growth. Even though, the World Excluding China deficit is decreasing due to aggressive ramping up of smelters like Alba and UC RUSAL, closure of Chinese smelters will keep the market in deficit.

China alone accounts for half of the world's primary aluminium production and consumption at about 36 million tonnes each. Trade wars with China have made the global aluminium market very volatile. US-China trade tensions have weakened demand across various sectors which has, in turn, slowed down manufacturing activity and decreased aluminium demand. This has had a severe downward pressure on LME prices. The upcoming ban on metal scrap by China's Ministry of Ecology and Environment, has induced impact on global trade flow. India is at the receiving end with huge volumes of aluminium scrap being diverted here from the US. All these factors put together make it quite evident that the global market is not likely to emerge from under the influence of China anytime soon.

**Q: Did the tariffs on aluminium and sanctions on Rusal impact Vedanta's business in FY2019? As both are lifted currently, how do you see the aluminium industry moving in 2019?**

A: The sanctions put on RUSAL by the US govt. since early 2018 had created a perceived deficit in the global market which was catered to by many other primary producers including Vedanta. We were able to multi-fold our export volumes to US despite tariff hikes under Section 232 Act. However, the recent announcement of Canada being exempted from the tariff hike has put pressure on many primary aluminium producers including us. Most exempted countries are located geographically closer to the US, and therefore get an added advantage of significantly lower logistics cost along with duty exemption. We expect the US government to take positive steps towards making their aluminium market a level playing field for all exporters, as it continues to be in deficit for certain products. Our strategy in these volatile times is to keep focusing on high quality and continue to offer best in class products and services to our US customer, forging lasting relationships that stand the test of time and geopolitics, which allows us to sustain and grow in the market. Our SEZ facility of 1.2 million tonnes is dedicated specially for export of Value Added Products.

## Q: Do you support a restrictive trade policy for the aluminium sector in India? How do you think the government can support the growth of aluminium sector in India?

A: Traditionally, India has always adopted an inclusive economic growth strategy which allowed other countries to explore mutually beneficial trade relations with our country for various products. However, the recent wave of trade barriers put up by major economies to boost domestic industries, has triggered concern amongst Indian producers and manufacturers who want to be protected and promoted in a similar manner. A restrictive trade policy could potentially help curb unnecessary import of products which Indian manufacturers are quite capable of producing in any form like Primary or downstream products. Such policies can also help shield India from becoming a dumping ground for scrap. Inward looking policies can significantly contribute to making India more self-reliant in meeting the demands of its populace, reducing the import-export disparity and improving our forex reserves.

In FY19, imports accounted for 58% of India's total aluminium consumption, even though Indian producers are capable of meeting the domestic demand. With imports increasing @20% year-on-year, the situation if not addressed can become overwhelming. India ranks 5th largest in terms of its bauxite and coal reserves, which needs to be leveraged to develop a globally competitive aluminium industry of a fast growing economy. The government should support domestic players by protecting the Indian market through restriction of unnecessary imports for products for which can be produced within. The country needs to focus on attaining self-sufficiency on all possible frontiers, while maintaining the stringent quality standards of goods produced domestically and mandating strict quality controls for imported goods.

The need of the hour for Indian aluminium industry is to boost the domestic demand of aluminium, by exploring and encouraging more applications across diverse sectors. While the world per capita consumption of aluminium stands at 8 kg, in India it a meagre 2 kg. This gap is more pronounced in sectors like Building & Construction and Transportation. Bridging this gap needs support from the government as well as proactive adoption by downstream industries. As a green metal, aluminium is ubiquitous to our quest for a sustainable future. It is high time to explore the unlimited potential of this metal through intensive R&D partnering industries and academia, and channelize it for responsibly driven growth.

Presents



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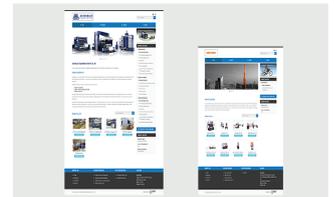
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**“The tariffs on aluminium, in fact, had little impact on our business in 2018” ~ Hugues Vincent, CEO of the Aluminium Division of Fives**

Fives is a business conglomerate from France having diversified business interest. The company specialises in designing and supplying machines, process equipment, and production lines for the world’s largest industrial groups including the aluminium, steel, glass, automotive, aerospace, logistics, cement, and energy sectors.

Here, we have shared an excerpt from the interview with the CEO of the aluminium division of the company Mr. Hugues Vincent, who has shared with us the business activities of Fives Group and its current projects catering to the aluminium sector, as well as his exclusive outlook for the global aluminium industry in 2019.

To know more, continue reading the interview:

**Q: Please brief us on Fives Group’s aluminium business and its area of operations worldwide.**



A: Fives is a global supplier of processes, technologies, engineering, equipment, complete plants and services to the reduction and carbon sectors of the aluminium industry worldwide. We have been pure players in that industry for more than 50 years, under the brand names of Solios and ECL.

Our business employs more than 800 people. Our offices for processes, technologies, engineering and our workshop for equipment manufacturing are located in

France. Our services subsidiaries are located in Europe, Canada, South Africa, the Middle East (Bahrain, Dubai, Saudi Arabia), Australia, India, Russia and China, in proximity with our installed base.

**Q: Could you please brief us about the performance of the aluminium division in Fives last year and what is your projection for 2019?**

A: In 2018, we were fully engaged in the construction of Alba 6 in Bahrain with 3 major contracts, for the Gas Treatment Centres, for the Pot Tending Machines and for the Green Anode Plant.

We also supplied equipment to Trimet in France, Hydro in Norway, and Xinha in China. In 2019, the Alba 6 systems will be started up and completed, and we are mobilizing for a 5 year maintenance contract for the PTMs.

No new major investment project will be launched in 2019 but our services activity is quite strong because, with a low LME our customers need our support to optimize their cost performance.

**Q: Which region will be your focus area for the aluminium business in 2019?**



A: Our focus in 2019 is Europe, Russia and the Gulf.

In Europe, several anode baking furnaces must upgrade their fume treatment centers( FTC) to comply with the BREFs( 2020). So far, we have been successful in booking the FTC contract for Aluminium of Greece, but other compliance projects are coming up.

In Russia, after the lifting of the US sanctions, Rusal is now resuming its projects at Taishet where we already had several equipment supply contracts and in Sayansk for the refit of the anode baking furnaces.

In the Gulf, we are commissioning our systems to support the production ramp-up of Alba 6. Although there is no major new capacity project being launched, our service subsidiaries are busy implementing modifications and upgrades of equipment to optimize our customers' performance.

**Q: Have the tariffs on aluminium impacted your business in 2018 and how are they going to turn the cards in 2019 as the tariffs are now lifted from the US and Canada?**

A: The tariffs on aluminium, in fact, had little impact on our business in 2018. We thought that several smelters in the USA would need our services for their restart but in fact, despite the US political push, their restart has been limited because of their high Opex, in particular the cost of alumina in 2018.

In 2019, with the US tariffs being lifted for the aluminium imported from Canada, we think that RTA will finally launched its long awaited extension of Jonquière AP 60.

**Q: You have been working close with the Gulf aluminium producers. What is your business outlook for the Gulf aluminium sector in 2019?**

A: With the LME on the low side and alumina cost on the high side, the Gulf aluminium producers are also faced with reduced margins. Subsequently, no major new capacity project is anticipated in the near future; however most producers are doing their best to increase the utilization rate of their industrial assets through improved reliability and availability, amperage creep or pot addition. For that purpose, we provide a wide portfolio of services to our Gulf customers, in particular:

- in 2019, we will start the operation of a new workshop in Bahrain to repair tools, manufacture and stock spare parts for shorter lead times.
- we provide training programs to the Gulf smelter operators; our Back-to-School program, which was held successfully in Oman in 2018, will move to Saudi Arabia in 2019.
- in Bahrain, we are cooperating with Tamkeen, the Bahrain Education Authority, and Bahrain Polytechnic, to host junior Bahraini engineers as interns within Fives for international engineering exposure, and enhanced employment in Bahrain afterwards.



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## Q: What is your outlook for the global aluminium industry in 2019?

A: Although the primary aluminium demand remains strong globally, there has been such production overcapacity built in China and so much stocks piled up worldwide that we do not expect the LME to raise above 2000 \$/t again for a long time. Most of our customers are striving to reduce their operation costs to generate some cash. Therefore, it is unlikely that major capacity projects will be launched in the near future. In such economic environment, only resilient engineering & services groups like Fives, because of its diversified portfolio of business activities in various industries that allow Fives to “surf” through industry cycles, will survive and remain focused on the primary aluminium industry.

This is why customers are turning to us to continue innovating, in particular in digital solutions that provide short-term benefits. Beyond the basic concepts which everybody talks about, Fives is already addressing the market with some concrete applications such as:

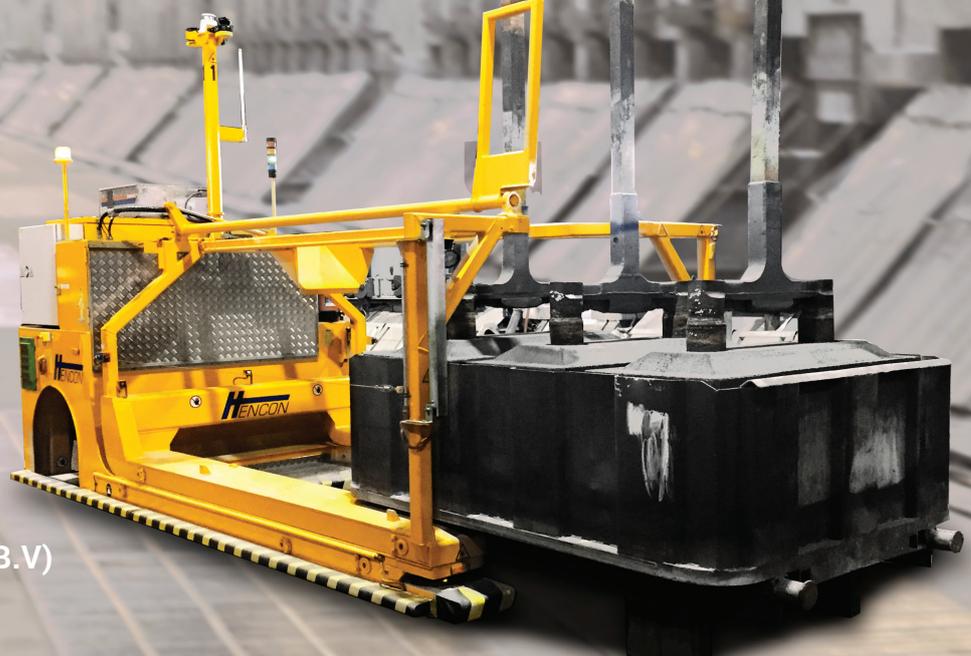
- smart cranes: the cranes are connected to provide on-line operation & maintenance data and diagnostics to operators and their management.
  - customer portals: customers can monitor their operation & maintenance KPI on-line, send enquiries to the OEM through a web ticketing service and have access to their equipment technical documentation.
  - anode tracking and troubleshooting: our Amelios suite is a carbon digital chain which identifies each anode and correlates the anode performance in the pot to its production parameters, allowing quicker troubleshooting and lower net carbon consumption.
- 2019 will therefore be a transition year with lower project activity, sustained service business and great opportunities to innovate and demonstrate new solutions with our customers.



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Peter Vanuchelen (Hencon B.V)



## HENCON's Smart Automated Guided Vehicles (SAGV's)

### Automated Guided Vehicles (AGV's)

Automated Guided Vehicles (AGV's) are an indispensable part of modern industry at the current scenario. Since decades they have been implemented in every type of industry (ports, logistic operations, automotive-industry, etc). A few years ago, the Hencon AGV's were the first automated vehicles that were able to enter the primary aluminum-industry. The reason why it took much longer to automate aluminum –industry is mainly due the harsh environment in aluminum plants. Dust, high temperatures and electro-magnetic fields were a challenge for engineers to develop a reliable vehicle.

AGV's in aluminum industry have done their first steps in mean while. Hencon sold several projects with automated Furnace Chargers, Anode Pallet Transporters and Crucible Transporters. It has been a severe learning curve, which allowed us to constantly optimize and learn from our experiences, together with our customers. Our products of today are in many ways more mature than the first prototypes that have been tested. One of the lessons learned is that replacing human controlled machines by AGV's imply a lot of advantages (24/7 availability, increased reliability, very precise working, reduced labor costs, etc) but we were also facing an interesting problem: an AGV lacks the common sense and the flexibility of the human mind. When a man faces an obstacle, he will think about ways to work around, he will look for solutions. AGV's are preprogrammed machines, equipped with some smart sensors and radars. But when an obstacle blocks their way, they will simply stop until the obstacle has been removed.

In reality this means that the efficiency of an AGV will not be brought to a maximum profit. Especially when AGV's work in mixed traffic situations (forklifts, pedestrians,...) their safety procedures and sensors will make them stop and inactive more often than absolutely needed.

## Hencon's SAGV's

For this reason, Hencon started – in close collaboration with another Dutch engineering company, Quantillion - to develop an additional layer of artificial intelligence, in order to make our machines smart. The SAGV (Smart AGV) offers an unknown flexibility and turns your factory into an environment that will be almost completely self-sustaining. The SAGV will be able to think and to learn. In the same example as above, the SAGV will not simply stop if an obstacle is on its path, it will first detect if it should stop (eg pedestrian) or walk around (eg concrete block). On top of that, it will communicate. It will inform the other SAGV's and together they will be able to reroute their paths in order to avoid the obstacle the next time. They will also check if – due to the changed circumstances – it would not be a good idea to interchange their activities. They will be behaving like a colony of ants: working together and creating an unknown synergy (acting like having a common brain). This is a big step forward to traditional AGV's or human controlled vehicles, who do not work as a team but follow individual instructions.

## Autonomation vs Automation

The SAGV's are not only able to communicate with each other, they will also be able to communicate with the hard ware in the factory: pots and furnaces will be able to prioritize their needs to the SAGV's. If a furnace needs to be charged or a specific sudden action is needed on a certain pot, SAGV's will be able to act immediately. By continuously collecting data, experience and learning how processes work, predictive feed-back is a powerful tool. The SAGV will be able to predict what will be happening next, continuously improving and fine-tuning their behavior.

Before setting up an SAGV in a real environment, a digital twin will be created. This means that on a virtual basis, and by using all available data, we will be able to understand how your processes work in your factory, which will enable us to create a machine with an already trained behavior before it will be doing its very first real steps in your environment. During this training, we will simulate every possible situation.

We believe that by doing so, we can tackle one of the most important challenges in an aluminum smelter: unpredictability. By enabling our machines to cope with unpredictable situations, by even being enabling them to predict certain events, we can increase the efficiency, flexibility and the safety in your casthouse and potroom tremendously, all this, without intervention by humans. Of course, all of our machines can be overruled at any time by people.

## SAGV'S in Industry 4.0

Adding all these advantages, makes your factory smart in the real sense of the word. Actually, our new generation of AGV's, the SAGV's, will be doing more than just automating the transportation of anodes and liquid metal in your plant. These machines are helping you to make your plant almost completely autonomously.

*Author: Peter Vanvuchelen*

*Director Business Development, HENCON B.V.*



World leader in the manufacturing  
of Automated Guided Vehicles (VGA)  
for the light metal industry



Diwakar Gautam, CEO

**“Sustainability is no more a choice but a need and a requirement, not just in aluminium but in all areas of human activity” ~ Diwakar Gautam, CEO, Sunberg Limited**

Sunberg Limited is a UK based metal recycling company, forming an integral link between scrap collectors, recyclers and processors. Sunberg caters to the increasing global demand for recyclable scrap in Ferrous and Non Ferrous metals, such as aluminium, brass, copper, zinc, lead, steel and ingots. Diwakar Gautam is the CEO and managing director of Sunberg Limited. He is a post graduate engineer by training, based in the United Kingdom and has been focusing on metal recycling over the past twenty years. He is sharing his outlook about the aluminium recycling industry while sharing his company's strategies and projections.

**Q: Brief us on the company profile and business operations of Sunberg Limited.**

A: Sunberg Limited based in London, UK started operations in metal recycling industry 20 years ago. Small to medium sized industries in South East Asia, mainly China and India, were well positioned to segregate various grades of recyclable metals that were largely originating from Europe, Russia and USA. Sunberg became a trusted partner of suppliers and buyers managing the supply chain right from procurement, logistics, finance to delivery. Efficiency, reliability and accuracy of contractual obligations became the hallmark of the company. The success of the company is attributed to a people-centered culture, co-creating value for stake holders and building trust between its suppliers and buyers who have always been treated as stake holders in the business.

## Q: How does Sunberg plan to be at the forefront of global recycling efforts in 2019 and ahead?

A: Volatility has become a norm and managing it is the need of the hour. With fast changing economic priorities and policies, Sunberg is well positioned to bring transformational collaborations to forward thinking organizations. Sunberg of recent has developed a modular model where in it is contracted by suppliers and buyers because of the transparent transactions and a fixed service charge payable for all or any of the logistics, documentation, banking and finance activities and support that it provides. Democratization, distribution and access to information means that companies can no longer command a market share without continuously evolving as true value providers and reducing friction in the process. Rather than competing, the operational focus at Sunberg is an engagement which is not a process driven mechanical output but a symbiotic relationship of an evolving organism. Sunberg is therefore bringing value propositions in response to new challenges and opportunities addressing different needs of different markets.

## Q: Which countries are the key markets for your business? Are you planning to venture into any new market in 2019?

A: Sunberg continues to be agile in response to rapidly evolving market dynamics. Supply of most recyclable metals continues from US/Europe to Asia. There are no “new” markets anymore only “new” market dynamics, which means that rather than spreading thin across many markets it is better to go deeper into conducive markets. This strategy has meant that as suppliers and buyers have grown so has the share of their business with Sunberg. Selected participation has built mutual trust and despite narrower margins the business continues to operate with a positive outlook.

## Q: There has been a renewed awareness about recycling and sustainability in the aluminium sector. How do you see the industry moving in 2019 in the field of sustainability?

A: Sustainability is no more a choice but a need and a requirement, not just in aluminium but in all areas of human activity. Even amongst young children today there is a greater awareness about sustainability and recycling which becomes an important consideration in our actions on how we produce, consume and discard. There is global traction in recognizing that the “use and throw” culture or irresponsible consumer

habits are coming with alarming consequences not just for the future generations but for many of us in our own lifetime. In my own life time I have seen economic modelling go from local to global to “glocal” to now once again local. What this means in sustainability is that countries and policy makers recognize that while global action is required, rather than wait for global action they opt for immediate “local” action. While the world debates how to address Climate change globally steps have been taken by countries like China and even recently by Scotland, where they introduced a deposit scheme for aluminium cans to promote healthy responsible consumer practices.

**Q: How do you think the trade war between China and the U.S. will change the trade dynamics of aluminium scrap in 2019?**

A: Commodities tend to respond instantly to any implications arising out of a change in trade policy. The most recent spate of trade war between China and USA has meant that grades of Aluminium scrap that were traditionally preferred imports for China from USA, have almost found overnight markets in other strong recycling hubs in places like India, Malaysia, Vietnam etc. Value in a recycling product is determined by price payable by an end user of that recyclable product as such if the price from an end user in a different market is less, there is an immediate proportionate price drop in the purchase price by a supplier of the scrap material from its local environment. The net effect to all the participants in the supply chain is accommodative according to the value that eventually a consumer can pay. There is disruption in the geographic routing of material and a temporary disruption phase in price parity for viable transactions to take place, but the markets are agile enough to accommodate these.

**Q: It is said that the U.S. will see an oversupply of domestic aluminium scrap in 2019. What is your view on that?**

A: Scrap supply is a byproduct of human activity and it is not generated or produced specifically to meet a demand of scrap. There cannot be an oversupply, only an adjustment in the value associated with the scrap. A case in example is price adjustments seen in old scrap cars in UK where when the steel prices were low one had to pay for a scrap car to be taken away and when the steel prices went up recyclers were paying for old cars to be brought to them because there was enough value for them to pay for old cars, process them and still make money by selling the scrap steel.

## Q: Do you think a more organized approach towards recycling is needed for better resource utilization in aluminium sector?

A: Without a shadow of doubt policy makers and governments need to look at choices consumers make when consuming goods while also enforcing responsible production and resource utilization by producers. With deep pockets and massive scale primary producers of metals over the years have reaped significant profits to produce primary material at cheaper prices while recyclers have had to deal with multiple stages of logistic costs before a waste is available for suitable downstream use. There are well recognized benefits of recycling and as such producers should be incentivized when they exercise better resource optimization practices. The recent ban on plastic packaging in Mumbai, India and several other places taxing plastic bag use are clear stimulants on consumer behavior. In UK Waitrose is experimenting in several ways to reduce the negative impact in packaging of goods that they sell.

## Q: What is your overall outlook for the recycled aluminium market in 2019?

A: Recycling is gaining greater global support as a responsible way of life and a responsible way of living. Aluminium recycling as an industry is dependent largely on the overall economic outlook, recycled aluminium markets are not insulated from the overall economy. With a positive economy and more disposable income people tend to discard or replace goods and spend more in either building homes or buying goods or cars etc., resulting in a better demand from manufacturing, both result in more scrap. With rising population, the concentration of consumers is no more restricted to a few economies or few cities but is spread across the geography. This inevitably means that eventually we are heading towards a truly circular economy where in I strongly feel that within a 200-mile radius consumption and responsible recycling will result in a truly circular closed loop engagement and value delivery, reducing the carbon footprint of logistics of material movement across countries or continents. The markets for ALL recyclable materials are very positive and on an endless trajectory, prices are the only thing that will go up or down. Recycling is not the end but the beginning!



**Mahmood Daylami (GAC)**

**“The total Primary Aluminium Production by the GCC smelters in 2018 is 5.4 million tonnes, it is expected to increase to 5.7 million tonnes in 2019” ~ Mahmood Daylami, Secretary General, Gulf Aluminium Council**

The Gulf Aluminium Council (GAC) is a coordinating body that represents, promotes and protects the interests of the aluminium industry within the Gulf. GAC members continually explore opportunities for synergy between their operations to improve the region’s international competitiveness. Mahmood Daylami is the Secretary General of GAC and has spent 33 years of his career in various fields of the aluminium industry. Prior to joining GAC, he held the position of Deputy Chief Executive Officer at Aluminium Bahrain (Alba). He is sharing his view on the Gulf aluminium sector in 2019 and ahead:

**Q: What are the objectives and activities of Gulf Aluminium Council?**

A: GAC is a coordinating body that represents, promotes and protects the interests of the aluminium industry within the Gulf. The council’s main objectives are to provide a forum to develop strategies for common issues and concerns facing the aluminium industry in the region, and to share best practices so as to improve the efficiency of the industry. GAC also work through committees consist of specialist from the member organisation with the objective of sharing best practices, reduce cost, improve productivity and efficiency. Example of such committees are Maintenance, Power, Procurement, IT, HR, Health, Safety & Environment.

**Q: Aluminium smelters in Gulf have seen solid growth in recent years? What are the driving factors behind this growth?**

A: The main driving factor is the world demand for Aluminium which is growing. This is encouraged by competitive price of energy as well as emphasis on efficiency improvement through modernisation, taking advantage of economy of scale.

**Q: Companies in Gulf are developing more upstream opportunities in recent years. How do they plan to ensure raw material security as for alumina and bauxite are concerned?**

A: As regards to Alumina and Bauxite the situation has changed to when aluminium industry first started in the GCC, when the smelters in the region were totally relied on import of Alumina. Now, Ma'aden is fully integrated providing 100% of its Aluminium requirement from its own Bauxite mines in Kingdom of Saudi Arabia. EGA is almost completing its phase one of Alumina refinery in Abu Dhabi to produce 2 million tonnes annually which constitute 35 – 40 per cent of its requirement from Bauxite mine in Guinea that is owned by EGA. Sohar Aluminium is in partnership with Rio Tinto Alcan and Qatalum with Hydro who are integrated companies. Alba remains the only smelter without ownership of Bauxite or Alumina refinery which has long and short term supply contracts from a number of sources.

**Q: Alba has commissioned 50% of its potline 6 project. What is your production outlook for the Gulf aluminium sector in 2019?**

A: The total Primary Aluminium Production by the GCC smelters in 2018 is 5.4 million tonnes, it is expected to increase to 5.7 million tonnes in 2019 and to 6 million tonnes by end of 2020.

**Q: What are the advancements that Gulf aluminium industry witnessed in 2018? What is your outlook for 2019?**

A: There were a number of projects and developments in 2018, example, Alba energised line 6 and since have started more than 50% of the cells. EGA completed its modernisation projects at EGA– Jebel Ali power stations and the old pots, while progressed substantially on construction of the Alumina refinery. Meanwhile there were successful efficiency drive and cost reduction in all the smelters in the GCC. The downstream also have opened new market especially for auto industry.

**Q: What are the value added strategies for the Gulf Aluminium producers in 2019?**

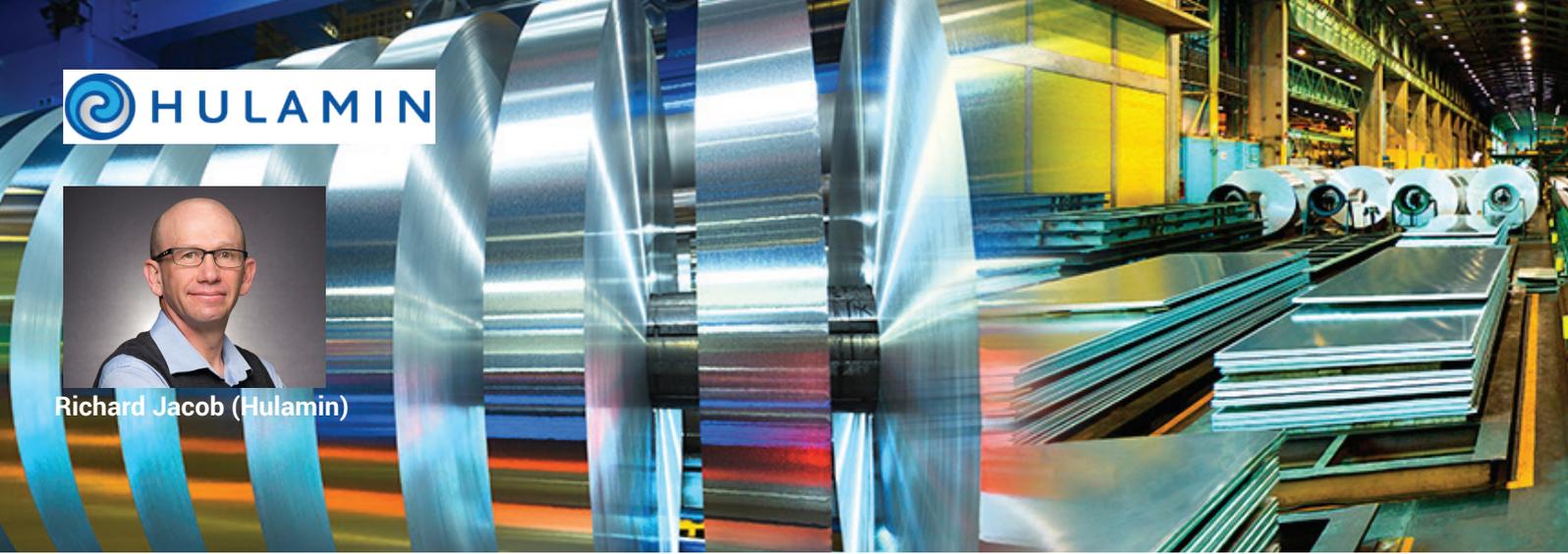
A: GCC producers are well known for their sophisticated cast houses that are capable of producing variety of products with different alloys and sizes. Such cast houses are well equipped to produce premium products such as billets and foundry alloys to the world market as well as slabs. These products give GCC smelters an advantage over others.

**Q: Do you see a global aluminium market deficit in 2019?**

A: Based on various studies carried out by a number of firms, it looks that 2019 will show some deficit during the last quarter of the year. If the growth prospects continues as predicted in a positive direction and if China continues to keep some of the environmentally unfriendly smelter closed than the prospect of deficit in 2019 becomes even more realistic.



Richard Jacob (Hulamín)



**“Hulamín has remained focused on delivering high quality products at competitive costs” ~ Richard Jacob, CEO of Hulamín**

As the only major aluminium rolling operation in Sub-Saharan Africa, Hulamín is one of the largest exporters, representing more than 60% of sales. In January 1990, Richard Jacob had joined Hulamín and since then, held various positions in manufacturing, and sales and marketing. In 2002, he was appointed to the Executive Committee and in 2007 assumed the responsibility for Investor Relations. 3 years later, in 2010, Richard became the Chief Executive Officer of the company.

Here, we have shared a brief interview with Mr. Jacob, who implicitly told us about Hulamín’s key strengths behind producing an extensive range of products and also spoke about the key strategies to maintain a sustainable growth rate. If you want to know more, continue reading the interview:

**Q: What are the key strengths that have been helping Hulamín to continually produce an extensive range of quality products?**

A: Hulamín has remained focused on delivering high quality products at competitive costs while ensuring that customer service is prioritised. Hulamín has focused on developing its people using lean manufacturing tools in a programme tailor made for the Company.

**Q: As the Chief Executive Officer of Hulamin, what would be your key strategies to maintain a sustainable growth rate in this current volatile metal market?**

A: As a fixed asset - capital intensive business, our sales volume performance is largely dictated by our installed capacity. We have a number of expansion opportunities that are at various stages of feasibility. We are also developing additional business models to grow sales.

**Q: While the use of aluminium is growing in the new age vehicles, do you see the automotive and transport industry to be the major driving force of your aluminium extrusion business in 2019?**

A: Demand for extruded aluminium in the engineering sector in Southern Africa has remained subdued for the last few years. We are convinced that sales of extruded aluminium will grow to reflect its preferred properties in the auto and transport markets in the region.

**Q: What is your outlook for the South African aluminium industry in 2019? How do you think the sanctions and tariffs will impact the country's industry in 2019?**

A: The entire economy in SA has been in recession since the start of 2019. As a non-aligned country SA should not be targeted directly in most trade wars. However, as a major exporter, Hulamin remains vulnerable to trade actions in its major markets i.e. USA and Europe.

**Q: What significant difference do you see in the aluminium industry when you became the Chief Executive Officer of Hulamin in 2010 and now?**

A: The automotive demand for our products has grown beyond expectations, although having been in the industry for close to 30 years, it has been spoken about extensively. At last, expectations are starting to become reality.

**Q: Since the packaging sector is one of the largest markets for aluminium flat rolled products, what is your plan of action for generating maximum business from that sector in 2019?**

A: Hulamin sells about 50% of its products into the packaging sector. We are optimising sales, developing new products and maximising purchases of scrap aluminium in order to keep ahead.

**Q: How technology and equipment are going to play a major role in the development of aluminium industry in the future?**

A: Such is the advancement of technology that being a generalist (wide product range) is no longer a viable long term strategy. We are developing products, know how and equipment to capitalise on our existing strengths to expand our capability into more advanced products. At the same time we are also investing in developing our in-house technology capability to be able to offer our customers certain advantages for sourcing from Hulamin. Also, numerous new products are emerging that we are developing that did not exist 5 years ago.



**Alberto Ghisetti (Continuus-Properzi)**

**“For aluminium field the outlook is positive not only for the current year but we foresee an extremely positive result also for the period between 2020 and 2024” ~ Alberto Ghisetti, Sales Director, Continuus-Properzi**

Continuus-Properzi is a world leader in the field of continuous casting lines for nonferrous metal sector. Mr. Alberto Ghisetti has been working at Continuus-Properzi for ten years, currently as Sales Director, focused in both aluminium and copper plants for rod and ingots production. He has graduated in Mechanical Engineering with a specialization in industrial automation & robotics and completed an executive master in Project Management. Read on the interview to know more:

**Q: Continuus-Properzi is a world leader in the field of CCR lines for nonferrous rod with a history of more than 70 years. Please tell us about the technological and industry changes that the company has witnessed so far.**

A: A long time ago, in 1949, a couple of years after the establishment of Continuus-Properzi Company, Ilario Properzi introduced the revolutionary continuous cast and rolled (CCR) aluminium rod to the world's (aluminium) industry. It was a shock to the Cable Industry, especially for those focused on the manufacturing of overhead conductors. The traditional mills that were used to roll aluminium billets were immediately declared obsolete even though the first Properzi line – almost a toy machine – could produce far less than one tph.

For several decades, Properzi E.C. rod has been a commodity, but in recent years, a higher and higher percentage of aluminium rod is destined for more sophisticated products.

Fine wires, enameled conductors, modern overhead compositions plus a variety of mechanical alloys and welding alloys in various diameters make the new Properzi rod lines, a mix of sturdy, affordable equipment complete with know-how from furnaces to coilers, the best choice for the most demanding market niche. Continuus-Properzi has kept a prominent leading position as supplier of aluminium rod lines of any size and with any level of complexity: from super sophisticated to basic. As aluminium rod became Properzi rod a long time ago, and today the aluminium ingot is becoming the Properzi ingot.

The patented Track & Belt caster started a new Properzi revolution in the aluminium world. Launching the ingot of the future.... However, this is another story!

Step by step, the Company has developed into a real Engineering, Procurement and Construction (EPC) company that has accumulated not only the broadest worldwide portfolio of complete Lines, from furnaces to coiler, for the rod and wire industry but also Project Engineering and/or full packages from finished foundations to plant in operation.

Our commitment is to continue and surpass the 70 years of success of our company based on the continuous attentiveness to our Customers and to the novel requirements of the global market.

**Q: Your company deals with a wide range of nonferrous metals – copper, zinc, lead steel and aluminium. Which of them is expected to offer maximum prospect to your business in 2019?**

A: Every year the complexity of the electrical components in new cars continues to increase.

Today it seems that a new luxury car or sports car, or even an SUV, is a complex system of electric/electronic gadgets moving on the road while in the recent past a car was a body, a motor and four wheels.

This means that thousands of signals and thousands of power connections are necessary through electric wires.

These wires were and, in large part, are still thin copper wires but because of the metal price and because of the copper weight, car manufactures are studying new solution substituting copper and iron with aluminum.

The above aspect linked with the growing demand of HV conductors to transfer the electrical energy confirms that Aluminium gives the maximum prospective. Furthermore, Aluminium can be easily recycled with an energy cost equal to one-twentieth of the cost necessary for its first cast; almost one-third of the aluminium used today comes from recycled scrap.

These days, one-fourth of Europe's aluminium demand is fulfilled by using second cast metal which, in turn, can be recycled indefinitely.

Considering that recycling aluminium means saving 95% of the energy necessary to produce it, reducing the CO2 emission and find a way to maintain more and more consistent in rod and wire parameters. Nowadays, most industrialized countries continue to develop scrap collection systems, which today can recycle up to 70% of all the aluminium components of cars.

Continuus-Properti is present in this sector with our Track & Belt, thanks to which secondary aluminium ingots are successfully produced in very compact stacks.

Moreover, the world population is increasing as the per-capita consumption of energy (cellular, TV, air conditioning, electric cars etc.) so it is quite necessary a copious production of conductors, electrical networks etc.

**Q: Which geographical regions continued to be your top markets in 2018 and what is your market outlook for 2019?**

A: India, China, Brazil and generally Europe are our TOP markets for 2018. For 2019, we are expecting the adding of Southeast Asia to the previous list.

**Q: Are you planning any upgrade of hot and cold process machinery and technology for the aluminium sector 2019?**

A: Well, we are proud to present our latest innovative solution that is the VertMelt furnace for a high melting rate; something that allows 20,000 – 50,000 tpy of aluminium rod production starting from solid ingots at a cost similar to production from the Smelter.

Moreover, the recent Pro-Form rotary extrusion system covers a wide range of applications in copper and aluminium (the applications range is almost infinite whereas the major applications include: Al sheathing of steel wire, Al alloy rod direct from cast bar, cladding of steel wire with aluminium, solidal cables and conductors, profiles, tube and multiport tubes, rod directly from cast bar and many others).

Last but not least, Continuus-Properzi is presenting its latest technology, the Self-Annealing Microrolling® (SAM) machine. The SAM equipment can process 8 mm copper rod down to 1.8-2 mm soft wire without an annealer, thereby providing significant energy cost savings.

**Q: The market of semi-finished product is changing quickly and there are new business opportunities. Have your company designed any new technological solution to help your customer in higher flexibility?**

A: Certainly, Continuus-Properzi, who supplied the vast majority of aluminium rod lines to the smelters worldwide, has recently developed a combination line able to produce two distinct products: rod and ingots...from the same line!

One high production rod caster (10-15 ton/hour) solidifies a continuous bar that can enter into the rolling mill for the production of wire rod or can be sheared by the rotary shear to produce 10 kg ingots having a length of 700 mm. The resulting Properzi ingots are far superior to those produced with a traditional open-top system.

The Properzi ingots are continuously cooled, stacked and strapped in bundles of one ton approximately. The shifting from rod to ingot production, and vice-versa, is easily done and does not require major changes.

The ingot line is located near the rod line with the important advantage of optimizing the use of space in the cast house. The necessary area is almost half of the area required to install two separate lines, one for rod production and a separate one for ingot production. Furthermore, since the caster is the same for both products (produced in campaigns), it is not necessary to install two separate furnace sets. This provides important savings in terms of total investment and space.

Pure aluminium ingots, but mainly primary foundry alloys (Al-Si) ingots, are the alternative product for a different market.

Two "Combo-Lines", as they are called, are currently in the commissioning phase and will be in full production within the second quarter 2019.

**Q: Have the US tariffs on imported aluminium and steel affected your business in 2018 and what will be your outlook for 2019?**

A: In 2018 and H1 2019 we do not have any effect but, for H2 2019 we think we can expect some negative repercussions based on precise geographic areas but perhaps some positive one on different areas.

**Q: Share with us your growth outlook for the aluminium sector 2019-2024**

A: For aluminium field the outlook is positive not only for the current year but we foresee an extremely positive result also for the period between 2020 and 2024, because of the realization of many interesting projects. Today's economic studies point out already a shortage of Al rod in some areas.

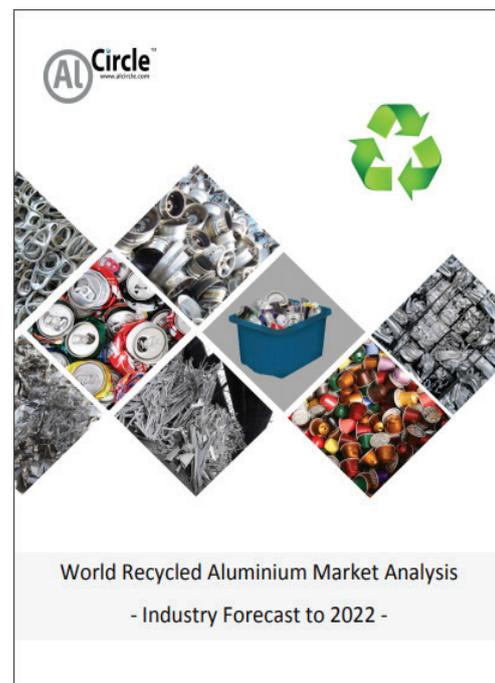
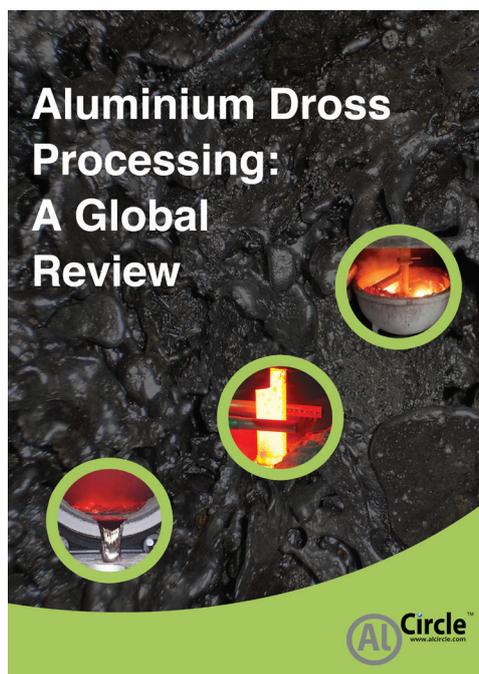
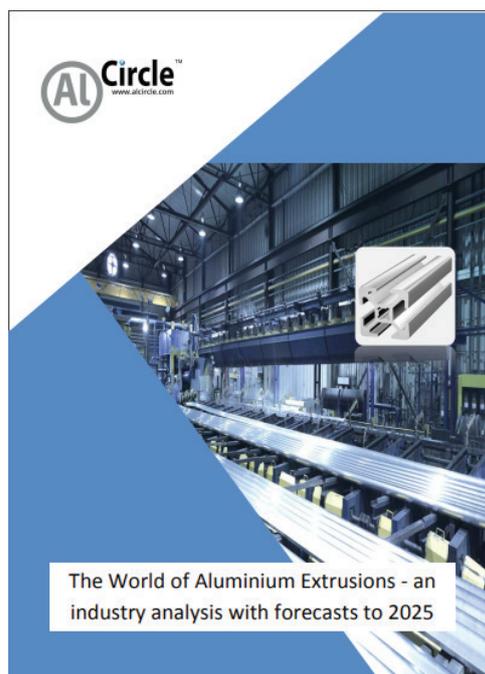
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**THINK ALUMINIUM, THINK ALCIRCLE**



Gerd Götz (European Aluminium)



## “Aluminium demand in Europe will continue to be driven by growing demand in many applications despite trade challenges” ~ Gerd Götz, Director General of European Aluminium

European Aluminium, founded in 1981 and based in Brussels, is the voice of the aluminium industry in Europe. Its 80+ members include primary, downstream and recycling producers with more than 600 plants in 30 European countries. Gerd Götz has been Director General of European Aluminium since 2013. Gerd has held different managing roles in public affairs, corporate communications and brand management in Berlin, Hamburg, Brussels and Amsterdam. As the brand ambassador of European Aluminium Gerd has put forward the viewpoint of the association on a number of issues that are impacting the global aluminium sector in 2019:

### Q: Please give us a heads up on the aluminium ecosystem in Europe?

A: We see a mixed picture, with strong performances in our key markets. Primary aluminium production in Europe (EU28+EFTA) however slightly decreased from 4,3 kilotonnes in 2017 to 4,2 kilotonnes last year. This decrease reflects the considerable external pressures on the aluminium supply chain caused by global trade issues, which impacted the alumina and the primary smelting production.

On the other hand, the production of flat-rolled products increased from 5,1 kilotonnes in 2017 to 5,3 kilotonnes in 2018. The growing demand was driven mainly by transport - particularly automotive - and packaging. Together, both markets represent more than 60 percent of the flat-rolled product market.

Extruded products showed an equally strong increase from 3,1 kilotonnes to 3,2 kilotonnes. This was principally driven by strong growth in transport – again, particularly automotive – industrial sectors, and the continuing recovery in the building and construction sector in several European countries.

**Q: European Aluminium expects that Europe should be the next to be exempted from 10% tariff on aluminium products. Are you expecting an exemption by the end of 2019?**

A: We've said from the very beginning that the tariffs are unjustified– the EU has always been and remains an important ally of the U.S. and a trusted and stable supply source for aluminium. We are very concerned that these unjustified tariffs put at risk the many industrial clusters, innovation hubs, and transatlantic synergies we share with the U.S. Whether or not the U.S. will grant an exception by the end of the year remains to be seen. We support the European Commission's negotiation position to lift the Section 232 tariffs as a pre-requisite of any trade deal with the U.S.

**Q: Have the 10% tariffs on aluminium negatively affected the European aluminium trade in 2018? How are they going to impact the market in 2019?**

A: No, the exports to the U.S. did not dent because the U.S. does not have enough domestic production to satisfy demand and therefore continued to import aluminium from Europe and other regions despite the tariffs. We expect this trend will continue throughout the year. However, it is still too early to assess the impact of the redirection of aluminium products to Europe from third countries affected by the tariffs. It will still take some months until we have a clearer picture.

**Q: Do you think protective trade measures can improve the aluminium sector in the US?**

A: In short: no. Unilateral actions cannot induce the systemic change that is needed. Protectionism and uncertainty are not beneficial to our industry; they cause price volatility and disrupt value chains. It's the other way around: We must work together to make the WTO better equipped to deal with a global economic power based on a

state economy such as China. The fact that the existence of structural overcapacities is not seen as a valid argument to allow for action by member countries exemplifies this. We, therefore, support the OECD's suggestion and the EU's ambition to modernise and make the WTO more effective through introducing more transparency, creating and reviewing rules and disciplines and ensuring a better enforcement mechanism. If we do not take action, competing materials will take advantage of the turbulence in our industry and fill the gap.

**Q: What is your view on the proposed 25% tariffs by Trump on vehicle and auto parts imports? How do you think it is going to affect the European auto sector?**

A: The automotive and transport sector is one of our main customers and accounts for around one-third of all aluminium shipments in Europe. Any measure that would reduce car production in Europe would have a negative impact on aluminium demand.

**Q: What are the sustainability targets for European Aluminium in 2019 and ahead?**

A: Our members are bound to ambitious targets and commitments set out in our "Sustainability Roadmap Towards 2025". These go far beyond legislative obligations and reflect the industry's forward-thinking attitude and commitment to action. We realised the importance of articulating a clear vision for the future of the industry. It provides a framework for company members to articulate their own sustainability strategy.

And just a few months ago, we developed our Vision 2050, a data-driven vision for the whole value chain, assessing how much our sector can contribute to the EU low carbon strategy by 2050 and the conditions necessary for the sector to realise its full potential.

We found out that total CO2 emission reductions in the primary aluminium production could reach up to 70% and major additional decarbonisation gains are expected from increased recycling. To achieve this vision, we need a strong push for increasing the share of aluminium recycling while preserving our primary production in Europe.

Also, we carried out an in-depth analysis of the United Nations Sustainable Development Goals and identified eight goals where the aluminium industry should focus on maximising its ability to change and build business opportunities. These goals are aligned with four priority areas that cover the most significant topics for European Aluminium: decarbonisation, circular economy, skills and education, and collaboration for innovation.

I see our industry well positioned for Europe's transition to a low carbon economy and also to become – thanks to the permanent properties of our material - a leader in the evolving new economic system called the circular economy.

**Q: What is your view on China's state subsidy and aluminium overcapacity? How do you think it is going to impact the global aluminium industry in 2019?**

A: China's state-subsidised overcapacity is the number one issue faced by the rest of the aluminium world. If we do not defend ourselves against unfair competition, Europe risks losing a strategic industry vital to its transition to a low carbon economy. Our strongly interlinked value chains could start to disintegrate. Research and innovation may take place elsewhere. All this with the consequence that hundreds of thousands of jobs are at risk.

The European aluminium industry has been very vocal about this issue for many years. We are very appreciative of the OECD's recent report "Measuring distortions in international markets: The aluminium value chain" which identifies fact-based evidence concerning the root causes of these significant distortions.

**Q: As a representative for the European aluminium industry, how is European Aluminium lobbying for the causes that are affecting in global supply chain?**

A: We advocate by creating a long-term vision for the future of our industry in collaboration with our main stakeholders, including policymakers, NGOs, and of course, our members. When we present our policy asks to policy makers, we always ensure we provide them with the most accurate data and insights from our membership experts to substantiate our arguments. In addition, we build consensus within the aluminium sector at national and European level by engaging national associations. We also align with our counterparts in the U.S., Japan, Canada, Mexico, and Brazil when it comes to important global issues such as trade.

**Q: What is your outlook for the global aluminium sector in 2019?**

A: We expect that trade issues will remain a key challenge for the global aluminium sector. Meanwhile, aluminium demand in Europe will continue to be driven by growing demand in many applications despite trade challenges at European and global levels.



Satyavrat Singh (Uniseven Engineering & Infrastructure Pvt. Ltd.)

**“If government policies support well, India can become one of the lowest cost aluminium producers in the world” ~ Satyavrat Singh, CEO, Uniseven Engineering & Infrastructure Pvt. Ltd.**

A graduate from IIT (ISM), with a Post Graduate Diploma in Business Administration; Mr Satyavrat Singh has over 25 years of experience in the commodities and the raw material space. He has worked in leadership positions in some of the eminent Indian companies with exposure in transaction in multiple geographies. Here, in the interview, he is sharing Uniseven’s specialities and range of services in the aluminium sector and his projection about the industry.

**Q: Please elaborate us on the services offered by Uniseven Engineering & Infrastructure Pvt. Ltd. to the aluminium sector.**

A: Uniseven Engineering & Infrastructure has a unique business model whereby it represents and takes part in execution with a large number of equipment technology and EPC solution providers in India and in many countries abroad. Uniseven is currently active with its services from Australia to Brazil along with its different partners from various parts of the world. The key strength of Uniseven is its domain knowledge of the every element of the metal value chain and a large network of domain specialists across the world to support its endeavours.

**Q: How does Uniseven contribute towards bringing in advanced technologies into the aluminium sector?**

A: As far as the advanced technologies in the aluminium sector are concerned, most of

our partners are industry leaders in their respective fields. To start with when we talk of bauxite, alumina and primary aluminium, we work with Chalieceo, which is one of most cost-effective solution providers in the industry. In addition to it, we align with a number of equipment and service providers like Outotec, NKM Noell, Befesa, Stas and Continuous Properzi, to cater to the various elements of the value chain. When we talk of downstream production we work with industry leaders such as Presezzi for extrusion business, Danieli for flat rolled product business and Mecatherm for recycling of metals. We also handle all kind of consumables and accessories as well as raw materials that are supplied to the entire aluminium value chain.

### **Q: How does Uniseven Engineering plan to contribute towards energy economy in the aluminium sector in India?**

A: As for the energy economy is concerned, we are glad we have Chalieceo on board with us for two decades that provides one of the most energy efficient technology for alumina refining and aluminium smelting. They have the technology to refine various types of bauxite efficiently and in smelting technology they have been able to reach sub 12000 kilowatt hour DC power consumption. This is in spite of the difficult and variable raw material supply quality in China. To supplement that we have also partnered with Cronus Technology of Norway which has a unique and patented heat recovery system that helps in energy reduction in aluminium technology in the tune of 500 kilowatt hour per tonne of primary aluminium production.

When we look at downstream sector, Presezzi in the extrusion business has been able to achieve at least 30% reduced energy consumption in the extrusion process in comparison to any other extrusion press in use today. Similarly Foundry Ecocer provides Fluxes and Tablets for metal Treatment and Refining, whereby cycle time is significantly reduced leading to significant energy saving. Uniseven is thoughtful about resource utilization, especially energy economy and would like to continuously offer improvement in products and processes we offer to our customers.

### **Q: What are the factors that will drive India as an aluminium producer and consumer in 2019?**

A: If government policies support well, India can become one of the lowest cost aluminium producers in the world. Nalco was already declared the lowest cost producer of alumina globally by Wood Mackenzie. We know Utkal Alumina as one of the lowest

cost alumina producers in the world. We have abundant low temperature bauxite in the country and if bauxite reserves are made available to the producers, they can produce alumina at a very low cost. We also have large coal reserves in India, though not of a very high quality. The country has the potential to produce one of the lowest cost thermal power with all necessary environmental protection using modern technologies. India has economical, qualified and efficient work force to serve the sector. Using the latest Chinese technologies we can put up our refineries and smelters at a very low cost, capex wise. This coupled with the availability of bauxite and coal we can produce alumina and aluminium at a lower cost compared to most of the countries.

**Q: What could be a possible strategy to enhance aluminium consumption in the domestic market?**

A: We all know that the aluminium consumption is linked to the economic growth and prosperity of a country. India is one of the fastest growing economies in the world and normally as a standard, base metal consumption of a country grows twice the rate of its GDP growth. So we would expect the aluminium consumption in India to grow by 15%-16% in the next 10-15 years till it reaches the global average per capita aluminium consumption rate. We are going to see a shift in consumption trends, which will align with the global trends where the major consumption comes from the transport and packaging. Currently our biggest consuming sector is the power sector because of electrification and rapid urbanization, and with the growth of GDP more aluminium would be used in transport, packaging and construction.

**Q: Do you see the India's bauxite mining issues and raw material scarcity in the alumina refineries reaching some solution in 2019?**

A: As for the bauxite mining issues, it is unfortunate that the government could not act decisively at an early stage. Only 25% of India's total mineral resources have been explored till date. So there is a huge potential for further exploration of bauxite over the 3.7 billion tonne that has already been discovered. From the industry prospective we need to do responsible mining not only from the point of view of the environments but also to help the landowners and the communities around the mining site. So the government and the industry need to act hand in hand with a commitment to develop bauxite mining and once it happens, it is going to help the domestic aluminium industry in a big way. This is not only going to solve the scarcity of bauxite, but, eventually it can help India become another Australia or Brazil, a major exporter of alumina and aluminium.

## Q: What are the biggest challenges and opportunities coming up in the global aluminium market in 2019 and ahead?

A: The current global economic uncertainty throws a challenge to the aluminium and the entire base metal industry. We are aware that global economy has a cyclic growth and it has experienced a long period of growth already; about a decade long up-cycle. By end of this year or January next year the US will also complete a decade of upward growth, possibly the longest when we look at the global scenario. At this juncture, the industries, investors and business owners are apprehensive about the next move and everybody has taken a cautious approach as per investments and expansions are concerned. I would say this fear is impacting the market fundamentals and it is expected that the industry will experience reduced economic activity and slower economic growth, which is going to impact the aluminium industry as well. We are not sure how long would it take to bounce back.

However, the advantage aluminium has as a commodity is that it is the greenest metal of all. If we look at all base metals, aluminium would continue to grow, may be not at 5% but at a slower rate of 3 to 4% annually as the demand for the metal remains robust.

## Q: What is your outlook for the aluminium industry in 2019?

A: We are already half way through 2019 and we have seen the industry settling down after a year of supply disruptions, punitive sanctions, tariff worries and trade wars. Prices are currently at a lower level and demand growth is slow. We expect the industry to grow at a rate of 3 to 3.5 per cent for the entire year.



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