



CFCM: Copper Fabricators Competitive Monitor

Year 2023 - n. 102/23 – Excerpt for ElvalHalcor

An interesting profile of the ELVALHALCOR's Copper Segment emerges from Cu2 Consulting's interview with Panos Lolos, General Manager of the segment. In a journey through the multifaceted reality of the Group, the interview discusses market trends, the status and development of the Group's numerous product lines, its R&D vocation, its sustainability strategy, and much more.

When people in the copper industry think of ElvalHalcor – which in the minds of many is simply Halcor – often they think of a company producing copper tubes in Greece.

Over the years, however, the company and the group to which it belongs have evolved into much more. Today, the **Viohalco Group** is a multi-metal holding company based in Belgium and listed in Greece and Belgium, with almost 10,000 employees, a turnover of around € 7 billion (2022) and a leading position in the segments in which it operates. We can define it as an almost unique reality in Europe.

Its multi-metal activities range from aluminium to copper and steel, and from flat to extruded products up to cables. They serve a very wide range of industries and offer technologically innovative solutions also thanks to intensive R&D activities.

ElvalHalcor is the company of the Viohalco Group that produces semi-finished aluminium and copper products. Formed in 2017 from the merger of Elval and Halcor, it is listed on the Athens Stock Exchange, and is a leader in the sectors in which it operates.

In 2022 ElvalHalcor produced almost 600,000 tons of semi-finished products in aluminium and copper. The Copper Segment produced 200,000 tons at its production sites in Greece, Bulgaria, Turkey and the Netherlands.

The interview with Panos Lolos, General Manager of ElvalHalcor's Copper Segment, zooms into the copper sector and offers us an interesting insight into a composite and dynamic business.

ElvalHalcor currently stands out as the sole prominent multi-metal company in Europe

producing semi-finished products in aluminium and copper and having a significant position in both segments. Since its inception in 2017, ElvalHalcor has undergone remarkable growth, evident in the sizeable increase in revenue from € 1.9 billion to € 3.7 billion in 2022. Moreover, the company has more than doubled its adjusted EBITDA from € 129 million to € 271 million during the same period. What factors have most influenced the growth of the company?

Revenue, as we all in the non-ferrous segment know, is affected by metal prices significantly, and in that sense, we cannot compare 2017 to 2022. However, this has been a period of significant investments in the Aluminium segment, which have radically increased the Company's production capacity. At the same time, we have been working consistently on improving the operational performance, productivity, and the portfolio of products in the Copper Segment, and consequently the volumes sold, in sectors and products with

prospects for dynamic growth in the context of the global sustainability megatrends of circular economy and climate neutrality as well as urbanization and technological advancements. During this period and in spite of smaller investments in the Copper Segment, we have gained the 1st place as copper tubes producer in EMEA (by volume) and have managed to consistently rise in shares in the rolled copper and alloys segment. The innovative technology and the diversified product portfolio, including higher value-added products, have had a positive impact in terms of profitability with better conversion prices. Although the results of 2022 were boosted by the exceptional demand during that year, especially in the first half, ElvalHalcor is in a much enhanced position to create volume growth and profits than 5 years ago.

Looking at the most recent 2022 data, it appears that ElvalHalcor's two segments have had different trends in their performance.



Panos Lolos – General manager of Copper Segment at ElvalHalcor

Photo by courtesy of ElvalHalcor

Specifically, the adjusted-EBITDA margin of the Aluminium Segment rose from 8.1% to 10.6% from the previous year, while the Copper Segment's adjusted-EBITDA margin remained relatively stable at 3.7%. What are the reasons behind the contrasting performance of the two segments?

Revenue is the metric that is affected by metal prices, which is an accounting result. However, a(djusted)-EBITDA is the most significant key performance indicator in terms of operational profitability for the Group and the Company, as it isolates the operational results and adjusts any impact of accounting metal result and any other exceptional items. As a result, any measure of EBITDA margin cannot be reliable, as a performance indicator. In particular, we may comment a-EBITDA performance for each segment. The Aluminium Segment marked an increase in terms of a-EBITDA by 89.8%, as it was positively affected by the increased sales volumes (by 8.2%) and conversion prices, leveraging on the increased capacity of the segment and the increased demand for its products

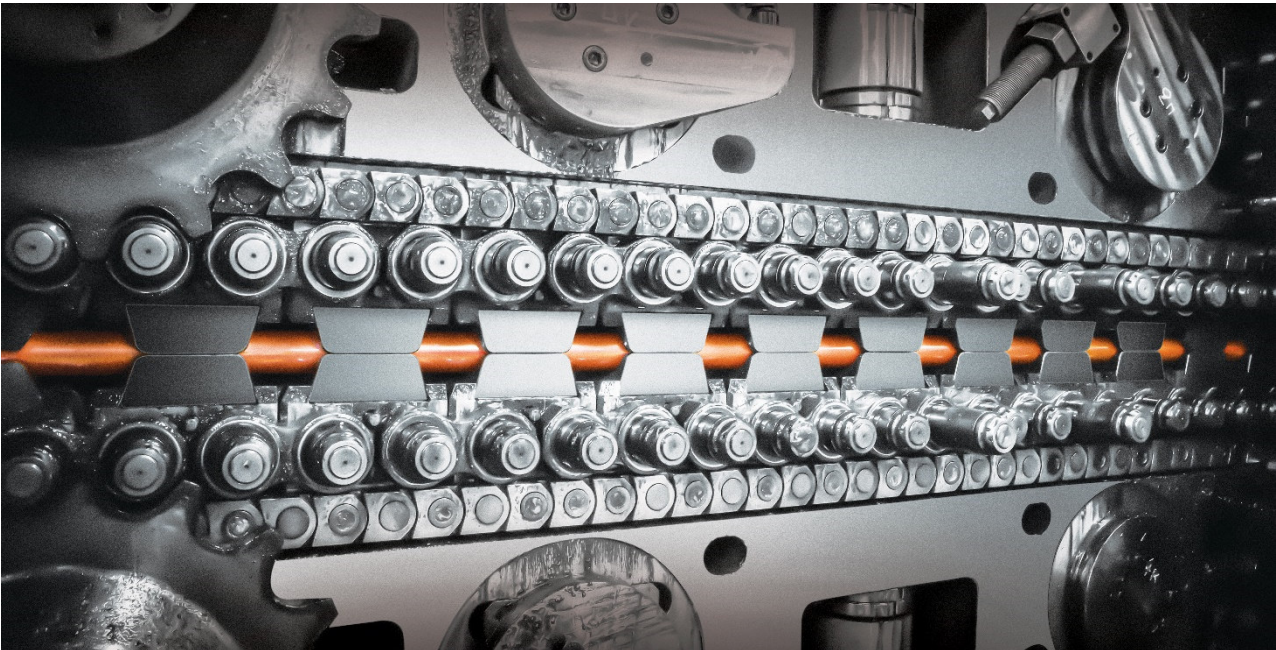
which lasted throughout the year. The Copper Segment marked an increase by 13.2% mainly attributable to the increased conversion prices, due to the high demand for its products and the product mix, through more high added value products. This shift in product mix curtailed our ability to grow in volume in the rolled copper and alloy segment temporarily, because of our learning curve and the need to increase productivity gradually in difficult products. Demand for other products wavered in the second half of the year, as a result of the global rise of interest rates and their effect on growth.

Shifting attention to the Copper segment, after a strong first half, you posted a noticeable decline during the second half of 2022. How have you seen demand evolving in the first part of 2023? Which products are experiencing growth, and which ones are still facing challenges?

Following an exceptional first half of 2022, which was characterised by excessive demand in most segments of the economy, the first quarter of 2023



Copper tubes plant in Oinofyta, Greece - Photo by courtesy of ElvalHalcor



Caterpillar - Copper tubes plant in Oinofyta, Greece - Photo by courtesy of ElvalHalcor

exhibited a marginally higher slowdown than expected, resulting from the global financial uncertainty and the continuously rising interest rates and its effect mainly on the construction sector. The phenomenon was more prevalent in the copper alloy extrusion product category, where a significant drop in the demand was observed and less evident for the copper tube products.

Special mention must be made regarding the sales evolution of the copper and copper alloy rolled products growth, which was positive in contrast with the overall market trend due to our shift towards higher value-added products and our timely strategic positioning.

Have you observed any varying trends across the different geographic regions?

ElvalHalcor is a well-diversified company with an international orientation of its sales and no major dependency on countries or geographical areas. To that end, exports of copper products to the EU represent approximately 2/3 of our sales, while total exports represent 95% of our sales for the Q1'23. In addition, the total exports of the Group represent 92% of our sales for the respective period.

Moreover, there are differences per country, even within the same market segment. There are several

reasons for this, related to industrial activity and the market awareness of the benefits of copper and copper alloys products. For example, in some countries, copper tubes are still the preferred solution in a building, so the demand in these countries is more resilient than in the rest.

This high reliance on foreign markets exposes you to various global issues, which - in the current scenario of slow growth, escalating prices, and higher interest rates - could create challenges. Can you identify the major challenges you anticipate and any potential opportunities that may arise?

Agility, proactiveness and versatility are integral parts of our mentality and business culture. Therefore, Elvalhalcor is in the position to gain from this multilateral market presence and avoid dependency on certain markets or product categories. The concern about increasing interest rates with low growth rates and even more stagflation, the lack of energy price competitiveness due to weak policy measures and slow or dysfunctional green energy transition, and the demographics in our continent is evident in European manufacturing, so it is affecting also the copper semi-finished industry. Despite the lack of proper and immediate reaction on behalf of the EU

to protect European industrial manufacturing through a coherent strategic action plan as a response to the relative actions of other countries, there are significant opportunities in our industry due to the sustainability megatrends which are quite evident, such as the energy and the digital transition, and ElvalHalcor has been preparing production and operations towards this direction.

Despite your strong export orientation, your production footprint is basically limited to Greece and Bulgaria (excluding the two JVs for zinc titanium in the Netherlands and insulated copper tubes in Turkey). Do you plan to expand your manufacturing presence beyond Europe, or do you think your production base will remain as it is?

Our production facilities are based already in several countries which is already a significant step compared to some years ago. This is more important taking into consideration that the increase in the production facilities and the proliferation of our production base is gradual and continuous but always in accordance with our strategic plan for expansion.

We are pretty firm in our decisions, and we tend to invest with a long-term view when it comes to expansion, until we fully utilize the capacity of every production facility. Hence, any decision for a new production establishment is usually driven by the need to enter new products or industries and this something that we always investigate with special care and the glance to the future.

ElvalHalcor is one of the very few remaining manufacturers in Europe with a wide and diverse portfolio of copper and copper semi-finished products, including (among others) copper tubes, copper and copper alloy rolled products, brass extruded products, copper bars, enamel wires and coin blanks. NedZink, your JV in the Netherlands, also supplies zinc titanium roofing products. Given the increasing specialization within the European copper fabrication industry, do you think your company’s portfolio diversity provides a competitive edge?

In reality we are rather more diversified than you are mentioning, as the largest part of the company is Aluminium rolled products, including foil. This diversification gives us primarily a very high



Halcor's people at the copper tubes plant in Oinofyta, Greece - Photo by courtesy of ElvalHalcor



Press upgrade at the copper tubes plant in Oinofyta, Greece - Photo by courtesy of ElvalHalcor

resilience, as a result of the lack of dependence in one market or segment, and this has helped us in the past.

We also benefit from synergies in many areas: technical expertise, purchasing power, distribution networks, banking relationships being amongst the major areas where the consolidation of activities helps.

Hence, unlike the trend you describe, ElvaHalcor managed to grow in the last few decades and enter new sectors with remarkable success. So I believe that our company is a case study during an era of low expectations and even less investments in the industries we are active in, and that is definitely one of our competitive advantages.

Let's now focus on copper tubes. You are the largest supplier in EMEA by volume. Looking at the most recent trends, you said your output decreased in the second semester of 2022. Was the drop mostly connected to the overhaul of

your extrusion press? If yes, are these constraints now fully overcome?

Our output decreased in the second semester of 2022 because of the overall market decline combined with the geopolitical crisis in our region and other import issues in some countries outside of the EU, not specifically for copper but for most imported goods. These three main factors affected our overall demand, leading to reduced output.

The revamp of our extrusion press (in our copper tubes plant) was performed precisely according to our schedule without affecting at all our ability to keep our customers supplied on time, as we had already taken the necessary actions to ensure that we had sufficient stock available for the revamp period. We are proud that such a major project was pursued accurately and on time and we increased furthermore our confidence in the capacity of our people and our technical consultants.

Looking at the sectors which offer the greatest

growth potential for copper tubes, heat pumps are now at the forefront. According to the REPowerEU objectives, the number of newly installed heat pumps should double each year. The European Heat Pump Association - EHPA estimates this would lead to 20 million more heat pumps by 2026 and 60 million by 2030. Meanwhile, all leading HVACR suppliers are announcing huge investments in capacity building. What could be the impact of this significant increase in capacity on the demand for copper tubes over the next five years? Do you foresee any obstacles that might impede the expected massive development of this segment?

As the EU envisions a path toward climate neutrality by 2050, the role of sustainable heating, cooling and refrigeration solutions for businesses and consumers is critical. Over the last decades we have seen a number of actions taken towards to low carbon cooling and refrigeration systems, and now heating is at the forefront. Heating of buildings alone accounts for 40% of the EU's energy consumption and 70% of this still comes from burning fossil fuels. Therefore, it is time for further actions.

The significant capacity growth in the heat pump segment, as indicated by the REPowerEU objectives and the estimates by the European Heat Pump Association (EHPA), is expected to have a positive impact on the demand for copper tubes in the next five years. Copper tubes are widely used in heat pump systems due to their excellent heat transfer properties and durability. The demand for copper tubes in heat pumps varies depending on the type and size of the heat pump system. Considering the estimated growth in heat pumps, it is reasonable to expect a corresponding increase in the demand for copper tubes, especially for tubes designed for A/C and refrigerating applications, such inner-grooved tubes, pre-insulated copper tubes and tubes for connecting parts. Our investment plan in the copper tube mill is in accordance with this trend and we are optimistic that we can capitalise our positioning in the future.

As for obstacles that might impede the expected massive development of this segment, several factors could influence the growth potential,



Copper tubes use in heat pumps - Photo by courtesy of ElvalHalcor

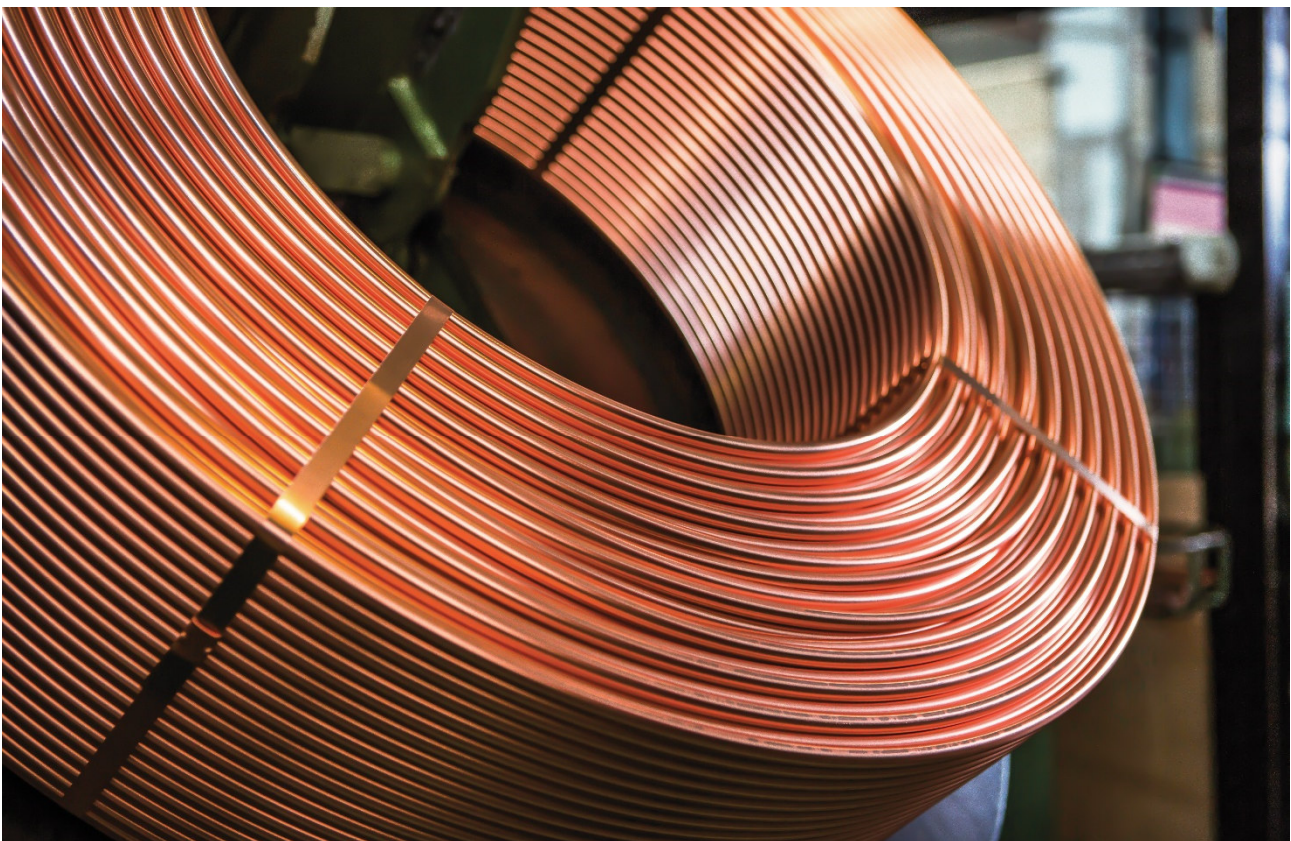
however, regulatory framework, training and supply chain constraints seem to be of most importance. Government regulations and policies play a crucial role in promoting heat pump installations, and any changes or delays in supportive regulations and incentives could hinder the expected growth. Consumers should be provided with all the information and incentives so that they are aware in regard to the importance of sustainable future and reduction of greenhouse gas emissions, in parallel to increasing the training of key players in the sector such as installers and service providers. Finally, with the significant increase in demand, there could be potential supply chain challenges, especially manufacturing capacity. Leading manufacturers of heat pumps have already taken action to increase the capacity of existing production plants, while new greenfield investments have been announced that will bring into the market a significant amount of capacity to cover the expected demand and ensure that the European production base stays strong against imports.

The use of natural refrigerants, such as carbon dioxide (CO₂), is another important issue for the air-conditioning business, especially in the light of increasingly stringent environmental requirements. Your offer includes copper tubes with reinforced wall thickness, which can withstand the high operating pressures of natural refrigerants. Moreover, ElvalHalcor is one of the few European suppliers of extra-strong CuFe2P tubes. How is copper iron tube demand evolving in ACR applications? Will it remain a niche product, or do you anticipate it will become the standard for new natural refrigerants?

Over the last 10 years the natural refrigerants, especially CO₂, have gained a large share of the market in the refrigeration sector and during the recent years we have seen an increase of the use of natural refrigerants in the heating sector as well. Key drivers of the growth of CO₂ refrigeration systems in Europe include environmental regulations for the phase-out of HFCs, financial incentives, grants, or

tax benefits that offset the initial higher costs associated with installing CO₂ refrigeration systems, and a demonstrated energy efficiency performance both in cold and hot climates, making them more economically viable for supermarkets.

Carbon dioxide is a very efficient refrigerant with attractive thermo-physical properties and a comparatively low GWP (GWP=1) versus other refrigerants. It is classified as a safety group A1 which means is non-toxic and non-flammable. On the other hand, carbon dioxide operates at a far higher pressure than typical refrigerants. The industry has made significant progress in developing safe and reliable solutions for CO₂ systems with a design pressure of even 130bar. Tube technology in particular evolved through research and technology to address this challenge and TALOS XS® copper alloy tubes made of CuFe2P alloy are able to withstand the increased working pressures, and at the same time making use of the traditional installation methods. CuFe2P tubes provide distinct technical advantages over



Copper tubes plant in Oinofyta, Greece - Photo by courtesy of ElvalHalcor

alternative materials, such as stainless steel, for example, CuFe2P tubes can form strong joints and are easily brazed compared to welding of stainless steel and they have a thermal expansion coefficient closer to copper and brass which helps reduce the stress on the joints during thermal cycling, minimizing the risk of joint failure or leaks.

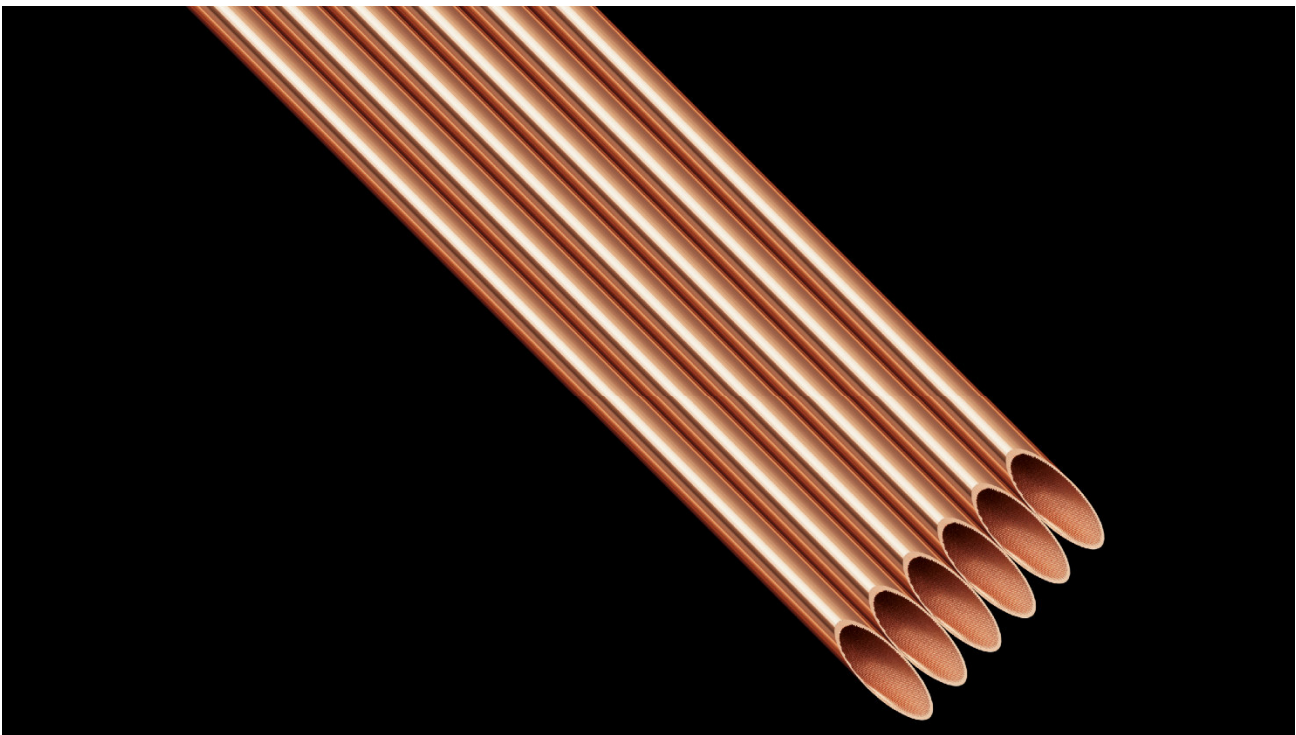
ElvalHalcor's complete range of TALOS XS® copper-iron tubes up to 2 5/8" in diameter has been gaining market share steadily over alternative materials and is expected to grow together with the evolution of CO2 systems. As consumer awareness about environmental issues grows, so does the prioritization of ACR equipment manufacturers that implement eco-friendly systems that attract environmentally conscious customers. Copper-iron tubing will become the standard for such applications where extra strength and safety is needed.

On a less bright note, Daikin has announced plans to reduce the global amount of copper by FY2024 and promote replacement to aluminium and stainless steel. NJT, one of the two existing suppliers of copper tubes in Japan, has already

converted one grooving facility from copper to aluminium, and Hailiang as well is targeting production of smooth and IGT aluminium tubes. Do you feel that, in the long run, copper will be widely replaced by alternative materials in ACR applications? Given ElvalHalcor's expertise in aluminium, have you begun investigating the prospect of starting production of aluminium tubes?

Copper has a long history of successful use in ACR applications due to its excellent heat transfer properties, corrosion resistance, and reliability. However, there has been increasing interest in exploring alternative materials, one of the primary drivers being high copper prices that can fluctuate significantly based on global supply and demand dynamics. In some cases, this has led to exploration of alternative materials; aluminium, in particular, has gained traction as a substitute for copper due to its lower cost, lighter weight and good heat transfer properties, although not as high as copper.

Using aluminium tubing in ACR systems presents various challenges. Aluminium is more prone to corrosion compared to copper, leading to potential



Halcor's TALOS® IGT copper tubes - Photo by courtesy of ElvalHalcor



Halcor's team, with Panos Lolos at the center, in front of the recently upgraded extrusion press, at the copper tubes plant in Oinofyta, Greece - Photo by courtesy of ElvalHalcor

degradation of the tubing over time.

Aluminium has lower mechanical strength than copper which can pose challenges in terms of the structural integrity and durability of aluminium tubing, especially in applications where it may be subjected to high pressures, thus aluminium tubing typically needs to have thicker walls to achieve similar performance and pressure ratings.

Aluminium tubing may not be compatible with certain existing components in an ACR system that were designed for copper tubing. For example, connectors, fittings, and valves may need to be specifically designed or adapted to work with aluminium tubing. Repairing or modifying aluminium tubing can be more challenging compared to copper tubing.

Aluminium is less forgiving in terms of brazing repairs, and specialized techniques and equipment may be required. Maintenance procedures and training for technicians should account for the

specific requirements of aluminium tubing to ensure proper handling and serviceability.

The decision to use copper or an alternative material often depends on factors such as cost, performance requirements, regulations, and specific application needs. Based on current ACR technology, copper tubing remains the most reliable and efficient option for ACR systems, and its widespread use is expected to continue for the foreseeable future.

ElvalHalcor has a long history and expertise in processing of copper, as well as aluminium. While copper tubing is still widely employed today in ACR applications, ElvalHalcor is monitoring the market to gauge the potential demand and growth prospects of aluminium tubing for specific segments and identify any opportunities for differentiation that the company can capitalize on.

At the end of the day, we are tube manufacturers and solution providers for HVAC&R applications and we will remain, no matter of the material used.

Moving on to foreign trade, in October 2022, the Ministry of Trade of Turkey initiated an expiry review investigation on imports of copper tubes & pipes originating in Greece. In 2017, the Turkish authorities levied an AD duty on ElvalHalcor of 5%, despite the fact you operate a JV in Turkey, HC Isitma, which insulates the copper tubes produced in Greece. ElvalHalcor said it would participate in the expiry review investigation. How concerned are you about this review, and what outcome do you foresee?

We cannot foresee any particular outcome; from our side, we participated in the investigation as the previous time collaborating with the Turkish authorities. We maintain excellent relationships with our long-term customers in Turkey and with the new ones we recently developed.

Turkey is a special market for ElvalHalcor due to the proximity and the vast production of HVAC&R products so we will be always present there, no matter of the administrative decisions.

Yet, if we look at Europe (here defined as EU27+UK+Switzerland and Norway), we see that imports from outside continue to rise. In 2022, flows from the main overseas exporting countries (Vietnam, China, Mexico, Turkey, Thailand, Malaysia, and South Korea) reached

almost 40,000 tons, up from just over 17,000 tonnes in 2017 (nearly +130%). How much does this worry you, and what actions can be taken to counter this trend as a company and as a sector?

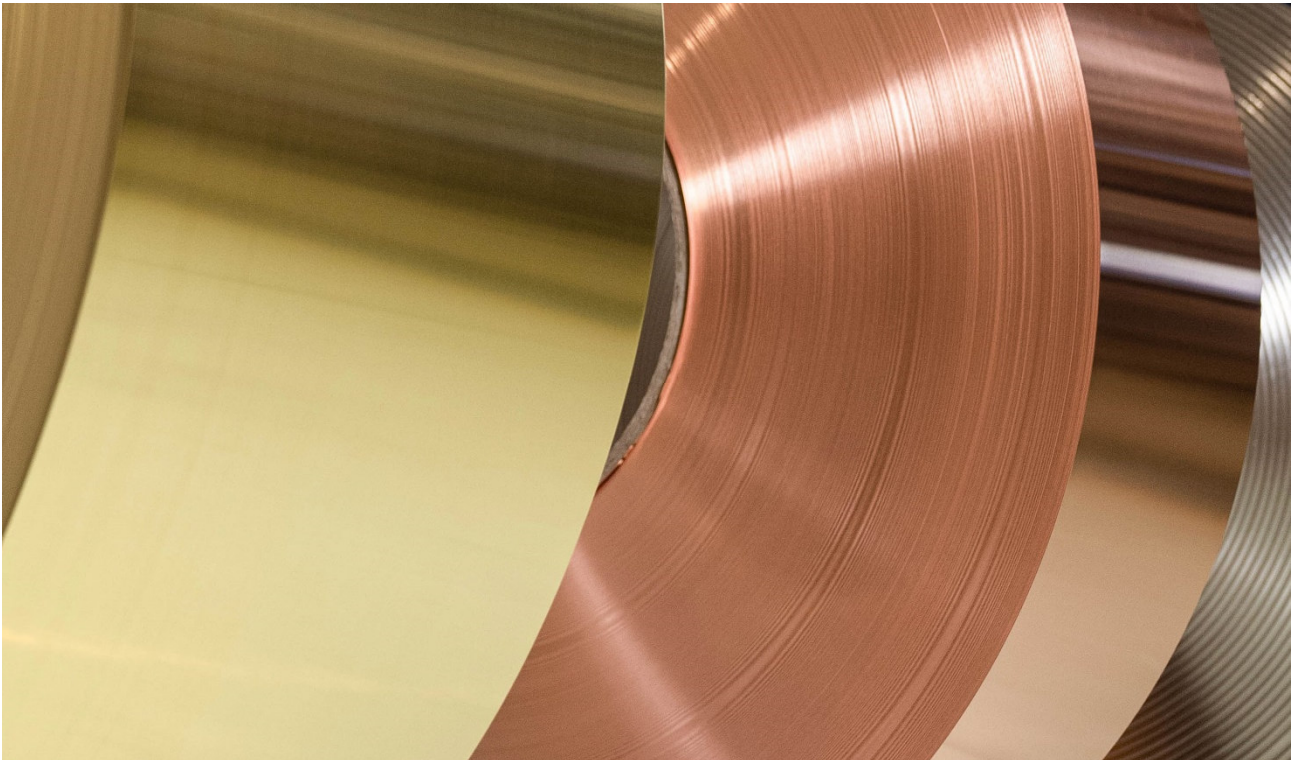
We are firm supporters of fair trade and welcome fair competition as the best way for the market to flourish and for each company to improve.

We must remember that in 2017 the European capacity was higher, with more companies in the market than today, which also played a role in the increase in imports. In addition, the demand in 2021 and the first half of 2022 was very high, and the local fabricators couldn't cover it entirely or sufficiently. Given the projections for copper tubes needs in the next 5–10 years, the imports from overseas countries will inevitably continue in spite of the European capacity.

Our main action to counter this trend is to maintain our continuous improvement strategy and culture of excellence providing high-quality solutions to all of our customers, increasing competitiveness and developing further long-term strategic relationships that enabled us to improve and grow in the last years. On the other side, the EU has to adopt a dynamic approach towards any potential unfair competition coming from third countries that may impact further the deindustrialization of our common market.



Copper tubes plant in Oinofyta, Greece - Aerial view - Photo by courtesy of ElvalHalcor



Copper and brass strips at the Sofia Med's plant in Sofia, Bulgaria - Photo by courtesy of ElvalHalcor

Moving on to rolled products, the automotive industry is still weak. How do you see current demand for rolled products from your perspective? Are there segments that are still buoyant?

There are no signs of recovery yet in the automotive industry in spite of the stabilization in the demand that we currently see.

The strategies of the big OEMs are not clear to the end users, and this directly affects demand. Vague political decisions and directions regarding e-mobility in key countries like Germany and Italy are also not helping the automotive industry to grow towards this direction.

There are still sectors, such as the electrical industry, that are in better condition, but this is not enough to cover the drop due to the weak demand for new cars and in spite of the importance of e-mobility as a part of the European Green agenda.

Sofia Med has recorded impressive growth in recent years. At the 2022 Financial Results Webcast, you disclosed that Sofia Med had a theoretical capacity of 110,000 tons, but you

were operating at a rate of about 70,000 tons. However, you added that in order to serve your target segments with premium products, you needed additional investment, which will also allow you to optimize your excess capacity. Can you add a little colour to the kind of investments currently in the pipeline and specify which segments you are targeting to boost the usage rate at Sofia Med?

The cold rolling capacity of Sofia Med is about 110,000 tpa.

However, Sofia Med has taken the strategic decision to enter more demanding markets and produce high value-added products.

We have a plan - already in place - of various investments that are targeting to contain our production bottleneck and allow us to increase the output for these products.

These products are mostly covering needs in the Energy, Telecommunication and Automotive sectors and we are optimistic that will contribute further to the growth and the success of the company which is already remarkable.



Headquarters and manufacturing plant of Sofia Med in Sofia, Bulgaria – Bird's-eye view - Photo by courtesy of ElvalHalcor

Sofia Med is today the fourth largest supplier of rolled products in Europe. Even if all idle installed capacity were, Sofia Med would still rank in the middle between the top three players (Wieland, KME, and Aurubis) and the other mid-sized suppliers. Are you targeting any M&A deals in rolled products that might simultaneously boost your market position and expand your alloy portfolio?

In the last few years, Sofia Med was clearly positioned in the market, as a strong and continuously growing producer of copper and brass. In parallel, we have invested in our people and machinery in order to expand our portfolio with high performance alloys, specialties and tinned products.

Our efforts are embraced by the market and the most demanding OEM customers in various industries. Hence, our products are now supplied to a very wide range of customers - compared to the past - covering most of their needs. We stick to our strategy, and we will continue our efforts to further

grow and improve our performance in our existing facilities in Sofia where we believe there is still a lot of hidden value.

Sofia Med is also one of Europe's largest manufacturers of copper bars. You disclosed that copper bars were the only sector with volume growth in 2022. Was this growth related to an increase in end-user demand or an expansion in your market share?

For sure both; firstly, Sofia Med is a reliable partner in extruded copper products over the last 23 years, it was our first business field in Sofia, back in 2000 when we started the operation of the plant. The market appreciates our reliability and good performance, and this allowed us to increase our share. Additionally, the last couple of years the market is obviously growing, and we managed to get advantage of this growth.

Continuing in the domain of copper bars, Sofia Med also supplies custom copper components. Given the expected increase in demand for

eMobility and renewable energy-related components, are you considering expanding your presence in this downstream market?

We serve our existing customers by providing some supplementary products for their needs. We are a semi-finished producer of copper alloys, and we have no intention to compete with our customers in this downstream market. We believe that there is enough space for us to grow within the existing semi-finished market.

Moving on to brass extruded products, at the end of 2021, Fitco merged with ElvalHalcor to “capitalize on economies of scale, synergies and optimal utilization of productive and commercial potential”. Has the integration process been fully completed? How has your brass extruded business benefited from this change?

This is a process that has already started and is going ahead in steps. Although we have seen excellent results already, in both the organisational

but also operational sides of the business, we still have a long road ahead.

However, we definitely see the benefits every day, and what is most important we have a clear plan in order to maximise them and bring the brass extruded business up to par with tubes creating synergies and positive results. We have been investing since the merge in capacity, efficiency and quality and this factory is becoming gradually much more competitive and in accordance with our corporate standards.

Your brass extruded business is fairly small compared to your rivals in Italy and Germany. In contrast, your nominal alloy portfolio is one of the most extensive in Europe, with a variety of over thirty different alloys. What is your market strategy for this segment? Instead of chasing volumes, are you aiming to become a supplier of niche, high-value products?

I want to comment that even in the copper tubes business, we are not just chasing volumes, but we



Brass Rods at Copper & Alloy Extrusion division of ElvalHalcor (including the former Fitco) in Oinofyta, Greece - Photo by courtesy of ElvalHalcor



Brass wires at Copper & Alloy Extrusion division of ElvalHalcor (including the former Fitco) in Oinofyta, Greece - Photo by courtesy of ElvalHalcor

are mainly focusing and expanding on specific value-added products in order to generate sustainable profitability for the shareholders. In the brass extruded business, we follow an even more focused strategy to become the supplier of choice for niche products that are not within the range or the interest of everybody.

Lead-free alloys are one of the most promising markets for extruded brass products. Is the percentage of lead-free products in your total sales increasing? If so, are you increasing your supplies solely to manufacturers of taps, valves, and fittings for sanitary applications, or also to other market segments such as the automotive industry?

We've noticed some increase in the percentage of lead-free products in our sales.

We definitely expect the sanitary market demand to increase for these products in the future, but we do not expect the same for industrial applications, including the automotive industry.

In 2021, you invested in a wire tin-plating line for brass wires. Which markets are you targeting with this investment?

This investment is mainly for batteries, a market that we consider will be very exciting and in high demand, for many years. The need for reliable suppliers of high-quality products in this market is extremely important, and this is precisely our main aim. Like in the rest of our facilities within the Copper Segment, we tend to invest with a glance at the future.

In addition to the major plant in Oinofyta, ElvalHalcor operates two other facilities in Greece: Epirus Metalworks, which manufactures coin blanks and rings for bi-colour coins in Northern Greece, and Cablel Wires, which produces enamelled wires.

Let's start with Epirus Metalworks. In 2021, you installed a line to manufacture cartridge cases and small-calibre bullet cups. Have you completed the trial phase and started mass

production? With the sharp increase in demand for ammunition, are you planning more expenditures in this area?

Demand for ammunition in Europe is indeed expected to rise due to the political developments, however no further expenditures will occur in the next period from our side; we have completed the trial phase by offering the most comprehensive range of cases and cups. This includes numerous customer – or application – specific products up to special products with specific properties and shapes.

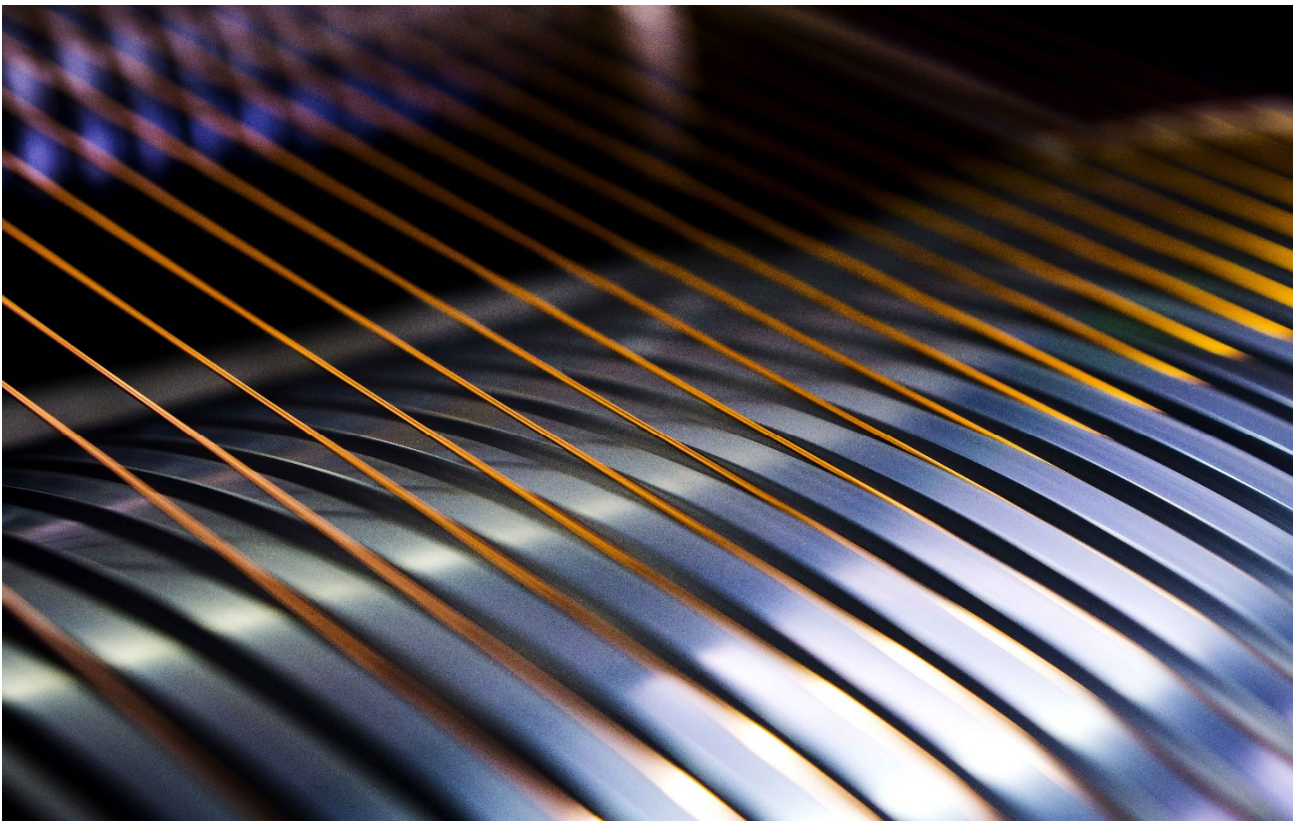
Cablel Wires is the sole supplier of enamel wires in Greece. In 2019, you acquired the business from your sister company Hellenic Cables. What prompted this decision?

The decision was aligned with our strategy to expand, as a Copper Segment, our production base, leveraging at the same time ElvalHalcor's well-established international commercial network and capitalize on the synergies created through the takeover to boost export activities. With more than

fifty years of experience and technical know-how, Cablel Wires produces enamelled wires that are used worldwide in the most demanding electromechanical applications. And on the other hand, this allowed Cenergy Holdings, the holding company, and in particular Hellenic Cables, to focus on its key activity, power and submarine cables.

A last question on your product line-up. In 2018, you acquired a 50% participation in NedZink, a Dutch supplier of titanium zinc rolled products for building applications. Three continuous casting lines were recently installed as part of a sizeable investment plan to increase production capacity. Are you already reaping the benefits of the expanded capacity? And how is NedZink currently performing?

The installation of the continuous casting lines not only increased capacity, but completely changed the production process of NedZink. This was not an easy task, given that due to initial delays in building permits and other unexpected issues, we had to install and start-up the lines in a bad period - during



Enamelled wires processing at Cablel Wires in Livadia, Greece - Photo by courtesy of ElvalHalcor

Covid. It took us longer than expected to fully get the lines operational and the personnel trained to run them continuously, but now that all production issues have been overcome, we are ready to ramp up production when demand conditions improve.

Research, Development & Innovation and Technology have always been a priority for ElvalHalcor, particularly in copper tubes. Considering the breadth of your offer, how do you prioritize which areas of innovation to invest in? What new technologies or innovations is ElvalHalcor currently exploring to improve its products or processes?

In the rapidly evolving landscape of the industry, especially considering the technological advancements and market trends of the HVAC&R, research, development, and innovation have become indispensable pillars for the success and growth of ElvalHalcor.

Factors that play significant role in prioritizing the research, development, and innovation actions include a customer-centric approach, market analysis, efficiency and cost reduction, and long-term sustainability. By identifying emerging technologies, regulatory changes and assessing customer demands, ElvalHalcor focuses its research and development resources to develop innovative solutions in areas that align with market needs.

Solutions, include products for energy-efficient HVAC&R applications, by exploiting in-house R&D facilities, such as our dedicated Tube Heat-Transfer Laboratory, to offer designs and technical-support services that ultimately reduce energy consumption and improve system performance of HVAC&R equipment to meet evolving energy efficiency regulations.

In addition, improving manufacturing processes, by upgrading and streamlining operations, optimizing energy usage, and implementing innovative manufacturing techniques and technologies, ElvalHalcor achieves increased efficiency and cost reduction, ultimately gaining a competitive advantage. Last but not least, ElvalHalcor demonstrates a commitment to environmental stewardship by reducing energy consumption during manufacturing, integrating recycled



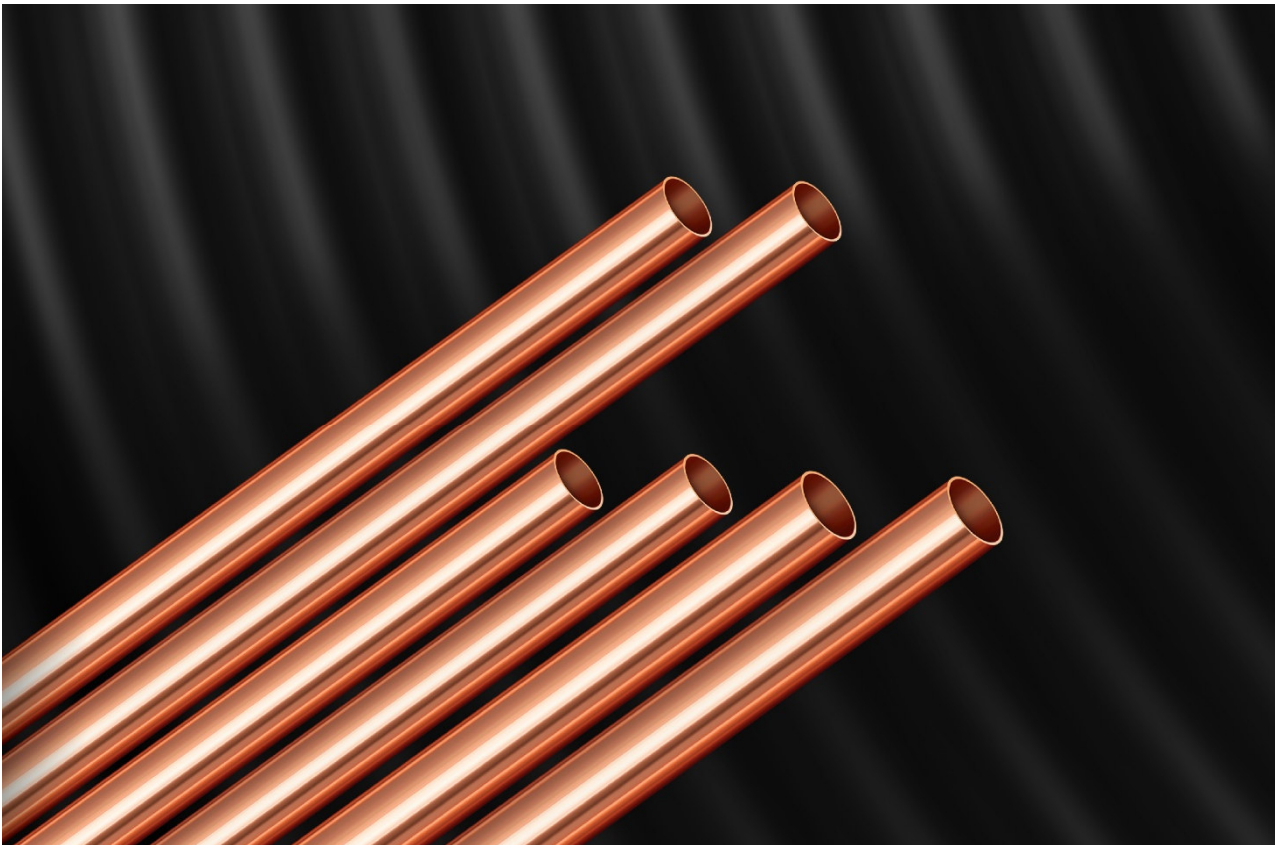
*Tube Heat-Transfer Laboratory in Oinofyta, Greece –
Photo by courtesy of ElvalHalcor*

materials into the production route, and reducing waste generation, with the aim to reduce the carbon footprint of operations and products and align with the growing market demand for sustainable products and practices.

Now, let's tackle sustainability, one of the hottest debated issues inside and outside the copper industry. What steps is ElvalHalcor taking to reduce its environmental impact and promote sustainable practices in its operations?

Aligned with the expectations of our shareholders, our companies are implementing our sustainability strategy that includes an action plan utilizing various KPIs for each section with respect to Environmental, Social and Governance performance.

We have identified the material issues and have focused on several short-, medium- and long-term actions in order to improve and manage the risks and opportunities associated with them. All



Halcor's TALOS® smooth cooper tubes - Photo by courtesy of ElvalHalcor

these actions are regularly reviewed, and the most important ones are linked with executives' variable compensation in order to emphasize the significance for the organization.

A sustainability team has been established and reviews progress on agreed action on a regular basis. Some key examples of such actions other than energy and water conservation improvements are personnel training in specific topics that relate to social and governance, the implementation of a whistleblowing mechanism for reporting of unethical behavior and supplier assessment on sustainability performance.

ElvalHalcor and Sofia Med have been assessed by Ecovadis, a sustainability performance rating company and they were awarded the silver medal for their performance in 2022. A firm action plan for implementation of energy efficiency measures and increase of scrap usage has been established and is followed up closely. In parallel, there is a running project with an external consultant, co-financed by EBRD, that will deepen our knowledge of the

possible gaps and the needed actions for the development of a Low-Carbon Pathway that align operations to the goals of the Paris Agreement on climate change.

Are you considering setting near-term and Net-Zero targets for reducing greenhouse gas emissions or adhering to the Science Based Targets initiative (SBTi), like Hellenic Cables did in 2022?

ElvalHalcor has several levers of decarbonizing its operation as well as its supply chain which is the main contributor to the products' carbon footprint.

Energy efficiency measures, electrifying equipment wherever possible to replace hydrocarbons as energy source, utilization of RES for electricity are some of the main approaches we are currently employing to decrease our operational emissions. Due to the significant contribution of the supply chain carbon footprint, the Cooper Segment is working towards securing lower carbon cathodes and increasing the share of scrap in the metals'

supply with trials agreed with key customer. We are currently assessing the requirements of the SBTi protocol, and we will decide whether we will commit in the near future. Sofia Med is also working in this direction, however, there is no decision yet to disclose relevant targets and time plan for this topic.

On a more personal note, you can boast over 20 years of expertise in the copper fabrication industry. You became General Manager of ElvalHalcor’s Copper Segment in 2020. Moving forward, what do you hope to achieve personally during your tenure, and how do you plan to go about accomplishing these objectives?

Our common duty is to secure that the Copper Segment is not just achieving growth but all actions taken are paving the way for the sustainable development of every single corporate entity within the Segment.

We need talented and motivated people within our organization, challenging internal structure and corporate procedures that achieve optimum results,

open, pleased and eager to co-operate with our customers, and finally the optimum investments in order to argue that the Copper Segment has a promising future.

That is the mission of our management team; to create value for our shareholders and our stakeholders - including our people who should be always proud of our organization. I am eagerly devoted towards this accomplishment, all above are embracing the same vision, so we all move together.

Finally, what do you see as the biggest opportunities and challenges facing ElvalHalcor over the next five years, and how do you plan to capitalize on the former and overcome the latter?

Technological developments are fast. Artificial Intelligence is moving forward within manufacturing and the need for automations as a response to safer and leaner industrial manufacturing is definitely a challenge we have to cope with. We should, however, keep on improving the competitive



Photo by courtesy of ElvalHalcor

advantages we have in order to combine the best possible approach in a dynamic landscape while being in a relatively traditional manufacturing world.

We need talented and devoted people, so we have to bring harmonically together the new with older generations in order to achieve it. Our people share this priority and the need to adjust our mentality accordingly, so I am very confident that we can compete effectively in a fast-changing world with traditional but reliable values.

ElvalHalcor\Development

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