



PRESENTS

Aluminium Middle East: Focus 2020

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A Virtual Aluminium Ecosystem



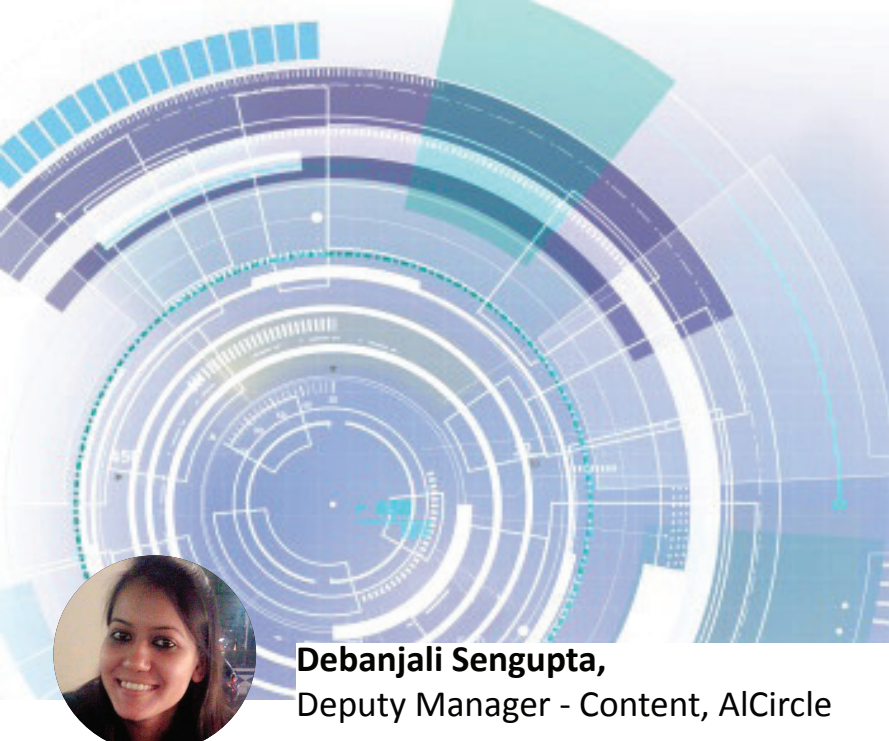
What is AlCircle?

- ✓ A top exclusive aluminium based web portal
- ✓ Your business decision enabler
- ✓ Provider of high quality news to its readers
- ✓ A platform for effective targeted promotion of businesses
- ✓ A knowledge solution provider to corporates



Think Aluminium Think AlCircle





Debanjali Sengupta,
Deputy Manager - Content, AlCircle

Editorial

Dear Readers,

We take immense pleasure in presenting our third region-focus E-magazine on the topic “Aluminium Middle East - Focus 2020”. The Middle East aluminium industry is on a steady growth trajectory, right from the upstream market to the downstream. Using an optimal combination of energy subsidies and tariffs, the countries in the Gulf region are expanding rapidly thanks to the demand growth in the United States, European Union, and Asia-Pacific. The domestic demand is also increasing consistently year-on-year basis.

The production in the region is growing steadfastly as well to meet the skyrocketing demand. From 5.14 million tonnes in 2018, the primary aluminium production in 2019 is expected to reach 5.7 million tonnes, according to the Gulf Aluminium Council (GAC) estimate. 40 per cent of the production of primary aluminium is used by the GCC downstream aluminium industries, indicating the growth of a healthy downstream market there. The Middle-East aluminium smelters remain the key suppliers of aluminium to the world.

So, given to the hand-in-hand growth in demand, production and consumption of aluminium in the Middle East, AlCircle, being an exclusive portal for the global aluminium industry, has come up with its next edition of E-magazine, particularly, focusing on the aluminium market in the GCC countries, one of the major focal points for the world aluminium giants.

The main aim of this E-magazine is to provide the readers with key facts of the Gulf aluminium industry, while analysing its recent market trends and assessing the future growth potential. It also features interviews of some of the industry leaders who are associated with the Middle East aluminium industry closely as participants or as equipment and technology providers. They have shared their perspectives on the current market there and also their evaluations on how it can turn out in the near future.

We have gained great insights while formulating the magazine. We hope you too have a great reading experience.

Best Wishes!

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Performance Dashboard: Previous AlCircle E-magazine



E-magazine Performance Statistics Aluminium Industry 4.0: Drivers & Change Makers



Total Global Reach **19592**



Total Hits **105472**



Total Countries Reached **92**



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Debanjali Sengupta,
Deputy Manager - Content, AlCircle

Upstream integration by GCC aluminium smelters to achieve new goal with EGA's bauxite, alumina project

Amidst the potential primary aluminium production capacity, the GCC aluminium giants are increasingly exploring upstream possibilities as well. For instance, Al Taweelah alumina refinery and the Boke bauxite project in the Republic of Guinea are the key parts of EGA's strategic expansion in upstream in the aluminium value chain. The Boke bauxite project, the greenfield project in two phases through EGA's subsidiary Guinea Alumina Corporation (GAC), was started being constructed in 2017, with the expectation of producing 12 million tonnes per annum bauxite ore, which would be entirely exported. In early August 2019, it made the first shipment from its mine, marking the beginning of EGA's status as integrated aluminium major. The project is the result of a US\$1.4 billion greenfield investment, which is among the largest such investment in Guinea in four decades. Recently, on November 10, the first Capsize vessel, loaded with 173,000 tonnes of bauxite ore, sailed from the mine.



Al Taweelah alumina refinery is the first refinery in the United Arab Emirates and only the second in the Middle East. The \$3.3 billion refinery, which started production on April 10, 2019, will process 5 million tonnes of bauxite ore imported from West Africa into 2 million tonnes of alumina once fully ramped-up, meeting 40 per cent of EGA's total alumina requirements. By the end of 2019, the refinery is expected to produce 1 million tonnes. Until the end of September, it produced 600,000 tonnes of alumina since inception. During August, average daily production of alumina was 88 per cent of Al Taweelah alumina refinery's nameplate capacity. In operations, the refinery contributes about AED 1 billion per year to the UAE economy, with 600 permanent jobs in the operations team.

Abdulla Kalban, EGA's managing director and CEO, said: "The start-up of Al Taweelah alumina refinery is transformative for EGA and the first of two major milestones this year as we complete our strategic growth projects upstream in the aluminium value chain."

Maa'den aluminium project, on the other hand, involves the development, design, construction and operation of two sites integrated in a mine-to-metal network: Al Ba'itha in the northern Qassim province, and our integrated aluminium complex in Ras Al Khair Industrial City. Al Ba'itha includes mine as well as the ore-crushing and handling facilities, with the estimated bauxite production of 4 million tonnes per year, while Ras Al Khair hosts the refinery, which is the first refinery in the Middle East, with the capacity to produce 1.8 million tonnes of alumina each year. The refinery is meant to meet the Maaden smelter requirement for 1.4 million tonnes of alumina per year with the surplus production to be sold into regional and international markets. Maa'den's alumina sales in 2018 were at 311,000 tonnes.



Maaden Bauxite and Alumina Company is 74.9% owned by Maaden and 25.1% owned by Alcoa.

Yousuf Al Bastaki, Executive Vice-President — Upstream at EGA stated, “As with every other global business, we’ve identified the need to go beyond our smelting capabilities to control key parts of our value chain — from “mine to metal”.

Besides, the Gulf countries’ constant efforts towards making a shift to the non-oil sector, especially the aluminium industry, have helped them emerge as one of the leading primary aluminium producing regions in the world. In 2015, the GCC region had accounted for about 10 per cent of the total global primary aluminium production, which was at 58 million tonnes, by churning 5.2 million tonnes domestically. Later on, in 2018, the production grew to 5.4 million tonnes, and in 2019, it is expected to increase to 5.7 million tonnes, according to the Gulf Aluminium Council (GAC).

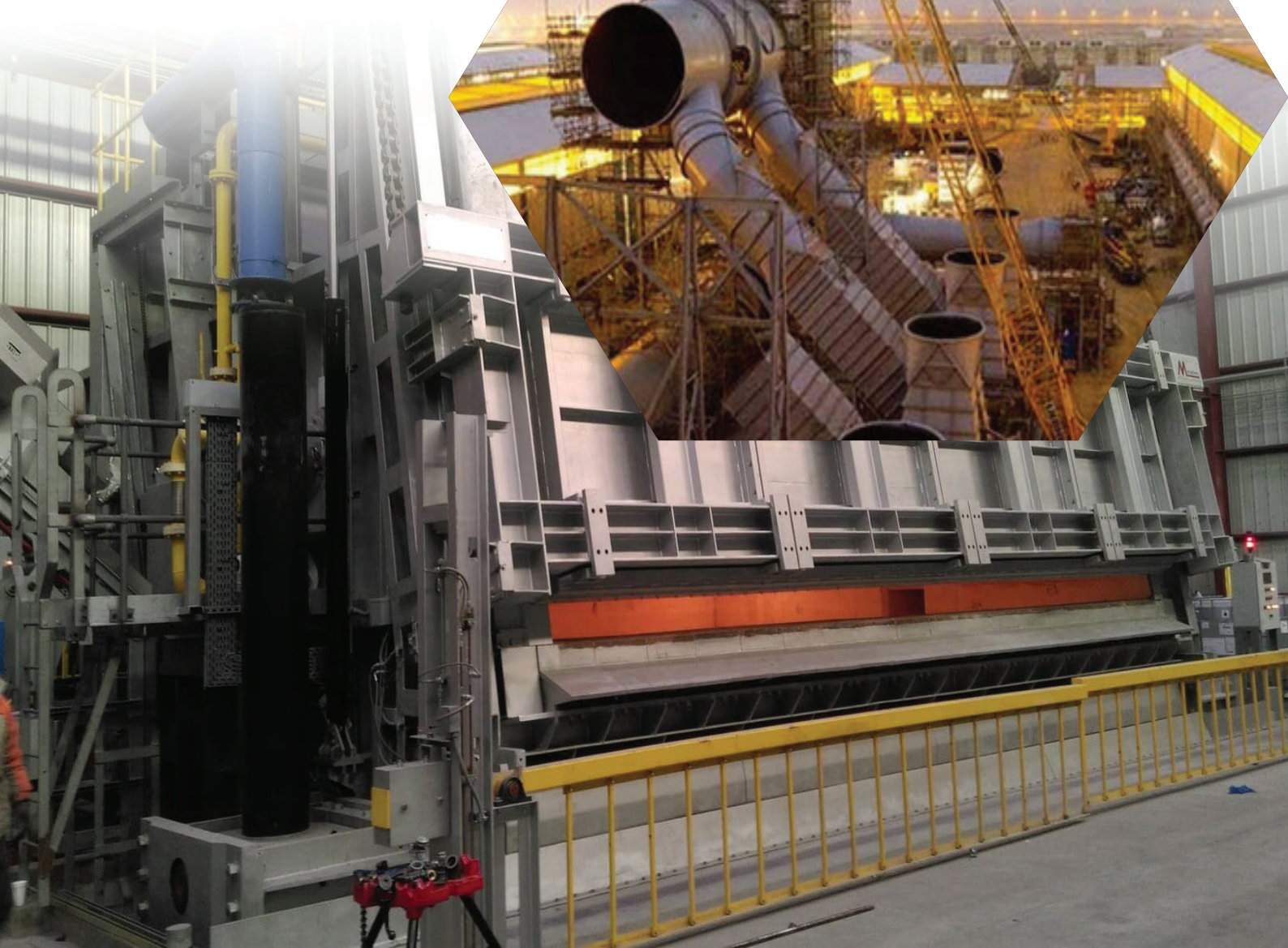
There are top five primary aluminium smelters in GCC, namely, **Emirates Global Aluminium (EGA)**, **Aluminium Bahrain (Alba)**, **Qatar Aluminium (Qatalum)**, **Sohar Aluminium**, and **Maa’den**, which have primarily contributed towards achieving this growing production over the years.

While EGA is the top producer among the list, its production, as of 2018, is at 2.63 million tonnes, followed by Alba 1.1 million tonnes, Maa’den 932,000 tonnes, and Qatalum 650,000 tonnes.





معادن للألمنيوم
MA'ADEN ALUMINIUM





Mahmood Daylami,
Secretary General, GAC

“GCC smelters now operate at a much higher amperage than most smelters around the world with high efficiency,” Mahmood Daylami, Secretary General, GAC

Gulf Aluminium Council (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 speacialist from the member organisation with the objective of sharing best practices, reduce cost, improve productivity and efficiency. AlCircle spoke to Mahmood Daylami, Secretary General, GAC, on a number of topics about the Gulf aluminium sector, including its current production and market scenario, its technical brilliance and future prospects. Here is an excerpt from the conversation:

AlCircle: What are the key driving factors behind the steady growth of Aluminium industry in the Middle East?

Mr Daylami: The main driver for the aluminum growth in the Middle East,

more specifically the Gulf is the growing world demand for the metal. Given the availability of energy at a competitive price, the geographic location and modern infrastructure, logistic and transportation systems, make the GCC to be one of the leading regions for the aluminum industry in the world.

The success of the industry over the years has provided added confidence for the financial institutions to facilitate the needed capital for expansion projects adding a further competitive advantage of economy of scale.

AlCircle: What is the significance of Middle East aluminium industry in the global aluminum sector?

Mr Daylami: The six GCC smelters produced 5.4 Million tonnes of primary aluminum in 2018, and the expectation for 2019 is 5.7 million tonnes which constitute 9% of the world total aluminium production. Three of the smelters produce more than one million tonnes a year (EGA Jebel Ali, EGA Al Taweelah and Alba). EGA producing more than 2.5 million tonnes of primary aluminum a year is considered the fourth largest aluminum producer in the world, with its technology and research center that plays a significant role in the development of the industry.

AlCircle: What makes the Middle East smelters some of the most technically advanced and cleanest smelters in the world?

Mr Daylami: Four out of six smelters are only ten years old which are relatively new compared to other smelters around the world (Maaden Aluminium, Sohar Aluminium, Qatalum, and EGA Al Tawelah) and the older ones (Alba and EGA Jebel Ali) have been extensively modernized over the years with latest technologies and equipment in the smelters and power generation facilities. As a result, GCC smelters now operate at a much higher amperage than most smelters around the world with high efficiency. For example, the average current efficiency at the GCC smelters is 12.9 KWh/ tonne of aluminum

while the world average is 14.5KWh/tonne. This has a significant impact on reducing energy consumption, emissions and cost.

AlCircle: How are the GCC smelters working towards upstream integration despite the limitation of bauxite in the region?

Mr Daylami: Saudi Arabia has huge bauxite reserve which is the reason why Maaden Aluminium is a fully integrated Aluminium company with its alumina refinery supplying its total need for alumina. EGA also owns bauxite mine in Guinea and just completed the construction of two million tonnes per year alumina refinery adjacent to Al Taweela smelter in Abu Dhabi supplying 40% of EGA's alumina needs. Alba is exploring upward integration opportunities. The reason is to control cost, quality and increase the security of raw material supply.

AlCircle: What are the downstream expansion potentials that you see for the Middle East Aluminium sector?

Mr Daylami: The downstream production generally reflects the local market needs for constructions but has also expanded its activities to cater to world demand for aluminum cable, auto industry, and rolled products. Given the advantages of availability of casthouses that are capable of producing aluminum in various shapes and alloys or supply the metal in liquid form, there is potential for a higher-end product specially to cater to the transportation sector.

AlCircle: How is the Middle East aluminium industry creating substantial opportunities for the global EPC and technology sector?

Mr Daylami: Over the last thirty years, GCC smelters have been in constant expansions, modernisations and facility improvement projects in all areas

of the industry. Such a trend is very likely to continue in the coming years providing opportunities for EPC and EPCM. At the next GAC Annual Dinner in March 2020, each CEO will announce their smelter capital expenditure plan for the coming year as part of smelters proactive strategy to engage the technology suppliers in their action plan.

AlCircle: To what extent has the aluminium sector succeeded in the industrial diversification towards the non-oil sector in the Middle East region?

Mr Daylami: The aluminum sector in the GCC has been instrumental in industrial diversification in the Gulf through the creation of several downstream companies, logistics, service organisations, transportations, and manufacturing. As a result, aluminum industry employs around 14,000 people directly and 40,000 indirectly, Furthermore, many technology suppliers have moved to the GCC to provide better coordination, storage, and engineering services.

AlCircle: What role does GAC play in integrating and supporting the Middle East aluminium industry?

Mr Daylami: GAC is a coordinating body that represents, promotes and protects the interests of the aluminum industry in the Gulf. The council's main objectives are to provide a forum to develop a strategy for common issues and concerns facing the aluminum industry in the region, and to share best practices to improve the efficiency of the industry.

AlCircle: What is your production and consumption forecast for the GCC primary aluminium sector in 2020?

Mr Daylami: The estimated primary aluminum production for the GCC in 2020 is around seven million tonnes and the consumption around 2 million tonnes.



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Outotec



Dr. Alessio Scarsella – Director, Bauxite and Alumina Technology, Outotec & **Antti Koulumies** – Vice President, Aluminium Business Line, Outotec

“Saudi Arabia is the standout. There is a state-backed vision to diversify from the oil and gas sector into other industries, including the minerals sector,” Dr. Alessio Scarsella – Director, Bauxite and Alumina Technology, Outotec & Antti Koulumies – Vice President, Aluminium Business Line, Outotec

Outotec develops and delivers industry benchmark technologies and life-cycle services for its customers in the mining, metal, energy, and chemical sector to help them sustainably improve their profitability. AlCircle spoke to Dr. Alessio Scarsella – Director, Bauxite and Alumina Technology, and Antti Koulumies – Vice President, Aluminium Business Line, Outotec for its new E-magazine on

“Aluminium Middle East - Focus 2020”.

Dr. Alessio Scarsella is of the opinion that access to cheap energy and petroleum coke has driven the aluminium business in the Gulf countries, while

Antti Koulumies has pointed out that the Middle East countries are increasingly exploring the upstream aluminium market. To know more what they have shared about the Middle East aluminium market and its future potential, stay tuned to the interview.

AlCircle: What are the key driving factors behind the quick growth of aluminium industry in the Middle East?

AS: Aluminium is often used as a way to create added value for markets with vast energy resources that are difficult to transport. This being said, the Middle East has managed to create a whole new industrial cluster to utilize and transport its vast gas resources in a form of congealed energy which is primary aluminium and its products. The companies in the region have become true world class players on the aluminium scene. In addition to energy availability, proximity to Europe where major aluminium demand exists in the automotive, aeronautical and food industries has been another driving factor.

AK: Until Ma'aden and EGA built their alumina refineries, this development was largely based on imported alumina. But now the region is also becoming significant in the alumina sector. Outotec has been a proud partner to the local industry throughout its existence, having supplied the first carbon plant to Dubal already in the late seventies and now most recently supporting ALBA in its line 6 project, as well as both Ma'aden and EGA alumina refineries.

AlCircle: What makes Middle East aluminium smelters some of the lowest cost aluminium plants in the world?

AS: Access to cheap energy (mostly gas) and access to petroleum coke via the vast oil and gas industry in the immediate region. There has also been good access to labour both domestically and from neighboring countries.

AK: It's been a great story of creating value from what are essentially side products. Recently, of course, as gas has become more transportable and the industry has grown, there is more competition for these resources, to which the industry will have to respond.

AlCircle: Which countries in the Middle East, according to you, have the maximum potential to drive aluminium production and consumption?

AS: Saudi Arabia is the standout. There is a state-backed vision to diversify from the oil and gas sector into other industries including the minerals sector. This is compounded by the fact that it is the only gulf country to have an access to its own bauxite reserves. This, in combination to low energy costs, will enable the conversion from Bauxite -> Alumina -> Aluminium. Although other gulf states have made significant investments in integrating their aluminium production sectors, they all lack the raw materials, those either being bauxite or alumina, resulting in offshore sourcing. On the other hand, those with abundant energy resources in whatever form will always be in a good position to produce aluminium as it still is very much an energy story. We, therefore, follow with interest some of the nuclear projects going on in the region. I also believe there will be more specialization in terms of the raw material supply where the GCC countries will start collaborating more in a cross-border fashion, e.g. with coke and alumina supply.

AlCircle: How should the Middle Eastern aluminium industry respond to growing demands of creating more sustainable aluminium?

AK: We see our clients all around the world starting to respond to the requirements of decarbonization and improved waste management. There is

produced. Gas is obviously not carbon-free, but certainly more efficient than coal. In this regard, regions with hydropower can obviously claim an advantage; however, it is also a question of the opportunity cost and the efficiency in which electricity is used. Here, I think the Middle East has a great potential to also be a trendsetter and its potlines are already quite energy efficient.

While I know that there are e.g. nuclear ambitions in the region also, the key in the short term is to ensure maximum efficiency in whatever is produced. This entails minimal transport distances of raw materials (e.g. using local coke and pitch, and sourcing bauxite from as close as possible), using latest, energy-efficient pot line technology, paying attention to anode quality, to ensure the direct emissions of the Hall-Heroult process are minimized, and that there are no unnecessary voltage drops.

When looking at the petrochemical products used, using side products from oil that are “easy” to pump out obviously also reduces the specific the talk of creating a low carbon aluminium class to be traded on the LME, talks of inert anode technology, a need to handle red mud sustainably while also managing local emissions such as green anode plant pitch fumes, dust, and carbon. Much of the technology and practices employed in is the best industry practice, where long term sustainability is valued much more than capital savings.

When talking about the sustainability of aluminium, we should always take a global view. This means looking at the way the required energy is carbon footprint of aluminium production. This is another major advantage this region has.

In addition, there are major differences in the energy efficiency of alumina refineries, and here by using latest technology, the Middle Eastern refineries certainly have globally competitive energy footprints.

AlCircle: What do you think about the inert anode, and should the Middle East invest into that?

AK: The inert anode, while certainly a welcome global technological innovation, will not only have to work at a large scale, but also match energy efficiency in the potlines of traditional pots. Otherwise, it will not necessarily be a greener solution than the existing technology in regions with a carbon-intensive energy footprint; therefore, I don't think it will be a silver bullet to any of these questions. As said, we always need to consider not only the specific energy footprint of smelters but rather take a global view and understand how much carbon emissions can we avoid by increasing the efficiency of production and giving that specific energy source to an alternative user. In reality, the world should focus first on phasing out its most carbon inefficient sources of energy such as coal and "hard to pump" oil reserves.

AlCircle: What can you offer to help the industry in its sustainability goals?

AK: Outotec has sustainability at the heart of its mission, and this reflects in our aluminium offering as well. At the core of our alumina offering is our tube digestion technology that we offer together with Hatch, which we have proudly supplied to both Al Taweelah and Ma'aden. This sets the energy efficiency standard for high temperature bauxite processing. Our alumina calcination technology is also a leader in energy efficiency and for example, creates negligible thermal NOx. In aluminium, where we offer carbon area and casthouse solutions, we pay a lot of attention to making sure anode quality is high, as this has a high indirect impact on the energy efficiency of the potline. Equally important is to properly clean butts and make sure recycled carbon is not wasted, but has minimum sodium content as well. This requires high automated and specialized machinery that we offer as part of our anode rodshop offering.

AlCircle: How is Outotec contributing towards creating aluminium plants of the future in the Middle East using your digital technology?

AS: Outotec is rolling out its premium digital advisors and controllers using our own advanced control technology platform. Being an OEM for many technologies in the aluminium sector, we use our own technological know-how to create advanced process control systems that superimpose the standard distributed control systems of our plants. This approach allows for quick ramp up and ramp down, steady operation resulting in reduced raw material and energy requirements without compromising the operational integrity and safety aspects of our plants. Energy efficiency has been shown to improve by as much as 10%.

AK: On the carbon side, we're working on our own proprietary digital platform that would optimize the whole chain from "coke to pot" in the production and cleansing of anodes. As said, this requires a good understanding not only of what happens in the carbon plant, but also how anodes impact the potlines, and this loop has not yet been closed by anyone in the industry, and in this sense we're doing pioneering work.

AlCircle: Outotec has been a key technology provider in the construction of EGA's Al Taweelah refinery. Give us a heads up on how the technology will make it one of the most energy-efficient modern alumina refineries?

AS: Outotec has had a heavy hand in being one of the key technology providers for this asset. In alumina refining, the two most energy-intensive processes are digestion and calcination, and fortunately, Outotec has provided technology on both. The digestion technology, supplied by the Hatch-Outotec

Joint venture, uses proprietary multi-cell single stream jacketed pipe unit technology, making it the most energy-efficient choice of digestion for boehmitic type bauxites. The calcination technology is Outotec's Generation 5 Calciner, which can simultaneously reach exceptional emission values whilst providing a new benchmark in energy consumption.

AlCircle: What is your outlook for the aluminium sector in 2020?

AS: The aluminium demand will continue to grow organically by 2-4 per cent per annum, the main drivers coming from the auto-aeronautical and food industries. This will not necessarily mean that aluminium prices will increase as a result of the extra demand as there is idle aluminium capacity in China. Each player in the aluminium industry will, however, continue to improve its profitability, whilst reducing its risk profile from a supply and environmental viewpoint. Alumina supply is one specific risk and currently, there is a marginal oversupply of alumina worldwide. Although there is idle capacity in China, the ramp-up time to market is indeed lengthy due to the technical challenges associated with the Bayer process. Unrelated geopolitical tensions, policy or market changes can cause the balance between alumina demand and supply to sway dramatically, as seen in the spring of 2018. This instability poses risks for primary aluminium producers particularly in regions where alumina must be imported, such as the Middle East. This threat is driving changes in the strategic thinking of the whole supply chain for all aluminium producers in the gulf region.

AK: As we know, the aluminium sector has had a relatively challenging 2019, and there are no guarantees that this would improve significantly in 2020. It depends a lot on whether demand growth will continue and if some of the supply challenges experienced in some regions will repeat or not. While the world will certainly need more aluminium, and no expansion decisions should be based on spot prices alone, I believe there's a lot that can and is

being done in improving existing production. Therefore a large part of our focus in 2020 is to improve the way we serve our customers in brownfield. To that end, Outotec has just strengthened its presence in the Middle East by nominating one of our key sales experts and leaders, Martin Zapke, to be based out of the region, and serve all smelters in the region much more intimately.



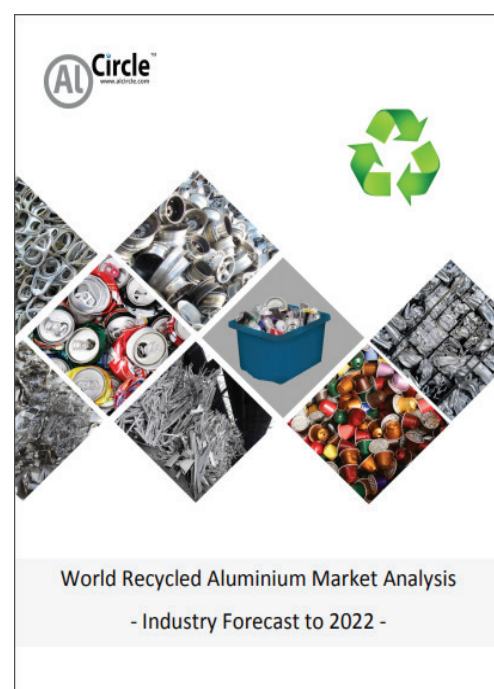
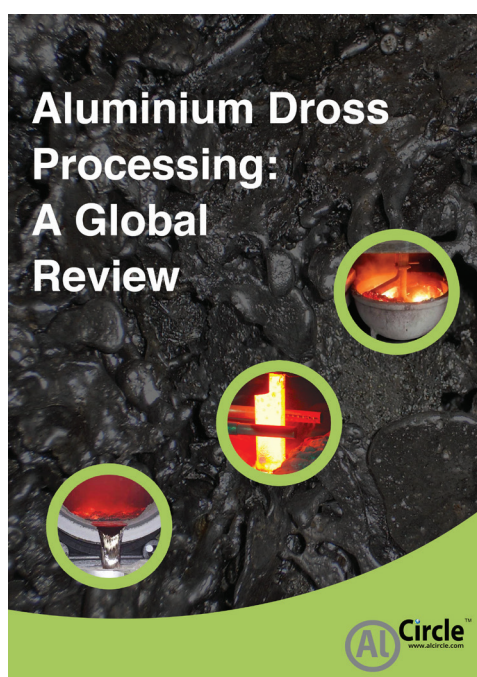
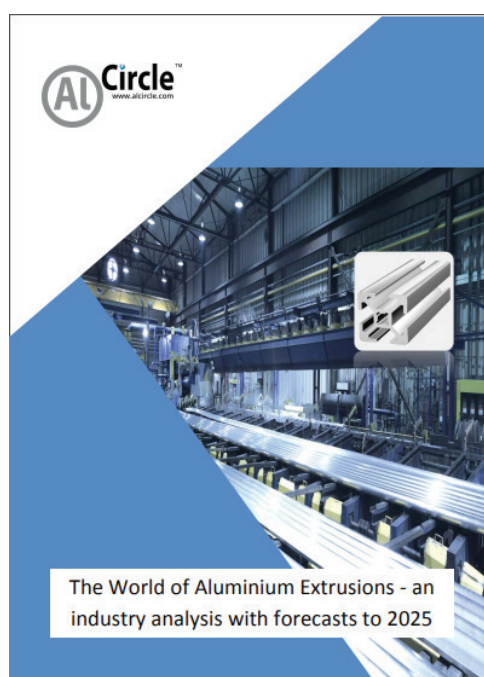
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Shanker Gopalkrishnan – President,
Madras Consultancy Group

Aluminium downstream opportunities in the GCC

By Shanker Gopalkrishnan, President, Madras Consultancy Group

Shanker Gopalkrishnan is the head of Madras Consultancy Group (MCG), a management consulting firm that he founded in 1985, at Chennai, India. Over the past three decades, MCG has completed a large number of market analysis, project feasibility and consultancy assignments for the aluminium industry and other industry verticals in India, GCC and South East Asia.

Shanker's consulting practice areas include Business and Marketing Strategy, Market Analysis, and Marketing Consultancy. He has been associated with the Aluminium Industry for over 5 decades and he consults for MNCs and Indian firms and has significant consulting experience in India and GCC.

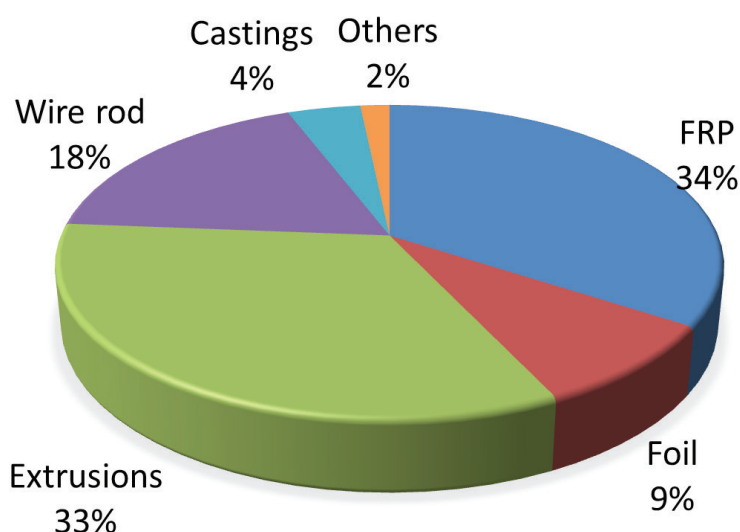
In AlCircle's third edition of the magazine, he has shared his views on the current aluminium market, particularly downstream in the GCC region. To know more, continue reading the article.

During the last decade, GCC has emerged as one of the major primary aluminium producing regions of the world, with production increasing from 1.8 million tonnes in 2008 to 5.3 million tonnes in 2018. The region's share of world primary production increased from 4.5 per cent to 8.3 per cent during this period. However, around 80 per cent of the total primary aluminium produced in the GCC region is exported and the rest gets used in the domestic

downstream sector. Aluminium usage including primary and recycled metal in the GCC region is estimated at 1.2 million tonnes for 2018. Aluminium is used in the manufacture of various downstream products including flat rolled products (FRP), foil, extrusions, wire rods and castings. From the end use perspective, currently, the architectural, building and construction (ABC) sector is the main driver of the domestic aluminium downstream products demand. Packaging and cables & conductors are also key use sectors. Transportation, electrical and other industrial applications are the emerging markets for the future.

Aluminium usage by downstream products, 2018 (000 tonnes)

Total usage: 1.2 million tonnes (approx.)



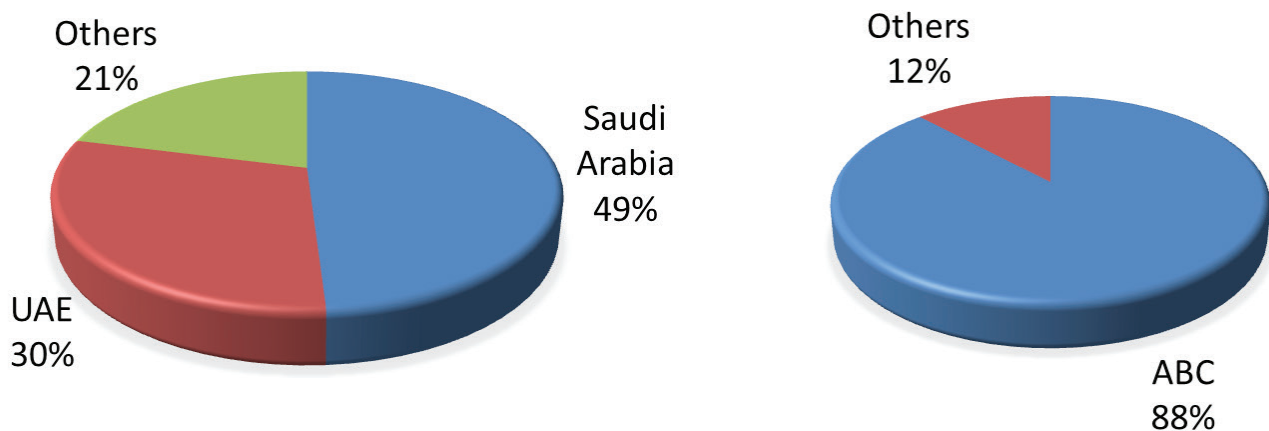
Source: MCG research estimate (indicative)

Aluminium FRP usage in GCC region stood at about 410,000 tonnes in 2018. Saudi Arabia, UAE and Bahrain are the major markets in the region and the packaging sector accounted for about 54% of the FRP usage. Ma'aden and Garmco are the two major producers of FRP in the region. Aluminium foil usage in GCC is estimated at around 105,000 tonnes for 2018. Most of the aluminium foil demand is met through imports. Household foil and semi-rigid containers account for about 42% of the foil usage.

Aluminium extrusions usage in GCC region stood at an estimated 400,000 tonnes in 2018 and over 85% of this is used for ABC applications. Saudi Arabia and UAE account for close to 80% of the regional market. Some of the leading producers of aluminium extrusions in the GCC region include Al Jaber Aluminium Extrusions, Al Taiseer Aluminium Factory, Aluminium Products Company, Arabian Extrusion Factory, Bahrain Aluminium Extrusions, DAC Extrusions, Elite Extrusion Company, Gulf Extrusions, NAPCO, TALEX and White Aluminium Extrusions.

GCC: Aluminium extrusions usage, 2018

Total usage: 400,000 tonnes (approx.)



Source: MCG research estimate (indicative)

Aluminium wire rods used in the manufacture of overhead bare conductors accounted for about 18% of the aluminium usage in GCC. In recent years, the demand for aluminium wire rod is driven by Saudi Arabia where the Saudi Electric Company, the main electric power provider is gradually switching from copper to aluminium for new high voltage and medium voltage projects. Castings which now account for a small share of 4% of the total aluminium usage is poised to grow in the coming years.

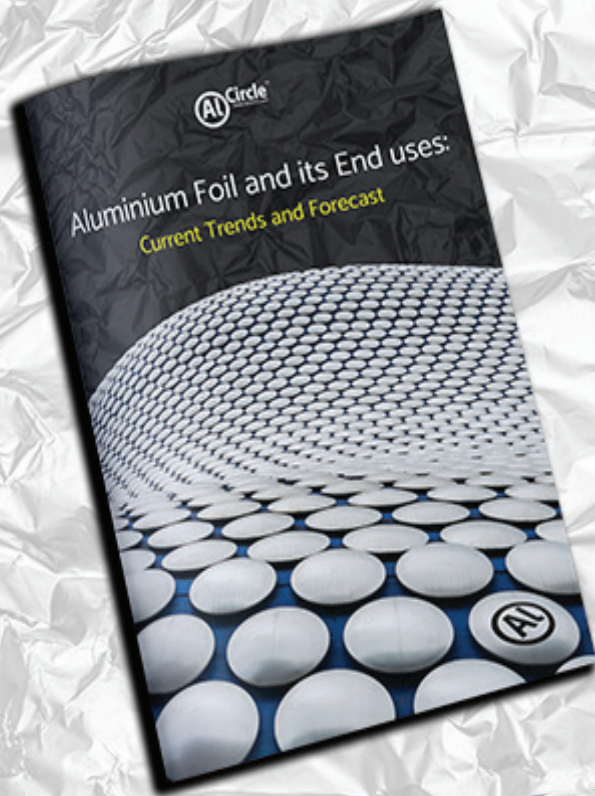
The GCC region offers potential to expand into fabricated products market that are yet to be explored by the domestic fabricators. Aerosols, pots & pans, components for various industrial applications are few such products that can be manufactured in GCC. Investing in opportunities outside the building & construction sector will be the key to the development of downstream

market. With the onset of worldwide trend towards EVs and lighter vehicles, the transportation sector offers a plethora of opportunities for downstream industry in the region. In the long run, development of rail and metro rail networks across the GCC region is also expected to generate demand for downstream products from infrastructure to coach manufacturing. There is potential for the GCC region to emerge as a component fabrication hub in supporting such market developments. While the GCC region is an exporter of primary aluminium and downstream products, the region does import significant quantities of FRP and foil for domestic consumption.

The GCC region not only provides opportunity for the primary aluminium sector but also offers good potential for the development of downstream industries. The market prospects in the GCC region look promising with increased government spending in the coming decade. Events such as Expo 2020 and FIFA world cup in 2022 to be hosted by the GCC countries will also boost the consumption of aluminium downstream products in the region.

Disclaimer:

This article entitled 'Aluminium downstream opportunities in the GCC' is intended to provide the reader a flavour of the aluminium downstream markets in the GCC region and has been prepared based on secondary research supported by data & estimates provided by MCG. While every effort has been taken to gather and present reasonably accurate data, information & analysis, the author and Madras Consultancy Group do not accept any direct or indirect legal liability of any kind. Prior to undertaking any business or investment decisions, further detailed investigations / studies are recommended. The author can be contacted at shanker@mcg.in



Aluminium Foil and its End uses: Current Trends and Forecast

In a nutshell, the report covers the following points:

- World primary aluminium production & usage: global, by region, end user sectors and product groups
- World aluminium foil usage: global, by region and end user sectors
- Various applications of aluminium foil
- Global aluminium foil capacities & production: global and region wise
- Aluminium foil trade: global and region wise
- Recent trade policy changes and impact on foreign trade
- Changing trade dynamics
- Recent innovations in aluminium foil usage
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Ben Smye – Head of Growth,
Matmatch

Opportunities for Middle-Eastern Aluminium Suppliers: The Matmatch Perspective

In this article, Ben Smye, Head of Growth at materials platform Matmatch, outlines some of the challenges and opportunities for aluminium suppliers in the coming years.

For many decades, steel was the material of choice in the world's largest industries. But in recent years, increasing demand for lightweight steel alternatives has put aluminium in the spotlight.

As a result, there are several opportunities for suppliers to make inroads into new markets. At Matmatch, we help connect engineers and product developers looking for materials with suppliers, which give us insight into developments in the whole industry. In this article, I'll touch on some of the larger trends we have seen in the aluminium market and explain the increasing importance of digital as a conduit to reach new customers in the current climate.

A world of opportunities

In recent years, the growth in demand for aluminium has largely been driven by a few industries. While these are global trends, they are also

applicable to Middle-Eastern markets.

In the **automotive** sector, increasing regulatory pressure and consumer demand for lighter, low-emissions vehicles has led OEMs and their suppliers to seek new materials that could help them achieve this goal. The aluminium industry has benefitted as a result.

There has also been a rise in demand from traditional consumer applications, such as **beverage cans** and **household appliances**. This has largely been driven by increased demand in key markets (particularly China, US and Japan), along with demand from emerging economies where the standard of living has been rising.

Finally, buyers in the **aerospace**, **defence**, **shipping** and **construction** industries have all been looking for strong, durable, lightweight alternatives to steel in recent years.

Economic conditions bring challenges - and opportunities

Although the global demand for aluminium has grown over the last few years, there are signs that it is slowing. In general, economic growth has slowed in some key markets such as China, which has had a knock-on effect on the aluminium market. The trade war between the US and China is also a contributing factor here.

Despite this, such events also bring opportunities. For example, the US-China trade war opens up the possibility for Middle-Eastern suppliers to step in and fill gaps in demand as companies look elsewhere for lines of supply.

And it also forces both suppliers and their customers to reevaluate their options. If suppliers are too reliant on a small number of high-volume

customers, they are exposed to significant risk if just one customer decides to go elsewhere. Likewise, on the buying side many companies recognise the risk of being too reliant on a single supplier and this forces them to diversify their supplier base.

Companies that can move quickly and position themselves in the right way are primed to take advantage of such opportunities. They can react to trends in the market and take business from competitors.

The promise of digital

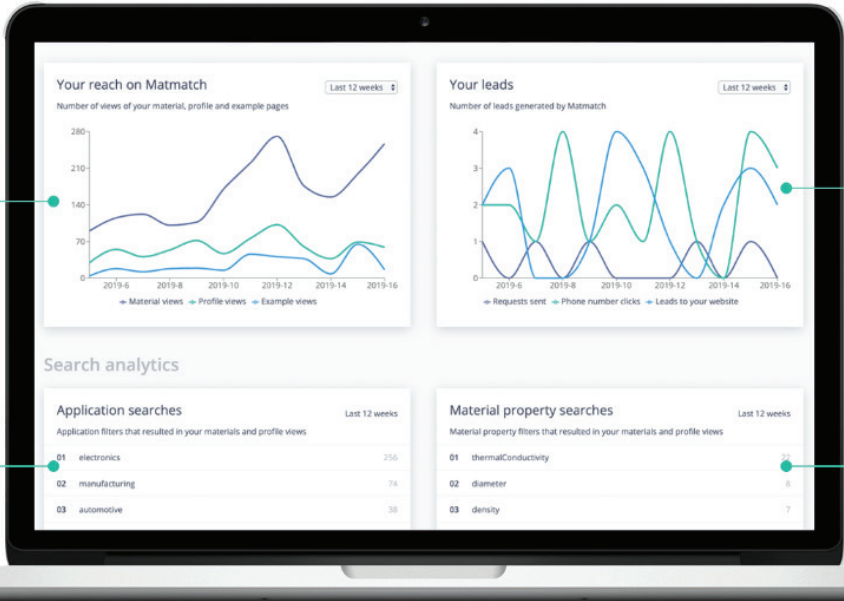
At Matmatch, a key area we still see many suppliers lagging behind is in digital. Increasingly, [engineers are going online](#) to find and research materials. Yet many suppliers have little more than a basic website to attract them. Or, they focus only on buyers rather than gaining awareness at an earlier stage with engineers who are selecting materials.

The number of engineers using digital tools will only grow in the coming years. Young engineers entering the workforce now expect to go online to find solutions. Many have told us that they are crying out for more digital tools like Matmatch that help them in their day-to-day jobs.

But the digital world can seem overwhelming. Changes happen quickly and it is difficult to keep up with them, which can lead to inertia. Some suppliers have also told us they're not interested in 'going digital' as they already know all their customers. But this is dangerous; companies that ignore the digital shift will be left behind.

If you'd like to know more about how you can reach your future customers online, we can help. At Matmatch, we work with metals suppliers around the world, including some leading aluminium suppliers including Rusal, Alcoa and Hydro. They list their products with Matmatch, which are then visible to our global user base of engineers. [Learn more and get involved today.](#)

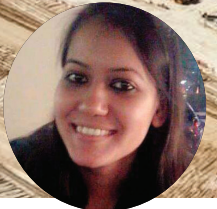
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Gain insights
Understand your customers to target them better.



Debanjali Sengupta - Deputy Manager -
Content, AlCircle

Primary aluminium production ramp-up in GCC likely to bolster its export market years ahead

After China, GCC (Gulf Corporation Council) or the Gulf countries are substantially growing in primary aluminium production. In 2017, the total primary aluminium production volume in the Gulf region was 5.14 million tonnes, which in 2018 grew by 5 per cent to 5.4 million tonnes. According to the Gulf Aluminium Council (GAC) estimation, the output is likely to increase further to 5.7 million tonnes.

The growing demand for aluminium across the world is the primary driving force for this growth in the Gulf aluminium market, according to GAC. Besides, the constant efforts of the GCC countries to make a shift towards the non-oil sector, especially the aluminium industry, is another important factor.

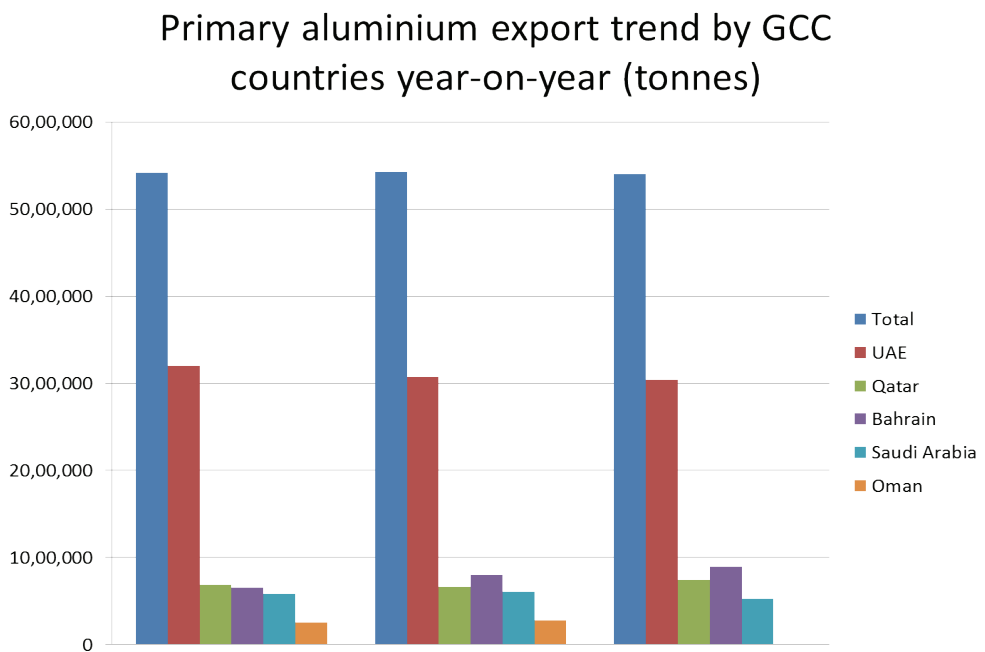
The top five aluminium producers that have primarily contributed to the transition of the Middle East, especially the Gulf countries, from an oil economy to an emerging aluminium superpower are –

- Emirates Global Aluminium(EGA)
- Aluminium Bahrain (Alba)
- Qatar Aluminium (Qatalum)
- Sohar Aluminium
- Maa'den

Among the above list, EGA, a collaboration of Dubal - Dubai Aluminium and Emal - Emirates Aluminium, produces the highest amount in the region, followed by Alba. While EGA in 2018 produced 2.63 million tonnes of primary aluminium, Alba churned out 1.1 million tonnes.

The top five aluminium producers listed above are based at five different Gulf countries, such as EGA at UAE, Alba at Bahrain, Qatalum at Qatar, Sohar at Oman, and Maa'den at Saudi Arabia.

Let us now take a look at the export trend of these five Gulf countries over the past three years. In tandem with the growth in production, the export volume has also been found growing over the years. In 2017, the total unwrought aluminium (both alloyed and non-alloyed) exports by the Gulf countries were 5.42 million tonnes, while in 2018 5.43 million tonnes. In 2019, the volume is likely to continue to grow marginally to come in at an estimated amount of 5.44 million tonnes.



As can be seen in the above graph, the United Arab Emirates is the highest exporter among the other countries. However, its export amount is slightly declining over the years. In 2017, the country exported 3.2 million tonnes, which in 2018 came in at 3.07 million tonnes after inching down by 4.06 per cent. In 2019, the export volume by the UAE is estimated to plunge further to 3.04 million tonnes, down 1 per cent from the year earlier.

But the exports from Bahrain, which is another significant unwrought aluminium (both alloyed and non-alloyed) exporter from the list of GCC countries, have been growing year on year. From 654,384 tonnes in 2017, the country's exports in 2018 grew to 801,053 tonnes, up 22.41 per cent. 2019 is estimated to be of no exception but likely to see further growth of 12.6 per cent to 893,930 tonnes.

The unwrought aluminium exports from Oman and Saudi Arabia had also recorded a Y-o-Y growth in 2018 from 252,748 tonnes to 280,855 tonnes and from 580,855 tonnes to 619,853 tonnes, respectively. But the exports from Qatar dropped last year from 682,973 tonnes in 2017 to 664,327 tonnes. Nonetheless, they are expected to rebound this year to 746,805 tonnes, unlike the exports from Oman and Saudi Arabia as they are estimated to plunge to 236,062 tonnes and 528,943 tonnes, respectively.

Keeping the potential world market of aluminium in mind and the contribution of the Gulf region, it can be concluded by saying that both the production and exports from the region are likely to continue to see further growth in the years to come. It should be mentioned here that US\$3-billion worth expansion of Pot Line 6 at Alba will expectedly boost the capacity to 1.54 million tonnes, making it the world's largest single-site smelter.

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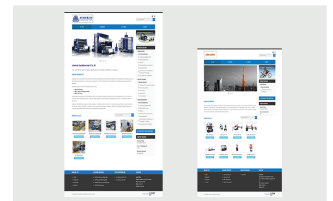
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ALUMINIUM INTERNATIONAL TODAY



Nadine Bloxsome
Editor, Aluminium International Today

“The adoption of digital technology across the aluminium manufacturing chain is imperative on a global level, not just in the Middle East,” Nadine Bloxsome, Editor, Aluminium International Today

The Middle East aluminium industry plays a crucial role in the global production of aluminium is what Nadine Bloxsome, editor of Aluminium International Today, believes. Aluminium International Today, popularly known as AIT, is a leading publication for the aluminium manufacturing industry that delivers global news and detailed technical articles to the readers on the latest developments and challenges in aluminium production and processing.

So, let's hear it from the editor of the publication about the current aluminium market in the Middle East as how it is planning to contribute to the global metal industry. She has also talked about the Future Aluminium

Forum 2020 to be held in Quebec as AIT is the official media partner of the event.

AlCircle: What according to you is the significance of Middle East aluminium industry in the global aluminium sector?

Nadine Bloxsome: The Middle East aluminium industry plays a crucial role in the global production of aluminium. We are seeing huge investments across the sector, not least from Alba who are on course to become the largest single-site smelter in the world. More recently, we have also seen a growth in the number of downstream industries in the region, who are supplying local and international market profiles for construction, automobile parts, cable, rolling products, and packaging.

AlCircle: Do you agree Middle East smelters are some of the most technically advanced and environmentally cleanest smelters in the world?

Nadine Bloxsome: Yes, because the majority of the smelters, especially in the GCC are relatively new. The older ones are also getting extensively modernised. A combination of factors, such as the price of gas, efficiency of power generation, and extensive human resources development, results in the GCC smelters being some of the lowest cost, modern, and most environmentally friendly smelters in the world.

AlCircle: How important is the implication of digital technology in developing an efficient and highly productive aluminium industry in a region?

Nadine Bloxsome: The adoption of digital technology across the aluminium manufacturing chain is imperative on a global level, not just in this region.

AlCircle: Aluminium International Today is the official media partner for Future Aluminium Forum 2020 to be held in Quebec. What is the significance of the event for the global aluminium sector?

Nadine Bloxsome: The 2020 Future Aluminium Forum will be the third time we have hosted the event and this time we are moving out of Europe to Québec City, which is at the heart of innovation in the aluminium manufacturing sector.

Originally developed to assist manufacturers and processors in adopting digital technologies and overcoming the challenges associated with implementation, the Forum has become the annual meeting place to share case studies and discuss how Industry 4.0 can aid and optimise the aluminium manufacturing process through machine learning, robotics, automation and augmented reality across the value chain.

There are still a lot of questions and challenges when it comes to integrating digital manufacturing and the Future Aluminium Forum is the only dedicated industry event that offers advice and a platform for manufacturers and solutions providers to discuss how best to work towards a smarter supply chain.

AlCircle: What is your view on the participation of Middle East aluminium industry in the Future Aluminium Forum? How best can they motivate an event like this?

Nadine Bloxsome: We welcome the Middle East aluminium industry to the Future Aluminium Forum and would be very interested to present any case studies to delegates. At the 2019 edition in May this year, the Vice President of Technology Development & Transfer from Emirates Global Aluminium presented on the company's road map for Industry 4.0, which was very well received.

I am keen to involve more from the major players in this region to present the technology investments and highlight the work already being done to harness the potential of Industry 4.0. In particular, a recent article from Sohar Aluminium in Aluminium International Today presented the company's efforts to position itself as a 'Smelter of the Future', which will be a session focus at the Forum.

AlCircle: Why do you think aluminium players should attend the Future Aluminium Forum 2020?

Nadine Bloxsome: The 'Industry 4.0 Revolution' is already here and I want to help aluminium manufacturers and processors know exactly what this could entail - the benefits and the challenges. The Future Aluminium Forum 2020 will look at 'from pilot to everyday' projects and what these mean for the industry as a whole.

The Forum's key audience consists of those with a leading role in process technology excellence, industrial innovation, research and development, digital transformation and value acceleration, process simulation and engineering education and development.

It is the ideal environment to discuss a collaborative approach to adopting digital technologies, with ample networking opportunities, detailed presentations and a dedicated cyber-security seminar.

AlCircle: What will be the highlights of the Industry 4.0 Conference during the event?

Nadine Bloxsome: The two-day conference will feature sessions on the smelter of the future, automation in the casthouse, data capturing and handling, implementation and challenges in robotics, Industry 4.0 maintenance/

asset management and additive manufacturing.

There will also be a dedicated seminar to address the cyber resilience of the sector, which will help delegates to work on cyber crisis management.

AlCircle: Do you think sustainability and environmental concerns will drive the aluminium industry in near future? How is the industry moving towards this cause?

Nadine Bloxsome: In short, yes! We are seeing huge leaps being made in sustainable technology such as ELYSIS and greener aluminium products entering the market, which shows the industry's dedication in this area.

The Future Aluminium Forum will highlight technologies such as sorting, recycling, traceability and wastewater treatment, which are working towards a greener aluminium value chain.



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Heena Iqbal

Assistant Content Writer, AlCircle



Downstream aluminium products exports in the GCC countries continue growth trajectory

The Gulf Cooperation Council (GCC) countries have emerged as a major hub for primary aluminium production. The aluminium industry, which began only four decades ago with Aluminium Bahrain (Alba), is now one of the key economic drivers for the Gulf region, the fastest growing aluminium producer and exporter after China. The region not only provides an opportunity for the primary aluminium sector but also offers the potential for the development of downstream industries like flat rolled products, extrusion, foil and wire rods. The GCC countries have top companies with their downstream operations.

The GCC's 40% of total primary aluminium production is used by the domestic downstream aluminium industries and about 60 per cent is exported to different parts of the world. The building, packaging, construction, transportation, automotive, electrical, and engineering and various other sectors are the key drivers of the domestic aluminium downstream products. The list of major GCC downstream players includes Gulf Aluminium Rolling Mill (GARMCO), Ma'aden, Aluminium Products Company (ALUPCO), Oman Aluminium Rolling Company LLC, Ducab Aluminium Company, and Gulf Extrusion Co. (LLC), among others.

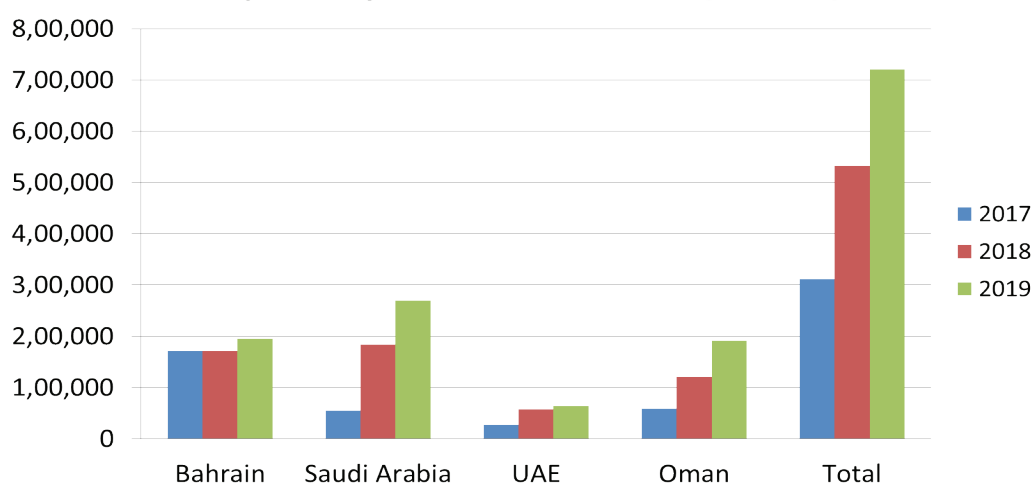
The GCC region's usage of aluminium in the form of flat rolled products (FRP) was close to 410,000 tonnes in 2018. Aluminium foil and extrusions usage in the GCC region was estimated at around 105,000 tonnes and 400,000 tonnes last year.

GARMCO of Bahrain is the major aluminium flat rolled products (FRP) producer in the Middle East region. With an annual production capacity of 165,000 tonnes, GARMCO specialises in producing high-quality flat rolled aluminium products in various sizes and alloys, including sheets and coils. The United Arab Emirates, Saudi Arabia, and Oman are the other key GCC countries that export a substantial amount of downstream products to the international markets.

Let's analyse these four Gulf countries' foreign trade trends for aluminium plates, sheets and strips in 2017, 2018 and 2019.

The four GCC countries (Bahrain, the United Arab Emirates, Saudi Arabia and Oman) together exported about 5,32,320 tonnes of aluminium plates, sheets and strips in 2018, an increase of 220,763 tonnes or 70.86% from a year earlier. The four GCC countries' exports have been increasing year-on-year. In 2019, their exports are expected to reach 720,351 tonnes, up 131.21% from 2017 and 35.32% from 2018.

Estimated aluminium plates, sheets and strips exports by the GCC countries (Tonnes)



As shown by our data, Bahrain exported 170,847 tonnes of aluminium plates, sheets and strips in 2017, which grew by 0.08% per cent to reach 170,717 tonnes in 2018. In 2019, Bahrain is estimated to export around 194,514 tonnes of plates, sheets and strips, up 13.85% from 2017 and 13.94% from 2018.

Exports of plates, sheets and strips by Saudi Arabia and the United Arab Emirates (UAE) have increased by 232.66% or 128,241 tonnes and 113.54% or 30,552 tonnes year-on-year to 183,361 tonnes and 57,461 tonnes in 2018. Saudi Arabia and the UAE are estimated to export 270,099 tonnes and 64,367 tonnes of plates, sheets and strips in 2019.

Oman exported an estimated 58,680 tonnes in 2017, which increased by 105.83% or 62,102 tonnes to total at 120,782 tonnes in 2018. The export volume of aluminium plates, sheets and strips are estimated to stand at 191371 tonnes in 2019, up 58.44% from 2018, and 226.13% from 2017.

To sum up, the increasing demands in the domestic and international markets, primarily buoyed by the growth in the infrastructure development, will continue to expand the consumption of the downstream aluminium products in the GCC region. Events such as Expo 2020 and the FIFA world cup in 2022 are set to further accelerate the demand and consumption of building products in the years ahead.



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