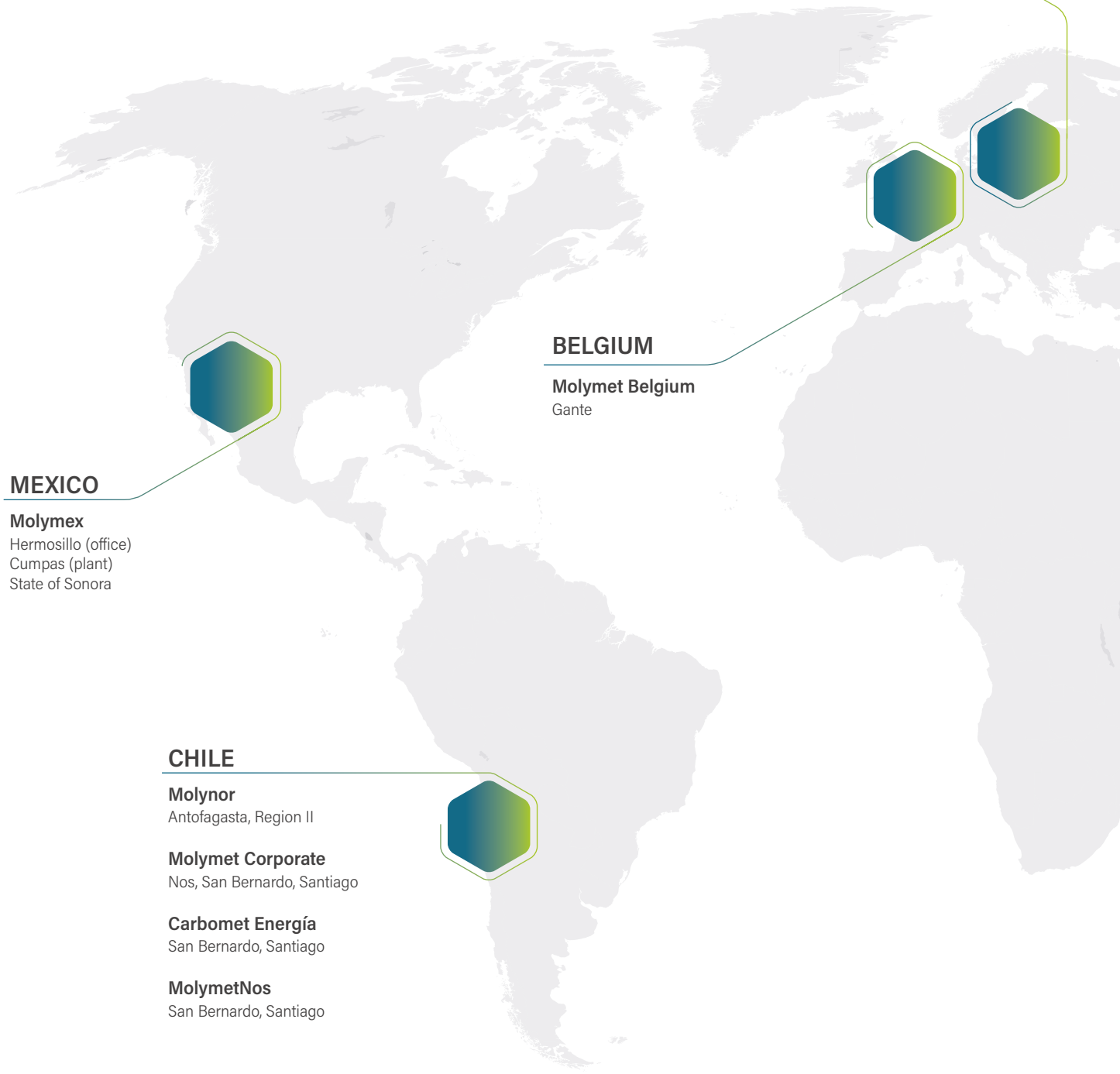
CHAPTER

04

Production Units

MOLYMET PRODUCTION UNITS AROUND THE WORLD

Molymet's strategically located plants meet over 35% of global demand for molybdenum products in a highly technical and competitive market.



GERMANY

Molymet Germany
Bitterfell, Sachsen-Anhalt

BELGIUM

Molymet Belgium
Gante

MEXICO

Molymex
Hermosillo (office)
Cumpas (plant)
State of Sonora

CHILE

Molynor
Antofagasta, Region II

Molymet Corporate
Nos, San Bernardo, Santiago

Carbomet Energía
San Bernardo, Santiago

MolymetNos
San Bernardo, Santiago

MolymetNos

During 2020, MolymetNos met all of its commercial goals and made progress on the implementation of LEAN methodology thanks to its employees. The latter milestone helped to significantly decrease the plant's production costs. It also upgraded its equipment in order to achieve operational efficiencies that guarantee an economically attractive business and made progress on circular economy and digital transformation.

"Sustainability has become a fundamental pillar of MolymetNos-s strategy and everything revolves around it. The corporate purpose helps to strengthen this belief."

Daniel Ureta V.
General Manger, MolymetNos

MolymetNos was founded in 1975 in Nos, which is located in the district of San Bernardo. It is currently the Molymet plant with the greatest production capacity and produces a large variety of finished products. It has an installed transformation capacity of 82 million pounds of molybdenum per year and a cutting-edge environmental management system that ensures care and respect for and protection of the environment.

MolymetNos laboratories are the birthplace of the main innovation and development projects that allow Molymet to lead the global molybdenum and rhenium industry.

Products

- Powdered molybdenum oxide
- Molybdenum oxide briquettes
- Ferro molybdenum
- Pure molybdenum oxide
- Ammonium dimolybdenite
- Rhenium products
- Sulfuric acid
- Copper cathodes and cements

Installed transformation capacity
82
million pounds of Mo

574
employees

Annual revenue from external customers
412.8
(MUS$)

Contribution to consolidated revenue
39%

MUS$59

will be invested
in modernization

The Impact of the Crisis

Due to the confinement measures decreed around the world as a result of the pandemic, a great number of industries that use molybdenum or rhenium as supplies were forced to scale back their operations. This mainly had an impact on European customers. The situation led to a drop in demand for the products manufactured by MolymetNos.

However, our work with Asian markets, especially China, increased significantly, offsetting the initial decrease in consumption in other markets.

Furthermore, during some parts of the crisis, the plant operated with limited staff due to factors such as the spread of COVID-19, so the rate of production temporarily dropped.

Key Measures

Since Molymet was deemed an essential business by the relevant authorities, MolymetNos maintained its operational continuity. The company engaged in preventative planning work that allowed it to speed up operations and ensure 100% compliance with sales commitments. Furthermore, shifts were modified and coordinated around efforts to minimize interactions as much as possible in order to protect the health and safety of the staff.

Telecommuting was implemented for administrative roles, and all facilities were sanitized. In addition, staggered meal schedules were established for the dining facilities and capacity was restricted.

Over the course of this year, mining suppliers expanded production, which resulted in an increase in shipments of concentrates to the plant and a rise in activity. We were thus required to increase sales efforts in order to place greater volumes. This circumstance was alleviated by the opening of the Asian market.

It was a difficult year for rhenium due to the decrease in demand in the aeronautical industry, which is the main consumer market.

Meanwhile, human resources staff conducted programs focused on labor growth and improving internal relations and defined a development and succession plan.

Gas Plant Modernization Project

Molymet is upgrading its production facilities in order to improve processes in a sustainable manner. This modernization will also contribute to extending the plant's useful life, reducing its So_2 emissions by 40% and strengthening its backup systems in order to ensure operational continuity.

The Environmental Impact Assessment System (EIAS) for this project was submitted in 2020 and we expect to receive a decision in mid-2021. Once approved, the project is expected to take 30 months to build.

Cinthia Rodríguez U.

"The company's support was very important. They gave us everything we needed to work remotely. For example, many people didn't have computers, and they were provided including the platforms. When my computer broke, they quickly brought me a new one with all of the platforms installed. In the end, I was able to get organized, get used to working remotely, and meet all of my goals without any issues."

Head of Production Supply Procurement
MOLYMETNOS

Claudio Ramírez T.

"We did whatever we could to isolate, but it was hard not to even be able to get together over a soda. In the end, we adjusted and my shift's group was outstanding in that regard. There were young people who took measures to protect themselves because they have siblings or parents to care for. So far, we have all stayed healthy."

Chemical Plant Operator
MOLYMETNOS

Molynor

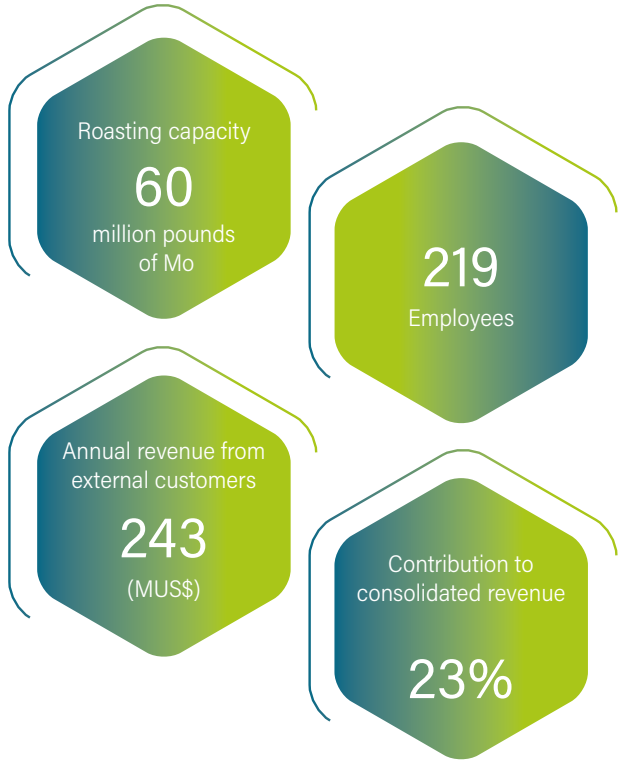
During 2020, Molynor sustained its sales and presence in the Asian market, which was the most active market and the first to be reactivated during the health crisis. Furthermore, thanks to its second production line, it was able to cover Molymex contracts from Chile when this unit had to cease production due to Mexican government policy. This was a temporary situation, but it was clear that the plant has the capacity to successfully respond to urgent circumstances. It also was shown to have an outstanding level of employee empowerment, as they were able to solve problems in a timely manner and at the appropriate level.

"The events of 2020 allowed us to see that the plants can be managed remotely without major setbacks. We also learned about best practices and the need for contact and communication to resolve day-to-day situations."

Braulio Cid D.
General Manger, Molynor

Molynor is located in the municipality of Mejillones, 65 kilometers from the city of Antofagasta, Chile. It began operating in 2008 and currently has two ovens with an annual roasting capacity of 60 million pounds of molybdenum.

The unit also has facilities to recover metals from Liquid Industrial Waste (LIW) and Solid Industrial Waste (SIW) in order to neutralize the former, among other processes. Its 20 Kw photovoltaic power station was opened in 2018 and provides energy to the administrative buildings, thus helping to care for the environment.



Products

- Powdered molybdenum oxide
- Rhenium concentrate
- Sulfuric acid
- Copper cement

The Impact of the Crisis

Molynor has contracts with mining companies in Chile's Norte Grande region and with Southern Perú and Grupo México, which were not significantly impacted by the pandemic and could sustain their operations. This allowed the subsidiary to maintain operational continuity.

From a health perspective, less than 5% of the staff contracted COVID-19, which is a satisfactory result that speaks to the existence of an established work culture that focuses on the health and safety of employees and their families.

Key Measures

The company provided psychological support to employees and their families and also gave them household goods and basic necessity items. Adjustments were made to shifts and administrative staff were allowed to work remotely. In order to decrease the risk of contracting the disease and allow for social distancing during employee transport between Mejillones and Antofagasta, an external company was hired to provide buses that carry 20 people at a time. Passengers are required to wear masks and use hand sanitizer and buses are regularly disinfected. In addition, any vehicles entering Molynor had to be used exclusively for Molynor personnel.

During this period, manufacturing-related initiatives were implemented in order to boost efficiency and productivity and decrease costs. In regard to digitization, the company focused on projects linked to logistics, maintenance and processing, among others.

In the area of efficiency, we focused on learning that translates into greater standardization with a view to achieve optimal results regardless of who is performing the work. To that end, efforts were made to maximize control, seeking to move towards being a more horizontal company with more agile decision-making and staff who are more responsible for the results of their work.

The company also focused on talent management and developing leadership tools to support core business.

Ariel Vargas S.

"We always say that Chileans come together in the face of tragedy, and that is precisely what happened at Molynor. Usually, when a company wants to implement measures, there is no discussion about it. But our General Manager established direct contact with the leaders of each area, the unions and the joint committees from the very start so that these decisions could be made together. This allowed us to face the future with confidence, because we already know which path we're going to follow."

SX Plant Operator
MOLYNOR

Luisa Boada N.

"It was initially hard to combine telecommuting with family life, but Molynor was always willing to support our families. Our medical insurance was expanded and we were given online access to attorneys and psychologists. They have taken steps to look at how we feel personally so that we can perform professionally. One day I asked if we could review the priorities and tasks, because I noted a higher workload than there had been at the plant. The company had no problem with that."

Senior Environmental Engineer
MOLYNOR

Carbomet Energía

Carbomet Energía provides clean energy through the production of hydraulic electricity while optimizing the use of water.

"From an operations perspective, we faced challenges of all kinds during 2020, including drought, lower production, decreases in average prices, and tighter profit margins. However, we demonstrated a capacity to adapt to that reality while maintaining relatively fixed costs and adjusting processes."

Carlos Pinto F.
General Manager, Carbomet Energía

Carbomet Energía is located in the municipality of Puente Alto in the Metropolitan Region. It generates electricity in two power plants with nominal power of 5.6 Mw and 5.1 Mw, respectively. In order to transmit the energy, the company connects to the National Electricity System (SEN) through the EEPA and CGE distribution networks, respectively, using the Small Means of Distributed Generation (PMGD) mode.

Both the power plants and the rest of its facilities are located on land owned by the company and third-parties that were adjudicated by concession (DS4350 dated July 1944) with their corresponding easements. It also has water rights for 24 m^3/s for non-consumption. As such, the company returns the water to the source after it is used in the turbine.

Two major factors impacted Carbomet Energía's work in 2020: a 30% drop in prices due to the combined effect of the coronavirus pandemic and the social movement that began in October 2019 and decreased supply capacity due to the drought that has affected central Chile for over a decade, thus helping to care for the environment.

Total installed capacity
10.7
Mw

32
employees

Energy generated during the year
41,303
MWh

The Impact of the Crisis

The COVID-19 pandemic did not impact operations because Carbomet Energía engages in an economic activity that was recognized as an essential service. As such, it had the legal support and permits required to continue to operate normally.

In addition, the company was already automated to a great extent, which allowed it to quickly adapt to a context that required adopting essential measures such as telecommuting.

Key Measures

The company determined that administrative work would be done from home, and the same measure was implemented for five months for central office operations.

Furthermore, Molymet corporate protocols regarding the health and safety of staff members and their families were followed.

Water Efficiency

As has been the case in the past, the impact of the drought dominated electricity market trends in 2020. The company responded to this context by optimizing its use of water. It has made an effort to increase efficiency levels in order to reduce loss through targeted steps meant to ensure that the canals that carry the flow to the plants achieve 100% of their transport capacity. This allowed the company to increase generation by between 3% and 4%.

As a member of the Maipo River Monitoring Board, Carbomet Energía also participated in an effort to prioritize the normal supply of potable water to the Greater Santiago Area. With this goal in mind, it and other basin users ceded some of their rights in September 2020 so that Aguas Andinas could increase the accumulated volume in the El Yeso reservoir, the main water reserve for the Metropolitan Region.

Carbomet Energía continues to support water use education and communications campaigns and participates in infrastructure maintenance efforts meant to minimize losses of the resource and maximize the use of available water. It is important to note that 100% of the resource used by the company is returned to the Maipo River basin.

Rodrigo Rivas A.

"I work in the plant, and the health protocols did not have a significant impact on my work. I just had to get used to them. At this point, the team has adjusted to the health measures. Even when we're all in the plant, we prefer to hold meetings online."

Head of Asset Management
CARBOMET ENERGÍA

Gloria Cabezas G.

"The main lessons have been self-care, adapting to digitization and valuing human relationships more. We weren't able to touch each other, greet each other with kisses as we would normally do or embrace. Those are major changes to go through as a human being. But it is part of the adaption process, and today we are more communicative when we greet each other. The empathy around work-life balance has also increased. Company leadership values soft skills and understands that we are all in the same boat. That decreases the anxiety a little."

Head of Management Control
CARBOMET ENERGÍA

Inmobiliaria San Bernardo

The walnut has been identified as a super food, and its cultivation by Inmobiliaria San Bernardo represents a contribution to efforts to meet humanity's nutritional needs.

"In 2020, we continued to contribute to sustainability through a non-invasive, organic activity that helps to capture Co_2." Our walnut trees are organically grown and produce nuts that are exported with added value."

Carlos Pinto F.
General Manager, Inmobiliaria San Bernardo

Inmobiliaria San Bernardo manages the 133 hectares that surround the MolymetNos plant. The property is home to 123 hectares of walnut trees. They produce organic nuts that the company exports directly in 10-kilogram sacs under the Geonuts brand.

Chile is one of the main exporters of this nut, and Inmobiliaria San Bernardo has been the country's largest organic walnut exporter since 2015.

The drought that has affected central Chile for several years had an impact on the 2020 walnut production. This in turn impacted prices and profit margins. In order to improve water management on the property (where 9,000 to 10,000 m^3 are consumed every day), the company built a decanter tank with an effective capacity of 18,000 m^3 to regulate and optimize the amount of water available each day.

Annual production
247
tons

29
employees

The Impact of the Crisis

The global crisis caused by COVID-19 had a correlative impact on Inmobiliaria San Bernardo's customers in its export markets, which are mainly located in Europe and the United States and to a lesser extent in Japan and Brazil. Consumption fell in those markets, causing a drop in demand and prices. However, organic walnuts were impacted less than conventional nuts because the product has added value.

In operational terms, the company had to halt production for 15 days at the peak of the pandemic due to an outbreak of the disease among its workers. However, the health protocols adopted allowed it to address the situation and continue to operate without any further issues.

On the other hand, the company's activity was classified as part of the food network by officials, which meant that it had regulatory and legal authority for workers to complete their harvest work without any obstacles.

Furthermore, support was provided to neighboring communities with fogging and fumigation covering 30,000 m2 of the areas alongside the property using company extractors. This activity was organized by Molymet in coordination with the Municipality of San Bernardo and the Maipo Provincial Government.

Gabriel Martínez C.

"Suppliers not considered essential businesses faced delays in manufacturing products and supplies of certain replacement parts. Even though there is still uncertainty, I feel lucky to have continued to work with a certain level of normalcy thanks to the essential nature of our activities."

Walnut Export Industrial Plant Manager
INMOBILIARIA SAN BERNARDO

Cecilia Jurado B.

"The hardest thing was adapting to a new routine. I work from 8 a.m. to 5:30 p.m., and my routine at home was organized around that schedule, though I alternated the time spent on work obligations with activities related to my daughter. It was tough to disconnect from work to take care of domestic matters and those related to motherhood and childrearing."

Management Control and Budget Analyst
INMOBILIARIA SAN BERNARDO

Molymex

Despite the impact of the pandemic and the prolonged suspension of its operations, Molymet's Mexico subsidiary met its goals and schedules.

"Molymex contributes to each dimension of the corporate purpose: Our products and employees focus on protecting the environment thanks to a zero-plastics strategy and reduction in water consumption, among other initiatives."

Alfredo Ortega T.
General Director, Molymex

Molymex S.A. de C.V. is located in the state of Sonora, Mexico, and is the only company of its kind in that country. It has an annual processing capacity of 28 million pounds and a presence in the Americas.

The company stands out because of its commitment to caring for the environment, a key aspect of its work that has won it several awards, including the Clean Industry Mexico certification, Integrated Management System designation (including quality, environmental and occupational health and safety management) and the Environmental Excellence Award. The latter is the highest accolade given by the Mexican government to companies that go beyond legal compliance through the Federal Environmental Protection Agency (Profepa).

In 2020, Molymex had to suspend production for 38 days due to a decree issued by Mexican officials related to coronavirus prevention measures. Despite this, the company recovered a good part of its production and delivered on its commitments to customers, with actual results surpassing projections.

Installed capacity
28
million pounds of Mo

139
employees

Annual revenue from external customers
182.6
(MUS$)

Products

- Powdered molybdenum oxide
- Rhenium concentrate
- Molybdenum oxide briquettes
- Sulfuric acid
- Concentrate cleaning

The Impact of the Crisis

At the beginning of the health crisis, both the Mexican federal government and Sonora state officials decreed that mining was not an essential activity. As such, the entity had to halt operations for 38 days.

The company tried to reverse the decision, arguing that its position as a steel industry supplier qualified it as essential as that sector had been declared essential. Those efforts were unsuccessful. However, once mining was finally added to that category, the company was able to ensure operational continuity regardless of the changes made due to the pandemic.

Key Measures

Though it was unexpected, the company was able to overcome the crisis. This was due in part to the technological advances implemented previously, which readied the company for administrative staff to work from home.

In an effort to deliver on its promises, while its activities were suspended, Molymet took advantage of its position as part of a multinational consortium and sent raw materials to be treated and sold from Molymet plants in Chile. It also secured authorization from officials to send the finished products to their destinations. As such, customers were not impacted by the shutdown of operations.

Certification

Molymex was certified under the international standard ISO45001 in 2020, which recognizes occupational health and safety management systems.

Recognition

For the second straight year, Molymex was certified by Great Place to Work Mexico as a great place to work, reaching a confidence rating of 90% during the pandemic. This comes as recognition for its efforts to build policies that help build confidence among employees.

Molymex Business University offers training on molybdenum processing procedures through virtual classes. Most of the teachers are company employees.

Renato Buelna A.

"I have thought a lot about what the future will be like. There are news reports that say that life will be somewhat normal again by 2025 or 2026. It is a tough situation because we have people who work on processes, and it is not easy to make them and their families understand how important it is to take protective measures, but we are working on it."

Roasting Oven Supervisor
MOLYMEX

Annia Cordero I.

"When the pandemic began, the company immediately took action. They sent us to work from home the next day. We were all allowed to telecommute. I was grateful because I felt that staying in the office could jeopardize my mother's health, as she is at high risk because of her age. Working from home functions well, though I miss being in the office and interacting with my coworkers."

Head of Accounting Reports
MOLYMEX

Molymet Germany

Molymet Germany products are frequently used in high-end telecommunications and medical equipment, helping people to connect and stay healthy.

"Molymet Germany's continuous and reliable supply of raw materials during the pandemic was crucial to moving past it. Thanks to them, we are in a position to continue to reliably deliver our products to customers."

Henning Uhlenhut
Plant Manager, Molymet Germany

Acquired by Molymet in 2001 and located in Bitterfeld, Germany, Molymet Germany GmbH is an important producer of pure metallic molybdenum powder. Its plant has an annual capacity of 1,800 tons as well as laboratories and other support facilities.

It began to build a new metallic molybdenum production line in 2018 that includes increasing capacity for developing products with greater added value.

Despite the impact of the pandemic, the lessons learned throughout 2020 will allow the Molymet Germany business model to remain the same once the emergency is over. It expects for demand to return to pre-pandemic levels once the economy has recovered. Furthermore, there is no reason to anticipate that the need for pure molybdenum will decrease due to changes related to the coronavirus.

Installed capacity
3
million
pounds of Mo

59
employees

Annual revenue from external customers
28
(MUS$)

Products

- Molybdenum dioxide
- Metallic molybdenum powder
- High-density molybdenum powder
- Molybdenum briquettes

The Impact of the Crisis

The pandemic led to a reduction in demand, mainly in the aerospace and electronics markets. As a result, production volumes dropped significantly and the need for labor decreased. There was also a drop in profit margins.

Key Measures

The company had to adapt equipment use to optimize it for reduced production. Leadership also considered guidance received from the German government and professional associations regarding new workplace hygiene regulations.

At the same time, available government programs were applied to retain qualified employees and reduce costs. These were in turn used to compensate employees for hours not worked. Close contact was maintained with customers to evaluate the impact of their situation on Molymet's business.

Video calls were used to facilitate telecommuting, and it is likely that this mechanism will be used much more frequently in the future, which will reduce travel costs. Staff can now cover all necessary administrative tasks from their home offices, which suggest that they will be able to respond to similar situations in the future.

Energy Management

The supply chain was prepared based on customer feedback and experience acquired so that the company could be ready for recovery once the crisis ends.
Investment in modern and energy efficient equipment has continued as part of a plan to reduce energy consumption through a process audited in accordance with ISO 50001.

Patrick Velten

"I think that the only thing we can do now is try to stay calm. It isn't clear what will happen in the near future, and it is pretty hard to try to decide when we will return to something similar to normalcy. For now, I try not to worry too much."

Head of Dispatch
MOLYMET GERMANY

Sandra Reich

"I think the hardest thing is the lack of interaction. We all miss our friends, relatives, colleagues and other social contacts. But I am hopeful that we can return to work as usual and restore face-to-face communication as well as team and company events...I hope to have fun again. I am sure I will appreciate these things much more when the crisis finally ends."

Head of Direct Sales
MOLYMET GERMANY

Molymet Belgium

One of the most important projects developed by the Belgian subsidiary is directly related to the corporate purpose because it will contribute to the elimination of sulfur compounds in fuels.

"We firmly believe that we will only be able to be successful in the long term if our activities include contributions to employees, customers, suppliers, neighbors and officials such that a sustainable balance is generated with the wellbeing of individuals and the environment."

Godfried Van Schuylenbergh,
Vice President of Europe Operations

Molymet Belgium, formerly Sadaci, is located in the port of Gante, Belgium. It has a roasting plant with an annual capacity of 35 million pounds of molybdenum, with briquette and ferro molybdenum plants. The company also has sampling facilities and a chemical analysis lab.

Thanks to its strategic location in central Europe, the company quickly reacts to changing market trends involving both products and production volumes. It also operates with high environmental standards.

The three pillars of Molymet Belgium's strategy are sustainability, growth and operational excellence. The actions taken to meet these goals in 2020 include:

- Procuring a permit to build a wind energy generation turbine on plant property, which will sustainably meet 30 to 60% of the company's electricity needs.
- Developing a proactive plant maintenance policy.

Installed capacity
35
million
pounds of Mo

162
employees

Annual revenue from external customers
160
(MUS$)

Contribution to consolidated revenue
15%

- Building a high-performance plant to eliminate Mo from PurOx project wastewater featuring an integrated energy design process based on the best available technology.
- Executing a plan to make work in the company more flexible.

Products

- Technical molybdenum oxide
- Molybdenum oxide briquettes
- Ferro molybdenum
- Rhenium concentrate
- Sulfuric acid

The Impact of the Crisis

The COVID-19 crisis had a limited impact on Molymet Belgium. It continued to receive raw materials and was able to meet all of its obligations as expected, proving itself as a reliable partner in the midst of the crisis. In April, customers requested changes in the deliveries of final products, and planning was modified accordingly. Only one customer has asked to cancel part of its orders.

Key Measures

The main goal was to provide safe working conditions, protect employees' health and prevent the spread of the disease in workplaces. Since the crisis began on March 15th, over 60 health and safety measures have been taken including working from home for administrative staff, which was facilitated through the distribution of computers, software and security programs to reduce the risk of digital viruses. It was also important to ensure that the crisis would not have a financial impact by guaranteeing operational continuity. This goal was fully met.

PurOx Project

During 2020, Molymet Belgium postponed the launch of one of its most important projects—the opening of a factory where it will produce molybdenum oxide and ammonium dimolybdate. This was due to the pandemic, among other reasons. Both products have high-tech chemical and electronic applications for manufacturing products such as petrochemical industry catalysts, base plaques for chips, adhesive layers for smart phone screens and super alloys for plane motors and wind turbines.

The PurOx process was developed by Molymet Belgium. It includes a completely new initial step for the purification of raw materials and a continuous crystallization process.

Bram Cornelis

"In the future, we will limit meeting attendance to the number of people strictly necessary. More limited invitations are extended now, and that is more effective. If we have to include a large number of people, we will split them up into several rooms or allow them to follow the conversation from home and connect online."

Assets and Safety Engineer
MOLYMET BELGIUM

Stefanie Steyaert

"We didn't have a telecommuting culture, and we had to create one from one day to the next. It was a shock. After a while, three colleagues and I had the idea of creating a rotating system so that one of us could go to the office to make progress on new work and support other people every three days. That experience gave us a lesson in humility. We have been fortunate because so many people have become unemployed or closed their business."

Accounting Analyst
MOLYMET BELGIUM